CORRECTIVE ACTION PLAN

Off-Site (Upper Zone)
Exxon Mobil Corporation Baltimore Terminal

MAY 5, 2008

Prepared for:

ExxonMobil Environmental Services
1545 Route 22 East
Room CCM 09D
Annandale, NJ 08801

Prepared by:

GeoTrans, Inc.
844 West Street, Suite 100
Annapolis, Maryland 21401
Tel: 410-990-4607
Fax: 410-990-4749

TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 SITE CONCEPTUAL MODEL 1

3.0 PREVIOUS ENVIRONMENTAL ACTIVITY SUMMARY 2

4.0 CURRENT CONDITIONS 4

5.0 ENVIRONMENTAL RISK ANALYSIS 5

5.1 LNAPL MOBILITY AND RECOVERABILITY 5
5.2 OTHER RISK FACTORS 7

6.0 REMEDIAL GOAL IDENTIFICATION, EVALUATION AND PROPOSED REMEDIAL APPROACH 8

6.1 REMEDIAL APPROACH METHODOLOGY 10
6.2 SCHEDULE AND REPORTING 11

FIGURES

Figure 1: Baltimore City Site Map with Maximum LNAPL Thickness (12/2005 through 12/2007)
Figure 2: Canton Railroad Site Map with Maximum LNAPL Thickness (12/2005 through 12/2007)
Figure 3: Canton Trade Center Site Map with Maximum LNAPL Thickness (12/2005 through 12/2007)
Figure 4: LNAPL Recoverability Summary Charts (a/b/c)
Figure 5: Proposed Delineation Activities (a/b)

TABLES

Table 1: LNAPL Mobility Results
Table 2: Off-Site Well Data Summary and Proposed Recommendations

ATTACHMENTS

Attachment I: Historic Well Logs
Attachment II: Historical Gauging Data
Attachment III: LNAPL Mobility Calculations and Laboratory Results
Attachment IV: Portable LNAPL Recovery System (“Spill Buddy”)
Attachment V: LNAPL Characterization Analytical Methods and Field Procedures

1.0 INTRODUCTION

On behalf of Exxon Mobil Corporation, and in accordance with the November 8, 2007 Consent Decree between ExxonMobil and the Maryland Department of the Environment (MDE), GeoTrans, Inc. presents this Correction Action Plan for the Off-Site (Upper Zone) at the former ExxonMobil Baltimore Terminal. The remedial goal is to remove Light Non-Aqueous Phase Liquid (LNAPL) to the maximum extent practicable. Site maps depicting the applicable Off-Site properties which Upper Zone wells exist are presented as **Figures 1, 2, and 3**. These properties include Baltimore City, Canton Railroad, and Canton Trade Center (Baltimore Quality Assurance) as documented in the Consent Decree Off-Site Ownership Report.

This Corrective Action Plan:

- Documents the results of the Site Conceptual Model including site stratigraphic and hydrogeologic conditions and defines the nature and extent of LNAPL;
- Evaluates the risk posed to human heath and the environment (Oil Control Program – Maryland Environmental Assessment Technology 2/2003));
- Identifies and evaluates remedial goals and alternatives to mitigate unacceptable risks including the use of engineering controls; and
- Proposes a preferred remedial alternative.

2.0 SITE CONCEPTUAL MODEL

The planned Corrective Action activities will be consistent with and help to evaluate the Site Conceptual Model (SCM) that has been developed by ExxonMobil. The Site Conceptual Model is site-specific and provides the basis for investigation and remediation activities.

The SCM describes the stratigraphy, lithology, groundwater flow characteristics and contaminant transport properties for stratigraphic units beneath the site. The Off-Site properties are located in the Atlantic Coastal Plain physiographic province. The site has been mapped (Reinhardt and Crowley, 1979) as being underlain by Lower Cretaceous age sediments. Historical investigation activities on the Off-Site properties and the surrounding areas indicate that there are two water bearing formations at the site, the Upper Zone and the Lower Zone. These two water bearing zones are separated by a low conductivity (1E-09 centimeters per second [cm/sec]) silt and clay layer identified as the Arundel Clay. The top surface of the Arundel Clay layer is the lower confining unit for the Upper Zone.

Upper Zone sediments consist of a heterogeneous mixture of discontinuous lenses of fill, silty sand, silt, and clay to depths ranging from 20 to 30 feet BGS where the top of the Arundel formation is encountered. Groundwater within the Off-Site Upper Zone is unconfined (water table conditions) and is observed at depths ranging from 6 to 24 feet BGS. Due to the complex and discontinuous lithology, groundwater is not

consistently found in one lithologic unit and "perched" water lenses have been documented within the Upper Zone sediments during previous environmental investigations.

The groundwater gradient direction is towards the south-southwest west of the main line of railroad tracks which intersect Boston Street. East of the tracks the gradient direction is varied due to the presence of the Janney Run Box Culvert which forms a topographic low and a hydraulic discharge area. The groundwater gradient west of the tracks and outside of the Janney Run area is approximately 0.005 feet (vertical) per foot (horizontal) (ft/ft). Gradient east of the tracks averages 0.01 ft/ft.

Historic groundwater potentiometric maps indicate numerous groundwater elevation mounds and depressions, indicative of the heterogeneous, discontinuous, and variable hydraulic interconnected nature of the sediments of the Upper Zone. The hydraulic conductivity of the sediments ranges from 1E-03 (typical of sandy sediments) to 1E-06 cm/sec (typical of silt and clayey sediments). Historic aquifer testing of select wells across the site confirm highly variable hydrogeologic conditions as well as varied hydraulic conditions adjacent to individual wells indicating sediments are poorly connected.

Light non-aqueous liquids are found in isolated pockets within sediments of the Upper Zone. While LNAPL is found at the air-water interface (capillary fringe), the majority is below the current day water table. The submerged occurrences are indicative of: (1) historic releases that, due to their magnitude, are capable of displacing groundwater and driving oil deeper into the saturated zone soils, (2) water table fluctuations (normal seasonal variation or when the water table was depressed due to historic pumping or drought conditions), and (3) the heterogeneous nature of the soils. Many times the LNAPL is observed in small intervals (6 inches to 12 inches) of sandy type sediments that are underlain by silt and clay stringers/lenses. Product gravities indicate varying source materials and degrees of weathering, resulting in API gravities similar to diesel and fuel oil distillates. Like groundwater recovery rates, LNAPL recovery rates are very low at the site, although numerous recovery methods have been employed including LNAPL skimming, water table depression with LNAPL skimming, high vacuum extraction, and total fluids. These recovery rates are also indicative of the heterogeneous nature of the soils. It has also been determined through both academic and site-specific testing and system operation that LNAPL thicknesses measured in monitoring wells are a poor indicator of recoverability.

3.0 PREVIOUS ENVIRONMENTAL ACTIVITY SUMMARY

Over the past 10 to 15 years, multiple investigations have been completed to delineate LNAPL on the Off-Site properties. Monitoring wells have been installed on properties owned by Baltimore City, Canton Railroad, and the Canton Trade Center (Baltimore Quality Assurance).

Baltimore City – (**Figure 1**)

Six wells (2901-110D, 2902-110A, 2903-110C, 2904-72N, 2905-72M, 2906 -83D) were installed on the portion of Baltimore City property which parallels Boston Street north of the Main Terminal Area in 1994 as part of the Main Terminal Area assessment activities. Historic gauging results for these wells indicate measurable LNAPL thickness in wells 2903 (up to 0.51 ft), 2904 (up to 3.81 ft), and 2906 (up to 0.69 ft). Well 2906 (historical well 83D located at the far western end of the portion of the property which parallels Boston Street (not on Figure 1)) was abandoned in 1996 due to construction activities (note: there was no LNAPL in well on 5/14/1996).

Three wells (2907, 2908, and 2909) were installed on Baltimore City property (Danville Ave) east of the Main Terminal Area in 1994. Historic gauging results for these wells indicate measurable LNAPL thicknesses in wells 2907 (up to 0.88 ft) and 2909 (up to 0.73 ft).

Two wells (GP-6 and GP-7) were installed on Baltimore City property (Boston Street just south of the Canton Trade Center) during assessment activities in 2003. Historic gauging results indicate minimal LNAPL (0.02 ft) during one gauging event (3/15/2004) in well GP-6 with no LNAPL detected for all other dates in both wells.

Fourteen additional temporary wells (9, 9A, 15B, 16A, 16C, 18C, 18B, 19, 29, 30, 32, 33, and 34) have been installed on Baltimore City property during the delineation for the Janney Run project. These wells are not included in this Off-Site CAP as they are being utilized for the Janney Run portion of the Consent Decree remedial activities.

Canton Railroad – (**Figure 2**)

In 1993/94, as part of 14th Street UZ assessment activities, 9 wells were installed to delineate LNAPL on the property. These included wells 3500, 3501, 3502, 3503, 3504, 3505, 3506, 3507, and 3508. Wells 3500, 3501, 3502, and 3505 are not included in this Off-Site CAP as they are being utilized for the Janney Run portion of the Consent Decree remedial activities. Wells 3503, 3504, 3506, 3507, and 3508 are included in this CAP and of these wells, only one contained product saturated soils (3508). Historic gauging results from this well indicate sporadic LNAPL observed with a maximum of 3.7 ft in 1997.

In 1995, as part of a 14th street Tank Field pipe grouting/removal project the subsurface pipelines within the 23-ft ExxonMobil pipeline easement were removed within the Canton Railroad property boundary and grouted in areas of existing railroad tracks (CSX and west under the main line of tracks up to Haven Street).

In 2001, an investigation was conducted of the former Bardon Pit located on the southwestern portion of the Canton Railroad property due to the observance of LNAPL during pit dewatering activities. The investigation included the installation of 6 Geoprobe borings (P-1 through P-6) around the pit perimeter in accordance with an approved work plan. Results of the investigation indicated product saturated soils in one boring location (P-3) and three wells were recommended to be installed (3507-replacement), 3509, and 3510.

Additional borings/temporary wells were installed on this property during investigation activities in 2001 and 2002. In 2001 wells 10A, 10D, 11, 11A, 11C, and 11D, and borings 10B, 10C, 10E, 10F and 11B were installed. In 2002, wells 36, 38, 39, 40, 41, 42, 46, 52, 53, 57, 58A, 60 and MDE3 and borings 37, 47, 48, 49, 54, 55, 56, 58, 59, 61, 62, 63, and MDE2 were installed.

Of these wells, 11B, 11C, 11D, 36, 38, 39, 40, 41, 52, 57, 60, MDE 3, and borings 37, 10C, 54, 56, 59, 62, and MDE2 are west of the Janney Run investigation area and are included in this CAP. Historic gauging results for these wells indicate measurable LNAPL thicknesses in wells 36 (up to 0.02 ft), 38 (up to 15.91 ft), 39 (up to 2.2 ft), 40 (up to 1.75 ft), 41 (up to 1.71 ft), 52 (up to 3.09 ft), 60 (up to 0.04), and MDE-3 (up to 0.01 ft).

Canton Trade Center – (**Figure 3**)

Five temporary wells (GP-1, GP-2, GP-3, GP-4, and GP-5) were installed in 2003 within the Canton Trade Center property. These wells were installed to delineate LNAPL saturated Upper Zone soils in the vicinity of Lower Zone boring #15. Historic gauging results for these wells indicate measurable LNAPL thicknesses in wells GP-2 (up to 6.30 ft – however this one reading is suspect – see gauging data), and GP-4 (up to 5.89 ft). Wells GP-1, GP-3, and GP-5 (one date of 0.01 ft) have no detectable LNAPL.

In addition, during the installation of Lower Zone well 3901 (located in the northern portion of the parking lot of the Canton Trade Center), LNAPL saturated soils were observed between 10 and 20 feet BGS.

EFR Events

Beginning in 2003 and ending in 2005, select wells with LNAPL were remediated (GeoTrans) using high-vacuum extraction (via vacuum truck). Off-Site wells remediated included 38, 39, 40, 41, 52 and 3508 (events began in 2001) on the Canton Railroad property. Approximately 5,000 gallons (total fluids – LNAPL and water) was extracted. EFR events have been replaced with utilization of the “spill buddy” portable LNAPL recovery device.

Historical Gauging and Bailing

All wells with LNAPL have been historically gauged and bailed since site characterization activities began in 1994.

4.0 CURRENT CONDITIONS

For those Upper Zone wells associated with this CAP, currently 10 are located on Baltimore City property, 17 on Canton Railroad property, and 5 on Canton Trade Center property. Available well installation logs are presented in **Attachment I**. Gauging data for wells is presented in **Attachment II**. Review of the maximum LNAPL thickness over the last two years of gauging data indicates the following:

Baltimore City – (Figure 1)

- One well 2904 (located south of the former Toone Street Tank Field and north of Boston Street) has LNAPL >1 ft.

Canton Railroad – (Figure 2)

- Two wells (38 and 41) located in the former ExxonMobil pipeline easement contain LNAPL >1 ft.

Canton Trade Center – (Figure 3)

- One well GP-4 located east of the Baltimore Quality Assurance main entrance has LNAPL >1 ft. Specific gravity testing conducted in April 2008 indicated the LNAPL has a gravity of 0.84 (gm/cc) which typically correlates to a "diesel" type product.

5.0 ENVIRONMENTAL RISK ANALYSIS

In accordance with the consent decree requirements this section evaluates the risk posed to human heath and the environment using the MDE Maryland Environmental Assessment Technology (MEAT) guidance. Risk factors addressed in the guidance include, liquid-phase hydrocarbons, current and future use of impacted groundwater, migration of contamination, human exposure, environmental ecological exposure, impact to utilities and other buried services and other sensitive receptors. The guidance stipulates that each corrective action plan must be tailored to the individual site and take into consideration the above referenced factors, and the sites geology and hydrology.

5.1 LNAPL Mobility and Recoverability

Over the past 10 years, technical guidance on the recoverability and mobility of LNAPL has increased significantly and is now available from the United States Environmental Protection Agency (USEPA), the American Petroleum Institute (API), the Air Force Center for Environmental Excellence (AFCEE), and various environmental consulting experts and companies.

The guidance explains that remediation of LNAPL is the most important phase addressed due to regulatory requirements of protection of human health and the environment and that LNAPL can be broadly divided into two categories: (1) mobile and (2) residual. The guidance documents the following technical facts regarding LNAPL mobility and recoverability:

- Free product or LNAPL may exist as continuous, free-phase liquids and/or as residual liquids trapped by capillary forces above and below the water table;
- LNAPL thickness in a well is a poor predictor of volume, mobility, and recoverability;

- The most important factors influencing free product recovery are soil heterogeneity and anisotropy, product viscosity, soil intrinsic permeability, the level of saturation or % of LNAPL in the soil pores, and the depth to water table; and,
- Under best efforts, a significant portion of LNAPL typically remains trapped and difficult to recover.

Basic tools to help determine the potential for LNAPL mobility and recovery were developed as part of the API's "Interactive LNAPL Guide" (August 2004). These tools include (1) numeric models to calculate LNAPL mobility and plume velocity based on site specific data inputs and (2) LNAPL recoverability "screening charts".

The mobility tool calculates the vertically averaged pore scale or local area inherent LNAPL mobility and seepage velocity. The term "inherent mobility" refers to the ability or potential for LNAPL to move in the soil pores. This potential alone however is not enough to cause LNAPL to move; a gradient is also required. When both inherent mobility and gradient are moderate to high, LNAPL in the center of the plume can redistribute towards the outer edges. If sufficient oil is present (either from a recent or ongoing release) and it is mobile enough to redistribute, sufficient pressure can build up to force entry of the oil into new pores and cause the plume to expand or migrate. However, once the source of the LNAPL is stopped, first the edges of the LNAPL plume will stop advancing and become stable. After that, the oil within the plume will stop flattening out or redistributing to the edges. The "inherent mobility" is calculated using relative permeability, soil, and other fluid factors, then using the hydraulic gradient, the potential LNAPL average velocity is estimated using Darcy's Law.

The LNAPL recovery "screening charts" are based on numerical modeling, which evaluates recoverability for different product types under various aquifer soil conditions. The tool is used to differentiate the general conditions where "LNAPL may not be recoverable" from those where "LNAPL may be recoverable." Recovery was considered to be primarily by total fluid recovery from a single operating extraction well and secondarily by vacuum-enhanced recovery. Product recoverability was defined with respect to percent oil recovered relative to the total initial oil volume. Specifically, oil recovery was conservatively considered "not likely to be recoverable" as a liquid when less than 10 percent of the total initial amount of product within the radius of influence of the extraction well was recovered.

Both of these tools (API model to calculate LNAPL mobility and plume velocity, and LNAPL recoverability screening charts) were utilized to meet the Consent Decree requirements for the Off-Site Upper Zone properties with existing monitoring wells. A summary of the data inputs include:

- Wells utilized in the LNAPL mobility analysis (LNAPL > 1 foot) included: 2904 (3.81 ft LNAPL), 38 (15.91 ft LNAPL), 41 (1.26 ft LNAPL), 52 (0.89 ft), GP-4 (4.38 ft LNAPL). LNAPL thickness represents the maximum observed over the past 24 months.
- Well-specific historical LNAPL characterization data (specific gravity and viscosity measurements collected in April 2008 – **Attachment III**) were utilized in the analysis. The laboratory samples were

rerun for viscosity at a 20 degree Celsius temperature (versus 40 degrees) to better correlate with field conditions. Well #41 results were estimated from those wells in the immediate vicinity which laboratory results were available (38, 52). Well 52 - viscosity at 20 degrees Celsius was estimated.

- Hydraulic conductivities were estimated from the boring log stratigraphy at the water table/LNAPL contact for each well.
- Recoverability Screening Chart selection was made using the general average of product thickness from the historical gauging results for each well.
- The criteria for minimum LNAPL mobility used for each well was the estimated hydraulic conductivity for that specific area.

The LNAPL mobility and plume velocity results are presented in **Attachment III** and summarized in **Table 1**.

Table 1: LNAPL Mobility Results

Well Number	Inherent Mobility (ft/day)	Plume Velocity (ft/day)	Petroleum Type (Estimated using Viscosity)	Oil/Water Interfacial Tension (dynes/cm)	Specific Gravity (gm/cc)	Viscosity (cp)	Gradient (ft/ft)	Soil Type and Estimate K (ft/day)
2904 (BC)	7.82E-01	1.56E-03	Diesel	25	0.87	5.8	0.002	Fine Grained Sand (3.28 ft/day)
38 (CRR)	8.64E-02	6.84E-04	Fuel Oil	25	0.91	31.6	0.01	Silty Sand (0.958 ft/day)
41 (CRR)	1.35E-02	1.35E-04	Fuel Oil	25	0.91	40	0.01	Silty Sand (0.958 ft/day)
52 (CRR)	5.26E-02	5.26E-04	Fuel Oil	25	0.91	40	0.01	Fine Grained Sand (3.28 ft/day)
GP-4 (CTC)	1.55	1.55E-02	Diesel	25	0.84	4.5	0.01	Fine Grained Sand (3.28 ft/day)

Results of inherent mobility and plume velocity calculations indicate low mobility and velocity rates and represent stable LNAPL conditions in which LNAPL is not redistributing through the formation.

Based on the type of petroleum, their corresponding viscosities, and the range of hydraulic conductivities of the soils in the vicinity of the LNAPL/water interface, the LNAPL in the vicinity of wells 2904, 38, 41, and 52 were determined to “not likely to be recoverable”. Well GP-4 due to its lower viscosity and specific gravity and higher hydraulic conductivity (fine grained sand) is on the borderline of being recoverable for the apparent well product thickness of 2.5 feet. The API Interactive Guide LNAPL recoverability charts documenting the recoverability of LNAPL in wells 2904, 38, 41, 52, and GP-4 is presented in **Figures 4a/b/c**.

5.2 Other Risk Factors

Based on the Consent Decree goal to remove LNAPL to the maximum extent practicable, the results of the LNAPL mobility and recoverability analysis for those wells with LNAPL on the off-site properties, the current industrial use of the properties in the vicinity of the project area, the lack of human exposure to the LNAPL in the subsurface, the fact that groundwater is not utilized as a public water supply, and there that are no nearby sensitive receptors, the remaining risk factors are not applicable.

6.0 REMEDIAL GOAL IDENTIFICATION, EVALUATION AND PROPOSED REMEDIAL APPROACH

The remedial goal identified in the Consent Decree is to remove LNAPL to the maximum extent practicable. Evaluation of current conditions and results of historical remedial activities associated with removal of LNAPL to the maximum extent practicable at these properties is summarized in **Table 2.**

Table 2 – Off-Site Well Data Summary and Proposed Recommendations

Property	Well Number	Date Installed	Maximum LNAPL Thickness (ft) (last 2 years)	Other LNAPL Data Available	Proposed Recommendations
Baltimore City	2901	9/20/1994	N/A	No Historic LNAPL	Abandon
	2902	9/19/1994	0.00	No Historic LNAPL	Abandon
	2903	9/19/1994	0.45	Maximum historical LNAPL 0.51 ft – 6/2002	Use for short term monitoring during delineation of 2904
	2904	9/16/1994	3.81	Maximum historical LNAPL 3.81 ft - 2006	Delineate - Increased LNAPL recovery to asymptotic decline
	2905	9/15/1994	0.00	No Historic LNAPL	Abandon
	2907	2/21/1994	0.38	Maximum historical LNAPL 0.88 ft – 12/2001	Abandon
	2908	4/21/1994	0.00	No Historic LNAPL	Abandon
	2909	6/21/1994	0.00	Maximum historical LNAPL 0.73 ft – 9/1997	Abandon
	GP-6	12/16/2003	0.00	No Historic LNAPL	Abandon
	GP-7	12/17/2003	N/A	No Historic LNAPL	Abandon
Canton Railroad	3503	8/31/1993	0.00	No Historic LNAPL	Abandon
	3504	8/31/1993	0.00	No Historic LNAPL	Abandon
	3506	5/17/1994	0.00	No Historic LNAPL	Abandon
	3507	5/17/1994	0.00	No Historic LNAPL	Abandon
	3508	5/17/1994	0.00	Maximum historical LNAPL 3.70 ft – 4/1997. EFR well (7 events from 2001 to 2003	Abandon
	11C	8/15/2001	0.00	No Historic LNAPL	Abandon
	11D	8/15/2001	0.00	No Historic LNAPL	Abandon
	36	10/22/2002	0.00	No Historic LNAPL	Abandon
	38	10/22/2002	15.91	Historic gauging indicates high fluctuation of LNAPL thickness. EFR well (1 event from 2005). LNAPL highly viscous	Increased LNAPL recovery to asymptotic decline
	39	10/22/2002	0.23	Maximum historic LNAPL 2.22 ft – 2/2005. EFR well (2 events from 2003 to 2005)	Abandon
	40	10/21/2002	0.75	Maximum historic LNAPL 1.75 ft – 3/2005. EFR well (2 events from 2003 to 2005)	Abandon
	41	10/21/2002	1.26	Maximum historic LNAPL 1.26 ft – 9/2007. EFR well (6 events from 2003 to 2004)	Increased LNAPL recovery to asymptotic decline
	52	10/23/2002	0.89	Maximum historic LNAPL 3.09 ft – 6/2004. EFR well (2 events from 2003 to 2004)	Increased LNAPL recovery to asymptotic decline
	57	10/24/2002	0.00	No Historic LNAPL	Abandon
	60	10/25/2002	0.00	No Historic LNAPL	Abandon
	MDE-3	10/25/2002	0.01	No Historic LNAPL	Abandon
	P1 (3510)	8/14/2001	0.00	No Historic LNAPL	Abandon
	P3 (3509)	8/17/2001	0.00	No Historic LNAPL	Abandon
Canton Trade	GP-1	9/9/2003	0.00	No Historic LNAPL	Abandon
	GP-2	9/9/2003	0.00	LNAPL sporadic. One reading on 7/2005 of 6.3 ft. Typically no LNAPL in well	Abandon
	GP-3	9/9/2003	0.00	No Historic LNAPL	Abandon
	GP-4	9/10/2003	4.38	Maximum historic LNAPL 5.89 ft – 6/2005	Increased LNAPL recovery to asymptotic decline
	GP-5	9/10/2003	0.00	No Historic LNAPL	Abandon

In summary, there are a limited number of wells with LNAPL on the off-site properties. These wells include 2903, 2904, and 2907 on Baltimore City property. Of these only one well is >1 ft (2904 – maximum LNAPL in the last 2 years 3.81 ft). Based on the limited delineation in this area, a Geoprobe study is recommended to fully assess the presence of LNAPL in the vicinity of 2904. In addition to delineation, an increased LNAPL recovery program is proposed to remove any recoverable LNAPL in the vicinity of this well. The LNAPL recovery program will consist of an increased frequency (every 2 weeks) with the use of the "spill buddy" to actively skim LNAPL from the well.

Four wells associated with the CAP on the Canton Railroad property contain LNAPL. These include wells 38, 40, 41, and 52. These 2-inch temporary wells were installed in 2002 as part of the Janney Run delineation activities. These wells are located in the vicinity of the former ExxonMobil pipe easement which historically contained subsurface petroleum piping. The piping has been either removed or grouted in place. An increased LNAPL recovery program is proposed to remove any recoverable LNAPL in the vicinity of these wells. The LNAPL recovery program will consist of an increased frequency (every 2 weeks) of the use of the "spill buddy" to actively skim LNAPL from the well.

Only one well (GP-4) associated with this CAP contains LNAPL on the Canton Trade property. This 2-inch temporary well was installed in 2003 during delineation activities and has been recently tested to determine it has a specific gravity of 0.84 which is characteristic of a "diesel" type product. An increased LNAPL recovery program is proposed to remove any recoverable LNAPL in the vicinity of this well. The LNAPL recovery program will consist of an increased frequency (every 2 weeks) of the use of the "spill buddy" to actively skim LNAPL from the well. (It should be noted that ExxonMobil never operated on this property.)

One additional area is proposed to be delineated via Geoprobe for the presence/absence of LNAPL in Upper Zone soils. This includes the Canton Trade building in the immediate vicinity of lower zone well # 3901 (Baltimore Quality Assurance) where petroleum impact was observed in Upper Zone soils during a Lower Zone well installation.

With respect to delineation of Upper Zone soils west of the Canton Trade building (MDE letter dated May 6, 2003), delineation in this area is not proposed due to the lack of Upper Zone LNAPL on the Toone Street parcel, the presence of the historic petroleum pipeline between Toone Street and the Canton Trade Center Building, and the presence of active railroad tracks immediately west of the building.

Those wells with limited to no LNAPL (**Table 2**) and not used for short term monitoring (2903) are proposed to be abandoned.

6.1 Remedial Approach Methodology

An increased LNAPL recovery program will be completed on wells 2904 (Baltimore City), 38, 41, 40, and 52 (Canton Railroad), and GP-4 (Canton Trade center) to confirm the results of the API calculations which indicated limited LNAPL recovery. The increased LNAPL recovery program (every 2 weeks) will consist of using a portable LNAPL "skimming system" or "spill buddy". A description of the portable "spill buddy" system is presented in **Attachment IV**. The portable LNAPL recovery system will be utilized until asymptotic decline is reached in LNAPL thickness.

Delineation in the vicinity of well 2904 and in the vicinity of Lower Zone well 3901 will be completed by Geoprobe to determine the presence/absence of LNAPL in these areas. Four Geoprobe borings will be installed in the vicinity of well 2904 (**Figure 5a**), and three will be installed in the vicinity of well 3901 (**Figure 5b**). The investigation will be conducted using a Geoprobe drilling machine to collect continuous soil cores to 10 feet below the unconfined groundwater table or to a maximum depth of 25 feet BGS.

Prior to soil boring installation activities, GeoTrans, Inc. personnel and appropriate representatives of ExxonMobil will perform a site walk. The soil borings (and potential contingency boring locations) will be located and marked with wooden stakes in soil-covered areas or with white spray paint on asphalt or concrete covered areas. In accordance with ExxonMobil procedures, prior to boring installation, locations will be cleared by installing a 4-foot hole in the subsurface using an air-knife machine.

The borings will be continuously sampled to termination depth using a macro-core sampling device. The holes will be 3 inches in diameter and drilled using Geoprobe© techniques. Geologic logging of the borings will include stratigraphy, photo-ionization detector (PID) readings, and gross LNAPL saturation (i.e. is LNAPL pooling in the sampling device). A 2-inch diameter temporary well will be installed if gross LNAPL is observed in the sampling device. If a temporary monitoring well is not to be installed, the boreholes will be abandoned by grouting with bentonite. If a temporary monitoring well is installed, a 2-inch diameter well string consisting of slotted (0.010-inch or 0.020-inch) PVC pipe and solid riser pipe will be placed in the borehole with sand (Morie # 1 or Morie # 2) adjacent to the screened interval. A bentonite seal will be placed near the ground surface to provide a competent seal and avoid surface contamination of the water-bearing zone. Well construction details will be graphically represented with a well installation diagram. Temporary wells will be developed using a surge and block technique and liquids will be aggressively pumped from the well using a "Whale" pump into a 55-gallon drum. Temporary wells will be gauged with an electronic interface probe approximately 24 and 48 hours after well development. If measurable LNAPL is not present after 48 hours of installation, the wells will be abandoned by pulling the well casing and grouting the hole to the ground surface.

If gross LNAPL saturated soils are observed (LNAPL pooling in the sampling device) during the installation of a boring, a portion of the sample(s) will be capped and placed on dry ice for submittal to PTS laboratories for

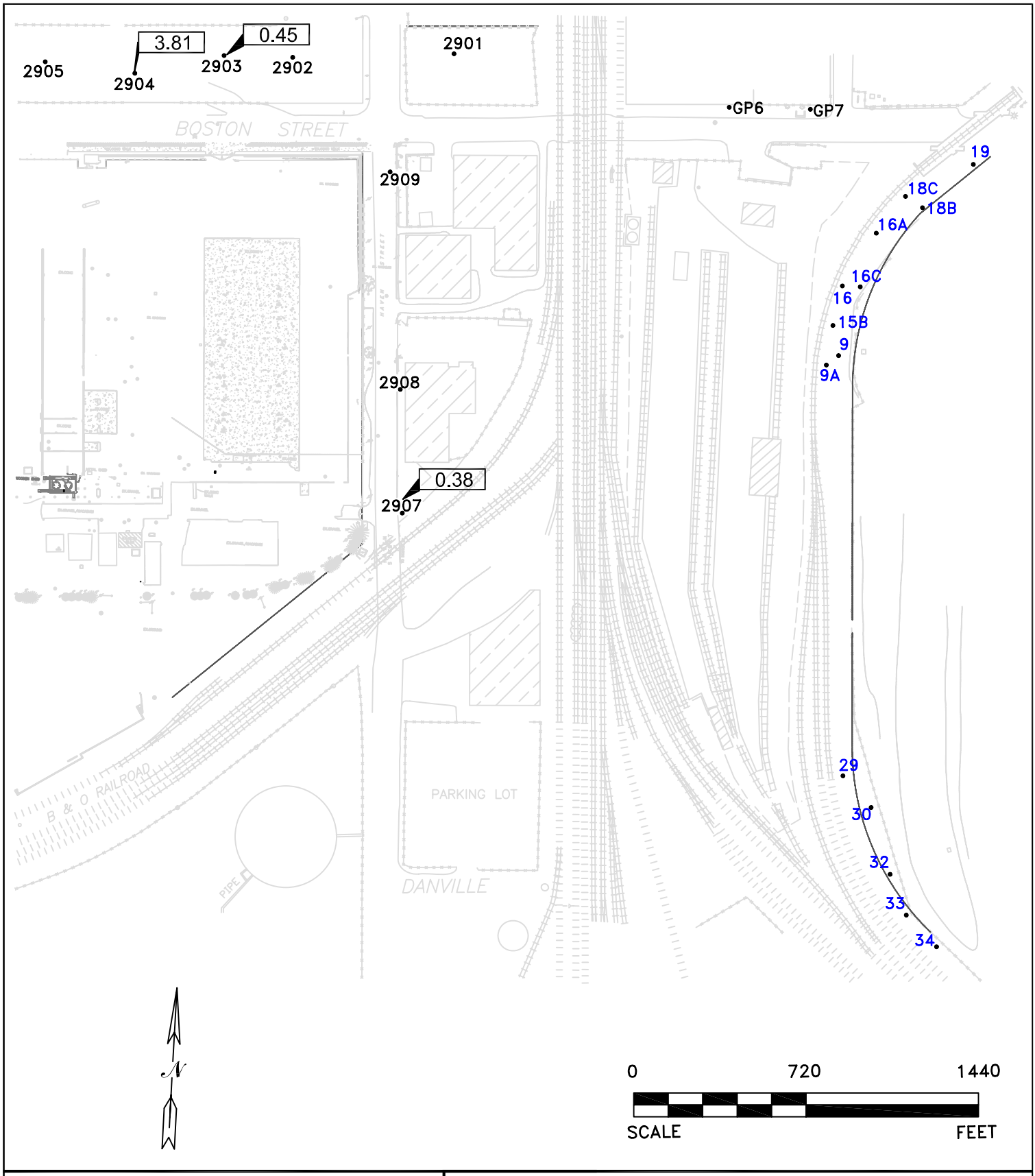
LNAPL characterization parameters. Following the Geoprobe investigation, up to three of these soil samples will be selected and submitted to the laboratory. Analysis will include LNAPL density and viscosity, and site-specific geologic information such as porosity, fraction of the pore space filled with LNAPL, permeability of the porous media, and relative permeability of the porous media to LNAPL. **Attachment V** presents a detailed description of laboratory analytical methods and field collection methods. If LNAPL is present in temporary wells, specific gravity measurements will be collected. For those wells with LNAPL, an LNAPL recoverability analysis will be conducted to document site-specific LNAPL recoverability conditions in the vicinity of the boring locations. Data analysis will include comparing site-specific data to generic industry standard Recoverability Screening Charts and developing recommendations for continued monitoring and/or LNAPL recovery will be completed.

Permanent closure of former monitoring wells will be completed by a licensed well driller. The driller will attempt to pull the casing and remove the well from the subsurface. If successful, the driller will then tremie grout the remaining portion of the hole to the surface. If the well casing cannot be removed, the well will be tremie grouted to the surface and any protective covering will be removed.

6.2 Schedule and Reporting

The Consent Decree requires the remedial goal be achieved within 4 years of the date of approval of the CAP. Reporting of Off-Site CAP activities (gauging and recovery) will be included in the quarterly report. Property specific reports (installation and completion) will be completed following site activities and be submitted to the MDE. These reports will include well abandonment reports, LNAPL delineation activities, and the results of LNAPL recoverability testing.

FIGURES



LEGEND

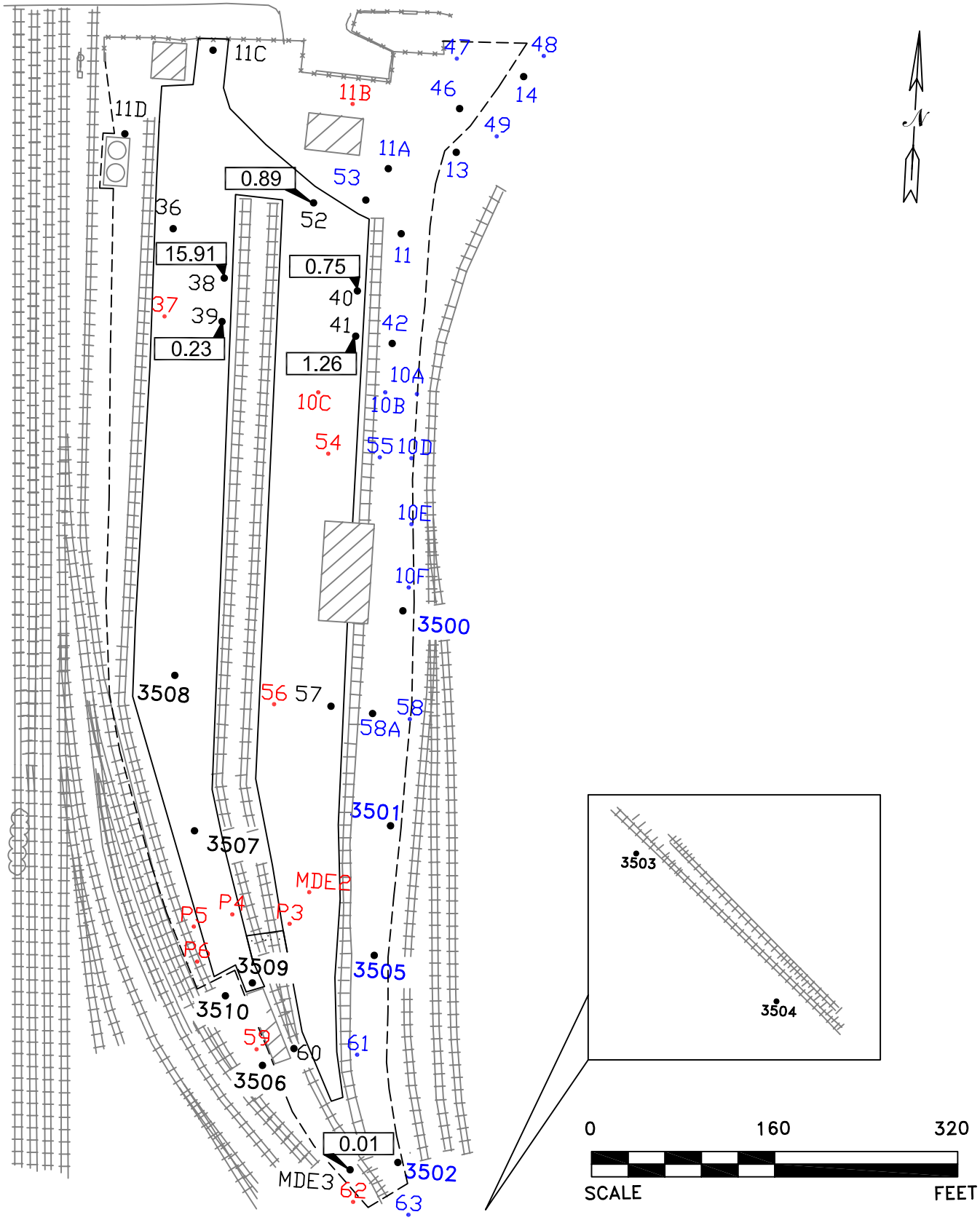
ⓦ	GROUNDWATER MONITORING WELL
30	WELLS ASSOCIATED WITH JANNEY RUN INVESTIGATION
	EXISTING R.R. TRACKS
4.38	APPARENT LNAPL THICKNESS (FT)

NOTE: WELL LOCATIONS ARE APPROXIMATE

GeoTrans, Inc
A TETRA TECH COMPANY

FIGURE 1

SITE MAP WITH MAXIMUM LNAPL THICKENSS
(12/2005 – 12/2007)
BALTIMORE CITY PROPERTY



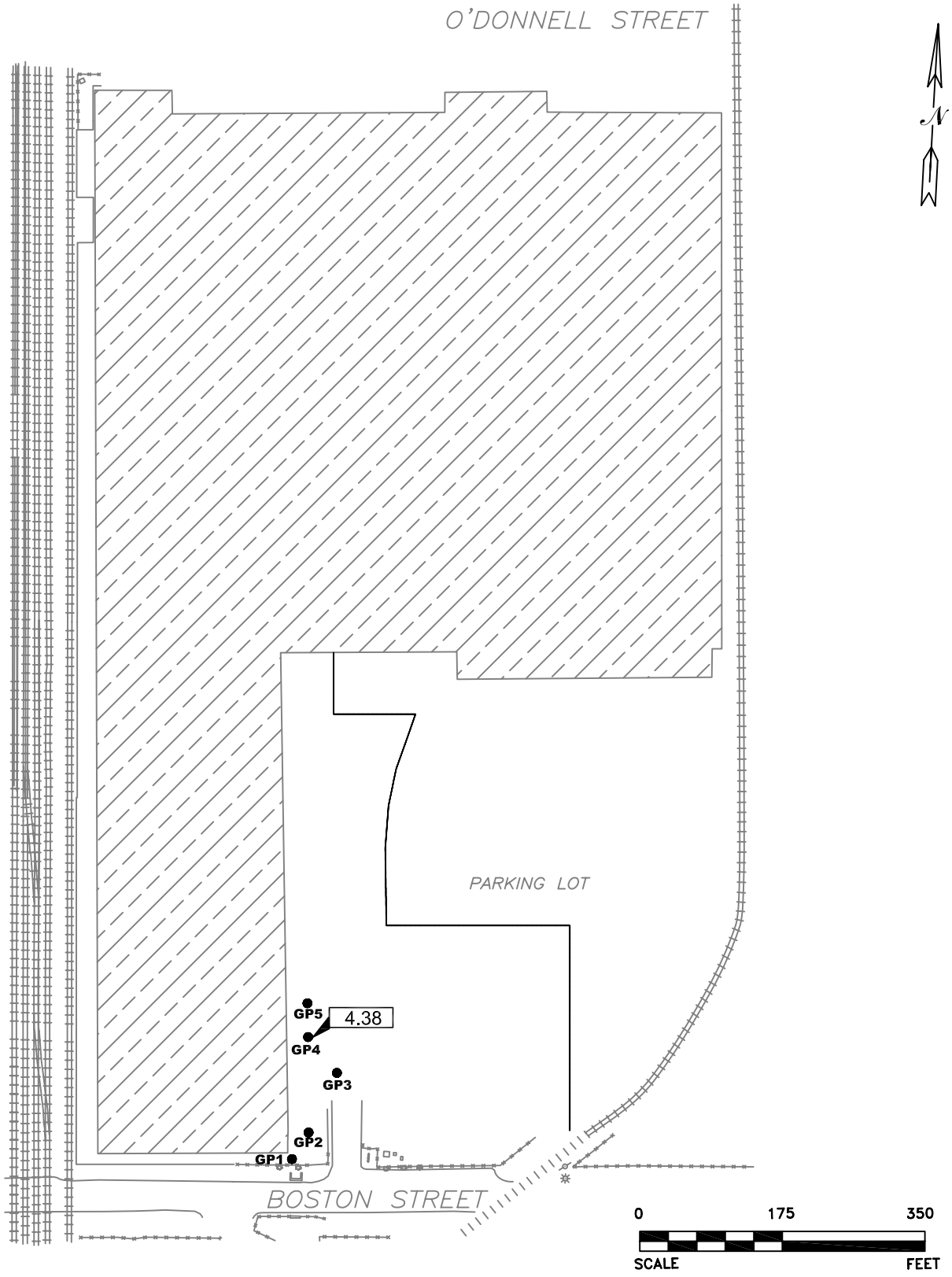
LEGEND

- • 3507 GROUNDWATER MONITORING WELL
- • 3507 WELLS/BORINGS ASSOCIATED WITH JANNEY RUN INVESTIGATION
- MDE2 BORINGS
- EXISTING BUILDINGS
- EXISTING R.R. TRACKS
- 0.23 MAXIMUM LNAPL THICKNESS (FEET)
- FENCE LINE

NOTE: WELL LOCATIONS ARE APPROXIMATE

GeoTrans, Inc
A TETRA TECH COMPANY

FIGURE 2
SITE MAP WITH MAXIMUM LNAPL THICKENSS
(12/2005 – 12/2007)
CANTON RAILROAD



LEGEND

- ● GROUNDWATER MONITORING WELLS
- 4.38 APPARENT LNAPL THICKNESS (FT)
- EXISTING BUILDING
- EXISTING R.R. TRACKS

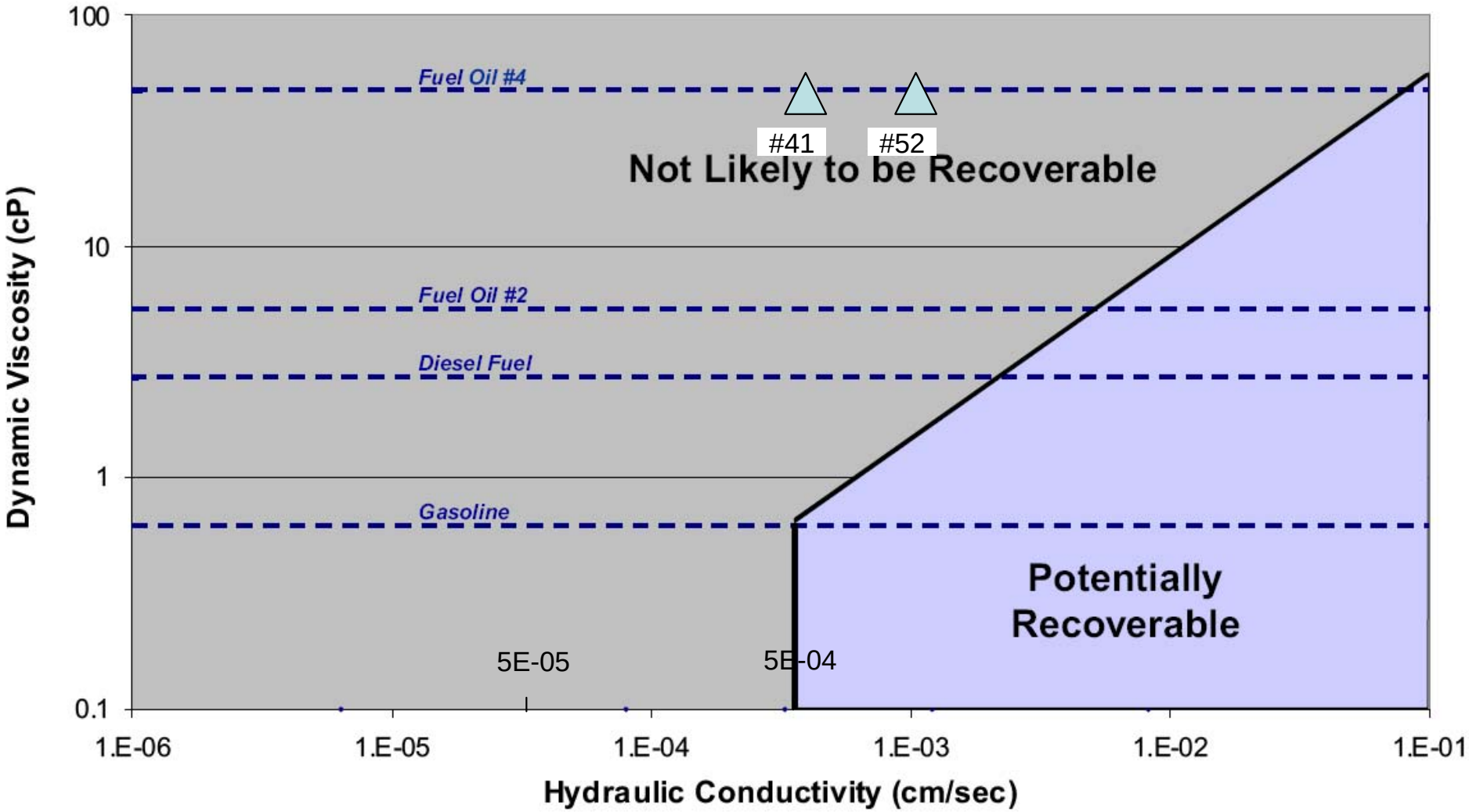
NOTE: WELL LOCATIONS ARE APPROXIMATE

GeoTrans, Inc
A TETRA TECH COMPANY

FIGURE 3
SITE MAP WITH MAXIMUM LNAPL THICKENSS
(12/2005 – 12/2007)

CANTON TRADE CENTER PROPERTY
BALTIMORE, MD 21224

Potential LNAPL Recoverability for Maximum Apparent Well Product Thickness of 1.0 feet



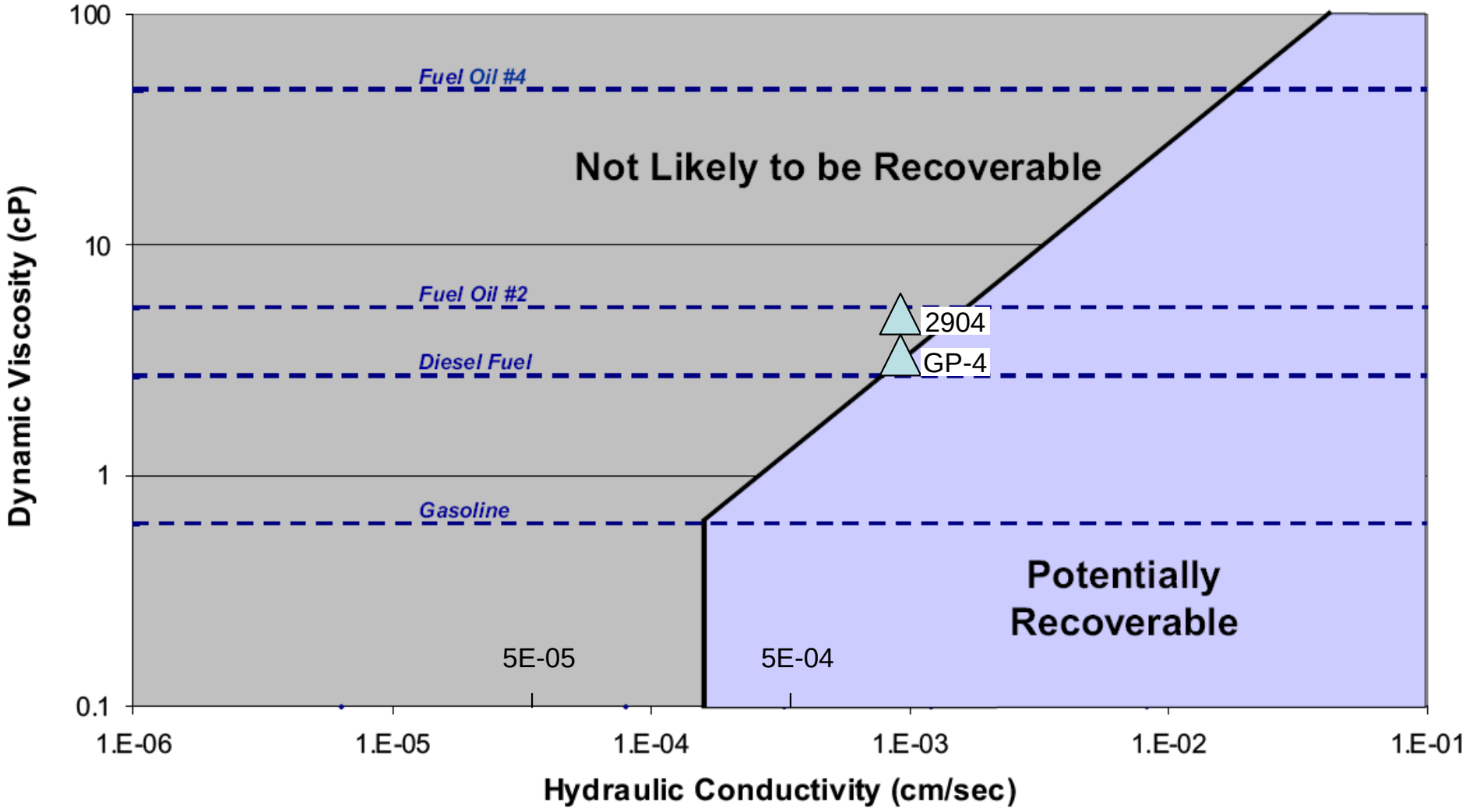
Source: API LNAPL Interactive Guide (v 2.04 - July 2004)

GeoTrans, Inc.

Figure 4a

LNAPL Recoverability Chart
Off-Site CAP
Former ExxonMobil Baltimore

Potential LNAPL Recoverability for Maximum Apparent Well Product Thickness of 2.5 feet

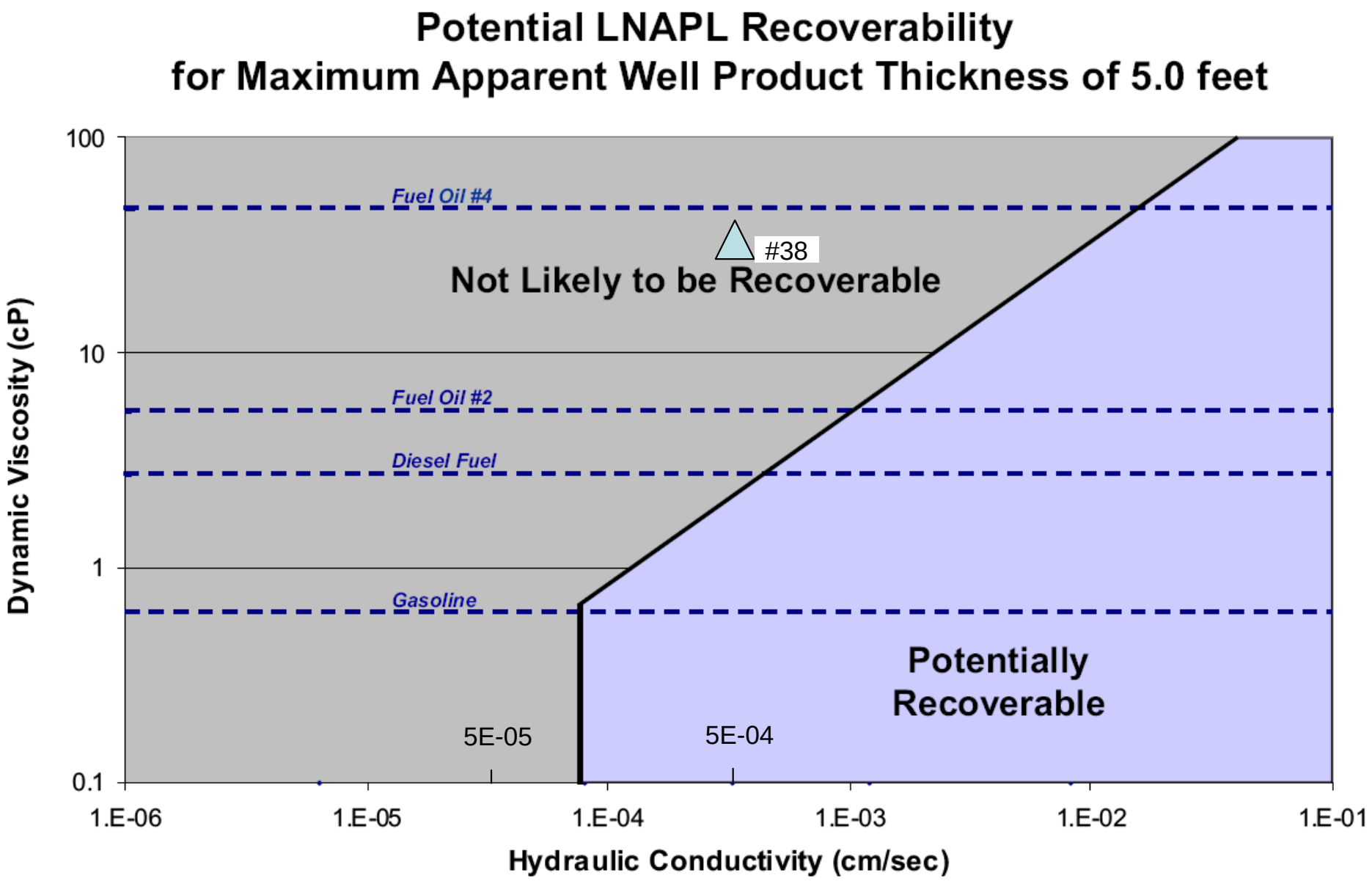


Source: API LNAPL Interactive Guide (v 2.04 - July 2004)

GeoTrans, Inc.

Figure 4b

LNAPL Recoverability Chart
Off-Site CAP
Former ExxonMobil Baltimore

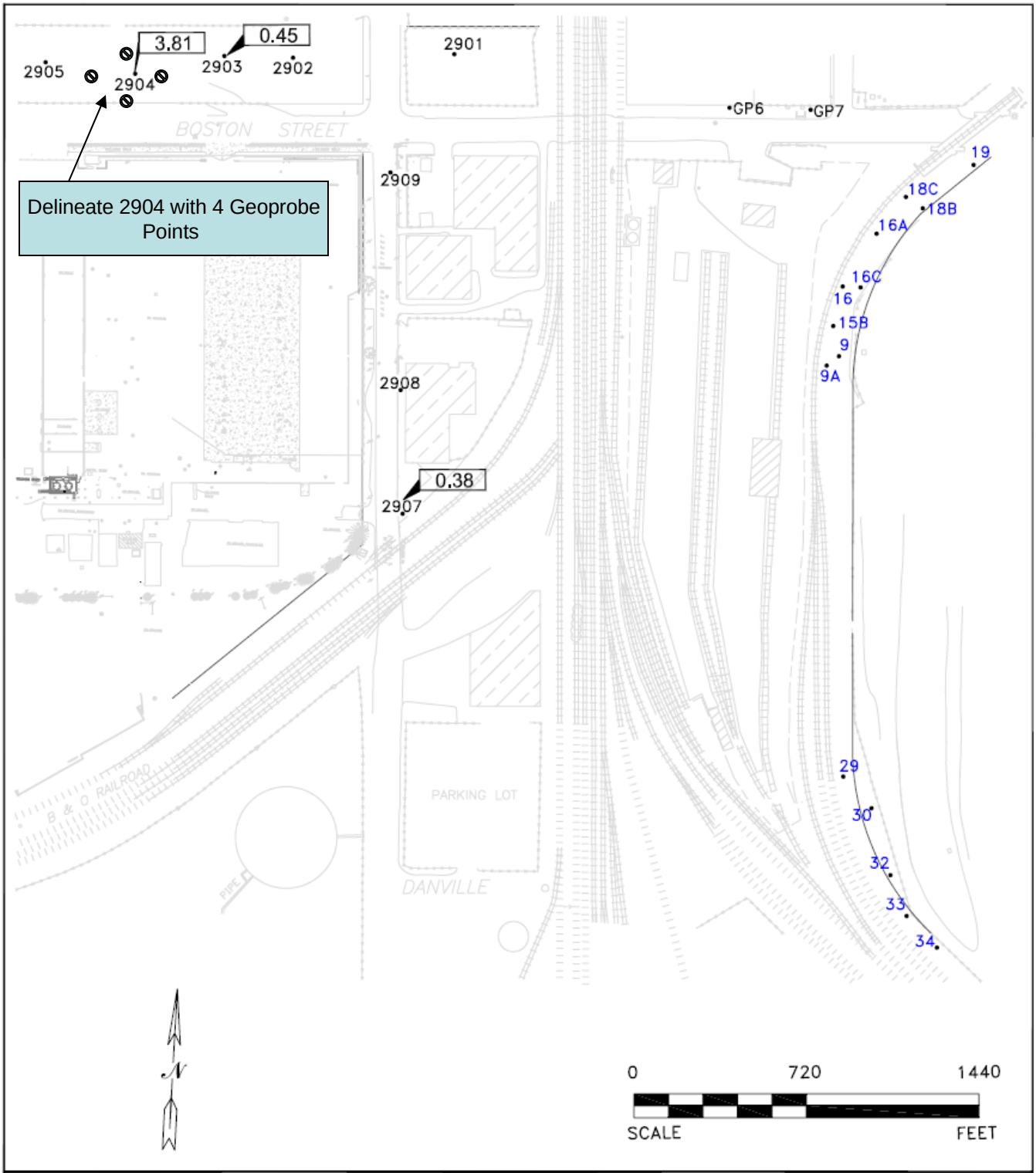


Source: API LNAPL Interactive Guide (v 2.04 - July 2004)

GeoTrans, Inc.

Figure 4c

LNAPL Recoverability Chart
Off-Site CAP
Former ExxonMobil Baltimore



LEGEND

GROUNDWATER MONITORING WELL

30 WELLS ASSOCIATED WITH JANNEY RUN INVESTIGATION

EXISTING R.R. TRACKS

4.38 APPARENT LNAPL THICKNESS (FT)

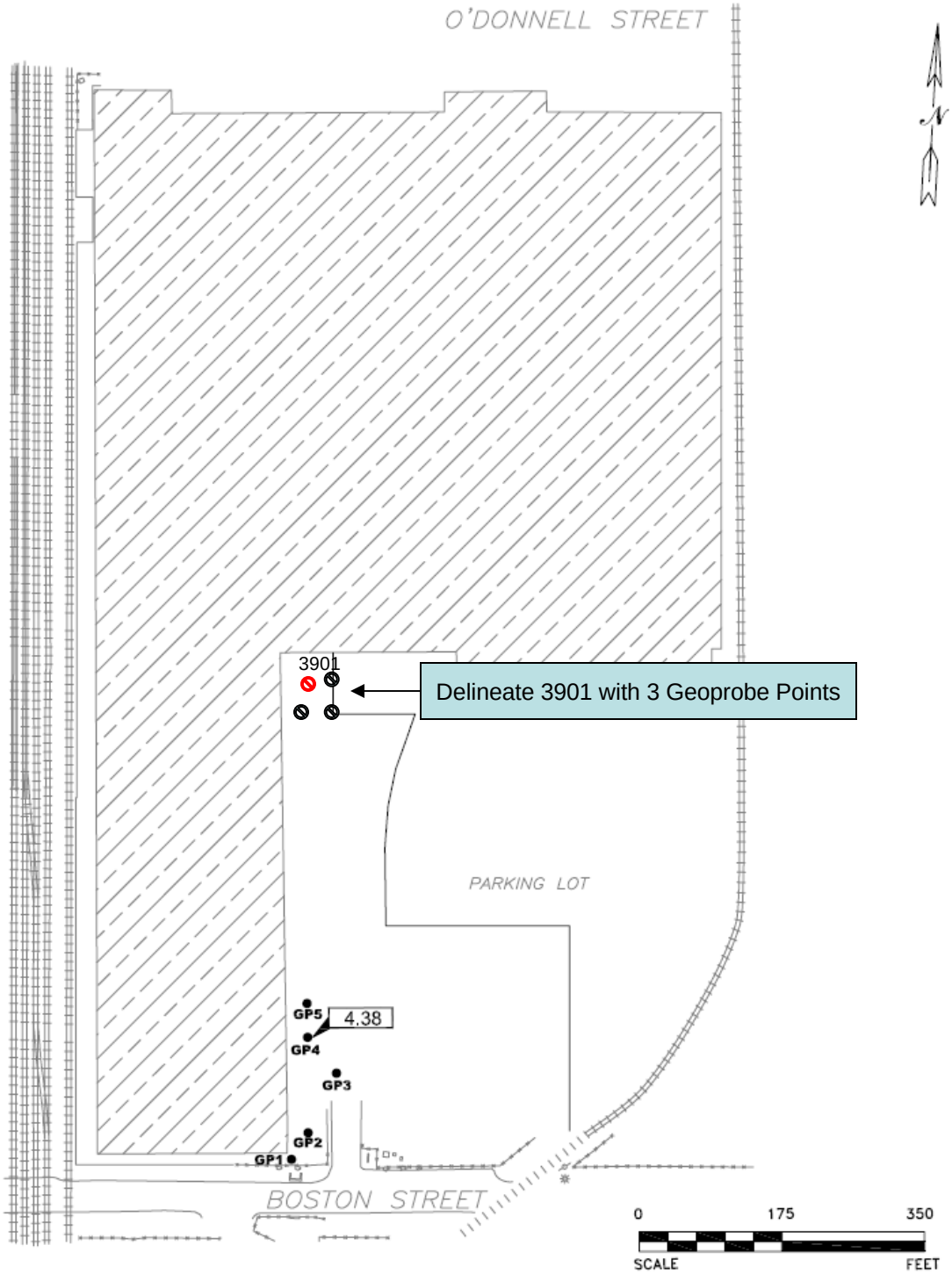
Proposed Geoprobe Point

NOTE: WELL LOCATIONS ARE APPROXIMATE

GeoTrans, Inc

Figure 5a
Proposed Delineation Activities

BALTIMORE CITY PROPERTY



LEGEND

Proposed Geoprobe Point

GROUNDWATER MONITORING WELLS

4.38 APPARENT LNAPL THICKNESS (FT)

EXISTING BUILDING

EXISTING R.R. TRACKS

NOTE: WELL LOCATIONS ARE APPROXIMATE

GeoTrans, Inc

Figure 5b
Proposed Delineation Activities
CANTON TRADE CENTER PROPERTY
BALTIMORE, MD 21224

ATTACHMENT I

2901

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well 110

Project EXXON/BALTIMORE TERMINAL Owner EXXON COMPANY, U.S.A.
Location BALTIMORE, MD Proj. No. 01322-5946
Surface Elev. _____ Total Hole Depth 15 ft. Diameter 8.25 in.
Top of Casing 37.58 ft. Water Level Initial 7 ft. Static _____
Screen: Dia 4 in. Length 10 ft. Type/Size SLOT PVC/0.020 in.
Casing: Dia 4 in. Length 5 ft. Type PVC
Fill Material #2 MORIE SAND Rig/Core CANTERRA 350
Drill Co. HANDEX Method HOLLOW STEM AUGER
Driller J. STEWERT Log By K. SHENOY Date 9/20/94 Permit # BL-92-0529
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50
-2						
0		478			FILL	Fill, organics, bricks, cobbles, gravel, wood
2		989				
4		9999			SM/ML	Brown, fine grained, subrounded, black stained SANDY SILT, mois strong odor
6		3405				
8					SW	Brown very fined grained, subrounded, dense SAND, trace SILT
10		1428				Very coarse sand to very coarse gravel 3" thick Very moist
12		2208			SM	Tan, grey, light brown, interbedded and laminated very fine to fine grained, subrounded dense, poorly cemented SAND and feldspathic, low plasticity silt, wet, LNAPL
14						Boring terminated at 15'
16						
18						
20						
22						
24						

2902

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well 11(

Project EXXON/BALTIMORE TERMINAL Owner EXXON COMPANY, U.S.A.
Location BALTIMORE, MD Proj. No. 01322-5946
Surface Elev. _____ Total Hole Depth 20 ft. Diameter 8.25 in.
Top of Casing 36.65 ft. Water Level Initial 13.89 ft. Static _____
Screen: Dia 4 in. Length 15 ft. Type/Size SLOT PVC/0.020 in.
Casing: Dia 4 in. Length 5 ft. Type PVC
Fill Material #2 MORIE SAND Rig/Core CANTERRA 350
Drill Co. HANDEX Method HOLLOW STEM AUGER
Driller J. STEWERT Log By K. SHENOY Date 9/19/94 Permit # BL-92-0534
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 5
-2						
0						
2		720				Fill, SANDY SILT bricks, shells, wood Dark black staining
		4728				
4					FILL	
6						From soil cuttings, dark black stained SANDY SILT
8						SAND
10						
12						
14					SP ▽	
16						
18						
20						Boring terminated at 20'
22						
24						
26						

2903

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well 11

Project EXXON/BALTIMORE TERMINAL Owner EXXON COMPANY, U.S.A.
Location BALTIMORE, MD Proj. No. 01322-5946
Surface Elev. _____ Total Hole Depth 33 ft. Diameter 8.25 in.
Top of Casing 39.81 ft. Water Level Initial 20 ft. Static 24.84 ft.
Screen: Dia 4 in. Length 20 ft. Type/Size SLOT PVC/0.020 in.
Casing: Dia 4 in. Length 13 ft. Type PVC
Fill Material #2 MORIE SAND Rig/Core CANTERRA 350
Drill Co. HANDEX Method HOLLOW STEM AUGER
Driller J. STEWERT Log By K. SHENOY Date 9/19/94 Permit # BC-92-0533
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to
-2						
0						
2		298			FILL	Fill material, cobbles, brick, gravel, light brown, SAND and SILT, grained, dry, wood
4		2185				At 4' black staining
6		5585				
8		7598			SM	Light grey to grey to tan interbedded and laminated SILT and SAND quartz, very fine grained, rounded, poorly cemented, brea along the horizontal plain, minor along horizontal plane iron staini firm, slightly moist, well sorted
10		8193				
12		8350				
14						
16		9508				Decreasing SILT content
18		7447				
20					SW	Orange brown, fine grained, well sorted loose, iron staining, slight moist, subrounded, poorly cemented SAND quartz
22		9999 2220				SAME, wet; Dark staining
24						
26		5175				Stained brown SAND wet
28		1112			ML	Silt lens, moist; Black SAND stained
30					SW	Boring terminated at 30'
32						
34						Well Bottom
36						

2904

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well 72I

Project EXXON/BALTIMORE TERMINAL Owner EXXON COMPANY, U.S.A.
Location BALTIMORE, MD Proj. No. 01322-5946
Surface Elev. _____ Total Hole Depth 35 ft. Diameter 8.25 in.
Top of Casing 38.48 ft. Water Level Initial 26.0 ft. Static 23.84 ft.
Screen: Dia 4 in. Length 20 ft. Type/Size SLOT PVC/0.020 in.
Casing: Dia 4 in. Length 15 ft. Type PVC CASING
Fill Material #2 MORIE SAND Rig/Core CANTERRA CT-350
Drill Co. HANDEX Method HOLLOW STEM AUGER
Driller J. STEWERT Log By K. SHENOY Date 9/16/94 Permit # BC-92-0532
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50
-2						
0					ASP	ASPHALT
2		9999				Weathered, red, tan, grey SILT and SAND, firm crumbly texture
4		9999				Tan very fine-grained, quartz, slightly moist, loose, poorly cemented, subrounded SAND, black staining, interbedded with laminations of grey SILT, iron staining
6		9999				
8		9999			SM	Moist tan SAND, SAME, very loose
10		9999				10.0 at Water, perched, black stained SOILS, moist thicker silt layers
12						SILT
14		9999				
16		9999				Fine-med grained SAND, black, moist
18		9999				
20		4196				SAME
22		3300			SW	
24						
26		1805				WET
28		1145				
30		2268				31' SILT, grey layer 4" thick
32		558			ML	33' Heavy black staining
34						34.5' Red, tan, grey, dry very hard, SILT, mottled oblique fracturi
36						Boring terminated at 35'

2905

GROUNDWATER TECHNOLOGY

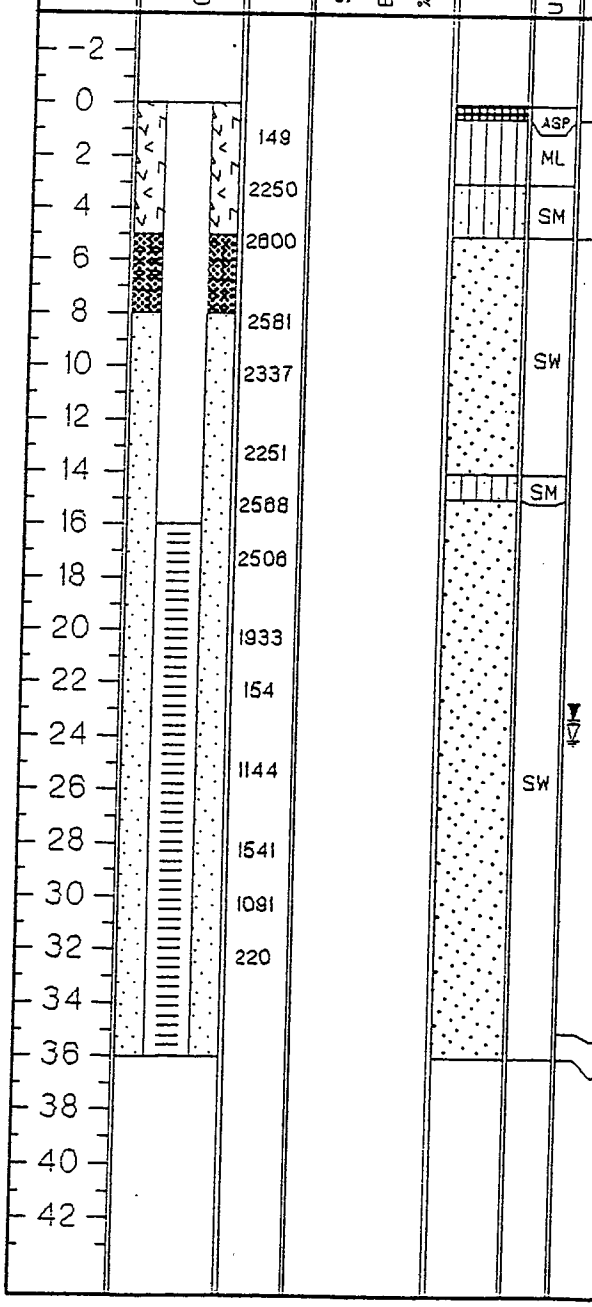
Drilling Log

Monitoring Well 72

Project EXXON/BALTIMORE TERMINAL Owner EXXON COMPANY, U.S.A.
Location BALTIMORE, MD Proj. No. 01322-5946
Surface Elev. _____ Total Hole Depth 36 ft. Diameter 8.25 in.
Top of Casing 38.29 ft. Water Level Initial 24.0 ft. Static 23.22 ft.
Screen: Dia 4 in. Length 20 ft. Type/Size SLOT PVC/0.020 in.
Casing: Dia 4 in. Length 16 ft. Type PVC CASING
Fill Material #2 MORIE SAND Rig/Core CANTERRA CT-350
Drill Co. HANDEX Method HOLLOW STEM AUGER
Driller J. STEWERT Log By K. SHENOY Date 9/15/94 Permit # BC-92-0531
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:



Description
(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50

ASPHALT
Red, grey tan, dry SILT, mottled, little fine grained sand pockets
0.5' Black soils prodict, strong odor, dark grey fine grained, loose, poorly cemented SILTY SAND interbedded w/more sandy laminations.
5.0' Tan, fine grained, subrounded, loose, very poorly cemented, SAND, dry reddish brown iron-staining quartz
Reddish brown color, dry
Laminated SILT and SAND at 14.0-15.0', sand stained black dry
Tan fine grained SAND, trace silt
Black stained
Black stained
Wet, black stained SAND
Very wet, black liquid
32.2 2" of coarse grained gravel
34.0 Red, gray, tan, moist SILTY SAND, fine grained quartz dense
35.5' Dark red and tan SILT, hard, dry feldspathic
AT 36' Boring Terminated

2906

Drilling Log

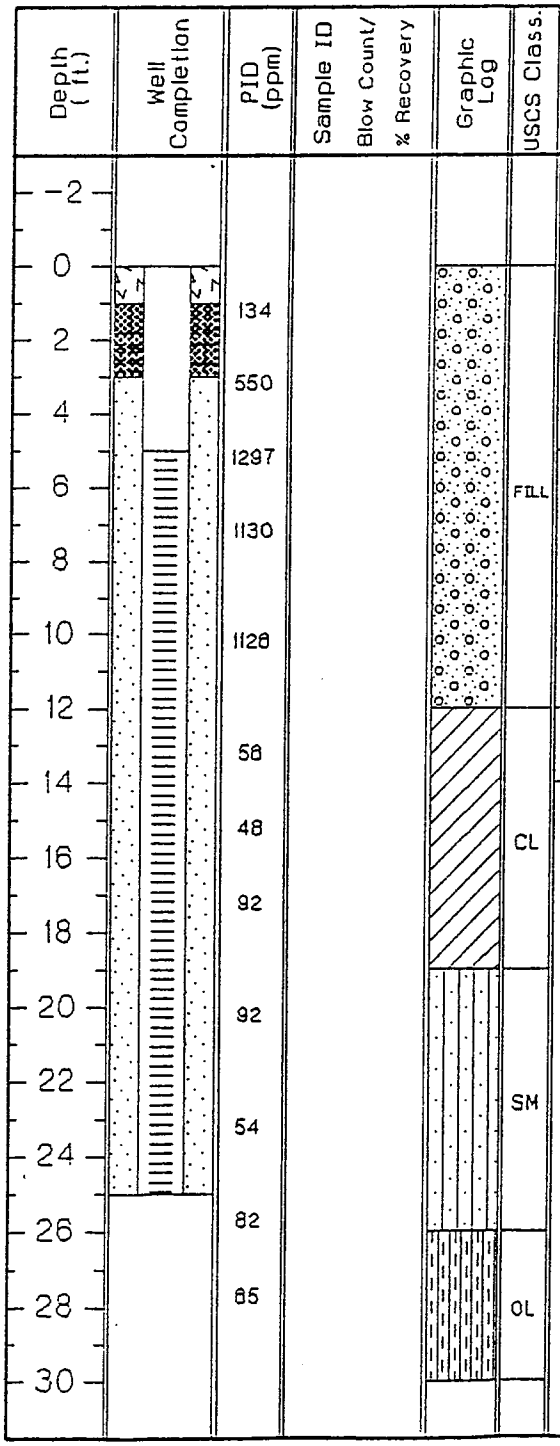
GROUNDWATER TECHNOLOGY

Monitoring Well 83[

Project EXXON/BALTIMORE TERMINAL Owner EXXON COMPANY, U.S.A.
Location BALTIMORE, MD Proj. No. 01322-5946
Surface Elev. _____ Total Hole Depth 25 ft. Diameter 8.25 in.
Top of Casing 38.22 ft. Water Level Initial 2.0 ft. Static 5.73 ft.
Screen: Dia 4 in. Length 20 ft. Type/Size SLOT PVC/0.020 in.
Casing: Dia 4 in. Length 5 ft. Type PVC
Fill Material _____ Rig/Core CANTERRA CT-350
Drill Co. HANDEX Method HOLLOW STEM AUGER
Driller S. UNDERWOOD Log By K. SHENOY Date 9/14/94 Permit #BC-92-C530
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:



Description

(Color, Texture, Structure)
Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50

GRASS

1'-2' Product, black, thick, coarse grained SAND to fine grained gravel, moderately well sorted, very angular, heavily stained soil, moist

Brown, moist, SILT, low plasticity, strong odor, staining, trace medium-grained sand

Dark brown, balck staining, product, SILT, trace, med-gravel

Dark grey, wet, fine grained, well sorted, subangular, poorly cemented, loose, SAND, staining

SILT w/sand, fine grained, very poorly sorted, large blocky structure, mottling red, tan, grey

At 11' perched water, tan, fine grained, poorly cemented sand, saturated, subangular, trace med gravel

Red, grey, mottled, hard SILTY CLAY, blcoky structure, dry iron staining

More grey colored

Red colored, slightly moist

Tan very fine grained SILTY SAND, slightly moist, dense, poorly cemented

27' Moist

2907

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well SH-/

Project EXXON/BALTIMORE TERMINAL Owner EXXON COMPANY, U.S.A.
Location BALTIMORE, MD Proj. No. 01322-5945
Surface Elev. _____ Total Hole Depth 25 ft. Diameter 6.25 in.
Top of Casing 28.23 ft. Water Level Initial 12.0 ft. Static _____
Screen: Dia 2 in. Length 20 ft. Type/Size SLOT PVC/0.020 in.
Casing: Dia 2 in. Length 5 ft. Type PVC
Fill Material #2 MORIE SAND Rig/Core CANTERRA CT-350
Drill Co. HANDEX Method HOLLOW STEM AUGER
Driller J. STEWERT Log By G. McFARLAND Date 4/21/94 Permit #BC-92-0333
Checked By K. SHENOY License No. _____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50
-2						
0		878			ORG	
					SM	Black/white, moist, medium to fine SAND, little silt, trace fine grave trace clay
2					WOOD	Wood – Presumed railroad tie
					SM	Tan/white, moist, medium to fine SAND, little silt, trace coarse sanc trace clay
4		<1,000			ML	Gray/tan/white, moist SILT, little fine sand, trace clay
6						
8						
10		<1,000				
12						Gray/tan/dark brown, wet, medium to fine SAND, little silt, trace coarse sand, trace clay
14					SM	
16		<1,000				
18						
20						
22						
24						Boring terminated at 25'.
26						
28						
30						

2908

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well SH-

Project EXXON/BALTIMORE TERMINAL Owner EXXON COMPANY, U.S.A.
Location BALTIMORE, MD Proj. No. 01322-5945
Surface Elev. _____ Total Hole Depth 25 ft. Diameter 6.25 in.
Top of Casing 29.60 ft. Water Level Initial 9.0 ft. Static _____
Screen: Dia 2 in. Length 20 ft. Type/Size SLOT PVC/0.020 in.
Casing: Dia 2 in. Length 5 ft. Type PVC
Fill Material #2 MORIE SAND Rig/Core CANTERRA CT-350
Drill Co. HANDEX Method HOLLOW STEM AUGER
Driller J. STEWERT Log By G. McFARLAND Date 4/21/94 Permit # BC-92-0334
Checked By K. SHENOY License No. _____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50
-2						
0					ORG	
2		110			SM	Tan/brown, moist SILT, some medium to fine sand, little coarse sand, trace clay
4						
6		214				
8						▽ White/gray/tan/brown/black, wet, medium to fine SAND, little silt, trace coarse sand, trace clay
10		836				
12						
14						
16					SM	
18						
20						
22						
24						Boring terminated at 25'.
26						
28						
30						

2909

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well SH-

Project EXXON/BALTIMORE TERMINAL Owner EXXON COMPANY, U.S.A.
Location BALTIMORE, MD Proj. No. 01322-5905
Surface Elev. _____ Total Hole Depth 25 ft. Diameter 6.25 in.
Top of Casing 31.87 ft. Water Level Initial 16.0 ft. Static _____
Screen: Dia 2 in. Length 20 ft. Type/Size SLOT PVC/0.020 in.
Casing: Dia 2 in. Length 5 ft. Type PVC
Fill Material #2 MORIE SAND Rig/Core CANTERRA 350
Drill Co. HANDEX Method HOLLOW STEM AUGER
Driller J. STEWERT Log By G. McFARLAND Date 6/21/94 Permit # BZ-92-0376
Checked By K. SHENOY License No. _____

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 5
-2						
0					ASP	4": Asphalt
		472			CR	6": Crusher Run
2					SM	Brown, moist, medium to fine SAND, little silt, trace fine gravel, tra coarse sand, trace clay
4						
6		>1,000				Tan/white/gray, moist SILT, trace fine sand, trace clay
8					ML	
10						
		>1,000				
12						
14						
16		>1,000				Black, wet, medium to fine SAND, little coarse sand, little silt, trac clay
18						
20					SM	
22						
24						
						Boring terminated at 25'.
26						
28						
30						

3503

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:
Surface Elevation:
Casing Above Surface:
Reference Elevation:
Reference Description:

Job. No.	Client	Location
81005.67	Exxon Terminal - 14th St. - Offsite	Baltimore, MD

Drilling Method: Mobile B-47 ATV/Mobile B-61
4.25-in ID HSA, 8.25-in ID HSA

Boring No. MW-116

Sampling Method: 2-in x 24-in Split spoon driven by 140-lb hammer falling 30-in

Sheet 1 of 1

					Drilling Start	Drilling Finish
Water Lev.	9.00-ft					
Time	10:00				11:00	14:15
Date	9-1-93				8-31-93	8-31-93
Reference	surface					

Surface Conditions: FILL - grass, gravel, debris

Sample Type	Inches Drvn/In. Recvrd	Dpth. Csg.	Samp. /samp. depth	PID (ppm)	Blows per 6 in.	Depth in Feet		USCS Log	
						0			
						1			
						2			
						3			
SS	24 / 10		1 / 4	1	5, 3, 2, 2	4, 5	X, X	(FILL)	black mixed sand/silt/gravel, dry, loose
						6			
						7			
						8			
SS	24 / 16		2 / 9	1	2, 1, 1, 3	9, 10	X, X, X	SC	orangish-brown clayey f-m sand, some silt, trace gravel, wet
						11			
						12			
						13			
SS	24 / 18		3 / 14	1	1, 2, 1, 1	14, 15	X, X, X	CL	grayish organic silty clay, trace roots/gravel, soft, wet
						16			
						17			
						18			
SS	24 / 18		4 / 19	0.5	2, 2, 1, 1	19, 20	X, X, X	CL	gray-tan organic silty clay, little sand/gravel, soft, sticky, wet
						21			
						22			
						23			
SS	24 / 24		5 / 24	1	3, 3, 3, 3	24, 25	X, X, X, X	SM	dark brown silty fine sand, some organics (roots, reeds), trace clay, slightly stiff, wet

Logged by: Bradley C. Blase
Date: 31 August 1993
Drilling Contractor: Hardin-Huber, Inc.
Driller: Bruce/Mark

WELL SPECIFICATIONS:

Diam. of casing:	4-in	Screen Interval:	22.5 - 2.5 ft	Sandpack:	22.5 - 2.0 ft	Grout:	1.0 - 0.0 ft
BOH:	22.5-ft	Riser Interval:	2.5 - 0.0 ft	Bentonite:	2.0 - 1.0 ft	Cover:	steel flushmount

3504

EA Engineering, Science, and Technology, Inc.

LOG OF SOIL BORING

Coordinates:
Surface Elevation:
Casing Above Surface:
Reference Elevation:
Reference Description:

Job. No.	Client	Location
81005.67	Exxon Terminal - 14th St. - Offsite	Baltimore, MD

Drilling Method: Mobile B-47 ATV/Mobile B-61
4.25-in ID HSA, 8.25-in ID HSA

Boring No. MW-117

Sampling Method: 2-in x 24-in Split spoon driven by 140-lb hammer falling 30-in

Sheet 1 of 1

					Drilling Start	Drilling Finish
Water Lev.	9.50-ft				14:30	17:00
Time	10:20				8-31-93	8-31-93
Date	9-1-93					
Reference	surface					

Surface Conditions: FILL - grass, gravel, debris

Sample Type	Inches Drvn/In. Recvrd	Dpth. Csg.	Samp. /samp. depth	PID (ppm)	Blows per 6 in.	Depth in Feet		USCS Log	
						0			
						1			
						2			
						3			
SS	24 / 8		1 / 4	0.5	2, 3, 5, 4	4, 5	X, X	(FILL)	mixed brown-orange clay/sand/gravel, stiff, moist/dry
						6			
						7			
						8			
SS	24 / 0		2 / 9	0	41, 51/5	9, 10		–	no recovery - hit large rocky zone (gravel or cobbles) - spoon wet
						11			
						12			
						13			
SS	24 / 12		3 / 14	0	2, 2, 2, 2	14, 15	X, X	SC	brown-gray organic sandy clay, little gravel, soft, plastic, wet
						16			
						17			
						18			
SS	24 / 18		4 / 19	0.5	1, 2, 1, 1	19, 20	X, X, X	CL OH	12" brown-gray organic sandy clay, some gravel, very soft, plastic, wet 6" black organic peat (roots, grass) with clay/silt, soft, wet
						21			
						22			
						23			
SS	24 / 12		5 / 24	0	5, 6, 7, 9	24, 25	X, X	SC CL	8" tan-orange-white clayey f-m sand, stiff, wet 4" dense white silty clay, very hard/stiff, dense, moist

Logged by: Bradley C. Blase
Date: 31 August 1993
Drilling Contractor: Hardin-Huber, Inc.
Driller: SrucerMark

WELL SPECIFICATIONS:

Diam. of casing:	4-in	Screen Interval:	24.0 - 4.0 ft	Sandpack:	24.0 - 3.0 ft	Grout:	2.0 - 0.0 ft
BOH:	24.0-ft	Riser Interval:	4.0 - 0.0 ft	Bentonite:	3.0 - 2.0 ft	Cover:	steel flushmount

Handex

Handex Of Maryland

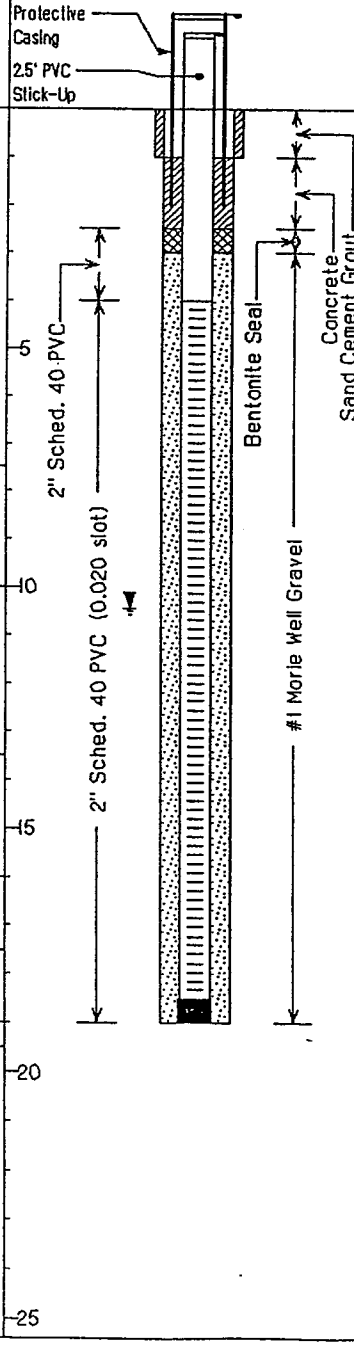
WELL LOG: MW-119

3506

Permit #: *BC-92-0347*	Drill Date: *5/17/94*	Use: *Monitoring Well*
Location: *Evered Bardon Property*		Owner Loc #: *2182*
Owner: *Exxon Company, U.S.A.*		Handex Loc #: *107245-01*
Owner Address: *3801 Boston St., Baltimore, Md*	BORING - Depth: *20 ft.*	Diameter: *8 in.*
Drilling Method: *Hollow Stem Auger*	CASING - Length: *6.5 ft.*	Diameter: *2 in.*
Sampling Method: *Continuous Core*	SCREEN - Length: *15 ft.*	Diameter: *2 in.*
Static Water Level: *12.96 ft. (5/18/94)*	WELL - Depth: *19 ft.*	

Depth (ft.)	Sample ID	Sample Depth	Blows/6 in.	OVA	Graphic Log	Geologic Description
						Fill (Dark brown, Silt, Sand and Gravel with brick fragments).
5						
						Brown, medium SAND, little fine Gravel and Silt, trace shell fragment.
10	119-10		-	40		Gray, medium to fine SAND, little Silt, trace Gravel.
	119-13		-	12		
15						Gray, coarse to medium SAND, some fine Gravel (rounded), trace Silt, wet.
	119-17		-	40		Brown, fine Gravel (rounded) and Silt, trace Clay.
						Buff, Clayey SILT.
20						Gray, medium to fine SAND.
25						

Well Diagram



NOTES: ▼ = Static Water Level (from TOC)

Geologist: Rich Rhoads	Driller: John Stewart

Handex®

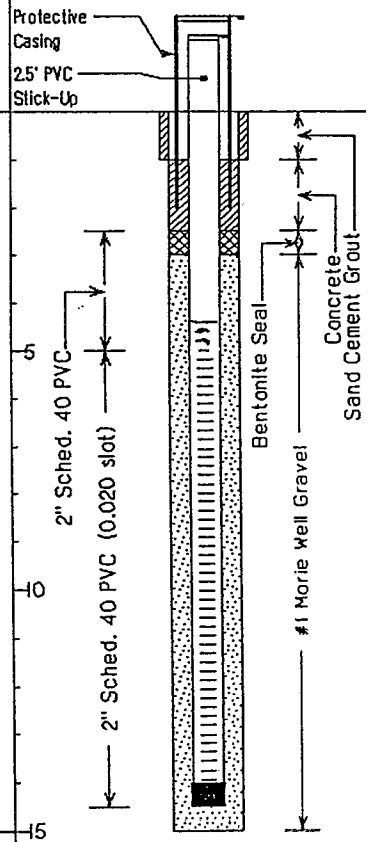
Handex Of Maryland

WELL LOG: MW-120

Permit #: *BC-92-0348*	Drill Date: *5/17/94*	Use: *Monitoring Well*
Location: *Evered Bardon Property*		Owner Loc #: *2182*
Owner: *Exxon Company, U.S.A.*		Handex Loc #: *107245-01*
Owner Address: *3801 Boston St., Baltimore, Md*	BORING - Depth: *15 ft.*	Diameter: *8 in.*
Drilling Method: *Hollow Stem Auger*	CASING - Length: *7 ft.*	Diameter: *2 in.*
Sampling Method: *Continuous Core*	SCREEN - Length: *10 ft.*	Diameter: *2 in.*
Static Water Level: *7.70 ft. (5/18/94)*	WELL - Depth: *14.5 ft.*	

Depth (ft.)	Sample ID	Sample Depth	Blows/6 in.	OVA	Graphic Log	Geologic Description
5	120-5		-	0		Fill (Brown, silty Sand, Gravel, little clay, concrete fragments at 14.5. Wet at 8'.
10	120-10		-	0		
15						NOTE: Auger refusal at 15'.
20						
25						

Well Diagram



NOTES: ▼ = Static Water Level (from TOC)

Geologist: Rich Rhoads

Driller: John Stewart

Handex

Handex Of Maryland

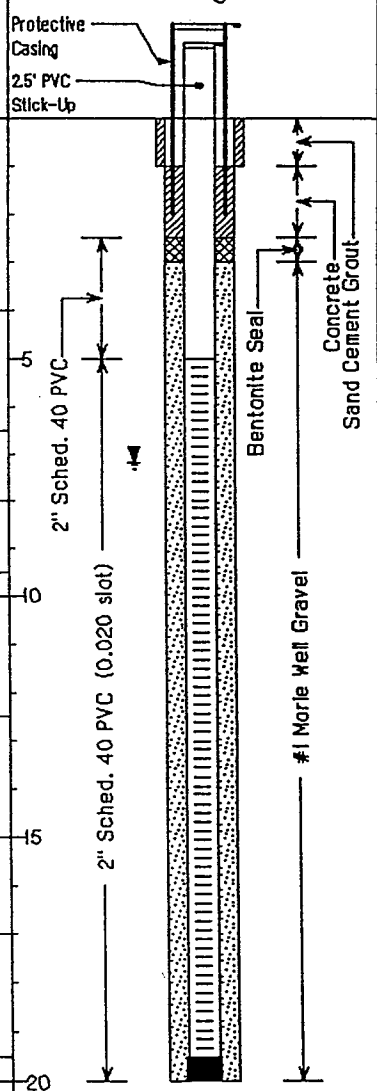
WELL LOG: MW-121

3505

Permit #: *BC-92-0349*	Drill Date: *5/17/94*	Use: *Monitoring Well*
Location: *Evered Bardon Property*		Owner Loc #: *2182*
Owner: *Exxon Company, U.S.A.*		Handex Loc #: *107245-01*
Owner Address: *3801 Boston St., Baltimore, Md*	BORING - Depth: *20 ft.*	Diameter: *10.5 in.*
Drilling Method: *Hollow Stem Auger*	CASING - Length: *7.5 ft.*	Diameter: *4 in.*
Sampling Method: *Continuous Core*	SCREEN - Length: *15 ft.*	Diameter: *4 in.*
Static Water Level: *9.70 ft. (5/18/94)*	WELL - Depth: *20 ft.*	

Depth (ft.)	Sample ID	Sample Depth	Blows/6 in.	OVA	Graphic Log	Geologic Description
						Fill (Dark brown, Sand, Silt, and Gravel with brick fragments).
5	120-5		-	15		Light brown, fine SAND, some Silt and fine Gravel.
						Light brown/gray Silty CLAY, little fine Sand.
						Gray, Pebbles in Silt matrix, little fine Sand and Clay.
10	120-10		-	250		Brown, Sandy SILT, little fine Gravel.
						Brown, Clayey SILT, little fine Sand.
						Black stained, coarse to fine Sand and Gravel, little Silt, wet, product saturated.
15						Black stained, fine Silty SAND, little Clay, product saturated to 18'.
						Brown, medium to fine SAND, trace Silt and Gravel.
20						Buff, Silty CLAY, little fine Gravel.
25						

Well Diagram



NOTES: ▼ = Static Water Level (from TOC)

Geologist: Rich Rhoads	Driller: John Stewart

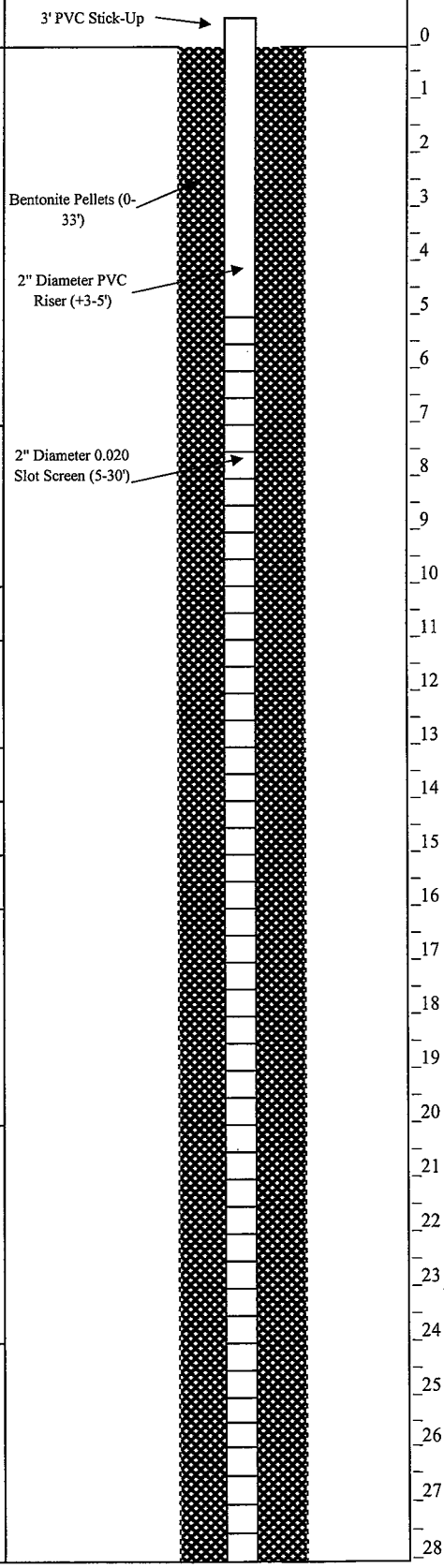
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Conveyor Pit Delineation		PROJECT NUMBER: 811220	WELL ID: P3 (3509)	
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		LOGGED BY: S. Cook	EASTING:	
COMPLETION DATE: August 17, 2001	TOTAL DEPTH (FT): 32	GROUND ELEV. (FT, MSL): 30.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		60	0.0, 0.0	Fill	0-7.5' Black-tan, moist, FILL material
5–8		80	0.0, 0.0		
9–10		50	0.0	SM	Dark brown, damp, SILT and fine sand, some small gravel
11			449.0	SP	Brown-grey-tan, wet, fine SAND and large rock fragments
12				SP	Brown, wet, dense, SILT clay; grading to black medium SAND and gravel, product stain, odor
13–16		80	0.0, 1541.0	SP	Tan-brown, moist, fine-med SAND
				GP	Rock fragments (same as 10-11.5')
				ML	Grey-black, wet, dense, SILT-CLAY; grading to black, wet, product saturated SAND with rounded gravel
17–20		100	59.6, 25.2	SP	Same as above, product stained and saturated SAND
21–24		60	0.0, 7.1	ML	Grey-tan, wet, SILT with clay, some organic material (roots)
25–28		60	0.0, 0.0	SW	Same as above; grading to tan, wet "beach" SAND

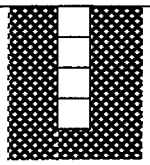
MONITORING WELL DIAGRAM



MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME:	PROJECT NUMBER:	WELL ID:
ExxonMobil Baltimore Terminal	811220	P3 (3509)
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
29		70	0.0	SP	White, tan, grey, wet well graded SAND, some gravel	
30				ML	White-red, tight, SILT and CLAY, solid red CLAY bottom 2"	
31				CL		
32						
	Boring Terminated at 28' Below Ground Surface					

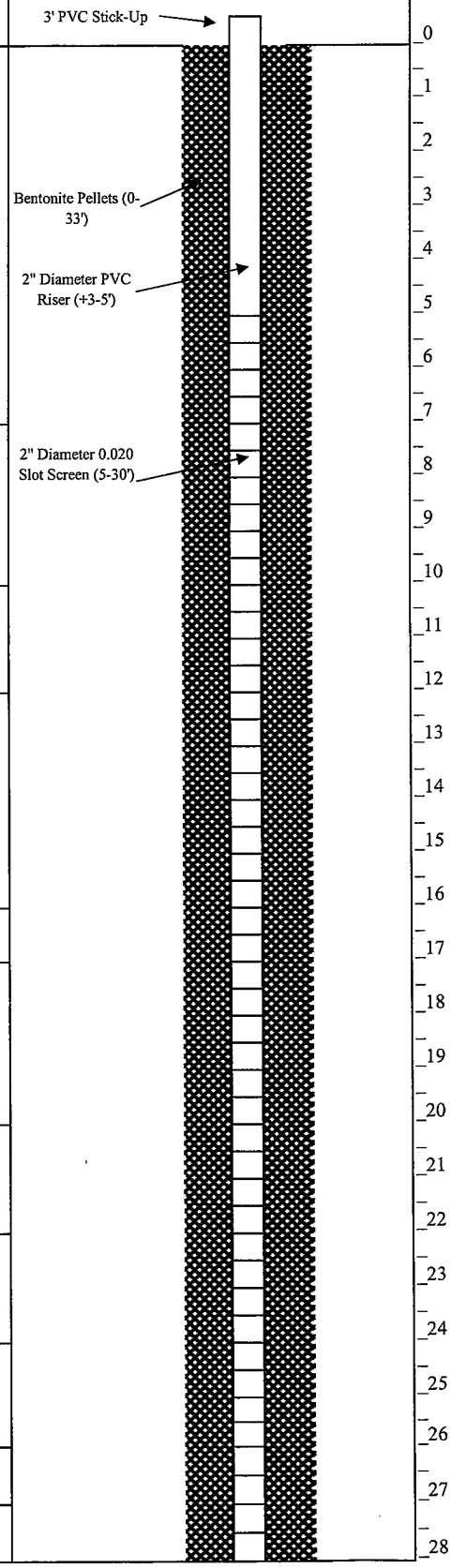
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Conveyor Pit Delineation		PROJECT NUMBER: 811220	WELL ID: P1 (3510)	
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		LOGGED BY: S. Cook	EASTING:	
COMPLETION DATE: August 14, 2001	TOTAL DEPTH (FT): 32	GROUND ELEV. (FT, MSL): 30.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex	DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		80	0.0 / 118.0	Fill	0-7' Crusher run material, brown to black, damp, FILL
5–8		50	621.0 / 2321.0	Fill / SP	0-7' Crusher run material, brown to black, damp, FILL / Grey-brown, moist, product stained, fine-med SAND, trace gravel
9–12		80	1175.0 / 2500.0	SP / SW	Grey-brown, moist, product stained, fine-med SAND, trace gravel / Grading to tan, wet, well graded fine-med SAND, petroleum odor
13–16		100	2384.0 / 2171.0	SP	Grey, wet, fine-med SAND with fine angular and rounded gravel. LNAPL in sleeve and bag, odor
17–20		100	2500.0 / 1810.0	GP / SW	Rounded gravel layer / Grey to tan, wet, well graded fine-med SAND, slight petroleum odor
21–24		60	57.5 / 45.4	SW / ML	20-21' No Recovery; 21-22' White, damp, tight, SILT and fine sand / Tan, moist fine-med SAND grading to white, tight SILT
25–28		60	12.1 / 19.4	ML	NO Recovery / Red-white, damp, tight, SILT-CLAY / White, wet, fine-med SAND and SILT, no odor

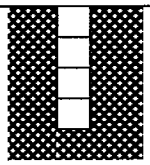
MONITORING WELL DIAGRAM



MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME:	PROJECT NUMBER:	WELL ID:
ExxonMobil Baltimore Terminal	811220	P1 (3510)
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
29						
30						
31						
32						
	Boring Terminated at 28' Below Ground Surface					

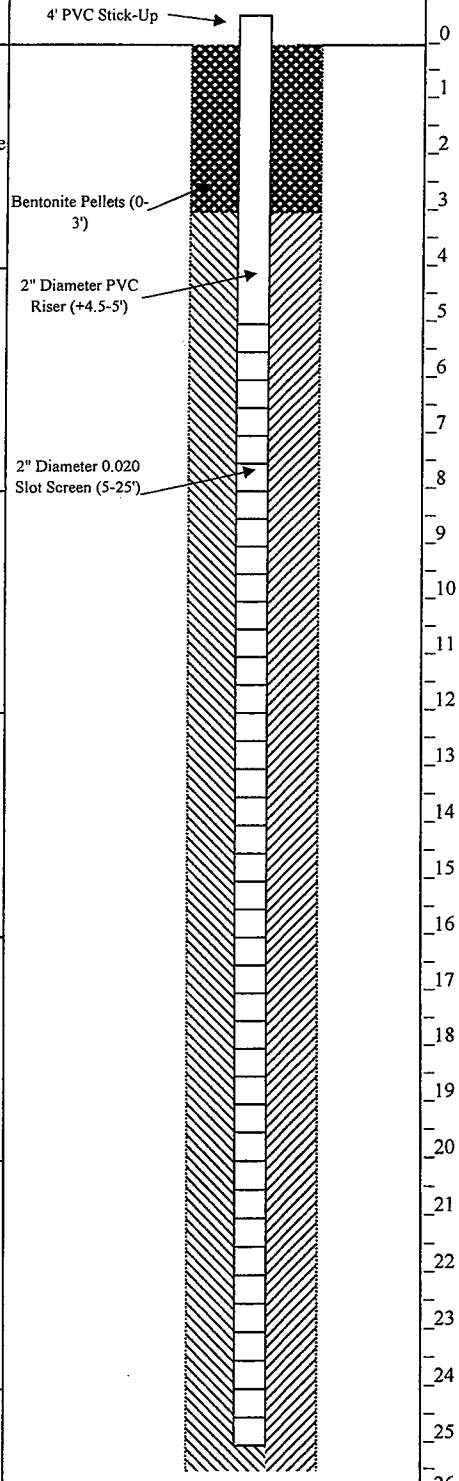
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001		WELL ID: 36
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: October 22, 2002	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT, MSL): 30.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		60	0.0	Fill	Grey, dry, crush and run material; Fill, small-fine angular gravel, some medium gravel, little fines.
5–8		60	9.7	Fill	Brown, wet, same as above to med-coarse angular gravel 1' to brown, wet, SILT and fine sand with some medium gravel. No odors
9–12		70	134.8	SP	Black, stained, wet, fine-med SAND, little angular medium gravel lenses in sample. Some LNAPL saturation and LNAPL in bag. Odors
13–16		80	517.6	SM	Tan-pink to tan to white to grey, fine-med SAND, little silt, grading to damp grey SILT, little fine sand, trace clay to grey-black stained fine-med SAND with angular medium gravel. Last 6" with LNAPL saturation, LNAPL in bag. Odors
17–20		70	484.8	SP	Grey, wet, fine-med SAND and fine rounded gravel, LNAPL saturated; to tan fine-med SAND and fine gravel, to grey SILT and fine sand, trace rounded gravel, some LNAPL pooling. Odors, LNAPL in bag and spoon.
21–24		80	691.2		Black, wet, PG GRAVEL, some med sand, LNAPL pooling in sleeve, grading to black, moist fine SAND and silt with med rounded gravel. Odors
25–28		90	48.0		Same as above with 2" white SILT-CLAY lense grading to light grey, white, tan SILT, little fine sand, little clay. Slight odor. No LNAPL visible in sleeve or bag.
30					Boring Terminated at 28' Below Ground Surface

MONITORING WELL DIAGRAM



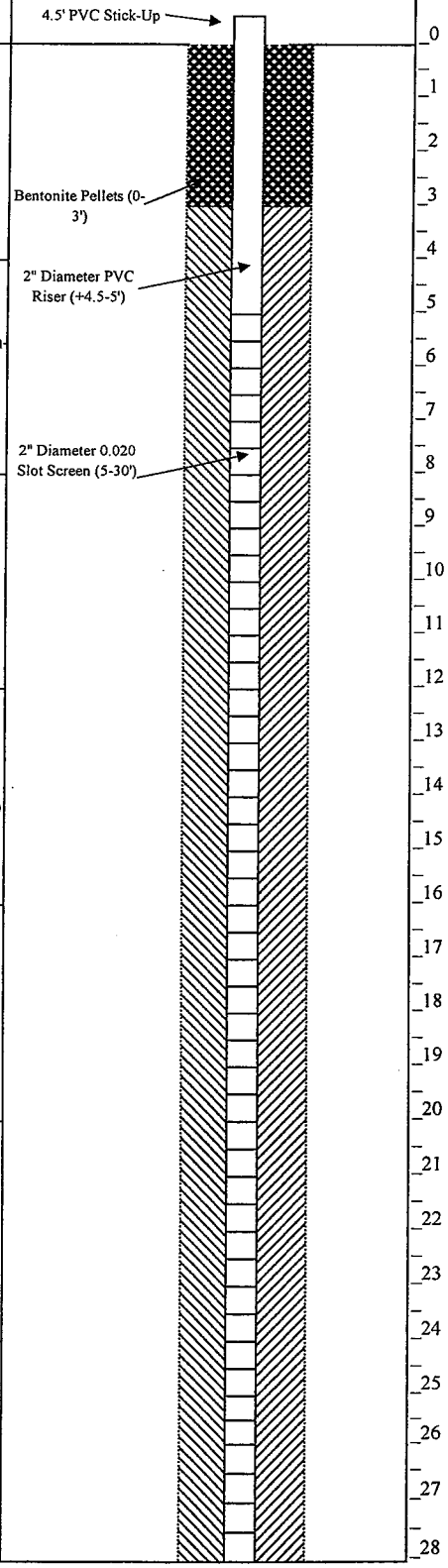
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001	WELL ID 38
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook	EASTING:
COMPLETION DATE: October 22, 2002	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT. MSL): 30.00	TOP TIC ELEVATION (FT. MSL):	TOP TOC ELEVATION (FT. MSL): / NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push / WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		80	28.8	Fill	Brown, dry, loose, SILT, some fine-med sand, some fine gravel; 2" gravel layer at 3' bgs. 2" brick lense bottom of sample. No odors
5–8		80	48.4	ML	Same as above to 6', Black-dark brown, SILT and fine sand, some tan-green SILT-CLAY lenses within sample toward bottom. Little odors, No LNAPL
9–12		60	138.1	GM	Dark brown, SILT and fine-med sand, some LNAPL staining and saturation. Some med angular gravel througout sample, fine gravel lenses 6" from bottom of sample.
13–16		100	357.2	GM	Black-grey, wet, LNAPL saturated SILT and fine sand, some orgainic matter. 6" LNAPL saturated fine gravel lense at 13' bgs, to tan-brown, mottled, SILT and fine sand layer grading to brown PG SAND and fine gravel, brick fragments at bottom of sample
17–20		100	451.7	SM	Brown, wet, LNAPL saturated med SAND and fine gravel, LNAPL pooling in sleeve to brown-tan, moist, SILT little fine sand, some organic matter (roots), grading to white-tan-grey, stained fine-med SAND bottom 6"
21–24		80	1154.0	SP	White-tan-grey, PG SAND, and fine gravel, moist; grading grey with LNAPL saturation, to tan-white 6" SILT, little fine sand, trace clay layer bottom of sample
25–28		80	1028.0	SM	Tan-grey PG SAND and fine gravel, stained, med gravel with tan-grey 2" SILT-CLAY layers throughout. Some odor, slight LNAPL saturation. No LNAPL in sleeve or bag

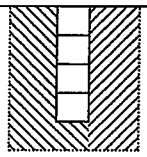
MONITORING WELL DIAGRAM



MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME:	PROJECT NUMBER:	WELL ID
ExxonMobil Baltimore Terminal	P837-001	38
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
29 30 31 32		80	783.4	ML	Light grey-white striated, damp, SILT, little fine sand, little clay. 8" fine gravel, PG sand black and green stained layer middle of sample. Some odor, no LNAPL	

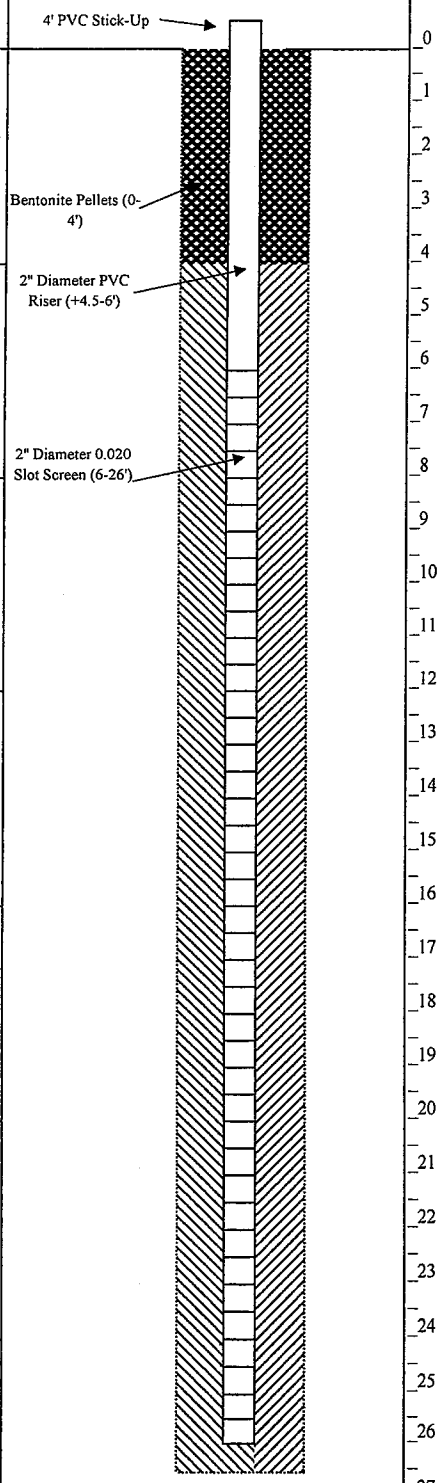
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001	WELL ID: 39
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook	EASTING:
COMPLETION DATE: October 22, 2002	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT, MSL): 30.00	TOP TIC ELEVATION (FT. MSL):	TOP TOC ELEVATION (FT. MSL): / NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push / WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		80	48.2	Fill	Brown, damp, loose fill material, SILT with fine-med sand and gravel to 2' bgs. 1' tan-white mottled SILT, little fine sand, little clay to 1' fine-med SAND and silt, purple staining, slight odor
5–8		70	207.9	SM	Light grey, moist, fine-med SAND to 6", to black stained fine-med SAND, some silt, little med angular gravel, grading to tan, wet, fine-med SAND. 6" grey-green SILT-CLAY lense at 6'. Some odors, no LNAPL
9–12		0	N/A	N/A	NO RECOVERY
13–16		60	1151.0	SM	Grey, wet, stained, fine-med SAND; grading to tan-brown SILT and fine sand, to grey-tan, wet, LNAPL saturated fine-med SAND, little silt, odors, LNAPL in sleeve and bag
17–20		80	227.4	SP	Grey-brown, wet, fine-med SAND, little silt, grading to grey LNAPL saturated PG SAND and fine gravel, white tight SILT bottom 2" of sample, LNAPL in sleeve and bag
21–24		90	207.4	SM / GM	Grey to white, wet, LNAPL saturated, fine-med SAND, little silt, little gravel, grading to grey alternating SILT and fine gravel layers. LNAPL in bag
25–28		70	685.0	SP / ML	Grey, wet, fine-med SAND, LNAPL stained and saturated, grading to 2' PG SAND and fine gravel layer, tan. Bottom 2' tan-red-white, striated, tight SILT, some clay, little fine sand. No LNAPL
30					Boring Terminated at 28' Below Ground Surface

MONITORING WELL DIAGRAM



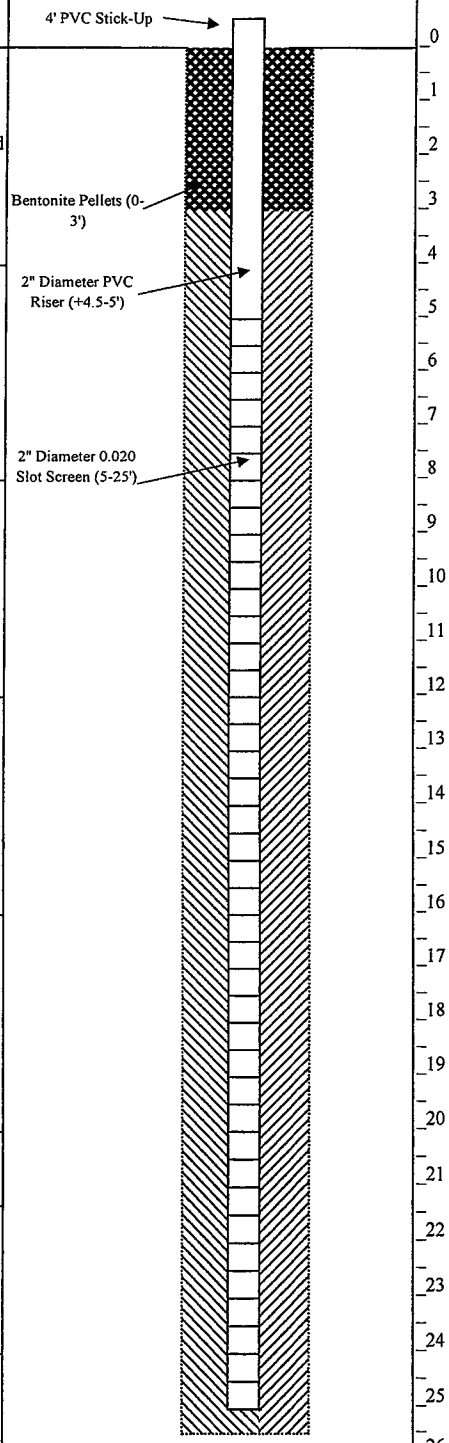
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001	WELL ID 40
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook	EASTING:
COMPLETION DATE: October 21, 2002	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT. MSL): 30.00	TOP TIC ELEVATION (FT. MSL):	TOP TOC ELEVATION (FT. MSL): / NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push / WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		80	52.6	Fill	Brown-black, dry, loose, SILT, some fine-med SAND, some fine-med angular/rounded gravel and brick fragments. Very slight odor
5–8		30	21.7	Fill	Same as above, some concrete fragments, slight odor
9–12		50	278.4	GM	Same as above, wet to 6"; 2' white concrete, stone layer, to black, wet, LNAPL saturated SILT, some fine-med sand and fine gravel. 3" brown SILT layer, no LNAPL. 1" fine GRAVEL and PG sand layer with LNAPL bottom of sample
13–16		40	429.7	SM	Brown-tan, SILT and fine-med sand layers, some organic material (roots). Some rounded fine gravel bottom 6" of sample, LNAPL in sleeve and bag, odors
17–20		60	593.6	SM	Tan-grey-black, wet, layered fine-med SAND, LNAPL saturated, grading to moist grey-black SILT, little fine sand, little clay, LNAPL in sleeve and bag, odors
21–24		50	330.6	SM	Light grey-tan, mottled, wet SILT, some clay, little fine sand with fine-med SAND lenses. Grading to light grey, LNAPL saturated fine-med SAND with silt-clay lenses toward bottom of sample. LNAPL in sleeve and bag, odor
25–28		60	288.1	ML	Light grey-tan-white, wet, fine-med SAND grading to SILT, little fine sand, trace clay. No visible LNAPL , little odor
30					Boring Terminated at 28' Below Ground Surface

MONITORING WELL DIAGRAM



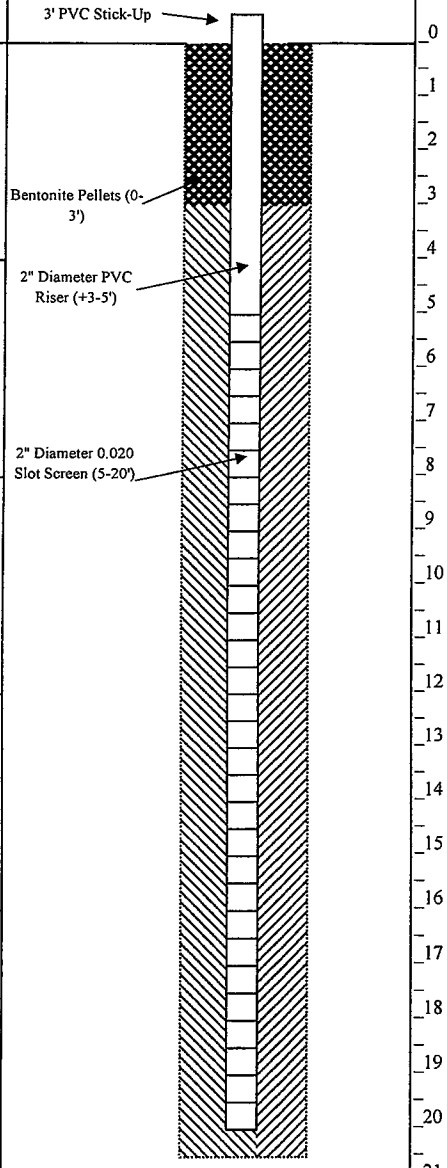
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001	WELL ID 41
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook	EASTING:
COMPLETION DATE: October 21, 2002	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT, MSL): 30.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL): / NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push / WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		80	6.8	Fill	Brown-black, dry, loose, SILT, some fine-med SAND and gravel. Very slight odor
5–8		75	53.6	Fill	Same as above, shell fragments in sample. Red-tan, SILT-CLAY layer botom 2" of sample. Very slight odor
9–12		80	273.4	SM	Grey-black-red, 2" SILT, some clay, little fine sand layer; grading to black, stained fine-med SAND, moist, some brick fragments, some wood and root fragments. 2" brown SILT, little fine sand layer bottom of sample. LNAPL in sleeve and bag, odor
13–16		60	177.2	ML	Same top 2", to brown, wet SILT, some fine-med sand, little clay with organic material; grading to 8" black PG SAND and fine gravel layer. LNAPL in sleeve and bag, odors
17–20		50	251.6	SM	Brown, wet, fine-med SAND top 2", to SILT, little fine sand, little clay with organic matter throughout; grading to 3" black stained fine SAND with LNAPL, LNAPL in bag, odors
21–24		50	42.8	ML	Same top 1" to light grey-tan mottled, dense SILT, little fine sand, trace clay, trace med gravel. Little odor, no LNAPL
25–28		80	27.1	ML	White-red-tan, mottled, tight, damp, SILT, little, fine sand, little clay, very slight odors, no LNAPL
30					Boring Terminated at 28' Below Ground Surface

MONITORING WELL DIAGRAM



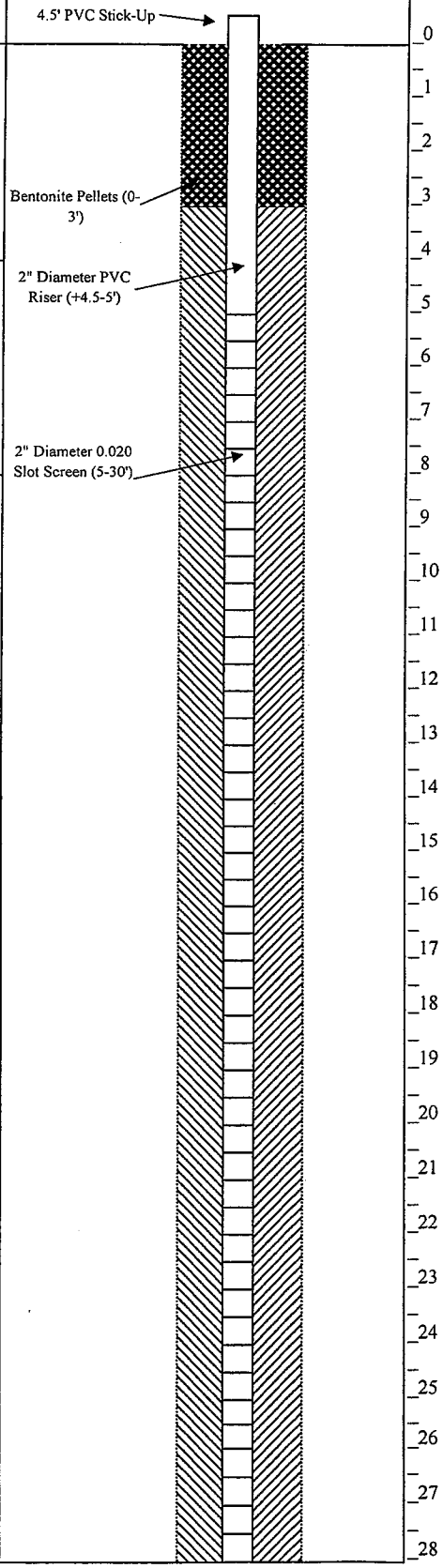
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001		WELL ID 52
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: October 23, 2002	TOTAL DEPTH (FT): 32	GROUND ELEV. (FT, MSL): 28.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		80	16.7	Fill	Brown-tan, dry, loose, SILT and gravel, some fine-med sand to 2'. Brown, damp, SILT, little fine sand and fine angular gravel, no odor, no LNAPL
5–8		90	141.6	SP	Tan, damp, fine-med SAND, little silt, 3" wood fragment to grey-tan-brown, fine-med SAND, little silt, moist, to black-grey stained, fine-med SAND, little silt, some med rounded gravel.some odor
9–12		75	556.0	SP	Same as last 2' above, black, wet, PG fine-med SAND and fine-med gravel, angular with large brick fragments. 2-2" brick lenses at 10 and 11' bgs. Some LNAPL in gravel, grading to tan-white, fine SAND, some silt with black gravel 2' from bottom. LNAPL in sleeve and bag. Odor
13–16		60	490.2	SP	Grey, wet, fine-med SAND with fine angular and rounded gravel. LNAPL in sleeve and bag, odor
17–20		75	1126.0	SM	Same as above; grading to tan-grey striated SILT, little fine sand, little clay. 6" fine-med SAND lenze at 18'. LNAPL saturation, LNAPL in sleeve and bag. Odor
21–24		80	1150.0	SP	Brown-grey, wet, fine-med SAND, trace silt, LNAPL saturated to 22.5' bgs. Grading to light grey SILT, some fine sand, some clay, no LNAPL in silt. Odor, LNAPL in bag
25–28		80	154.1	SP	Light grey-dark grey mottled, wet, fine-med SAND, some rounded med gravel to 27'. Grading to white-red-tan fine SAND and silt, grading to grey fine SAND, wet, no LNAPL, some odor

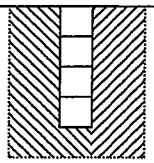
MONITORING WELL DIAGRAM



MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME:	PROJECT NUMBER:	WELL ID
ExxonMobil Baltimore Terminal	P837-001	52
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
29 30 31 32		75	228.3	SP	Light grey-dark grey-white, wet, fine-med SAND with staining, little fine rounded gravel. No LNAPL. Some odor	 29 30 31 32
	Boring Terminated at 32' Below Ground Surface					

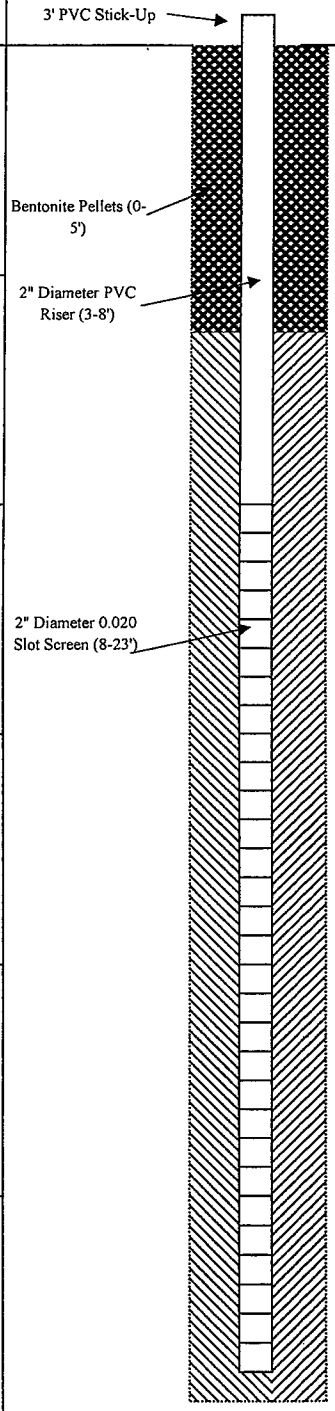
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation		PROJECT NUMBER: P837-001	WELL ID 57
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		LOGGED BY: S. Cook	EASTING:
COMPLETION DATE: ober 24, 2002	TOTAL DEPTH (FT): 32	GROUND ELEV. (FT, MSL): 30.00	TOP TIC ELEVATION (FT, MSL):
TOP TOC ELEVATION (FT, MSL):	NORTHING:		
LLING CONTRACTOR / DRILLER: Vironex	DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push
WELL PERMIT NUMBER:			

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		100	97.4	Fill	Tan-black-orange, stone, some brick fragments, some fine-med sand, some silt, dry; 6" tan-white large stone layer at 2' bgs, followed by 6" tan fine-med PG SAND and med angular gravel layer. 1' black silt and angular gravel layer bottom of sample, little odor
5–8		70	72.1	SP	Tan-grey-black, dry, fine-med SAND and crushed stone, 6" brick fragment at 6.5' bgs, to PG SAND and fine angular gravel bottom of sample
9–12		60	248.6	SM	Same as above top 1', wet, to brown-black striated SILT and fine sand, little clay, some odor, no LNAPL
13–16		80	479.8	SP	Same as above to 14' bgs; some LNAPL saturation, some brick fragments and med rounded gravel; grading to tan-grey fine-med SAND, LNAPL saturated, LNAPL in sleeve and bag
17–20		40	772.1	SP	Tan-grey, wet, LNAPL saturated fine-med SAND (PG), some fine rounded gravel (stream?), odors, LNAPL in sleeve and bag
21–24		50	259.7	SP / ML	Same as above 2' to brown-grey striated, moist dense SILT, little clay, little fine sand, organic matter
25–28		60	229.8	SM	Same as above 1', to tan-brown, wet, fine-med SAND, no staining, little odor, to brown, tight SILT with some fine sand, some organic matter bottom 1'

MONITORING WELL DIAGRAM



MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME:	PROJECT NUMBER:	WELL ID
ExxonMobil Baltimore Terminal	P837-001	57
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
29						29
30		80	178.7	SM	Brown to tan, wet, fine-med SAND, grading to tan-white tight SILT, some fine sand bottom 2'	30
31						31
32						32
	Boring Terminated at 32' Below Ground Surface					

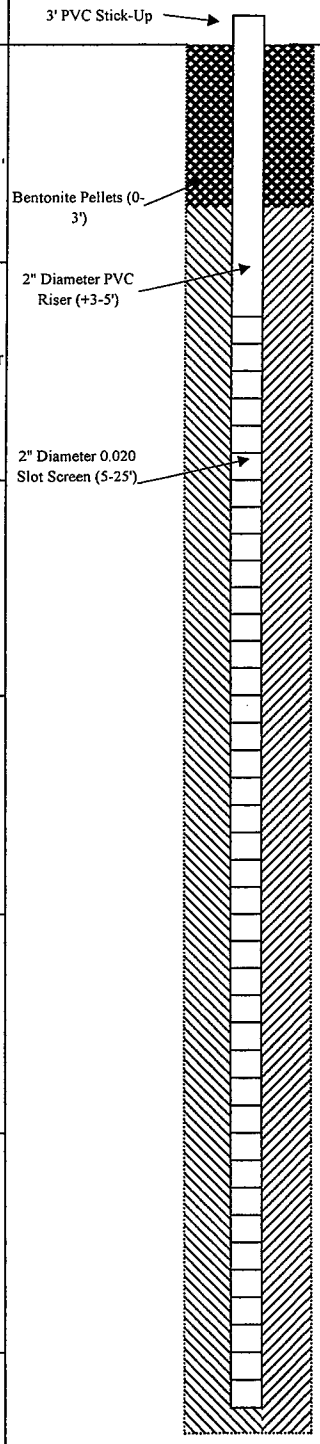
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001	WELL ID 60
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook	EASTING:
COMPLETION DATE: October 25, 2002	TOTAL DEPTH (FT): 24	GROUND ELEV. (FT. MSL): 27.00	TOP TIC ELEVATION (FT. MSL):	TOP TOC ELEVATION (FT. MSL): / NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push / WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		75	0.0	Fill	Brown, dry, loose SILT, little fine sand, some fine angular gravel, 6" gravel layer at 2' bgs; grading to tan-orange, PG SAND, some fine rounded gravel with tan-brown striated SILT, little fine sand bottom 1' of sample, no odor
5–8		90	0.7	SP	1' PG SAND and fine gravel with some coarse gravel fragments; grading to black, damp, SILT, some fine-med sand, some fine angular gravel; grading to 2" pink fine SAND lense and brown moist SILT, little fine sand, trace clay bottom of sample, no odor
9–12		90	39.8	SM	Same SILT as above, tan-brown layered, some fine-med sand lenses throughout sample, moist, very little odor, no LNAPL
13–16		100	476.2	SP	Same SILT as above, brown-dark grey; grading to tan-black wet, LNAPL saturated PG SAND with some fine rounded gravel (stream?), LNAPL pooling in sleeve and bag, odor
17–20		40	206.1	SP	Same as above, wet, PG SAND and fine rounded gravel. LNAPL in top 6" of sample, some odor
21–24		50	41.2	ML	Tan-white, wet, fine SAND; grading to white tight SILT, little fine sand, some clay, 3" to red-pink-white mottled SILT, some clay, little fine sand, very slight odor, no LNAPL
25–28					Boing Terminated at 24' Below Ground Surface
30					

MONITORING WELL DIAGRAM



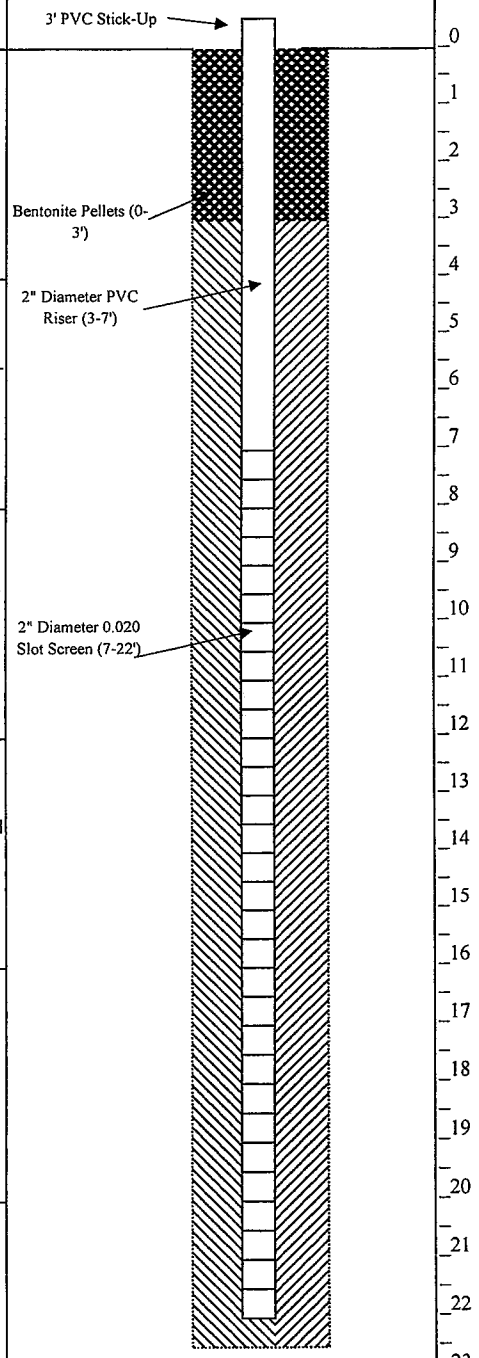
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation		PROJECT NUMBER: P837-001		WELL ID: MDE 3
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: tober 25, 2002	TOTAL DEPTH (FT): 32	GROUND ELEV. (FT, MSL): 28.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
LLING CONTRACTOR / DRILLER: Vironex	DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		70	0.0	Fill	Brown, loose, fine-med SAND, some silt, some fine rounded and angular gravel. 6" gravel lense at 2' bgs, same below with some glass and brick fragments
5–8		40	10.2	Fill	Brown, damp, fine-med SAND and fine angular gravel; grading to tan-black, wet, fine-med SAND, little silt, some fine angular gravel and brick fragments
9–12		40	271.8	ML	2" black stained wood fragment, 6" fine angular gravel, some LNAPL; grading to black-brown, wet, SILT, some fine sand, trace clay, coarse rounded gravel lense 2" from bottom of sample, slight LNAPL in bag, some odor
13–16		70	304.7	SP	Tan-grey, stained, LNAPL saturated fine-med SAND and fine rounded gravel; grading to tan non saturated, wet, fine-med SAND, some fine rounded gravel, some odor
17–20		60	185.5	SP	Same as above, tan-grey, wet, fine-med SAND, no LNAPL, some staining. Coarse rounded GRAVEL bottom of sample
21–24		50	147.2	SM	Same as above to 22' bgs; grading to tan, moist, dense SILT with organic matter; grading to brown-tan, moist, fine-med SAND, some silt, little fine-med rounded gravel, some odor
25–28		80	12.1	SM	Light grey-tan striated, wet, fine-med SAND; grading to white-tan stirated fine SAND, some silt, little odor

MONITORING WELL DIAGRAM



MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME:	PROJECT NUMBER:	WELL ID
ExxonMobil Baltimore Terminal	P837-001	MDE 3
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
29						29
30		80	24.7	ML	Same as above; grading to red-white-tan mottled SILT, little fine sand, little clay, very slight odor	30
31						31
32						32

Boring Terminated at 32' Below Ground Surface

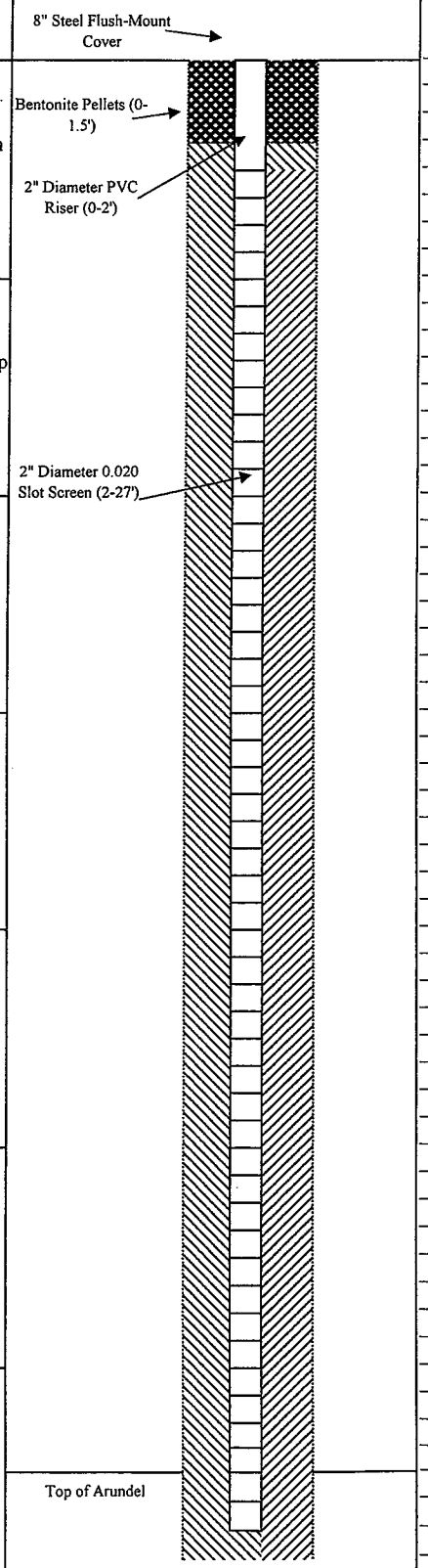
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- UZ Canton Trade Center		PROJECT NUMBER: 2604.003.01		WELL ID: GP1
PROJECT LOCATION: Baltimore, Maryland (4200 Boston Street)		LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: September 9, 2003	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT, MSL): 23.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		20	22.9	Fill	Tan-brown, moist, loose SILT, little fine-medium sand, little medium rounded gravel, some brick fragments. Fill, no significant odor. (Previously removed by NAL utility markout air knife)
5–8		100	56.2	SM	Black, wet, stained SILT, some fine sand, some fine angular gravel top 1'; grading to black, wet, stained fine SAND, little silt, very slight odor.
9–12		100	95.0	SM	Same as above; grading to black, tan, brown mottled SILT, little fine sand lense (8") to tan-black striated, moist fine SAND bottom 3" of sample. Very slight LNAPL present in bag.
13–16		30	0.4	OL	Brown and grey mottled, moist, slightly dense, SILT and clay layer, trace fine sand, no odor.
17–20		75	0.7	SP	Light grey, wet, medium SAND to 18" and bottom 8" of sample with grey and dark grey stained, wet, (PG) SAND and fine-medium rounded gravel layer center of sample. No odor, no sign of LNAPL.
21–24		75	1.4	SM	Light grey, orange layered medium (PG) SAND with PG rounded gravel layer top 1' of sample; grading to light grey, dense damp, SILT, little fine sand 1'; grading to light grey, white and red fine SAND with white silt striations; red medium SAND bottom 3" of sample.
25–28		80	0.0		Same as above, tan-pink and red mottled wet, medium SAND top 2'; grading to tan-pink to white-pink to white and red mottled striated dens damp SILT, little fine sand, little clay. Top of Arundel Layer.
30					Boring Terminated at 28' Below Ground Surface

MONITORING WELL DIAGRAM



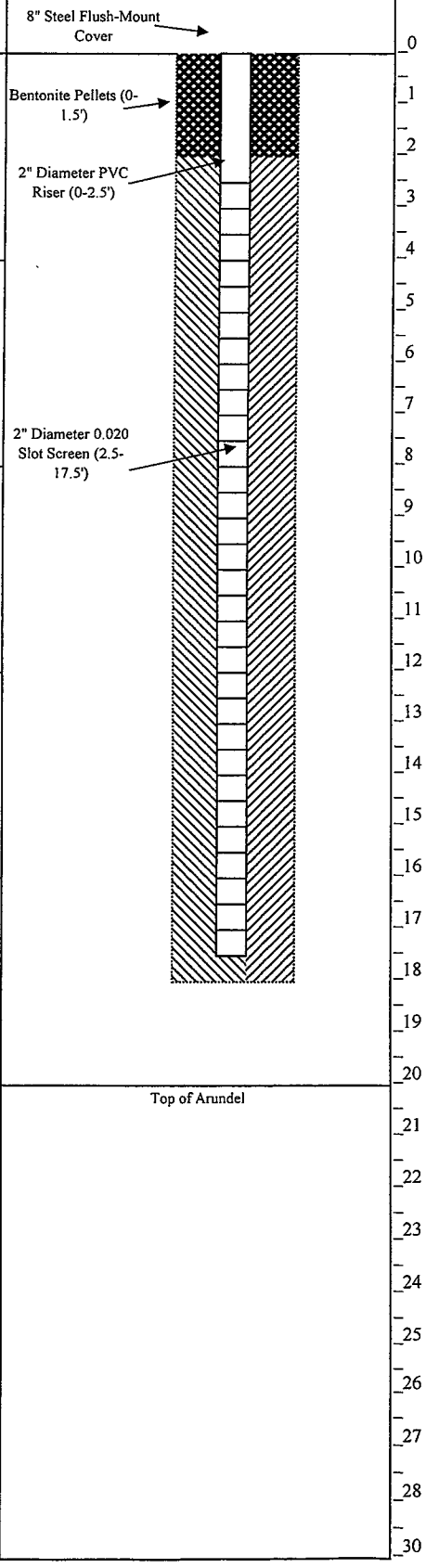
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- UZ Canton Trade Center		PROJECT NUMBER: 2604.003.01		WELL ID: GP2
PROJECT LOCATION: Baltimore, Maryland (4200 Boston Street)		LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: September 9, 2003	TOTAL DEPTH (FT): 24	GROUND ELEV. (FT, MSL): 23.50	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		0	N/A	N/A	NO RECOVERY
5–8		0	N/A	N/A	NO RECOVERY
9–12		75	396.6	SM	Tan-black stained (mottled staining) fine SAND, some fine angular gravel at top of sample, followed by 6" brown dense damp SILT and clay, little fine sand layer; grading to black stained (with tan unstained mottling), fine SAND, some odor.
13–16		80	89.7	SM	Same as above top 2'; grading to tan-brown, wet, fine SAND, trace silt, trace fine angular gravel, some odor
17–20		50	33.1	SP	Light brown-tan, wet, medium SAND, some fine rounded gravel, no odors.
21–24		100	0.0	ML	Red with some white mottling, dense, damp SILT, some clay, little trace fine sand, no odor, no sign of LNAPL. Arundel Layer.
25–28					Boing Terminated at 24' Below Ground Surface NOTE: Unable to push 3" tool into silt. Well set at 17.5 to allow for high water table in area. Boring took 4 times the amount of well sand used on the other GP points, possible void in area of no recovery.
30					Boring Terminated at 28' Below Ground Surface

MONITORING WELL DIAGRAM



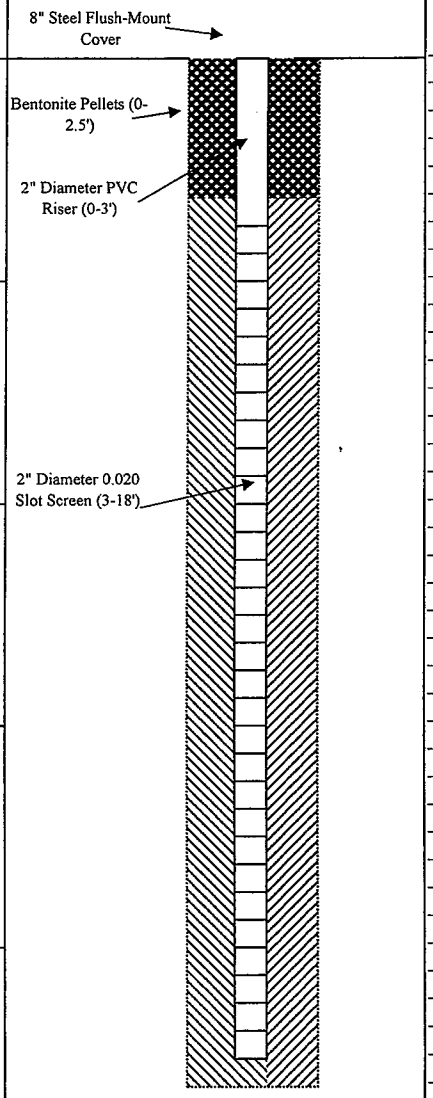
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- UZ Canton Trade Center			PROJECT NUMBER: 2604.003.01	WELL ID: GP3
PROJECT LOCATION: Baltimore, Maryland (4200 Boston Street)			LOGGED BY: S. Cook	EASTING:
COMPLETION DATE: September 9, 2003	TOTAL DEPTH (FT): 24	GROUND ELEV. (FT, MSL): 24.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL): / NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push / WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		30	0.0	Fill	Top 6" asphalt patch; to brown, tan, orange, damp SILT, some medium sand, trace fine angular gravel. No odor.
5–8		0	N/A	N/A	NO RECOVERY
9–12		0	N/A	N/A	NO RECOVERY
13–16		80	1.5	SW	Top 2" brown, wet organic SILT and clay layer, organic material (roots) present in the sample; grading to light grey, moist, (WG) fine SAND. Some fine angular gravel bottom 1' of sample. No odor, no sign of LNAPL.
17–20		100	1.7	SW	Light grey, wet (WG) fine SAND top 2'; grading to tan-grey, wet (WG) medium SAND to tan, wet (WG) medium SAND bottom 1' of sample. Small white dense SILT layer bottom of sample, no odor.
21–24		90	274.3	ML	Red-white mottled, dense, damp SILT and clay, little fine sand to 22.5'; grading to tan-white mottled SILT clay to white and grey mottled SILT and clay. Little fine sand bottom of sample. No odor. Arundel Formation.
25–28					Boing Terminated at 24' Below Ground Surface
30					

MONITORING WELL DIAGRAM



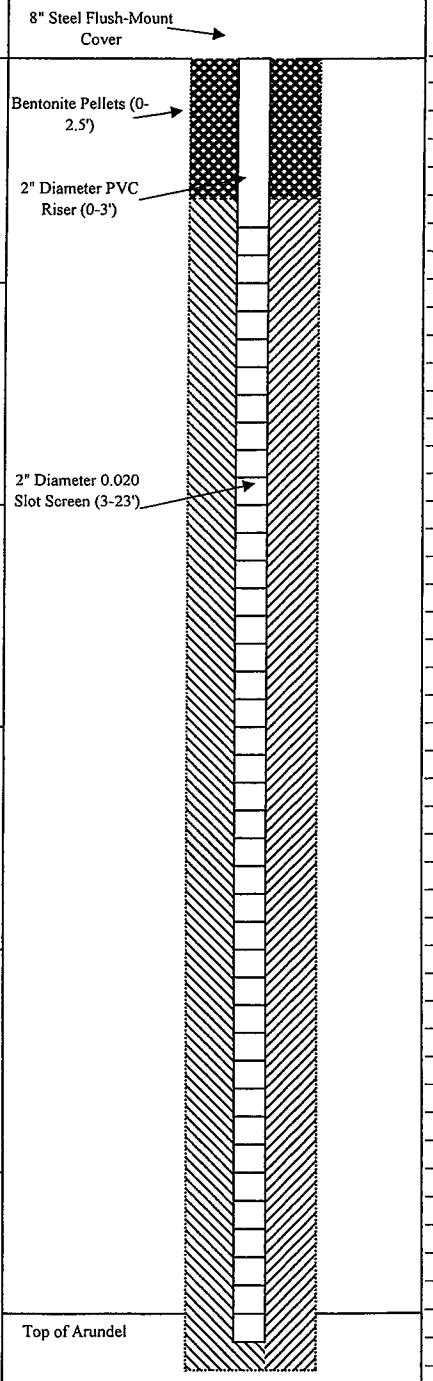
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- UZ Canton Trade Center			PROJECT NUMBER: 2604.003.01		WELL ID: GP4
PROJECT LOCATION: Baltimore, Maryland (4200 Boston Street)			LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: September 10, 2003	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT, MSL): 24.50	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
0–4		50	1.3	Fill	6" ashpalt, brown, loose, damp SILT, some (PG) sand and (PG) rounded gravel. 3" red brick fragment bottom of sample.
4–8		80	0.8	ML	Same as above with brick fragments to 5.5'; grading to brown, moist SILT, little fine sand, some angular gravel, some odor. Brown, solid SILT, little organic clay bottom 1' of sample. Trace organic matter in clay. No odor.
8–12		70	188.2	SM	Alternating black stained saturated medium SAND and brown SILT lanses, some odor. Some LNAPL in bag.
12–16		100	468.0	SM	Brown, wet SILT top 1.5' to brown, black saturated fine SAND with trace silt. Slight LNAPL in spoon, LNAPL in bag. Tan unsaturated fine SAND bottom 6" of sample.
16–20		80	539.2	GM	Brown-black, wet, SILT and some fine sand top 1.5' to brown-grey, moist medium SAND with fine rounded gravel lenses. LNAPL in gravel, some in sand, odor. Grading to grey (PG) SAND and fine gravel, LNAPL in bag and spoon.
20–24		100	786.2	SM	Dark grey, wet (PG) SAND top 6" to same with (PG) rounded gravel to 22'. 6" grey SILT and fine sand layer followed by 4" (PG) SAND and (PG) rounded gravel to 1' white-tan striated dense, damp, SILT, little fine sand, little clay followed by light grey and tan fine SAND and silt layer bottom 6" of sample.
24–28		100	1552.0	SM	Same SAND as above, some grey mottling and small SILT-CLAY lenses throughout sample to 26.5'; grading to moist, tan-grey striated fine SAND, trace silt. Strong odors.
28–30					Boring Terminated at 28' Below Ground Surface

MONITORING WELL DIAGRAM



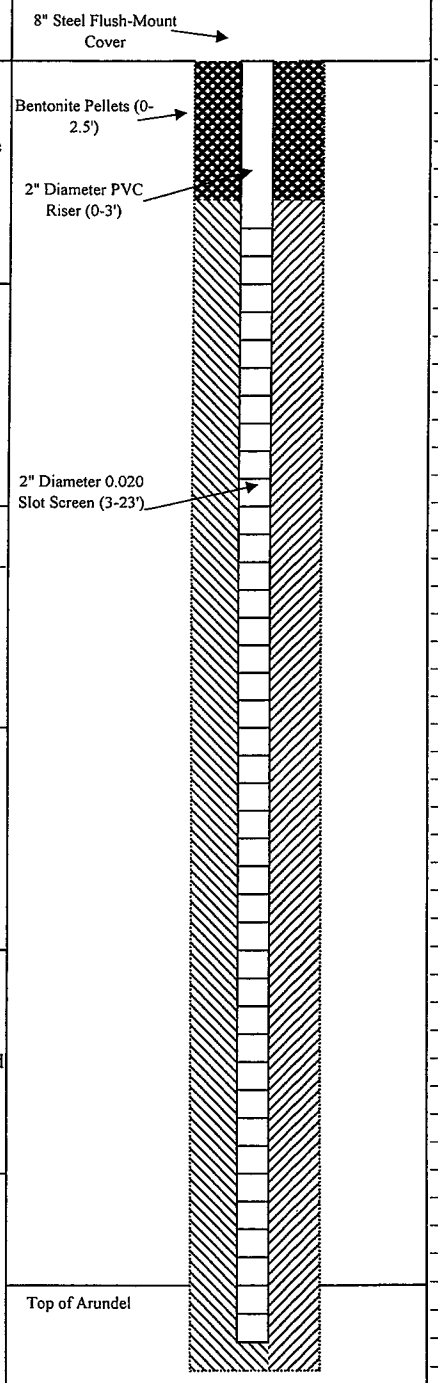
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- UZ Canton Trade Center		PROJECT NUMBER: 2604.003.01		WELL ID: GP5
PROJECT LOCATION: Baltimore, Maryland (4200 Boston Street)		LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: September 10, 2003	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT, MSL): 23.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		75	0.0	Fill	3" asphalt to brown-black, damp, loose SILT, little fine SAND, some (PG) angular gravel, brick fragments and glass particles throughout sample. No odor.
5–8		80	5.6	SM	Brown-black, moist SILT, little fine sand with brick fragments and (PG) angular gravel to 7'; grading to tan-black striated fine SAND layer to a 6" brown, damp, dense SILT, some organic clay, trace organic matter, slight LNAPL in bag.
9–12		100	70.6	SM	Same SILT and clay as above, some brown and black striations, moist-wet to 11'; grading to 2" black stained fine SAND lense at 11' some odor, little LNAPL; grading to same SILT-clay as above with tan-brown SILT and fine sand bottom 2" of sample. Very slight LNAPL in bag, some odor.
13–16		90	406.8	SM	Tan-grey, wet fine SAND, trace silt to 14' grading to tan wet, fine SAND, trace siltto 15'; grading to brown with black striations, moist, dense SILT, little fine sand bottom 6" of sample. LNAPL in bag, slight LNAPL in sleeve, odor.
17–20		100	483.4	SM	Same as above to 18'; grading to medium grey with orange and white striations, some silt, LNAPL saturated to medium grey, orange striated fine SAND, little silt, LNAPL in sleeve and bag, odor.
21–24		90	1332.0	SW	Top 4" tan, wet LNAPL saturated fine SAND, some grey silt lenses in sand; grading to light grey, LNAPL saturated, wet fine SAND, trace silt to a 3" concrete and angular gravel lense with 3" orange (PG) SAND and (PG) rounded gravel layer with LNAPL saturation to light grey damp, dense, fine SAND grading to SILT bottom 1.5' of sample. Some LNAPL in bag, odor.
25–28		100	983.7	ML	2" grey moist fine SAND lense, little silt to 8" dense, damp light grey SILT, little clay, little fine sand; grading to tan-light grey, wet LNAPL saturated fine SAND, trace silt. LNAPL in sleeve and bag, odor.
30					Boring Terminated at 28' Below Ground Surface

MONITORING WELL DIAGRAM



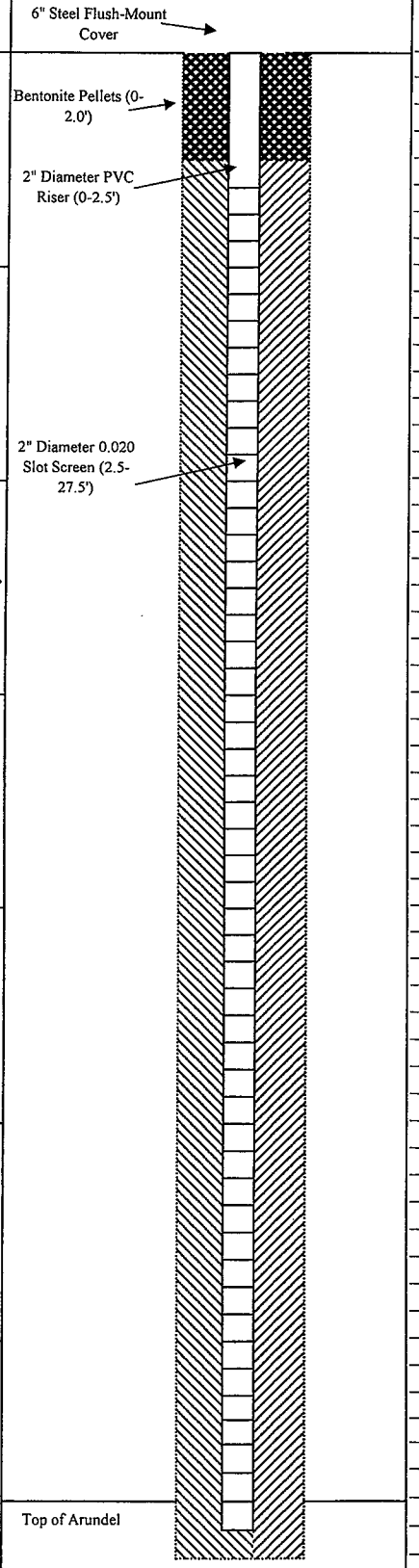
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Boston St (S. Canton Trade)			PROJECT NUMBER: 2604.003.01		WELL ID: GP6
PROJECT LOCATION: Baltimore, Maryland (4200 Boston Street)			LOGGED BY: G. Bowles		EASTING:
COMPLETION DATE: December 16, 2003	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT. MSL): 24.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		20	0.0	Fill	Brown medium SAND with silt, with fine clasts, moist, medium dense. Fill material already excavated by North American Locating with the utility air knife.
5–8		80	25.6	SM	Black fine-medium SAND with silt, with clay, with fine clasts, moist, medium dense, product impacted.
9–12		70	188.2	CL	Grey CLAY with medium sand with fine clasts, moist, medium dense, product impacted.
13–16		0	N/A	N/A	No Recovery
17–20		0	N/A	N/A	No Recovery
21–24		0	N/A	N/A	No Recovery
25–28		40	0.0	ML	White-tan, CLAY, with silt, moist, medium dense.
30					Boring Terminated at 28' Below Ground Surface

MONITORING WELL DIAGRAM



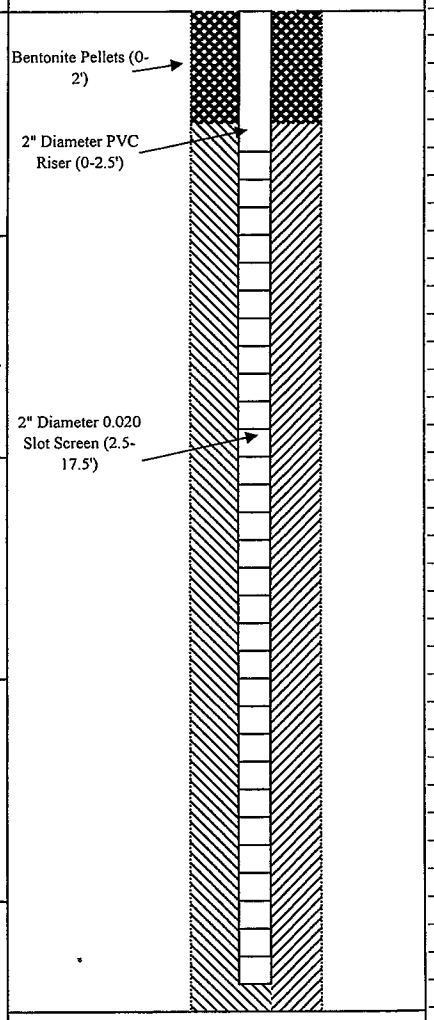
MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Boston St (S. Canton Trade)		PROJECT NUMBER: 2604.003.01		WELL ID: GP7
PROJECT LOCATION: Baltimore, Maryland (4200 Boston Street)		LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: December 17, 2003	TOTAL DEPTH (FT): 28	GROUND ELEV. (FT, MSL): 24.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION
1–4		40	1.7	Fill	Top 3" asphalt, to brown, moist SILT and fine angular gravel, little sand. Fill material already excavated by North American Locating with the utility air knife.
5–8		50	1.9	SP	Tan-black stained, wet, poorly graded SAND, dark black staining bottom 1' of sample. 2" tan-grey SILT-CLAY lense bottom of sample.
9–12		100	2.1	ML	Dark grey-black, wet stained CLAY and poorly graded sand top 1'; grading to tan-black speckled SILT-CLAY 1'; to same with fine SAND. Black stained medium SAND with some odor bottom 1' of sample.
13–16		100	2.3	CL	Black to brown-grey, wet CLAY, some silt, some fine sand to 14'; grading to 8" black stained medium SAND. Tan, moist CLAY-SILT bottom 6" of sample.
17–20		100	0.0	ML	White-red mottled to 2'; grading to all red, dense, damp SILT, some clay, trace fine sand, Arundel layer. No odors.
21–24					Boring Terminated at 20' Below Ground Surface
25–28					
30					

MONITORING WELL DIAGRAM



Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-10B**

Project *Baltimore Terminal - Janney Run Delineation* Owner *ExxonMobil*
Location *3801 Boston Street Baltimore, Maryland* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth *28 ft.* Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *12 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/14/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Product from 14'-20'

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
2	0	80%		FILL	
4	0				0'-8' Stone Crusher run material, mixed gravel, sand and silt. FILL
6	34.2	80%			
8	0				
10	38.7	100%		GM	8'-12' Brown-tan, moist, dense SILT, little angular gravel
12	47.9				12'-14' Grey, moist, angular gravel with SAND, little silt
14	54.6	75%			14'-16' Tan-black, wet, product stained, medium SAND with rounded gravel. 6" product saturated section at 15.5'
16	739.0				
18	372.0	50%			16'-20' Black-grey, wet, product stained, med-fine SAND and rounded gravel
20	226.0			SW	20'-22' No Recovery
22	279.0	50%			
24	601.0				22'-26' Brown-grey, wet, loose, fine-med SAND and rounded gravel
26	110.0	60%		ML	26'-28' White-red, damp, tight, SILT to CLAY
				CL	
28	28.2				Boring Terminated
30					
32					
34					
36					

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring–10C**

Project *Baltimore Terminal – Janney Run Delineation* Owner *ExxonMobil*
Location *3801 Boston Street Baltimore, Maryland* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth *28 ft.* Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *12 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/14/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Product from 12'–21'

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						
2	138.0		80%			
4	0				FILL	0'–8' Stone Crusher run material, mixed gravel, sand and silt. FILL Red clay lense at 8'
6	0		80%			
8	0					
10	0		80%		ML	8'–11' Brown–grey, wet, SILT and clay material
12	422.0					11'–12' Black, moist, product stained, SILT, some gravel, rock and brick fragments
14	476.0		100%		GM	12'–14.5' Same as above, product stained and saturated
16	712.0					14.5'–16' Tan–brown, wet, product saturated, SILT and med–fine SAND
18	277.0		80%		SW	16'–21' Tan–brown, wet, product saturated, fine–med SAND and rounded gravel
20	432.0					
22	208.0		100%			21'–24' Grey–brown, moist, tight SILT with organic matter (roots) @24' wet, fine SAND and silt, no odor
24	0				OL	24'–26' No recovery
26	10.0		20%			26'–28' Grey–brown, wet, fine SAND and SILT grading to red, hard, damp Silt–CLAY
28	0					Boring Terminated
30						
32						
34						
36						

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-10D**

Project *Baltimore Terminal - Janney Run Delineation* Owner *ExxonMobil*
Location *3801 Boston Street Baltimore, Maryland* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth *32 ft.* Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *12.5 ft.*
Screen: Dia *2 in.* Length *20 ft.* Type/Size _____
Casing: Dia *2 in.* Length *8 ft.* Type _____
Fill Material *Sand* Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/16/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Product from 14'-28'

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0							
2		0		90%		FILL	0'-5' Stone Crusher run material, some fines. FILL
4		0					
6		0		90%			
8		0					5'-10.5' Brown-tan, damp, loose, SILT, some gravel
10		0		60%		GM	10.5-12' 3" white stone lense at 10.5', grey-brown, moist, SILT grading to black, product stained SILT with gravel and brick
12		0					12'-14' No Recovery
14		64.7		40%			14'-16' Black, wet, product saturated, fine-med SAND w/rounded gravel
16		89.8				GP	16'-18' No Recovery
18		79.1		40%		SW	18'-20' Grey-black, wet, prduct saturated, fine-med SAND w/rounded gravel
20		95.2				SM	20'-22' Grey-white, damp, fine SAND-SILT, some clay
22		400.0		80%			22'-24' White, moist, well graded fine SAND, little odor
24		1038					
26		1485		100%		SW	24'-30' Grey-white, wet, fine-med SAND grading to tan well graded medium SAND, wet, product saturated, free product in spoon
28		1155					
30		1321		100%		ML	30'-32' White, tight, damp, SILT, some fine sand, little clay
32							Boring Terminated
34							
36							

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-10E**

Project *Janney Run Delineation* Owner *ExxonMobil*
Location *3801 Boston Street* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth *36 ft.* Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *12 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/16/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Product from 18'-33'

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
2	0	100%			
4	0			FILL	0'-8' Stone Crusher run material, some fines. FILL
6	0	100%			
8	0			GM	8'-10' Grey-brown, loose, SILT, some small gravel 2" black angular gravel layer at 10'
10	0	75%			10'-12' Brown, black, tan, moist, SILT some fine sand and gravel
12	0				
14	0	100%			12'-16' Brown, moist, dense, SILT some fine sand, trace gravel
16	218.0			SM	16'-18' No Recovery
18	283.0	50%			
20	378.0				18'-23' Black, wet, prduct stained SILT, some fine sand and gravel 6" brick fragment at 20'
22	195.0	60%			23'-27' Grey-black, wet, prduct saturated, fine-med SAND well graded trace gravel, free product in sample
24	117.0			SW	
26	183.0	80%			
28	41.5			ML	27'-28' White-tan, weamp, fine SAND-SILT, some clay
30	1365	100%			28'-30' Grey, wet, product saturated, fine-med SAND and rounded gravel. Free product in sample
32	1705			SW	30'-34' Tan-white, wet, fine-med SAND, no staining
34	261.0	80%			34'-36' Grey-white, damp, tight, SILT and fine sand layer
36	0				Boring Terminated

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-10F**

Project *Janney Run Delineation* Owner *ExxonMobil*
Location *3801 Boston Street* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth *32 ft.* Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *12 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/16/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

Product from 17'-31'

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						
2	0		80%			
4	0				FILL	0'-8' Stone Crusher run material, mixed gravel, sand and silt. FILL
6	0		90%			
8	0					8'-10' No Recovery
10	0		50%			10'-12' Tan, damp, loose, SAND, SILT and gravel, asphalt layer at 11.5
12	0				SM	
14	0		70%			12'-15.5' Brown, wet, dense SILT, some fine sand
16	0					15.5'-16' Red, moist, fine-med SAND
					ML	16'-17' Brown, wet, dense SILT, some clay, trace angular gravel
18	0		100%			17'-20' 6" stone-brick layer at 17', Brown, wet, dense SILT, some fine sand grading to black-brown med-fine SAND product saturated
20	53.6				SM	21'-22' Black, wet, fine-med SAND with rounded gravel, product saturated, free product in sample
22	268.0		100%			
24	195.0					22'-25' Brown, grey, wet, fine SAND and SILT, product saturated
26	437.0		100%			25'-27' White, wet, med SAND, free product in sample
28	622.0				SW	27'-30' Tan, wet, product saturated, fine-med SAND, odor
30	1306		50%			30'-32' Same as above, grading to grey, wet, well graded SAND
32	492.0					Boring Terminated
34						
36						

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-11B**

Project *Janney Run Delineation* Owner *ExxonMobil*
Location *3801 Boston Street* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth *24 ft.* Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *5.54 ft.*
Screen: Dia *2 in.* Length *20 ft.* Type/Size _____
Casing: Dia *2 in.* Length *4 ft.* Type _____
Fill Material *Sand* Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/14/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

No product saturation

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						0'-2' Brown-tan, loose, SILT, little gravel
2		0	70%		SM	
4		0				2'-5' Brown-black, damp, loose, SILT, little gravel and sand, brick fragment at 4.5'
6		77.9	100%			5'-7' Brown, black, moist, SILT, little fine sand and gravel, some shell fragments in sample
8		21.5				
10		0	90%		SP	7'-12' Brown-grey, wet, loose, med SAND w/small rounded gravel, brick fragment at 10.5', below brick tan, same as above
12		0				
14		0	100%			12'-16' Same as above, grading to grey, moist, tight SILT-CLAY
16		0				
18		0	80%		ML	16'-20' Grey-tan, striated, moist, dense, CLAY-SILT, trace fine sand
20		0				20'-23' Same as above grading to grey, wet, fine-med SAND with some gravel at 23'
22		0	80%		SP	
24		0			CL	23'-24' Red, solid, damp, dense, CLAY, some silt
26						Boring Terminated
28						
30						
32						
34						
36						

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-11C**

Project *Janney Run Delineation* Owner *ExxonMobil*
Location *3801 Boston Street* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth *28 ft.* Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *4.32 ft.*
Screen: Dia *2 in.* Length *25 ft.* Type/Size _____
Casing: Dia *2 in.* Length *3 ft.* Type _____
Fill Material *Sand* Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/15/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

No product saturation

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						
2		0	100%		SM	0'-4' HAND AUGER, brown, moist, SILT, SAND and gravel
4		0				4'-6' Grey-brown, moist, SILT, some fine sand and gravel
6		0	75%			6'-8' Brown-tan, wet, loose, fine-med SAND
8		0				
10		0	80%			8'-12' Tan-brown, wet, loose, fine-med SAND, some rounded gravel 2" stained area at 11'
12		0				12'-14' Grey-tan, moist, product stained, fine-med SAND w/ gravel
14		0	80%			14'-16' Grey, moist, product stained, fine-med SAND, grading to tan, moist, fine-med SAND, tight
16		17.0			SW	16'-17' Grey-white, wet, fine-med SAND
18		1.1	60%			17'-19.5' Black-grey, wet, fine-med SAND, product odor
20		0				19.5'-23' Tan, wet, fine-med SAND, some small rounded gravel
22		0	90%			
24		0				23'-27' Black-grey, wet, product stained, fine-med SAND
26		0	70%			
28		0				27'-28' Tan-grey, mottled, wet, product stained, fine-med SAND
						Boring Terminated
30						
32						
34						
36						

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-11D**

Project *Janney Run Delineation* Owner *ExxonMobil*
Location *3801 Boston Street* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth *20 ft.* Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *5.74 ft.*
Screen: Dia *2 in.* Length *20 ft.* Type/Size _____
Casing: Dia *2 in.* Length *5 ft.* Type _____
Fill Material *Sand* Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/15/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

No product saturation

Depth (ft.)	Well Completion	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						
2		0	20%			0'-4' HAND AUGER, SILT and fine sand, gravel at 2'
4		0			SM	4'-6' Brown, moist, SILt and fine sand, brick and stone fragments
6		145.0	70%			6'-8' Black, moist, product stained, fine-med SAND, some silt, trace gravel, odor
8		2500+				
10		1195	100%			8'-12' Black, wet, product stained, fine-med SAND, heavy odor
12		2500+			SW	
14		2384	100%			12'-16' Same as above, clean tan SAND lense at 14', above a 2" white tan SILT lense, grey SAND continued below
16		1639				16'-18' Tan-brown, wet, loose, fine-med SAND, grading to white, tan striated, dense, damp fine sand and SILT
18		0	80%		SM	18'-20' White-tan, red, damp, dense, SILT some fine sand and clay, grading to red dense CLAY-silt mixture last 6"
20		0			CL	Boring Terminated
22						
24						
26						
28						
30						
32						
34						
36						

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-P1**

Project *EXBT-Conveyor Pit Delineation* Owner *ExxonMobil (Canton R.R. Property)*
Location *4201 Boston Street Baltimore, Maryland* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth _____ Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *10 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/14/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

No well installed Product staining from 7-11'

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
2	0.0	80%		FILL	0'-7' Crusher run material, Brown to black, damp, FILL
4	118.0				
6	621.0	50%			
8	3321.0			SP	7'-8' Grey-brown, moist, product stained, fine-med SAND, trace gravel
10	1175.0	80%			8'-10' Same as above
12	2500+			SW	10'-12' Grading to tan, wet, well graded fine-med SAND, slight petro odor.
14	3384.0	100%			12'-16' Grey to tan, wet, well graded fine-med SAND, petro odor
16	3171.0			GP	16'-17' Rounded gravel layer
18	2500+	100%		SW	17'-20' Grey to tan, wet, well graded fine-med SAND, slight petro odor
20	1810.0				20'-21' No Recovery
22	57.5	60%		ML	22'-23' White, damp, tight, SILT and fine sand
24	45.4				23'-24' Tan, moist fine-med SAND grading to white, tight SILT
26	12.1	60%			24'-26' No Recovery 26'-27' Red-white, damp, tight, SILT-CLAY
28	19.4				27'-28' White, wet, fine-med SAND and SILT, no odor.
30					Boring Terminated
32					
34					
36					

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-P2**

Project *E\BT-Conveyor Pit Delineation* Owner *ExxonMobil (Canton R.R. Property)*
Location *4201 Boston Street Baltimore, Maryland* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth _____ Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *13 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Bob Schultz* Log By *S. Cook* Date *8/16/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

No well installed Product staining from 19-23' and from 27-32'

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
2	0.0	80%		FILL	0'-5' Crusher run material, damp, FILL
4	0.0				
6	0.0	100%		GM	5'-10' Brown, moist, SILT and fine-med SAND, some gravel, trace organic matter (roots)
8	0.0				
10	0.0	100%			
12	0.0				10'-14' Tan-brown, moist, dense, SILT some fine sand, some gravel
14	0.0	100%		GP	14'-14.5' Large rounded gravel layer
16	14.2			SP	14.5-19' Tan, wet, loose, well graded med SAND with rounded gravel
18	0.0	100%			
20	0.0				
22	0.0	50%		SW	19'-23' Grey-tan, wet, product stained med SAND, trace gravel
					23'-23.5' 2" White-tan, damp, dense, SILT layer
24	0.0				23.5-24' Tan, wet, fine-med SAND
26	0.0	80%		SM	24'-27' White-grey, moist, tight, fine SANd, little SILT
28	0.0				
30	0.0	80%		SP	27'-32' Grey, wet, product stained well graded SAND, little rounded gravel
32	0.0				
34					Boring Terminated
36					

IT CORPORATION
A Member of the IT Group

Drilling Log

Monitoring Well **Boring-P3**

Project *EXBT-Conveyor Pit Delineation* Owner *ExxonMobil (Canton R.R. Property)*
Location *4201 Boston Street Baltimore, Maryland* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth _____ Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *11 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/17/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

No well installed Product staining from 11-13' and from 15-20' Procuct saturation from 15-20'

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
2	0.0	80%		FILL	
4	0.0			FILL	0'-7.5' Black-tan, moist, FILL material
6	0.0	80%		FILL	
8	0.0			SM	7.5'-10' Dark brown, damp, SILT and fine sand, some small gravel
10	0.0	50%		SP	10'-11.5' Brown to grey to tan, wet, fine SAND and large rock frag.
12	449.0			ML	11.5-13' Brown, wet, dense, SILT clay grading to black med Sand and gravel, product stain, odor
14	0.0	80%		SP / GP	13'-14' Tan-brown, moist, fine-med SAND
16	1541.0			ML	14'-15' Rock fragments (same as 10'-11.5')
18	59.6	100%		SP	15'-16' Grey-black, wet, dense, SILT-CLAY grading to black, wet, product saturated SAND with rounded gravel 16'-20' Same as above, product stained and saturated SAND
20	25.2				
22	0.0	80%		ML	20'-24' Grey-tan, wet, SILT with clay, some organic material (roots)
24	7.1			ML	24-28' Same as above grading to tan, wet "beach" SAND
26	0.0	80%		SW	
28	0.0			SP	28'-30' White, tan, grey, wet, well graded SAND, some gravel
30	0.0	70%		ML	
32	0.0			CL	30'-32' White-red, tight, SILT and CLAY, solid red CLAY bottom 2"
34					Boring Terminated
36					

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-P4**

Project *EXBT-Conveyor Pit Delineation* Owner *ExxonMobil (Canton R.R. Property)*
Location *4201 Boston Street Baltimore, Maryland* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth _____ Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *11 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/17/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

No well installed Product staining from 6-22'

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2						
0						
2	0.0		80%		FILL	0'-3.5' Black-tan, moist, FILL material
4	0.0				SM	3.5'-5.5' Tan-orange, moist, loose, fine-med SAND grading to dense, SILT-SAND with little gravel
6	0.0		80%			
8	0.0					
10	0.0		90%		SP	5.5'-14' Grey brown, moist, wet, fine-med SAND with some rounded gravel, some product staining
12	0.0					
14	0.0		90%			14'-15' Grey-tan, wet, fine SAND, SILT and clay, product stained
16	0.0					15'-17' Grey-brown, wet, fine-med SAND, trace gravel, product stain
18	0.0		100%			
20	0.0				SP	17'-22' Grey-tan to black, wet, product stained, fine-med well graded SAND, little rounded gravel. SILT-CLAY lenses at 19, 21 and 22'
22	146.0		100%			
24	0.0				SW	22'-24' Tan, wet, well graded med SAND, Silt-clay lense at 24'
26	N/A		60%			24'-26' No Recovery
28	0.0				SM	26'-28' Grey, tan, wet, fine-med SAND and Silt layer, some clay
30	0.0		90%			28'-31' Same as above, clay layer at 30-31' Tan, red and white
32	0.0					31'-32' White-tan, tight, SILT and fine SAND layer, damp
34						Boring Terminated
36						

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-P5**

Project *EXBT-Conveyor Pit Delineation* Owner *ExxonMobil (Canton R.R. Property)*
Location *4201 Boston Street Baltimore, Maryland* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth _____ Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *11 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Bob Schultz* Log By *S. Cook* Date *8/17/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

No well installed Product staining from 5-7' and from 10-15'

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
2	0.0	80%		FILL	0'-8' Crusher run material, damp, FILL
4	2.4				
6	1638.0	100%			
8	31.4			SM	8'-10' Brown-tan, grey, damp, loose, SILT, fine SAND and gravel
10	1054.0	100%		SP	10'-12' Tan-black, moist, product stained fine-med SAND, some rounded gravel, 2" wood lense at 11'
12	401.0				
14	487.0	100%			12'-15' Same as above, grading to damp, tight, gravel and fine-med SAND, black and grey
16	0.0			SW	15-19' Tan, moist, well graded fine-med SAND, no staining or odor
18	0.0	80%			
20	41.3			ML	19'-20' Tan-red, moist, med SAND to white-red, striated SILT last 2"
22					Boring Terminated
24					
26					
28					
30					
32					
34					
36					

Drilling Log

IT CORPORATION
A Member of the IT Group

Monitoring Well **Boring-P6**

Project *EXBT-Conveyor Pit Delineation* Owner *ExxonMobil (Canton R.R. Property)*
Location *4201 Boston Street Baltimore, Maryland* Proj. No. *811220*
Surface Elev. _____ Total Hole Depth _____ Diameter *3 in.*
Top of Casing _____ Water Level Initial _____ Static *12 ft.*
Screen: Dia _____ Length _____ Type/Size _____
Casing: Dia _____ Length _____ Type _____
Fill Material _____ Rig/Core _____
Drill Co. *Vironex* Method *Geoprobe*
Driller *Rob Schultz* Log By *S. Cook* Date *8/15/01* Permit # _____
Checked By _____ License No. _____

See Site Map For Boring Location

COMMENTS:

No well installed Product staining from 14-22'

Depth (ft.)	PID (ppm)	Sample ID / Blow Count / % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0					
2	0.0	90%			
4	282.0			FILL	0'-8' Crusher run material, damp, FILL
6	0.0	100%			
8	0.0				
10	18.6	100%		SM	8'-12' Brown-tan, damp, fine-med SAND and SILT, some gravel
12	38.2				12'-13' Brown, wet, loose, SILT and gravel
14	24.6	100%		GP	13'-14' White, wet, loose, angular gravel
					14-16' Brown, wet, loose, fine-med SAND, some gravel, some odor
16	2496.0				16'-18' No Recovery
18	2270.0	50%		SP	18'-20' Grey, wet, product stained, well graded SAND, trace gravel
20	1978.0				20'-22' No Recovery
22	88.7	50%		ML	22'-24' Same as above grading from orange SAND to white tight SILT to red clay
24	76.1			CL	Boring Terminated
26					
28					
30					
32					
34					
36					

BORING LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation		PROJECT NUMBER: P837-001		WELL ID MDE 2
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: October 24, 2002	TOTAL DEPTH (FT): 25	GROUND ELEV. (FT, MSL): 29.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex	DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
1, 2, 3, 4		90	2.4	Fill	Tan brown, grey, loose, SILT, some fine sand, some fine-medium angular gravel. Two shell layers at 1 and 3' bgs, no odors, no LNAPL.	
5, 6, 7, 8		80	27.8	SM	Tan-brown, mottled, damp, SILT, some fine sand, grading to brown fine-medium SAND, 1"grey sand lense and 6" wooden lense bottom of sample.	
9, 10, 11, 12		40	212.2	ML	6" grey, wet SILT and fine sand with small wood fragments, grading to brown-grey, moist, SILT, little clay, little fine sand. Some white mottle near bottom of sample, 3" stone layer at 11'. Black wet SILT with fine angular gravel at bottom of sample. ODOR.	
13, 14, 15, 16		60	497.3	GP	Grey-black, wet, fine SAND (PG), with small angular gravel, grading to grey-orange-tan, fine SAND with fine rounded gravel, grading to SILT bottom of sample. Some odor.	
17, 18, 19, 20		40	324.1	GP	Brown-grey 8", damp, tight, SILT lense, little clay, trace fine sand, trace fine rounded gravel; grading to wet, fine (PG) SAND with fine rounded gravel. Some odor.	
21, 22, 23, 24		60	122.1	ML	Same as above to tan-brown, tight SILT, some clay, little fine sand, some organic matter. Very little odor.	
25, 26, 27, 28		10	29.8	ML	Same as above 2" to 4" wood fragment. Refusal at 25' bgs.	
30					Boring Terminated at 25' Below Ground Surface	

BORING LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001		WELL ID 37
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: October 22, 2002	TOTAL DEPTH (FT): 20	GROUND ELEV. (FT, MSL): 30.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
1, 2, 3, 4		100	20.6	Fill	Brown, black fill material, dam SILT, some fine-med sand and gravel, grading to 2' section of tank, pink, grey, mottled SILT, some clay, damp, some fine sand. Little-no odor	
5, 6, 7, 8		40	18.3	SP	Black-grey, wet, fine-med SAND, some fine-med angular gravel, some LNAPL staining, odors	
9, 11, 12		60	149.7	ML	Black, same as above; grading to black, brown, SILT, some fine sand, little organic matter. LNAPL staining, some odors	
13, 14, 15, 16		70	947.8	SM	Grey-tan, wet, fine-med SAND, some LNAPL staining and saturation, grading to tan, fine-med SAND with tan-white, SILT-CLAY lenses, some odor, very slight LNAPL in bag from sand	
17, 18, 19, 20		100	559.2	ML	White-grey, concrete lense, some SILT and fine sand with little rounded gravel, grading to red-white, tight, striatted SILT, some clay, little fine sand, some odor, LNAPL staining, slight saturation in top gravel	
21					Boring Terminated at 20' Below Ground Surface	

BORING LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001		WELL ID 56
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: tober 23, 2002	TOTAL DEPTH (FT): 32	GROUND ELEV. (FT, MSL): 30.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
LLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
1, 2, 3, 4		80	2.4	Fill	Grey-brown, fill material, fine-med SAND, some fine gravel and stone	
5, 6, 7, 8		80	4.8	Fill	Same as above, 1' red brick layer, 6" tan-grey fine-med SAND, some silt trace clay	
9, 10, 11, 12		60	24.7	SM	Orange-tan-grey, same as above, SILT, some fine sand, little clay; grading to black-grey fine-med SAND with fine angular gravel. Some odor	
13, 14, 15, 16		25	247.3	SM	Same as above, to grey stone 2" lense and 1" wood lense slight odor	
17, 18, 19, 20		60	429.3	SM	Black fine GRAVEL and PG SAND, wet, 2 2" concrete fragments at 18' bgs, grey, wet, SILT, little fine sand, trace clay, odors	
21, 22, 23, 24		90	241.2	SM	Grey-tan, fine-med SAND, wet, some orgainic material; grading to brown, damp, SILT, little fine sand, little clay. Odors	
25, 26, 27, 28		40	127.3	ML	Same as above, grading to tan-white, SILT, damp, some fine sand, trace clay, slight odor	

MONITORING WELL LOG

GeoTrans, Inc.

PROJECT NAME:	PROJECT NUMBER:	WELL ID
ExxonMobil Baltimore Terminal	P837-001	56
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
29						29
30		90	38.4	SM	1' black fine-med SAND, wet, grading to white, tight, fine SAND and silt, little clay, slight odor	30
31						31
32						32
	Boring Terminated at 32' Below Ground Surface					

BORING LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001		WELL ID 59
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: October 25, 2002	TOTAL DEPTH (FT): 24	GROUND ELEV. (FT, MSL): 27.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Vironex		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
1, 2, 3, 4		75	0.0	Fill	Brown-black, dry, fill material, SILT, little fine-med sand, some fine-med angular gravel; grading to 2" black angular gravel, lense. 1' tan-brown, fine-med SAND with silt lenses, damp at bottom of sample	
5, 6, 7, 8		100	0.0	SM	Brown, damp, SILT, some fine sand, little fine angular gravel; grading to tan-light brown, moist fine SAND, little silt, little angular gravel, no odor	
9, 10, 11, 12		60	0.0	SM	Brown-tan, striated, moist SILT, some fine sand, trace clay, no odors, no LNAPL	
13, 14, 15, 16		60	101.7	SP	Brown, wet, same as above; grading to brown fine-med SAND with some fine rounded gravel, black striated staining bottom 3" of sample, slight odor, no LNAPL	
17, 18, 19, 20		70	109.6	SP	Tan-orange-black, fine-med SAND, wet; grading to grey-black, wet, fine-med SAND, trace silt, some fine rounded gravel and some coarse gravel 1". Tan-pink, SILT lense 2" from bottom of sample, some odor, no LNAPL	
21, 22, 23, 24		80	16.3	ML	Same as above top 6", to pink-red-white mottled, SILT, little clay, little fine sand, very little odor	
25, 26, 27, 28					Boring Terminated at 24' Below Ground Surface	
30						

BORING LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001	WELL ID 61
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook	EASTING:
COMPLETION DATE: February 3, 2003	TOTAL DEPTH (FT): 24	GROUND ELEV. (FT, MSL): 27.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
DRILLING CONTRACTOR / DRILLER: Summit Site Services		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
1, 2, 3, 4		60	0.0	Fill	Brown, damp, SILT and fine angular gravel top 3' of sample; grading to tan-orange PG SAND, little silt bottom of sample	
5, 6, 7, 8		60	10.2	SM	Same as above to 6' bgs; grading to tan, wet, fine-med SAND, some silt, trace clay	
9, 10, 11, 12		80	98.1	SM	Brown-grey fine-med SAND, some silt, trace organic matter, some odor, no LNAPL	
13, 14, 15, 16		80	209.8	SM	Grey, stained fine-med SAND, some silt, trace organic matter, some odor, no LNAPL	
17, 18, 19, 20		80	141.2	SM	Tan-brown, fine SAND, some silt lenses with organic matter, some odor, no LNAPL	
21, 22, 23, 24		75	39.7	SM / <ML	Tan, wet, fine-med SAND, little silt to 22' bgs; grading to white-pink striated SILT, some fine sand, little clay bottom 1' of sample, very little odor	
25, 26, 27, 28					Boring Terminated at 24' Below Ground Surface	
30						

BORING LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001		WELL ID 62
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook		EASTING:
COMPLETION DATE: ober 25, 2002	TOTAL DEPTH (FT): 32	GROUND ELEV. (FT, MSL): 30.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL):	NORTHING:
LLING CONTRACTOR / DRILLER: Summit Site Services		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push	WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
1, 2, 3, 4		60	0.0	Fill	Black SILT and crushed stone to 3' bgs. Orange-tan, damp fine-med SAND, little rounded gravel, no odor	
5, 6, 7, 8		100	10.4	GM	Same SAND to 5', tan-light grey-black striated fine-med SAND; grading to tan-light grey SILT, some fine sand, black fine gravel 2" lense at 6' with fine rounded gravel bottom of sample with brown, tight SILT last 2", very slight odor	
9, 10, 11, 12		100	79.4	GM	2' white-grey crushed stone layer, to tan-brown, moist SILT, little fine sand trace clay some organic matter	
13, 14, 15, 16		60	121.4	SM	6" dark grey-black stained fine-med SAND, wet, some fine rounded gravel toward bottom of sand. 3" brown SILT, some fine-med sand and fine gravel; grading to brown-grey striated SILT, little fine sand some odor	
17, 18, 19, 20		40	342.1	SM	Same SILT as above to 19', to black-grey, stained, wet, PG SAND with fine rounded gravel, odors, no LNAPL	
21, 22, 23, 24		60	148.6	SM	1" tan PG SAND and fine rounded gravel to 6" brown, moist SILT, little fine sand and organic matter, to tan-light grey mottled fine-med SAND, wet, little silt, little odor	
25, 26, 27, 28		60	127.2	SM	Tan-white-grey, striated, layered, wet, fine SAND, small white-tan SILT lenses toward bottom of sample, slight odor	

BORING LOG

GeoTrans, Inc.

PROJECT NAME:	PROJECT NUMBER:	WELL ID
ExxonMobil Baltimore Terminal	P837-001	62
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)		

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
29						29
30		80	18.0	SM	Same SAND as above; grading to white, tight SILT, some tan striations and grey striations, no odor	30
31						31
32						32
	Boring Terminated at 32' Below Ground Surface					

BORING LOG

GeoTrans, Inc.

PROJECT NAME: ExxonMobil Balt. Terminal- Janney Run Delineation			PROJECT NUMBER: P837-001	WELL ID 63
PROJECT LOCATION: Baltimore, Maryland (Canton Rail Road)			LOGGED BY: S. Cook	EASTING:
COMPLETION DATE: February 3, 2003	TOTAL DEPTH (FT): 24	GROUND ELEV. (FT, MSL): 27.00	TOP TIC ELEVATION (FT, MSL):	TOP TOC ELEVATION (FT, MSL): / NORTHING:
DRILLING CONTRACTOR / DRILLER: Summit Site Services		DRILLING EQUIPMENT: Geoprobe	DRILLING METHOD (BIT): Geoprobe	SAMPLING METHOD: Direct Push / WELL PERMIT NUMBER:

DEPTH (feet)	PENETRATION RESULTS BLOWS 6"-6"-6"-6"	RECOVERY (%)	PID (ppm)	USCS SYMBOL	LITHOLOGIC DESCRIPTION	MONITORING WELL DIAGRAM
0–4		80	0.0	Fill	Black SILT and crushed stone to 3.5', tan-damp, fine-med SAND, little rounded and angular fine gravel, trace silt	
5–8		60	12.7	SP	Tan-orange, wet PG SAND, little silt, little fine-med rounded gravel, no odor	
9–12		80	109.9	SP	Brown, stained fine-med SAND, trace silt, some rounded fine gravel, no significant odor	
13–16		100	249.6	SP	Same as above, slight odor	
17–20		80	131.4	SM	Tan-wet, fine SAND, some white-tan striated SILT lenses toward bottom of sample, slight odor	
21–24		40	91.4	ML	Top 1' slough, black stained SILT, little fine sand to 2" white-pink mottled SILT little fine sand, little clay	
25–28					Boring Terminated at 24' Below Ground Surface	
30						

ATTACHMENT II

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2901	9/21/1994	0.00	14.34	23.24	0.00
		10/4/1994	0.00	15.50	22.08	0.00
		10/31/1994	0.00	15.25	22.33	0.00
		12/15/1994	0.00	16.47	21.11	0.00
		1/5/1995	0.00	14.71	22.87	0.00
		2/23/1995	0.00	15.43	22.15	0.00
		3/9/1995	0.00	15.11	22.47	0.00
		5/11/1995	0.00	16.43	21.15	0.00
		6/14/1995	0.00	15.74	21.84	0.00
		8/17/1995	0.00	16.20	21.38	0.00
		9/6/1995	0.00	16.89	20.69	0.00
		10/24/1995	0.00	13.85	23.73	0.00
		11/20/1995	0.00	13.13	24.45	0.00
		1/23/1996	0.00	11.88	25.70	0.00
		2/14/1996	0.00	12.48	25.10	0.00
		3/14/1996	0.00	12.35	25.23	0.00
		4/8/1996	0.00	12.09	25.49	0.00
		5/14/1996	0.00	11.92	25.66	0.00
		6/11/1996	0.00	11.49	26.09	0.00
		6/15/1996	0.00	11.49	26.09	0.00
		7/12/1996	0.00	12.76	24.82	0.00
		8/12/1996	0.00	12.15	25.43	0.00
		9/12/1996	0.00	12.49	25.09	0.00
		9/15/1996	0.00	12.49	25.09	0.00
		10/10/1996	0.00	12.09	25.49	0.00
		11/14/1996	0.00	11.77	25.81	0.00
		12/11/1996	0.00	10.85	26.73	0.00
		12/15/1996	0.00	10.85	26.73	0.00
		1/7/1997	0.00	12.28	25.30	0.00
		2/7/1997	0.00	11.43	26.15	0.00
		3/10/1997	0.00	11.71	25.87	0.00
		3/15/1997	0.00	11.71	25.87	0.00
		4/25/1997	0.00	12.12	25.46	0.00
		6/15/1997	0.00	12.96	24.62	0.00
		6/30/1997	0.00	12.96	24.62	0.00
		9/15/1997	0.00	13.54	24.04	0.00
		12/15/1997	0.00	12.92	24.66	0.00
		3/15/1998	0.00	11.31	26.27	0.00
		6/15/1998	0.00	12.31	25.27	0.00
		9/15/1998	0.00	13.18	24.40	0.00
		12/15/1998	0.00	14.99	22.59	0.00
		3/15/1999	12.18	12.19	25.40	0.01
		6/15/1999	0.00	13.01	24.57	0.00
		9/15/1999	0.00	10.86	26.72	0.00
		12/15/1999	0.00	11.24	26.34	0.00
		3/15/2000	0.00	10.09	27.49	0.00
		6/23/2000	0.00	11.93	25.65	0.00
		9/15/2000	0.00	12.08	25.50	0.00
		12/15/2000	0.00	12.94	24.64	0.00
		3/14/2001	0.00	12.14	25.44	0.00
		6/15/2001	11.49	11.49	26.09	0.00
		9/15/2001	12.75	12.75	24.83	0.00
		12/15/2001	13.64	13.64	23.94	0.00
		3/15/2002	12.78	12.78	24.80	0.00

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2901	6/15/2002	11.92	11.92	25.66	0.00
		9/15/2002	11.77	11.77	25.81	0.00
		12/15/2002	10.27	10.27	27.31	0.00
		3/15/2003	10.14	10.14	27.44	0.00
		6/15/2003	9.60	9.60	27.98	0.00
		9/15/2003	10.37	10.37	27.21	0.00
		12/15/2003	9.62	9.62	27.96	0.00
		3/15/2004	9.65	9.65	27.93	0.00
		6/15/2004	10.63	10.63	26.95	0.00
		9/15/2004	11.71	11.71	25.87	0.00
		12/15/2004	10.84	10.84	26.74	0.00
		3/15/2005	11.34	11.34	26.24	0.00
		6/15/2005	11.28	11.28	26.30	0.00
		3/15/2006	NG	NG	NG	NG
		6/15/2006	NG	NG	NG	NG
		9/15/2006	NG	NG	NG	NG
		12/15/2006	NG	NG	NG	NG
		3/15/2007	NG	NG	NG	NG
		9/15/2007	NG	NG	NG	NG
		12/15/2007	NG	NG	NG	NG

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2902	9/21/1994	0.00	19.18	17.47	0.00
		10/4/1994	0.00	20.02	16.63	0.00
		10/31/1994	0.00	20.92	15.73	0.00
		12/15/1994	0.00	21.39	15.26	0.00
		2/23/1995	0.00	21.62	15.03	0.00
		3/9/1995	NG	NG	NG	NG
		5/11/1995	NG	NG	NG	NG
		6/13/1995	NG	NG	NG	NG
		8/17/1995	NG	NG	NG	NG
		9/6/1995	NG	NG	NG	NG
		10/24/1995	NG	NG	NG	NG
		11/20/1995	0.00	20.03	16.62	0.00
		1/5/1996	0.00	20.28	16.37	0.00
		1/23/1996	0.00	18.85	17.80	0.00
		2/14/1996	0.00	18.57	18.08	0.00
		3/14/1996	0.00	18.60	18.05	0.00
		4/8/1996	0.00	18.57	18.08	0.00
		5/14/1996	0.00	18.55	18.10	0.00
		6/11/1996	0.00	13.82	22.83	0.00
		6/15/1996	0.00	13.82	22.83	0.00
		7/12/1996	NG	NG	NG	NG
		8/12/1996	NG	NG	NG	NG
		9/12/1996	0.00	16.82	19.83	0.00
		9/15/1996	0.00	16.82	19.83	0.00
		12/11/1996	0.00	17.10	19.55	0.00
		12/15/1996	0.00	17.10	19.55	0.00
		1/7/1997	0.00	17.38	19.27	0.00
		2/7/1997	0.00	17.43	19.22	0.00
		3/10/1997	0.00	21.84	14.81	0.00
		3/15/1997	0.00	21.84	14.81	0.00
		4/25/1997	0.00	17.23	19.42	0.00
		6/15/1997	0.00	17.58	19.07	0.00
		6/30/1997	0.00	17.58	19.07	0.00
		9/15/1997	0.00	17.95	18.70	0.00
		12/15/1997	0.00	18.17	18.48	0.00
		3/15/1998	0.00	17.17	19.48	0.00
		6/15/1998	0.00	16.89	19.76	0.00
		9/15/1998	0.00	17.03	19.62	0.00
		12/15/1998	0.00	17.66	18.99	0.00
		3/15/1999	0.00	15.88	20.77	0.00
		6/15/1999	0.00	17.61	19.04	0.00
		9/15/1999	0.00	15.69	20.96	0.00
		12/15/1999	0.00	15.32	21.33	0.00
		3/15/2000	0.00	15.35	21.30	0.00
		6/23/2000	0.00	16.29	20.36	0.00
		9/15/2000	0.00	15.92	20.73	0.00
		12/15/2000	0.00	16.31	20.34	0.00
		3/14/2001	0.00	15.30	21.35	0.00
		6/15/2001	15.99	15.99	20.66	0.00
		9/15/2001	16.08	16.08	20.57	0.00
		12/15/2001	16.67	16.67	19.98	0.00
		3/15/2002	12.45	12.45	24.20	0.00
		6/15/2002	16.85	16.85	19.80	0.00
		9/15/2002	16.61	16.61	20.04	0.00

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2902	12/15/2002	14.92	14.92	21.73	0.00
		3/15/2003	14.91	14.91	21.74	0.00
		6/15/2003	14.68	14.68	21.97	0.00
		9/15/2003	14.30	14.30	22.35	0.00
		12/15/2003	14.51	14.51	22.14	0.00
		3/15/2004	14.74	14.74	21.91	0.00
		6/15/2004	14.53	14.53	22.12	0.00
		9/15/2004	14.77	14.77	21.88	0.00
		12/15/2004	14.76	14.76	21.89	0.00
		3/15/2005	14.92	14.92	21.73	0.00
		6/15/2005	15.08	15.08	21.57	0.00
		9/15/2005	14.97	14.97	21.68	0.00
		12/15/2005	14.32	14.32	22.33	0.00
		3/15/2006	15.03	15.03	21.62	0.00
		6/15/2006	15.41	15.41	21.24	0.00
		9/15/2006	14.49	14.49	22.16	0.00
		12/15/2006	14.84	14.84	21.81	0.00
		3/15/2007	14.36	14.36	22.29	0.00
		6/15/2007	14.70	14.70	21.95	0.00
		9/15/2007	15.27	15.27	21.38	0.00
		12/15/2007	14.59	14.59	22.06	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2903	9/21/1994	0.00	23.24	16.57	0.00
		10/4/1994	0.00	25.47	14.34	0.00
		10/31/1994	0.00	24.71	15.10	0.00
		12/15/1994	25.94	25.97	13.87	0.03
		2/23/1995	26.04	26.12	13.76	0.08
		3/9/1995	26.24	26.33	13.56	0.09
		3/29/1995	NG	NG	NG	NG
		4/27/1995	NG	NG	NG	NG
		5/11/1995	26.39	26.45	13.41	0.06
		5/24/1995	NG	NG	NG	NG
		6/13/1995	26.60	26.71	13.19	0.11
		6/28/1995	NG	NG	NG	NG
		8/17/1995	26.66	26.68	13.15	0.02
		8/29/1995	NG	NG	NG	NG
		9/6/1995	0.00	26.55	13.26	0.00
		9/28/1995	NG	NG	NG	NG
		10/24/1995	26.58	26.87	13.19	0.29
		11/3/1995	NG	NG	NG	NG
		11/20/1995	26.87	27.17	12.90	0.30
		11/27/1995	NG	NG	NG	NG
		1/5/1996	25.73	25.85	14.06	0.12
		1/23/1996	24.14	24.15	15.67	0.01
		2/14/1996	0.00	23.13	16.68	0.00
		3/14/1996	0.00	23.15	16.66	0.00
		4/8/1996	0.00	23.32	16.49	0.00
		5/14/1996	23.44	23.45	16.37	0.01
		6/11/1996	0.00	22.38	17.43	0.00
		6/15/1996	0.00	22.38	17.43	0.00
		7/12/1996	NG	NG	NG	NG
		8/12/1996	NG	NG	NG	NG
		9/12/1996	0.00	20.85	18.96	0.00
		9/15/1996	0.00	20.85	18.96	0.00
		12/11/1996	0.00	21.11	18.70	0.00
		12/15/1996	0.00	21.11	18.70	0.00
		1/7/1997	0.00	21.56	18.25	0.00
		2/7/1997	0.00	21.75	18.06	0.00
		3/10/1997	0.00	17.34	22.47	0.00
		3/15/1997	0.00	17.34	22.47	0.00
		4/25/1997	0.00	21.17	18.64	0.00
		6/15/1997	0.00	21.42	18.39	0.00
		6/30/1997	0.00	21.42	18.39	0.00
		9/15/1997	0.00	21.96	17.85	0.00
		12/15/1997	0.00	22.16	17.65	0.00
		3/15/1998	0.00	21.23	18.58	0.00
		6/15/1998	0.00	20.69	19.12	0.00
		9/15/1998	0.00	20.85	18.96	0.00
		12/15/1998	0.00	21.07	18.74	0.00
		3/15/1999	21.30	21.42	18.49	0.12
		6/15/1999	21.41	21.62	18.37	0.21
		9/15/1999	20.67	20.78	19.12	0.11
		12/15/1999	20.19	20.27	19.61	0.08
		3/15/2000	0.00	20.34	19.47	0.00
		6/23/2000	19.81	19.96	19.98	0.15
		9/15/2000	19.60	19.74	20.19	0.14

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2903	12/15/2000	19.69	19.84	20.10	0.15
		3/14/2001	20.20	20.43	19.58	0.23
		6/15/2001	19.68	19.95	20.09	0.27
		9/15/2001	19.68	19.99	20.08	0.31
		12/15/2001	20.42	20.84	19.33	0.42
		3/15/2002	20.59	21.03	19.15	0.44
		6/15/2002	20.66	21.17	19.07	0.51
		9/15/2002	20.06	20.44	19.69	0.38
		12/15/2002	19.88	20.18	19.89	0.30
		3/15/2003	14.11	14.41	25.65	0.30
		6/15/2003	18.13	18.23	21.67	0.10
		9/15/2003	17.54	17.60	22.26	0.06
		12/15/2003	17.81	17.93	21.98	0.12
		3/15/2004	18.35	18.66	21.41	0.31
		6/15/2004	17.77	17.81	22.03	0.04
		9/15/2004	17.88	17.92	21.92	0.04
		12/15/2004	18.69	19.01	21.07	0.32
		3/15/2005	18.98	19.31	20.78	0.33
		6/15/2005	18.37	18.48	21.42	0.11
		9/15/2005	18.25	18.37	21.54	0.12
		12/15/2005	18.48	18.58	21.32	0.10
		3/15/2006	18.52	18.66	21.27	0.14
		6/15/2006	18.79	18.97	20.99	0.18
		9/15/2006	18.49	18.61	21.30	0.12
		12/15/2006	18.45	18.59	21.34	0.14
		3/15/2007	18.39	18.52	21.40	0.13
		6/15/2007	18.15	18.25	21.65	0.10
		9/15/2007	18.41	18.51	21.39	0.10
		12/15/2007	19.16	19.61	20.58	0.45

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2904	9/21/1994	0.00	23.78	14.70	0.00
		10/4/1994	0.00	23.72	14.76	0.00
		10/31/1994	0.00	23.16	15.32	0.00
		12/15/1994	0.00	23.55	14.93	0.00
		2/23/1995	0.00	23.40	15.08	0.00
		3/9/1995	23.56	23.57	14.92	0.01
		5/11/1995	0.00	23.62	14.86	0.00
		6/13/1995	0.00	23.83	14.65	0.00
		6/13/1995	NG	NG	NG	NG
		8/17/1995	0.00	23.98	14.50	0.00
		9/6/1995	0.00	23.95	14.53	0.00
		10/24/1995	0.00	23.97	14.51	0.00
		11/20/1995	0.00	24.12	14.36	0.00
		1/5/1996	0.00	24.04	14.44	0.00
		1/23/1996	0.00	23.69	14.79	0.00
		2/14/1996	0.00	22.98	15.50	0.00
		3/14/1996	0.00	22.46	16.02	0.00
		4/8/1996	0.00	21.50	16.98	0.00
		5/14/1996	19.72	19.73	18.76	0.01
		6/11/1996	0.00	18.28	20.20	0.00
		6/15/1996	0.00	18.28	20.20	0.00
		7/12/1996	NG	NG	NG	NG
		8/12/1996	NG	NG	NG	NG
		9/12/1996	16.71	16.74	21.77	0.03
		9/15/1996	16.71	16.74	21.77	0.03
		12/1/1996	16.43	16.75	22.00	0.32
		12/15/1996	16.43	16.75	22.00	0.32
		1/7/1997	16.49	16.99	21.92	0.50
		2/7/1997	16.70	17.24	21.70	0.54
		3/10/1997	16.50	17.17	21.88	0.67
		3/15/1997	16.50	17.17	21.88	0.67
		4/25/1997	16.20	16.85	22.18	0.65
		5/30/1997	NG	NG	NG	NG
		6/15/1997	16.18	17.60	22.09	1.42
		6/30/1997	16.18	17.60	22.09	1.42
		9/15/1997	16.44	18.76	21.69	2.32
		12/15/1997	17.15	17.75	21.24	0.60
		3/15/1998	16.52	17.44	21.82	0.92
		6/15/1998	NG	NG	NG	NG
		9/15/1998	15.55	17.83	22.59	2.28
		12/15/1998	15.83	18.30	22.28	2.47
		3/15/1999	16.01	17.06	22.31	1.05
		6/15/1999	16.10	17.11	22.23	1.01
		9/15/1999	15.51	16.84	22.77	1.33
		12/15/1999	14.96	16.19	23.34	1.23
		3/15/2000	15.24	16.65	23.03	1.41
		6/23/2000	14.64	15.17	23.76	0.53
		7/20/2000	14.15	14.52	24.27	0.37
		9/15/2000	14.44	15.16	23.93	0.72
		12/15/2000	14.34	15.49	23.97	1.15
		1/4/2001	14.34	15.55	23.96	1.21
		2/6/2001	14.62	15.44	23.74	0.82
		3/14/2001	14.91	15.21	23.53	0.30
		4/15/2001	14.82	15.40	23.57	0.58

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2904	5/30/2001	14.54	15.54	23.79	1.00
		6/15/2001	14.60	15.85	23.69	1.25
		7/15/2001	14.56	15.07	23.84	0.51
		8/15/2001	14.50	15.32	23.86	0.82
		9/15/2001	14.45	15.58	23.86	1.13
		10/15/2001	14.75	15.16	23.67	0.41
		11/15/2001	14.53	15.42	23.82	0.89
		12/15/2001	15.17	15.74	23.22	0.57
		1/15/2002	14.55	15.55	23.78	1.00
		2/15/2002	14.73	16.75	23.45	2.02
		3/15/2002	14.47	16.97	23.64	2.50
		4/15/2002	15.01	17.86	23.04	2.85
		5/15/2002	NG	NG	NG	NG
		6/15/2002	14.60	17.80	23.40	3.20
		7/15/2002	NG	NG	NG	NG
		8/15/2002	14.59	17.43	23.46	2.84
		9/15/2002	14.60	16.17	23.64	1.57
		10/15/2002	NG	NG	NG	NG
		11/15/2002	NG	NG	NG	NG
		12/15/2002	14.25	16.32	23.92	2.07
		3/15/2003	13.35	13.74	25.07	0.39
		4/15/2003	13.88	14.16	24.56	0.28
		5/15/2003	13.72	14.00	24.72	0.28
		6/15/2003	13.45	13.78	24.98	0.33
		9/15/2003	12.62	14.51	25.58	1.89
		12/15/2003	12.84	15.26	25.28	2.42
		2/15/2004	12.84	14.82	25.34	1.98
		3/15/2004	13.11	15.96	24.94	2.85
		4/15/2004	13.26	16.21	24.78	2.95
		5/15/2004	12.74	14.60	25.46	1.86
		6/15/2004	12.80	14.96	25.36	2.16
		7/15/2004	12.76	14.81	25.41	2.05
		8/15/2004	12.81	15.47	25.27	2.66
		9/15/2004	12.92	13.68	25.45	0.76
		10/15/2004	13.17	16.01	24.88	2.84
		11/15/2004	13.22	16.51	24.77	3.29
		12/15/2004	13.39	16.91	24.56	3.52
		1/15/2005	13.47	16.18	24.60	2.71
		2/15/2005	13.48	16.36	24.57	2.88
		3/15/2005	13.93	16.75	24.13	2.82
		4/15/2005	13.01	15.38	25.11	2.37
		5/15/2005	13.41	15.23	24.80	1.82
		6/15/2005	13.00	14.68	25.23	1.68
		7/15/2005	13.22	15.54	24.91	2.32
		8/30/2005	13.17	14.59	25.10	1.42
		9/15/2005	13.15	15.39	24.99	2.24
		10/15/2005	12.88	15.39	25.22	2.51
		11/15/2005	13.59	16.93	24.39	3.34
		12/15/2005	13.33	16.31	24.70	2.98
		1/15/2006	13.22	15.34	24.94	2.12
		2/15/2006	13.14	14.97	25.07	1.83
		3/15/2006	13.40	15.93	24.70	2.53
		4/15/2006	13.21	15.84	24.88	2.63
		5/15/2006	13.36	17.13	24.55	3.77
		6/30/2006	13.47	17.04	24.47	3.57
		7/15/2006	12.94	16.63	24.99	3.69

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2904	8/15/2006	13.52	17.33	24.39	3.81
		9/15/2006	13.26	15.94	24.82	2.68
		10/15/2006	13.46	16.63	24.54	3.17
		11/15/2006	13.10	16.89	24.81	3.79
		12/15/2006	13.08	15.43	25.05	2.35
		1/15/2007	NG	NG	NG	NG
		2/15/2007	13.56	15.74	24.59	2.18
		3/15/2007	13.24	15.78	24.86	2.54
		4/15/2007	6.26	7.35	32.06	1.09
		6/15/2007	12.94	15.24	25.20	2.30
		9/15/2007	13.19	14.82	25.05	1.63
		10/15/2007	13.19	15.25	24.98	2.06
		11/15/2007	13.59	17.29	24.34	3.70
		12/15/2007	14.02	17.17	23.99	3.15

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2905	9/21/1994	0.00	23.15	15.14	0.00
		10/4/1994	0.00	22.69	15.60	0.00
		10/31/1994	0.00	22.59	15.70	0.00
		12/15/1994	0.00	22.98	15.31	0.00
		2/23/1995	0.00	22.91	15.38	0.00
		3/9/1995	0.00	22.95	15.34	0.00
		5/11/1995	0.00	23.04	15.25	0.00
		6/13/1995	0.00	23.23	15.06	0.00
		8/17/1995	0.00	23.35	14.94	0.00
		9/6/1995	0.00	23.36	14.93	0.00
		10/24/1995	0.00	23.35	14.94	0.00
		11/20/1995	0.00	23.59	14.70	0.00
		1/5/1996	0.00	23.48	14.81	0.00
		1/23/1996	0.00	22.93	15.36	0.00
		2/14/1996	0.00	22.54	15.75	0.00
		3/14/1996	0.00	22.05	16.24	0.00
		4/8/1996	0.00	21.08	17.21	0.00
		5/14/1996	18.31	18.31	19.98	0.00
		6/11/1996	0.00	17.82	20.47	0.00
		6/15/1996	0.00	17.82	20.47	0.00
		7/12/1996	NG	NG	NG	NG
		8/12/1996	NG	NG	NG	NG
		9/12/1996	0.00	15.58	22.71	0.00
		9/15/1996	0.00	15.58	22.71	0.00
		12/11/1996	15.64	15.64	22.65	0.00
		12/15/1996	15.64	15.64	22.65	0.00
		1/7/1997	16.36	16.36	21.93	0.00
		2/7/1997	0.00	16.33	21.96	0.00
		3/10/1997	10.26	10.26	28.03	0.00
		3/15/1997	0.00	10.26	28.03	0.00
		4/25/1997	15.88	15.88	22.41	0.00
		6/15/1997	0.00	15.91	22.38	0.00
		6/30/1997	0.00	15.91	22.38	0.00
		9/15/1997	0.00	16.40	21.89	0.00
		12/15/1997	0.00	17.77	20.52	0.00
		3/15/1998	0.00	16.30	21.99	0.00
		6/15/1998	NG	NG	NG	NG
		9/15/1998	0.00	15.37	22.92	0.00
		12/15/1998	0.00	19.43	18.86	0.00
		3/15/1999	0.00	15.33	22.96	0.00
		6/15/1999	0.00	15.88	22.41	0.00
		9/15/1999	0.00	14.74	23.55	0.00
		12/15/1999	0.00	14.33	23.96	0.00
		3/15/2000	0.00	14.35	23.94	0.00
		6/23/2000	13.96	13.97	24.33	0.01
		9/15/2000	0.00	14.24	24.05	0.00
		12/15/2000	0.00	14.35	23.94	0.00
		3/14/2001	0.00	14.79	23.50	0.00
		6/15/2001	14.37	14.37	23.92	0.00
		9/15/2001	14.12	14.12	24.17	0.00
		12/15/2001	14.78	14.78	23.51	0.00
		3/15/2002	14.47	14.47	23.82	0.00
		6/15/2002	14.58	14.58	23.71	0.00
		9/15/2002	14.52	14.52	23.77	0.00

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2905	12/15/2002	14.43	14.43	23.86	0.00
		3/15/2003	13.63	13.63	24.66	0.00
		6/15/2003	13.12	13.12	25.17	0.00
		9/15/2003	11.99	11.99	26.30	0.00
		12/15/2003	12.59	12.59	25.70	0.00
		3/15/2004	12.93	12.93	25.36	0.00
		6/15/2004	12.62	12.62	25.67	0.00
		9/15/2004	12.77	12.77	25.52	0.00
		12/15/2004	12.96	12.96	25.33	0.00
		3/15/2005	13.27	13.27	25.02	0.00
		6/15/2005	12.92	12.92	25.37	0.00
		9/15/2005	13.03	13.03	25.26	0.00
		12/15/2005	13.30	13.30	24.99	0.00
		3/15/2006	13.35	13.35	24.94	0.00
		6/15/2006	13.46	13.46	24.83	0.00
		9/15/2006	13.42	13.42	24.87	0.00
		12/15/2006	13.31	13.31	24.98	0.00
		3/15/2007	12.77	12.77	25.52	0.00
		6/15/2007	12.44	12.44	25.85	0.00
		9/15/2007	NG	NG	NG	NG
		12/15/2007	NG	NG	NG	NG

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2907	10/4/1994	0.00	10.10	18.13	0.00
		10/31/1994	0.00	10.60	17.63	0.00
		12/15/1994	0.00	11.73	16.50	0.00
		2/23/1995	0.00	11.96	16.27	0.00
		3/9/1995	0.00	12.20	16.03	0.00
		5/11/1995	0.00	12.56	15.67	0.00
		6/13/1995	0.00	12.42	15.81	0.00
		8/17/1995	0.00	12.34	15.89	0.00
		9/6/1995	0.00	12.63	15.60	0.00
		10/24/1995	0.00	12.26	15.97	0.00
		11/20/1995	0.00	11.66	16.57	0.00
		1/23/1996	0.00	10.57	17.66	0.00
		2/14/1996	0.00	10.39	17.84	0.00
		3/14/1996	0.00	10.41	17.82	0.00
		4/8/1996	0.00	10.36	17.87	0.00
		5/14/1996	10.04	10.05	18.19	0.01
		6/11/1996	0.00	9.52	18.71	0.00
		6/15/1996	0.00	9.52	18.71	0.00
		7/12/1996	0.00	9.63	18.60	0.00
		8/12/1996	0.00	8.93	19.30	0.00
		9/12/1996	0.00	9.32	18.91	0.00
		9/15/1996	0.00	9.32	18.91	0.00
		9/15/1996	0.00	9.32	18.91	0.00
		10/10/1996	0.00	9.75	18.48	0.00
		11/14/1996	0.00	9.80	18.43	0.00
		12/11/1996	0.00	9.50	18.73	0.00
		12/15/1996	0.00	9.50	18.73	0.00
		1/7/1997	0.00	10.04	18.19	0.00
		2/7/1997	0.00	9.70	18.53	0.00
		3/10/1997	0.00	9.53	18.70	0.00
		3/15/1997	0.00	9.53	18.70	0.00
		4/25/1997	0.00	9.64	18.59	0.00
		6/15/1997	0.00	9.53	18.70	0.00
		6/30/1997	0.00	9.53	18.70	0.00
		9/15/1997	0.00	11.17	17.06	0.00
		12/15/1997	0.00	11.31	16.92	0.00
		3/15/1998	0.00	8.18	20.05	0.00
		6/15/1998	0.00	8.83	19.40	0.00
		9/15/1998	0.00	10.07	18.16	0.00
		12/15/1998	11.50	11.51	16.73	0.01
		3/15/1999	0.00	10.25	17.98	0.00
		6/15/1999	10.14	10.17	18.09	0.03
		9/15/1999	0.00	8.15	20.08	0.00
		12/15/1999	8.54	8.67	19.67	0.13
		3/15/2000	8.68	8.69	19.55	0.01
		6/23/2000	8.41	8.93	19.75	0.52
		9/15/2000	8.68	9.24	19.47	0.56
		12/15/2000	9.66	10.37	18.47	0.71
		3/14/2001	9.45	10.13	18.68	0.68
		6/15/2001	7.90	8.08	20.31	0.18
		9/15/2001	8.84	9.47	19.30	0.63
		12/15/2001	9.71	10.59	18.39	0.88
		3/15/2002	9.52	10.15	18.62	0.63
		6/15/2002	8.61	8.73	19.61	0.12

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2907	9/15/2002	8.48	8.91	19.69	0.43
		12/15/2002	6.52	6.60	21.70	0.08
		3/15/2003	5.21	5.43	22.99	0.22
		6/15/2003	4.85	5.02	23.36	0.17
		9/15/2003	5.71	5.82	22.51	0.11
		12/15/2003	4.88	4.88	23.35	0.00
		3/15/2004	6.80	7.01	21.40	0.21
		6/15/2004	6.07	6.19	22.15	0.12
		9/15/2004	7.16	7.48	21.03	0.32
		12/15/2004	7.44	7.59	20.77	0.15
		3/15/2005	7.85	8.13	20.34	0.28
		6/15/2005	6.47	6.59	21.75	0.12
		9/15/2005	6.68	7.01	21.50	0.33
		12/15/2005	7.34	7.63	20.85	0.29
		3/15/2006	7.20	7.43	21.00	0.23
		6/15/2006	7.98	8.36	20.20	0.38
		9/15/2006	5.90	5.90	22.33	0.00
		12/15/2006	5.83	5.83	22.40	0.00
		3/15/2007	5.53	5.53	22.70	0.00
		6/15/2007	6.41	6.46	21.82	0.05
		9/15/2007	7.99	8.25	20.21	0.26
		12/15/2007	7.85	7.85	20.38	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2908	10/4/1994	0.00	10.30	19.30	0.00
		10/31/1994	0.00	10.59	19.01	0.00
		12/15/1994	0.00	11.31	18.29	0.00
		2/23/1995	0.00	11.80	17.80	0.00
		3/9/1995	0.00	11.47	18.13	0.00
		5/11/1995	0.00	11.52	18.08	0.00
		6/13/1995	0.00	11.47	18.13	0.00
		8/17/1995	0.00	12.04	17.56	0.00
		9/6/1995	0.00	12.36	17.24	0.00
		10/24/1995	0.00	11.61	17.99	0.00
		11/20/1995	0.00	11.09	18.51	0.00
		1/23/1996	0.00	10.33	19.27	0.00
		2/14/1996	0.00	9.86	19.74	0.00
		3/14/1996	0.00	10.04	19.56	0.00
		4/8/1996	0.00	10.16	19.44	0.00
		5/14/1996	0.00	10.36	19.24	0.00
		6/11/1996	0.00	8.87	20.73	0.00
		6/15/1996	0.00	8.87	20.73	0.00
		7/12/1996	0.00	9.37	20.23	0.00
		8/12/1996	0.00	8.63	20.97	0.00
		9/12/1996	0.00	9.83	19.77	0.00
		9/15/1996	0.00	9.83	19.77	0.00
		9/15/1996	0.00	9.83	19.77	0.00
		10/10/1996	0.00	9.34	20.26	0.00
		11/14/1996	0.00	9.37	20.23	0.00
		12/11/1996	0.00	8.82	20.78	0.00
		12/15/1996	0.00	8.82	20.78	0.00
		1/7/1997	0.00	9.67	19.93	0.00
		2/7/1997	0.00	9.42	20.18	0.00
		3/10/1997	0.00	8.84	20.76	0.00
		3/15/1997	0.00	8.84	20.76	0.00
		4/25/1997	0.00	8.95	20.65	0.00
		6/15/1997	0.00	9.22	20.38	0.00
		6/30/1997	0.00	9.22	20.38	0.00
		9/15/1997	0.00	10.43	19.17	0.00
		12/15/1997	0.00	10.35	19.25	0.00
		3/15/1998	0.00	8.43	21.17	0.00
		6/15/1998	0.00	6.65	22.95	0.00
		9/15/1998	0.00	9.23	20.37	0.00
		12/15/1998	0.00	10.48	19.12	0.00
		3/15/1999	0.00	9.71	19.89	0.00
		6/15/1999	0.00	9.69	19.91	0.00
		9/15/1999	0.00	7.47	22.13	0.00
		12/15/1999	0.00	8.14	21.46	0.00
		3/15/2000	0.00	7.59	22.01	0.00
		6/23/2000	0.00	8.12	21.48	0.00
		9/15/2000	0.00	8.29	21.31	0.00
		12/15/2000	0.00	8.82	20.78	0.00
		3/14/2001	0.00	8.68	20.92	0.00
		6/15/2001	7.64	7.64	21.96	0.00
		9/15/2001	8.68	8.68	20.92	0.00
		12/15/2001	9.48	9.48	20.12	0.00
		3/15/2002	8.86	8.86	20.74	0.00
		6/15/2002	8.42	8.42	21.18	0.00

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2908	9/15/2002	8.59	8.59	21.01	0.00
		12/15/2002	6.77	6.77	22.83	0.00
		3/15/2003	5.96	5.96	23.64	0.00
		6/15/2003	5.48	5.48	24.12	0.00
		9/15/2003	6.20	6.20	23.40	0.00
		12/15/2003	5.71	5.71	23.89	0.00
		3/15/2004	7.18	7.18	22.42	0.00
		6/15/2004	6.45	6.45	23.15	0.00
		9/15/2004	7.43	7.43	22.17	0.00
		12/15/2004	7.53	7.53	22.07	0.00
		3/15/2005	7.79	7.79	21.81	0.00
		6/15/2005	6.75	6.75	22.85	0.00
		9/15/2005	7.13	7.13	22.47	0.00
		12/15/2005	7.59	7.59	22.01	0.00
		3/15/2006	7.40	7.40	22.20	0.00
		6/15/2006	7.98	7.98	21.62	0.00
		9/15/2006	6.35	6.35	23.25	0.00
		12/15/2006	6.13	6.13	23.47	0.00
		3/15/2007	5.58	5.58	24.02	0.00
		6/15/2007	6.62	6.62	22.98	0.00
		9/15/2007	7.99	7.99	21.61	0.00
		12/15/2007	7.73	7.73	21.87	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2909	10/4/1994	0.00	13.01	18.86	0.00
		10/31/1994	0.00	12.62	19.25	0.00
		12/15/1994	0.00	14.08	17.79	0.00
		2/23/1995	0.00	14.07	17.80	0.00
		3/9/1995	0.00	14.23	17.64	0.00
		5/11/1995	0.00	13.50	18.37	0.00
		6/13/1995	0.00	14.01	17.86	0.00
		8/17/1995	0.00	14.25	17.62	0.00
		9/6/1995	14.47	14.48	17.40	0.01
		10/24/1995	0.00	14.56	17.31	0.00
		11/20/1995	0.00	14.59	17.28	0.00
		1/23/1996	0.00	12.34	19.53	0.00
		2/14/1996	0.00	11.82	20.05	0.00
		3/14/1996	12.31	12.34	19.56	0.03
		4/8/1996	12.32	12.35	19.55	0.03
		5/14/1996	11.54	11.83	20.29	0.29
		5/21/1996	NG	NG	NG	NG
		6/11/1996	7.37	7.45	24.49	0.08
		6/15/1996	7.37	7.45	24.49	0.08
		7/12/1996	11.22	11.53	20.61	0.31
		7/19/1996	NG	NG	NG	NG
		8/12/1996	10.85	11.05	20.99	0.20
		8/22/1996	NG	NG	NG	NG
		9/12/1996	5.60	5.67	26.26	0.07
		9/15/1996	5.60	5.67	26.26	0.07
		9/15/1996	5.60	5.67	26.26	0.07
		9/19/1996	NG	NG	NG	NG
		10/10/1996	11.24	11.71	20.56	0.47
		10/29/1996	NG	NG	NG	NG
		11/14/1996	10.50	10.69	21.34	0.19
		11/27/1996	NG	NG	NG	NG
		12/11/1996	10.25	10.34	21.61	0.09
		12/15/1996	10.25	10.34	21.61	0.09
		1/7/1997	10.78	10.97	21.06	0.19
		1/22/1997	NG	NG	NG	NG
		2/7/1997	10.24	10.27	21.63	0.03
		3/10/1997	9.95	9.98	21.92	0.03
		3/15/1997	9.95	9.98	21.92	0.03
		4/25/1997	8.92	9.12	22.92	0.20
		6/15/1997	11.37	11.47	20.49	0.10
		6/30/1997	11.37	11.47	20.49	0.10
		9/15/1997	11.59	12.32	20.17	0.73
		12/15/1997	11.54	12.08	20.25	0.54
		3/15/1998	9.42	9.44	22.45	0.02
		6/15/1998	9.65	9.70	22.21	0.05
		9/15/1998	10.30	10.60	21.53	0.30
		12/15/1998	11.49	11.86	20.33	0.37
		3/15/1999	10.40	10.61	21.44	0.21
		6/15/1999	10.39	10.61	21.45	0.22
		9/15/1999	0.00	9.69	22.18	0.00
		12/15/1999	0.00	9.44	22.43	0.00
		3/15/2000	0.00	9.42	22.45	0.00
		6/23/2000	0.00	9.11	22.76	0.00
		9/15/2000	0.00	9.24	22.63	0.00

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	2909	12/15/2000	0.00	9.77	22.10	0.00
		3/14/2001	0.00	9.89	21.98	0.00
		6/15/2001	8.55	8.55	23.32	0.00
		9/15/2001	9.44	9.44	22.43	0.00
		12/15/2001	10.15	10.18	21.72	0.03
		3/15/2002	10.34	10.35	21.53	0.01
		6/15/2002	9.87	9.87	22.00	0.00
		9/15/2002	9.66	9.66	22.21	0.00
		12/15/2002	8.73	8.73	23.14	0.00
		3/15/2003	7.75	7.75	24.12	0.00
		6/15/2003	7.17	7.17	24.70	0.00
		9/15/2003	7.95	7.95	23.92	0.00
		12/15/2003	7.52	7.52	24.35	0.00
		3/15/2004	8.31	8.31	23.56	0.00
		6/15/2004	7.62	7.62	24.25	0.00
		9/15/2004	8.25	8.25	23.62	0.00
		12/15/2004	8.73	8.73	23.14	0.00
		3/15/2005	8.83	8.83	23.04	0.00
		6/15/2005	8.16	8.16	23.71	0.00
		9/15/2005	8.31	8.31	23.56	0.00
		12/15/2005	8.86	8.86	23.01	0.00
		3/15/2006	8.54	8.54	23.33	0.00
		6/15/2006	8.92	8.92	22.95	0.00
		9/15/2006	8.19	8.19	23.68	0.00
		12/15/2006	7.87	7.87	24.00	0.00
		3/15/2007	NG	NG	NG	NG
		6/15/2007	7.73	7.73	24.14	0.00
		9/15/2007	8.68	8.68	23.19	0.00
		12/15/2007	9.00	9.00	22.87	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	GP-6	12/15/2003	4.34	4.34	20.66	0.00
		1/15/2004	4.34	4.34	20.66	0.00
		3/15/2004	4.41	4.43	20.59	0.02
		4/28/2004	3.98	3.98	21.02	0.00
		5/15/2004	4.31	4.31	20.69	0.00
		6/15/2004	4.30	4.30	20.70	0.00
		12/15/2004	4.44	4.44	20.56	0.00
		3/15/2005	4.37	4.37	20.63	0.00
		6/15/2005	4.36	4.36	20.64	0.00
		9/15/2005	4.34	4.34	20.66	0.00
		12/15/2005	4.38	4.38	20.62	0.00
		3/15/2006	4.56	4.56	20.44	0.00
		6/30/2006	4.67	4.67	20.33	0.00
		9/15/2006	4.36	4.36	20.64	0.00
		3/15/2007	NG	NG	NG	NG
		6/15/2007	4.36	4.36	20.64	0.00
		9/15/2007	4.36	4.36	20.64	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Balto City	GP-7	12/15/2003	4.54	4.54	20.46	0.00
		1/15/2004	4.54	4.54	20.46	0.00
		3/15/2004	4.28	4.28	20.72	0.00
		4/28/2004	4.29	4.29	20.71	0.00
		5/15/2004	4.32	4.32	20.68	0.00
		6/15/2004	4.33	4.33	20.67	0.00
		12/15/2004	4.42	4.42	20.58	0.00
		3/15/2005	4.93	4.93	20.07	0.00
		6/15/2005	4.35	4.35	20.65	0.00
		9/15/2005	4.48	4.48	20.52	0.00
		12/15/2005	4.30	4.30	20.70	0.00
		3/15/2006	4.51	4.51	20.49	0.00
		6/30/2006	4.38	4.38	20.62	0.00
		9/15/2006	4.30	4.30	20.70	0.00
		3/15/2007	NG	NG	NG	NG
		6/15/2007	NG	NG	NG	NG
		9/15/2007	NG	NG	NG	NG

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J11C	8/22/2001	4.32	4.32	22.68	0.00
		8/29/2001	4.44	4.44	22.56	0.00
		9/5/2001	4.53	4.53	22.47	0.00
		9/12/2001	4.57	4.57	22.43	0.00
		9/22/2001	4.68	4.68	22.32	0.00
		9/26/2001	4.69	4.69	22.31	0.00
		10/5/2001	4.72	4.72	22.28	0.00
		10/12/2001	5.86	5.86	21.14	0.00
		10/16/2001	6.64	6.64	20.36	0.00
		10/26/2001	5.01	5.01	21.99	0.00
		11/2/2001	5.30	5.30	21.70	0.00
		11/9/2001	5.80	5.80	21.20	0.00
		11/16/2001	5.43	5.43	21.57	0.00
		11/21/2001	5.31	5.31	21.69	0.00
		11/27/2001	5.16	5.16	21.84	0.00
		12/7/2001	5.21	5.21	21.79	0.00
		12/12/2001	5.28	5.28	21.72	0.00
		12/20/2001	5.10	5.10	21.90	0.00
		12/26/2001	4.99	4.99	22.01	0.00
		1/2/2002	5.72	5.72	21.28	0.00
		1/8/2002	6.48	6.48	20.52	0.00
		1/17/2002	5.82	5.82	21.18	0.00
		1/25/2002	5.33	5.33	21.67	0.00
		1/30/2002	5.29	5.29	21.71	0.00
		2/12/2002	5.30	5.30	21.70	0.00
		3/30/2002	4.91	4.91	22.09	0.00
		4/30/2002	4.53	4.53	22.47	0.00
		5/30/2002	4.23	4.23	22.77	0.00
		6/19/2002	4.19	4.19	22.81	0.00
		7/30/2002	4.28	4.28	22.72	0.00
		8/22/2002	4.65	4.65	22.35	0.00
		9/30/2002	4.32	4.32	22.68	0.00
		10/23/2002	NG	NG	NG	NG
		11/23/2002	NG	NG	NG	NG
		12/30/2002	3.21	3.21	23.79	0.00
		3/15/2003	3.25	3.25	23.75	0.00
		4/15/2003	2.74	2.74	24.26	0.00
		5/15/2003	NG	NG	NG	NG
		6/15/2003	NG	NG	NG	NG
		7/15/2003	NG	NG	NG	NG
		8/15/2003	3.23	3.23	23.77	0.00
		9/15/2003	3.27	3.27	22.67	0.00
		10/15/2003	3.56	3.56	22.38	0.00
		11/15/2003	3.34	3.34	22.60	0.00
		12/15/2003	3.26	3.26	22.68	0.00
		2/15/2004	3.98	3.98	21.96	0.00
		3/15/2004	4.10	4.10	21.84	0.00
		4/15/2004	3.24	3.24	22.70	0.00
		5/15/2004	3.41	3.41	22.53	0.00
		6/15/2004	3.69	3.69	22.25	0.00
		9/15/2004	4.06	4.06	21.88	0.00
		12/15/2004	3.42	3.42	22.52	0.00
		3/15/2005	4.25	4.25	21.69	0.00
		6/15/2005	3.75	3.75	22.19	0.00

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J11C	9/15/2005	3.98	3.98	21.96	0.00
		12/15/2005	4.18	4.18	21.76	0.00
		3/15/2006	4.32	4.32	21.62	0.00
		6/30/2006	3.95	3.95	21.99	0.00
		9/15/2006	3.36	3.36	22.58	0.00
		12/15/2006	3.40	3.40	22.54	0.00
		3/15/2007	3.06	3.06	22.88	0.00
		6/15/2007	3.66	3.66	22.28	0.00
		9/15/2007	4.45	4.45	21.49	0.00
		12/15/2007	4.03	4.03	21.91	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J11D	8/22/2001	5.74	5.74	21.26	0.00
		8/29/2001	5.90	5.90	21.10	0.00
		9/5/2001	6.01	6.01	20.99	0.00
		9/12/2001	6.09	6.09	20.91	0.00
		9/22/2001	6.18	6.18	20.82	0.00
		9/26/2001	6.19	6.19	20.81	0.00
		10/5/2001	6.23	6.23	20.77	0.00
		10/12/2001	6.30	6.30	20.70	0.00
		10/16/2001	6.36	6.36	20.64	0.00
		10/26/2001	6.56	6.56	20.44	0.00
		11/2/2001	6.65	6.65	20.35	0.00
		11/9/2001	6.84	6.84	20.16	0.00
		11/16/2001	6.65	6.65	20.35	0.00
		11/21/2001	6.41	6.41	20.59	0.00
		11/27/2001	6.08	6.08	20.92	0.00
		12/7/2001	6.42	6.42	20.58	0.00
		12/12/2001	6.87	6.87	20.13	0.00
		12/20/2001	6.72	6.72	20.28	0.00
		12/26/2001	6.77	6.77	20.23	0.00
		1/2/2002	7.02	7.02	19.98	0.00
		1/8/2002	7.39	7.39	19.61	0.00
		1/17/2002	7.17	7.17	19.83	0.00
		1/25/2002	6.94	6.99	20.06	0.05
		1/30/2002	6.88	6.88	20.12	0.00
		2/12/2002	6.94	6.94	20.06	0.00
		3/30/2002	6.49	6.49	20.51	0.00
		4/30/2002	6.07	6.07	20.93	0.00
		5/30/2002	5.76	5.76	21.24	0.00
		6/19/2002	5.69	5.69	21.31	0.00
		7/30/2002	5.73	5.73	21.27	0.00
		8/22/2002	6.17	6.17	20.83	0.00
		9/30/2002	NG	NG	NG	NG
		10/23/2002	NG	NG	NG	NG
		11/23/2002	NG	NG	NG	NG
		12/30/2002	NG	NG	NG	NG
		3/15/2003	NG	NG	NG	NG
		4/15/2003	NG	NG	NG	NG
		5/15/2003	NG	NG	NG	NG
		6/15/2003	NG	NG	NG	NG
		7/15/2003	NG	NG	NG	NG
		8/15/2003	NG	NG	NG	NG
		11/15/2003	NG	NG	NG	NG
		12/15/2003	4.21	4.21	22.79	0.00
		2/15/2004	5.01	5.01	21.99	0.00
		3/15/2004	5.66	5.66	18.67	0.00
		4/15/2004	4.75	4.75	19.58	0.00
		5/15/2004	4.94	4.94	19.39	0.00
		6/15/2004	5.28	5.28	19.05	0.00
		9/15/2004	5.70	5.70	18.63	0.00
		12/15/2004	5.19	5.19	19.14	0.00
		3/15/2005	5.89	5.89	18.44	0.00
		6/15/2005	5.30	5.30	19.03	0.00
		9/15/2005	5.51	5.51	18.82	0.00
		12/15/2005	5.82	5.82	18.51	0.00

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J11D	3/15/2006	5.93	5.93	18.40	0.00
		6/30/2006	5.46	5.46	18.87	0.00
		9/15/2006	5.23	5.23	19.10	0.00
		12/15/2006	4.96	4.96	19.37	0.00
		3/15/2007	4.46	4.46	19.87	0.00
		6/15/2007	5.26	5.26	19.07	0.00
		9/15/2007	6.21	6.21	18.12	0.00
		12/15/2007	5.77	5.77	18.56	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J36	10/23/2002	7.14	7.15	22.86	0.01
		11/23/2002	6.92	6.93	23.08	0.01
		12/30/2002	6.68	6.69	23.32	0.01
		3/15/2003	6.31	6.31	23.69	0.00
		4/15/2003	6.12	6.12	23.88	0.00
		5/15/2003	6.18	6.18	23.82	0.00
		6/15/2003	5.92	5.92	24.08	0.00
		7/15/2003	5.10	5.10	24.90	0.00
		8/15/2003	6.48	6.48	23.52	0.00
		9/15/2003	3.71	3.71	24.77	0.00
		10/15/2003	3.68	3.68	24.80	0.00
		11/15/2003	3.65	3.65	24.83	0.00
		12/15/2003	3.72	3.72	24.76	0.00
		2/15/2004	5.17	5.17	23.31	0.00
		3/15/2004	4.63	4.65	23.85	0.02
		4/15/2004	3.28	3.28	25.20	0.00
		5/15/2004	4.17	4.17	24.31	0.00
		6/15/2004	4.55	4.55	23.93	0.00
		9/15/2004	5.17	5.17	23.31	0.00
		12/15/2004	4.65	4.65	23.83	0.00
		3/15/2005	5.13	5.13	23.35	0.00
		6/15/2005	4.67	4.67	23.81	0.00
		9/15/2005	4.97	4.97	23.51	0.00
		12/15/2005	5.18	5.18	23.30	0.00
		3/15/2006	5.87	5.87	22.61	0.00
		6/30/2006	4.64	4.64	23.84	0.00
		9/15/2006	3.63	3.63	24.85	0.00
		12/15/2006	4.32	4.32	24.16	0.00
		3/15/2007	3.63	3.63	24.85	0.00
		6/15/2007	4.69	4.69	23.79	0.00
		9/15/2007	6.41	6.41	22.07	0.00
		12/15/2007	4.95	4.95	23.53	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J38	10/23/2002	8.90	8.90	21.10	0.00
		11/23/2002	8.39	8.39	21.61	0.00
		12/30/2002	7.97	7.97	22.03	0.00
		3/15/2003	7.63	7.63	22.37	0.00
		4/15/2003	7.11	7.11	22.89	0.00
		5/15/2003	7.30	7.30	22.70	0.00
		6/15/2003	6.79	6.79	23.21	0.00
		7/15/2003	7.01	7.01	22.99	0.00
		8/15/2003	8.04	8.05	21.96	0.01
		9/15/2003	5.50	5.50	22.32	0.00
		10/15/2003	6.30	6.30	21.52	0.00
		11/15/2003	5.48	5.49	22.34	0.01
		12/15/2003	4.97	4.98	22.85	0.01
		2/15/2004	6.42	6.45	21.40	0.03
		3/15/2004	6.55	6.56	21.27	0.01
		4/15/2004	5.52	5.53	22.30	0.01
		5/15/2004	5.46	5.50	22.36	0.04
		6/15/2004	5.73	5.80	22.09	0.07
		9/15/2004	6.60	6.95	21.22	0.35
		12/15/2004	5.26	7.92	22.56	2.66
		1/15/2005	6.41	8.55	21.41	2.14
		2/15/2005	6.08	6.68	21.74	0.60
		3/15/2005	6.89	6.92	20.93	0.03
		4/15/2005	6.30	6.31	21.52	0.01
		5/15/2005	6.37	6.89	21.45	0.52
		6/15/2005	5.94	6.73	21.88	0.79
		9/15/2005	5.67	17.64	22.15	11.97
		10/15/2005	6.01	11.09	21.81	5.08
		11/15/2005	6.19	21.33	21.63	15.14
		12/15/2005	6.85	14.38	20.97	7.53
		1/15/2006	5.68	11.44	22.14	5.76
		2/15/2006	5.88	9.37	21.94	3.49
		3/15/2006	6.52	12.46	21.30	5.94
		4/15/2006	6.09	12.53	21.73	6.44
		5/15/2006	6.59	18.94	21.23	12.35
		6/30/2006	5.77	17.44	22.05	11.67
		7/15/2006	5.64	15.48	22.18	9.84
		8/15/2006	6.12	10.92	21.70	4.80
		9/15/2006	4.55	18.83	23.27	14.28
		10/15/2006	5.43	21.34	22.39	15.91
		10/31/2006	5.50	11.05	22.32	5.55
		11/30/2006	5.35	9.87	22.47	4.52
		12/15/2006	5.39	7.41	22.43	2.02
		1/15/2007	5.68	10.98	22.14	5.30
		2/15/2007	6.26	10.91	21.56	4.65
		3/15/2007	4.95	11.34	22.87	6.39
		4/15/2007	4.89	7.64	22.93	2.75
		5/15/2007	5.39	7.98	22.43	2.59
		6/15/2007	5.58	11.37	22.24	5.79
		9/15/2007	6.54	19.46	21.28	12.92
		10/15/2007	6.90	12.20	20.92	5.30
		11/15/2007	6.25	16.35	21.57	10.10
		12/15/2007	6.15	11.65	21.67	5.50

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J39	10/23/2002	7.70	7.70	22.30	0.00
		11/23/2002	7.26	7.26	22.74	0.00
		12/30/2002	6.73	6.75	23.27	0.02
		3/15/2003	6.51	6.54	23.49	0.03
		4/15/2003	6.10	6.34	23.88	0.24
		5/15/2003	6.02	6.33	23.95	0.31
		6/15/2003	5.45	5.95	24.50	0.50
		7/15/2003	5.00	5.41	24.96	0.41
		8/15/2003	6.47	6.94	23.48	0.47
		9/15/2003	4.40	4.43	23.37	0.03
		10/15/2003	5.19	5.27	22.58	0.08
		11/15/2003	4.64	4.79	23.12	0.15
		12/15/2003	4.23	4.45	23.52	0.22
		2/15/2004	5.60	5.91	22.14	0.31
		3/15/2004	5.52	6.05	22.20	0.53
		4/15/2004	4.60	4.94	23.14	0.34
		5/15/2004	4.83	5.25	22.90	0.42
		6/15/2004	5.17	5.53	22.57	0.36
		9/15/2004	6.00	6.66	21.71	0.66
		12/15/2004	5.55	6.21	22.16	0.66
		1/15/2005	5.99	6.67	21.72	0.68
		2/15/2005	6.25	8.47	21.30	2.22
		3/15/2005	6.35	6.35	21.42	0.00
		6/15/2005	4.85	4.86	22.92	0.01
		9/15/2005	5.33	5.44	22.43	0.11
		12/15/2005	5.88	5.97	21.89	0.09
		3/15/2006	6.10	6.33	21.65	0.23
		6/30/2006	6.28	6.32	21.49	0.04
		9/15/2006	3.91	3.91	23.86	0.00
		12/15/2006	4.35	4.36	23.42	0.01
		3/15/2007	4.34	4.34	23.43	0.00
		6/15/2007	4.98	5.00	22.79	0.02
		9/15/2007	6.59	6.60	21.18	0.01
		12/15/2007	6.15	6.16	21.62	0.01

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J40	10/23/2002	9.99	9.99	20.01	0.00
		11/23/2002	9.51	9.52	20.49	0.01
		12/30/2002	8.82	8.84	21.18	0.02
		3/15/2003	8.54	8.78	21.44	0.24
		4/15/2003	8.00	8.05	22.00	0.05
		5/15/2003	8.07	8.14	21.92	0.07
		6/15/2003	7.51	7.60	22.48	0.09
		7/15/2003	7.38	7.46	22.61	0.08
		8/15/2003	8.33	8.58	21.65	0.25
		9/15/2003	5.32	5.33	22.19	0.01
		10/15/2003	5.91	5.92	21.60	0.01
		11/15/2003	5.07	5.07	22.44	0.00
		12/15/2003	5.03	5.03	22.48	0.00
		2/15/2004	6.17	6.19	21.34	0.02
		3/15/2004	6.24	6.29	21.27	0.05
		4/15/2004	5.12	5.12	22.39	0.00
		5/15/2004	5.55	5.56	21.96	0.01
		6/15/2004	6.11	6.13	21.40	0.02
		9/15/2004	6.83	7.00	20.66	0.17
		12/15/2004	6.20	6.45	21.29	0.25
		3/15/2005	6.82	8.57	20.52	1.75
		4/15/2005	6.31	6.64	21.17	0.33
		5/15/2005	6.38	6.68	21.10	0.30
		6/15/2005	5.80	5.96	21.69	0.16
		7/15/2005	5.30	5.47	22.19	0.17
		8/31/2005	5.40	5.54	22.10	0.14
		9/15/2005	5.98	6.09	21.52	0.11
		12/15/2005	6.42	6.59	21.07	0.17
		3/15/2006	6.97	7.72	20.47	0.75
		6/30/2006	6.58	6.87	20.90	0.29
		9/15/2006	5.31	5.45	22.19	0.14
		12/15/2006	5.43	5.44	22.08	0.01
		3/15/2007	5.60	5.63	21.91	0.03
		6/15/2007	5.81	6.05	21.68	0.24
		9/15/2007	6.95	7.21	20.53	0.26
		12/15/2007	6.28	6.38	21.22	0.10

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J41	10/23/2002	9.77	9.78	20.23	0.01
		11/23/2002	9.77	9.83	20.22	0.06
		12/30/2002	9.77	9.91	20.22	0.14
		3/15/2003	8.00	8.24	21.98	0.24
		4/15/2003	7.56	8.68	22.33	1.12
		5/15/2003	7.52	8.73	22.36	1.21
		6/15/2003	6.91	8.12	22.97	1.21
		7/15/2003	6.59	7.76	23.29	1.17
		8/15/2003	7.91	8.11	22.07	0.20
		9/15/2003	5.07	5.08	22.28	0.01
		10/15/2003	5.43	5.68	21.89	0.25
		11/15/2003	4.78	5.02	22.54	0.24
		12/15/2003	4.69	4.94	22.63	0.25
		2/15/2004	6.02	6.57	21.27	0.55
		3/15/2004	4.91	6.62	22.27	1.71
		4/15/2004	4.78	5.26	22.52	0.48
		5/15/2004	NG	NG	NG	NG
		6/15/2004	5.55	6.04	21.75	0.49
		7/15/2004	6.38	6.53	20.95	0.15
		8/15/2004	6.11	6.43	21.21	0.32
		9/15/2004	6.55	6.56	20.80	0.01
		10/15/2004	6.31	6.49	21.02	0.18
		12/15/2004	6.47	6.81	20.84	0.34
		3/15/2005	6.95	7.61	20.33	0.66
		6/15/2005	5.67	6.10	21.64	0.43
		9/15/2005	5.95	6.61	21.33	0.66
		10/15/2005	5.43	5.81	21.88	0.38
		11/15/2005	6.56	7.03	20.74	0.47
		12/15/2005	6.96	7.46	20.34	0.50
		3/15/2006	7.02	7.33	20.30	0.31
		5/15/2006	7.29	8.26	19.96	0.97
		6/30/2006	6.68	7.83	20.55	1.15
		7/15/2006	5.89	6.39	21.41	0.50
		8/15/2006	6.12	6.74	21.17	0.62
		9/15/2006	5.22	5.62	22.09	0.40
		10/15/2006	5.82	6.40	21.47	0.58
		11/15/2006	5.28	5.53	22.04	0.25
		12/15/2006	5.12	5.36	22.20	0.24
		3/15/2007	5.56	5.59	21.79	0.03
		6/15/2007	5.79	6.02	21.54	0.23
		9/15/2007	7.17	8.43	20.05	1.26
		10/15/2007	7.95	8.85	19.31	0.90
		11/15/2007	6.42	6.57	20.91	0.15
		12/15/2007	6.82	7.14	20.50	0.32

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J52	10/23/2002	9.23	9.23	18.77	0.00
		11/23/2002	7.49	7.49	20.51	0.00
		12/30/2002	5.91	5.91	22.09	0.00
		3/15/2003	5.84	5.96	22.13	0.12
		4/15/2003	5.46	5.52	22.53	0.06
		5/15/2003	5.71	5.79	22.27	0.08
		6/15/2003	5.06	5.38	22.86	0.32
		7/15/2003	5.09	5.18	22.89	0.09
		8/15/2003	5.77	5.92	22.19	0.15
		9/15/2003	7.52	7.52	15.11	0.00
		10/15/2003	7.96	7.96	14.67	0.00
		11/15/2003	5.93	7.29	16.38	1.36
		12/15/2003	5.37	5.72	17.18	0.35
		2/15/2004	6.42	7.46	15.96	1.04
		3/15/2004	7.35	7.35	15.28	0.00
		4/15/2004	5.08	5.72	17.40	0.64
		5/15/2004	5.42	7.30	16.76	1.88
		6/15/2004	5.66	8.75	16.24	3.09
		9/15/2004	7.77	7.77	14.86	0.00
		11/15/2004	4.75	5.26	17.76	0.51
		12/15/2004	7.68	7.68	14.95	0.00
		3/15/2005	6.20	6.93	16.26	0.73
		6/15/2005	5.65	8.61	16.28	2.96
		7/15/2005	5.15	7.28	16.98	2.13
		8/31/2005	5.19	6.30	17.18	1.11
		9/15/2005	6.02	6.35	16.53	0.33
		10/15/2005	4.83	5.36	17.67	0.53
		11/15/2005	6.07	6.62	16.43	0.55
		12/15/2005	6.16	6.44	16.40	0.28
		1/15/2006	5.79	6.15	16.75	0.36
		2/15/2006	5.89	6.25	16.65	0.36
		3/15/2006	6.85	7.13	15.71	0.28
		5/15/2006	6.74	6.97	15.83	0.23
		6/30/2006	5.89	6.02	16.71	0.13
		9/15/2006	4.96	5.62	17.51	0.66
		12/15/2006	5.22	6.06	17.21	0.84
		3/15/2007	5.12	5.84	17.34	0.72
		6/15/2007	5.64	6.53	16.78	0.89
		9/15/2007	6.74	7.43	15.73	0.69
		12/15/2007	5.75	6.18	16.78	0.43

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J57	10/23/2002	NG	NG	NG	NG
		11/23/2002	10.02	10.02	19.98	0.00
		12/30/2002	9.42	9.42	20.58	0.00
		3/15/2003	8.41	8.41	21.59	0.00
		4/15/2003	8.59	8.59	21.41	0.00
		5/15/2003	8.70	8.70	21.30	0.00
		6/15/2003	8.19	8.19	21.81	0.00
		7/15/2003	6.93	6.93	23.07	0.00
		8/15/2003	8.72	8.72	21.28	0.00
		9/15/2003	6.75	6.75	21.00	0.00
		10/15/2003	6.53	6.53	21.22	0.00
		11/15/2003	6.31	6.31	21.44	0.00
		12/15/2003	6.34	6.34	21.41	0.00
		2/15/2004	7.47	7.47	20.28	0.00
		3/15/2004	7.47	7.47	20.28	0.00
		4/15/2004	6.39	6.39	21.36	0.00
		5/15/2004	6.92	6.92	20.83	0.00
		6/15/2004	6.76	6.76	20.99	0.00
		9/15/2004	7.57	7.57	20.18	0.00
		12/15/2004	7.63	7.63	20.12	0.00
		3/15/2005	8.05	8.05	19.70	0.00
		6/15/2005	8.01	8.01	19.74	0.00
		9/15/2005	7.31	7.31	20.44	0.00
		12/15/2005	7.79	7.79	19.96	0.00
		3/15/2006	8.29	8.29	19.46	0.00
		6/30/2006	6.83	6.83	20.92	0.00
		9/15/2006	6.43	6.43	21.32	0.00
		12/15/2006	6.60	6.60	21.15	0.00
		3/15/2007	6.90	6.90	20.85	0.00
		6/15/2007	NG	NG	NG	NG
		9/15/2007	8.81	8.81	18.94	0.00
		12/15/2007	8.10	8.10	19.65	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	J60	10/23/2002	NG	NG	NG	NG
		11/23/2002	10.21	10.21	16.79	0.00
		12/30/2002	9.74	9.74	17.26	0.00
		3/15/2003	9.04	9.04	17.96	0.00
		4/15/2003	8.97	8.97	18.03	0.00
		5/15/2003	8.83	8.83	18.17	0.00
		6/15/2003	8.41	8.41	18.59	0.00
		7/15/2003	6.97	6.97	20.03	0.00
		8/15/2003	9.12	9.12	17.88	0.00
		9/15/2003	9.59	9.59	20.37	0.00
		10/15/2003	9.42	9.42	20.54	0.00
		11/15/2003	9.30	9.30	20.66	0.00
		12/15/2003	9.05	9.05	20.91	0.00
		2/15/2004	10.31	10.31	19.65	0.00
		3/15/2004	10.84	10.88	19.12	0.04
		4/15/2004	10.02	10.02	19.94	0.00
		5/15/2004	10.27	10.27	19.69	0.00
		6/15/2004	10.03	10.03	19.93	0.00
		9/15/2004	10.66	10.66	19.30	0.00
		12/15/2004	11.23	11.23	18.73	0.00
		3/15/2005	11.72	11.72	18.24	0.00
		6/15/2005	10.08	10.08	19.88	0.00
		9/15/2005	10.37	10.37	19.59	0.00
		12/15/2005	11.10	11.10	18.86	0.00
		3/15/2006	11.20	11.20	18.76	0.00
		6/30/2006	10.94	10.94	19.02	0.00
		9/15/2006	9.47	9.47	20.49	0.00
		12/15/2006	9.30	9.30	20.66	0.00
		3/15/2007	9.93	9.93	20.03	0.00
		6/15/2007	10.45	10.45	19.51	0.00
		9/15/2007	11.85	11.85	18.11	0.00
		12/15/2007	11.64	11.64	18.32	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	JMDE3	11/23/2002	10.35	10.35	18.65	0.00
		12/30/2002	10.04	10.04	18.96	0.00
		3/15/2003	9.59	9.59	19.41	0.00
		4/15/2003	9.49	9.49	19.51	0.00
		5/15/2003	7.82	7.82	21.18	0.00
		6/15/2003	9.05	9.05	19.95	0.00
		7/15/2003	7.83	7.83	21.17	0.00
		8/15/2003	9.86	9.86	19.14	0.00
		9/15/2003	10.14	10.14	19.27	0.00
		10/15/2003	10.14	10.14	19.27	0.00
		11/15/2003	9.82	9.82	19.59	0.00
		12/15/2003	9.64	9.64	19.77	0.00
		3/15/2004	11.45	11.45	17.96	0.00
		4/15/2004	10.38	10.38	19.03	0.00
		5/15/2004	10.62	10.62	18.79	0.00
		6/15/2004	10.38	10.38	19.03	0.00
		9/15/2004	11.00	11.00	18.41	0.00
		12/15/2004	11.33	11.33	18.08	0.00
		3/15/2005	12.01	12.01	17.40	0.00
		6/15/2005	10.30	10.31	19.11	0.01
		9/15/2005	9.19	9.20	20.22	0.01
		12/15/2005	11.43	11.43	17.98	0.00
		3/15/2006	11.46	11.46	17.95	0.00
		6/30/2006	11.47	11.47	17.94	0.00
		9/15/2006	10.03	10.03	19.38	0.00
		12/15/2006	9.59	9.60	19.82	0.01
		3/15/2007	10.09	10.10	19.32	0.01
		6/15/2007	10.64	10.65	18.77	0.01
		9/15/2007	12.01	12.02	17.40	0.01
		12/15/2007	11.45	11.46	17.96	0.01

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	3506	10/11/1994	0.00	15.50	13.40	0.00
		11/7/1994	0.00	16.24	12.66	0.00
		12/15/1994	0.00	16.28	12.62	0.00
		2/24/1995	0.00	16.99	11.91	0.00
		3/16/1995	0.00	16.70	12.20	0.00
		4/23/1995	0.00	17.16	11.74	0.00
		5/15/1995	0.00	17.12	11.78	0.00
		6/16/1995	0.00	15.47	13.43	0.00
		6/16/1995	0.00	16.80	12.10	0.00
		8/15/1995	0.00	16.85	12.05	0.00
		9/7/1995	0.00	17.02	11.88	0.00
		10/26/1995	0.00	16.25	12.65	0.00
		11/22/1995	0.00	15.24	13.66	0.00
		2/7/1996	0.00	13.08	15.82	0.00
		6/14/1996	NG	NG	NG	NG
		3/15/1997	NG	NG	NG	NG
		6/15/1997	NG	NG	NG	NG
		9/15/1997	NG	NG	NG	NG
		12/15/1997	NG	NG	NG	NG
		3/15/1998	NG	NG	NG	NG
		6/15/1998	NG	NG	NG	NG
		9/15/1998	NG	NG	NG	NG
		12/15/1998	NG	NG	NG	NG
		3/15/1999	NG	NG	NG	NG
		6/15/1999	NG	NG	NG	NG
		9/15/1999	NG	NG	NG	NG
		12/15/1999	NG	NG	NG	NG
		3/15/2000	NG	NG	NG	NG
		6/23/2000	NG	NG	NG	NG
		9/15/2000	NG	NG	NG	NG
		12/15/2000	NG	NG	NG	NG
		12/15/2001	13.18	13.18	15.72	0.00
		3/15/2002	13.34	13.34	15.56	0.00
		6/15/2002	12.26	12.26	16.64	0.00
		9/15/2002	12.26	12.26	16.64	0.00
		12/15/2002	9.86	9.86	19.04	0.00
		3/15/2003	9.07	9.07	19.83	0.00
		5/15/2003	8.94	8.94	19.96	0.00
		6/15/2003	8.60	8.60	20.30	0.00
		9/15/2003	9.73	9.73	19.17	0.00
		12/15/2003	9.12	9.12	19.78	0.00
		2/15/2004	10.32	10.32	18.58	0.00
		3/15/2004	10.85	10.85	18.05	0.00
		6/15/2004	10.01	10.01	18.89	0.00
		9/15/2004	10.07	10.07	18.83	0.00
		12/15/2004	11.27	11.27	17.63	0.00
		3/15/2005	11.70	11.70	17.20	0.00
		6/15/2005	10.18	10.18	18.72	0.00
		9/15/2005	10.47	10.47	18.43	0.00
		12/15/2005	11.15	11.15	17.75	0.00
		3/15/2006	11.28	11.28	17.62	0.00
		6/30/2006	11.29	11.29	17.61	0.00
		9/15/2006	9.98	9.98	18.92	0.00
		12/15/2006	9.40	9.40	19.50	0.00

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	3506	3/15/2007	10.00	10.00	18.90	0.00
		6/15/2007	10.54	10.54	18.36	0.00
		9/15/2007	11.89	11.89	17.01	0.00
		12/15/2007	11.60	11.60	17.30	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	3507	10/11/1994	0.00	9.98	19.36	0.00
		11/7/1994	0.00	10.88	18.46	0.00
		12/15/1994	0.00	10.64	18.70	0.00
		2/24/1995	0.00	11.49	17.85	0.00
		3/16/1995	0.00	10.61	18.73	0.00
		4/23/1995	0.00	11.97	17.37	0.00
		5/15/1995	0.00	11.09	18.25	0.00
		6/16/1995	0.00	11.55	17.79	0.00
		2/7/1996	NG	NG	NG	NG
		6/14/1996	NG	NG	NG	NG
		9/9/1996	0.00	8.32	21.02	0.00
		10/15/1996	0.00	8.64	20.70	0.00
		3/15/1997	NG	NG	NG	NG
		6/15/1997	NG	NG	NG	NG
		9/15/1997	NG	NG	NG	NG
		12/15/1997	NG	NG	NG	NG
		3/15/1998	NG	NG	NG	NG
		6/15/1998	NG	NG	NG	NG
		9/15/1998	NG	NG	NG	NG
		12/15/1998	NG	NG	NG	NG
		3/15/1999	NG	NG	NG	NG
		6/15/1999	NG	NG	NG	NG
		9/15/1999	NG	NG	NG	NG
		12/15/1999	NG	NG	NG	NG
		3/15/2000	NG	NG	NG	NG
		6/23/2000	NG	NG	NG	NG
		9/15/2000	NG	NG	NG	NG
		12/15/2000	NG	NG	NG	NG
		12/15/2002	9.67	9.67	19.67	0.00
		3/15/2003	9.25	9.25	20.09	0.00
		5/15/2003	8.86	8.86	20.48	0.00
		6/15/2003	8.36	8.36	20.98	0.00
		9/15/2003	7.65	7.65	21.69	0.00
		10/15/2003	7.51	7.51	21.83	0.00
		11/15/2003	7.39	7.39	21.95	0.00
		12/15/2003	7.12	7.12	22.22	0.00
		2/15/2004	8.92	8.92	20.42	0.00
		3/15/2004	9.26	9.26	20.08	0.00
		6/15/2004	8.06	8.06	21.28	0.00
		9/15/2004	8.97	8.97	20.37	0.00
		12/15/2004	9.52	9.52	19.82	0.00
		3/15/2005	10.25	10.25	19.09	0.00
		6/15/2005	8.24	8.24	21.10	0.00
		9/15/2005	8.43	8.43	20.91	0.00
		12/15/2005	9.43	9.43	19.91	0.00
		3/15/2006	9.33	9.33	20.01	0.00
		6/30/2006	6.93	6.93	22.41	0.00
		9/15/2006	7.33	7.33	22.01	0.00
		12/15/2006	6.97	6.97	22.37	0.00
		3/15/2007	7.72	7.72	21.62	0.00
		6/15/2007	8.15	8.15	21.19	0.00
		9/15/2007	NG	NG	NG	NG
		12/15/2007	NG	NG	NG	NG

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	3508	10/11/1994	12.37	12.38	17.78	0.01
		11/7/1994	13.10	13.11	17.05	0.01
		12/15/1994	13.73	13.90	16.39	0.17
		2/24/1995	14.11	15.52	15.83	1.41
		3/16/1995	13.85	14.64	16.18	0.79
		3/30/1995	NG	NG	NG	NG
		4/23/1995	14.38	15.57	15.59	1.19
		5/1/1995	NG	NG	NG	NG
		5/25/1995	NG	NG	NG	NG
		6/16/1995	14.72	15.06	15.38	0.34
		6/27/1995	NG	NG	NG	NG
		7/14/1995	14.58	14.75	15.54	0.17
		8/1/1995	NG	NG	NG	NG
		8/15/1995	14.32	14.75	15.76	0.43
		8/23/1995	NG	NG	NG	NG
		9/7/1995	14.59	14.95	15.51	0.36
		9/28/1995	NG	NG	NG	NG
		10/26/1995	13.18	13.49	16.92	0.31
		11/2/1995	NG	NG	NG	NG
		11/22/1995	12.35	14.32	17.50	1.97
		11/27/1995	NG	NG	NG	NG
		2/7/1996	11.50	14.02	18.27	2.52
		2/14/1996	11.87	13.57	18.02	1.70
		2/25/1996	NG	NG	NG	NG
		3/15/1996	12.09	12.78	17.96	0.69
		3/22/1996	NG	NG	NG	NG
		4/2/1996	12.08	12.67	17.98	0.59
		4/18/1996	NG	NG	NG	NG
		5/16/1996	10.97	11.47	19.10	0.50
		5/22/1996	NG	NG	NG	NG
		6/14/1996	11.49	12.35	18.53	0.86
		6/15/1996	11.49	12.35	18.53	0.86
		6/28/1996	NG	NG	NG	NG
		7/9/1996	10.20	10.78	19.86	0.58
		7/17/1996	NG	NG	NG	NG
		8/14/1996	10.40	11.76	19.55	1.36
		8/21/1996	NG	NG	NG	NG
		9/9/1996	11.07	12.34	18.89	1.27
		9/15/1996	11.07	12.34	18.89	1.27
		10/15/1996	NG	NG	NG	NG
		10/15/1996	11.18	11.91	18.86	0.73
		11/19/1996	11.11	11.65	18.96	0.54
		11/27/1996	NG	NG	NG	NG
		12/15/1996	10.79	12.00	19.18	1.21
		12/18/1996	10.79	12.00	19.18	1.21
		1/8/1997	11.64	12.98	18.31	1.34
		1/23/1997	NG	NG	NG	NG
		2/10/1997	10.79	12.50	19.10	1.71
		2/20/1997	NG	NG	NG	NG
		3/12/1997	10.75	11.95	19.22	1.20
		3/15/1997	10.75	11.95	19.22	1.20
		4/29/1997	10.85	14.55	18.74	3.70
		5/29/1997	NG	NG	NG	NG
		6/15/1997	NG	NG	NG	NG

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	3508	6/24/1997	11.99	14.19	17.83	2.20
		9/15/1997	12.65	15.35	17.09	2.70
		12/15/1997	12.59	15.19	17.17	2.60
		3/15/1998	9.59	10.64	20.40	1.05
		6/15/1998	10.91	11.31	19.18	0.40
		9/15/1998	12.01	13.04	17.98	1.03
		12/15/1998	13.42	14.16	16.62	0.74
		3/15/1999	11.61	11.75	18.52	0.14
		6/15/1999	11.89	12.18	18.22	0.29
		9/15/1999	8.83	8.93	21.30	0.10
		12/15/1999	8.78	8.88	21.35	0.10
		3/15/2000	10.91	11.04	19.22	0.13
		6/23/2000	10.34	10.46	19.79	0.12
		9/15/2000	10.87	10.94	19.27	0.07
		12/15/2000	12.23	12.38	17.90	0.15
		3/14/2001	11.11	11.36	19.00	0.25
		6/15/2001	10.02	10.22	20.10	0.20
		9/15/2001	11.12	11.17	19.02	0.05
		12/15/2001	11.56	11.67	18.57	0.11
		3/15/2002	11.68	11.71	18.46	0.03
		6/15/2002	10.51	10.54	19.63	0.03
		9/15/2002	10.51	10.54	19.63	0.03
		12/15/2002	8.01	8.01	22.14	0.00
		3/15/2003	7.51	7.51	22.64	0.00
		6/15/2003	6.21	6.21	23.94	0.00
		9/15/2003	6.06	6.06	24.09	0.00
		10/15/2003	6.26	6.26	23.89	0.00
		11/15/2003	5.84	5.84	24.31	0.00
		12/15/2003	5.48	5.48	24.67	0.00
		2/15/2004	6.98	6.98	23.17	0.00
		3/15/2004	7.38	7.38	22.77	0.00
		6/15/2004	6.52	6.52	23.63	0.00
		9/15/2004	7.35	7.35	22.80	0.00
		12/15/2004	7.81	7.81	22.34	0.00
		3/15/2005	8.33	8.33	21.82	0.00
		6/15/2005	6.64	6.64	23.51	0.00
		9/15/2005	6.85	6.85	23.30	0.00
		12/15/2005	7.54	7.54	22.61	0.00
		3/15/2006	7.77	7.77	22.38	0.00
		6/30/2006	5.94	5.94	24.21	0.00
		9/15/2006	5.80	5.80	24.35	0.00
		12/15/2006	5.76	5.76	24.39	0.00
		3/15/2007	6.38	6.38	23.77	0.00
		6/15/2007	6.84	6.84	23.31	0.00
		9/15/2007	8.41	8.41	21.74	0.00
		12/15/2007	NG	NG	NG	NG

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	3509	3/15/2003	8.07	8.07	21.93	0.00
		4/15/2003	7.94	7.94	22.06	0.00
		5/15/2003	7.85	7.85	22.15	0.00
		6/15/2003	6.63	6.63	23.37	0.00
		9/15/2003	7.30	7.30	22.70	0.00
		10/15/2003	7.13	7.13	22.87	0.00
		11/15/2003	6.97	6.97	23.03	0.00
		12/15/2003	6.75	6.75	23.25	0.00
		3/15/2004	7.48	7.48	22.52	0.00
		6/15/2004	7.62	7.62	22.38	0.00
		9/15/2004	8.82	8.82	21.18	0.00
		12/15/2004	8.89	8.89	21.11	0.00
		3/15/2005	7.55	7.55	22.45	0.00
		6/15/2005	7.91	7.91	22.09	0.00
		9/15/2005	8.07	8.07	21.93	0.00
		12/15/2005	8.92	8.92	21.08	0.00
		3/15/2006	8.94	8.94	21.06	0.00
		6/30/2006	8.32	8.32	21.68	0.00
		9/15/2006	7.21	7.21	22.79	0.00
		12/15/2006	6.96	6.96	23.04	0.00
		3/15/2007	7.49	7.49	22.51	0.00
		6/15/2007	8.02	8.02	21.98	0.00
		9/15/2007	9.57	9.57	20.43	0.00
		12/15/2007	9.29	9.29	20.71	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton R.R.	3510	3/15/2003	7.93	7.93	22.07	0.00
		4/15/2003	8.23	8.23	21.77	0.00
		5/15/2003	8.05	8.05	21.95	0.00
		6/15/2003	6.72	6.72	23.28	0.00
		9/15/2003	8.94	8.94	21.06	0.00
		10/15/2003	8.54	8.54	21.46	0.00
		12/15/2003	8.23	8.23	21.77	0.00
		2/15/2004	9.59	9.59	20.41	0.00
		3/15/2004	9.99	9.99	20.01	0.00
		6/15/2004	9.21	9.21	20.79	0.00
		9/15/2004	10.04	10.04	19.96	0.00
		12/15/2004	10.56	10.56	19.44	0.00
		3/15/2005	10.99	10.99	19.01	0.00
		6/15/2005	9.45	9.45	20.55	0.00
		9/15/2005	9.73	9.73	20.27	0.00
		12/15/2005	10.41	10.41	19.59	0.00
		3/15/2006	10.56	10.56	19.44	0.00
		6/30/2006	10.39	10.39	19.61	0.00
		9/15/2006	9.16	9.16	20.84	0.00
		12/15/2006	8.55	8.55	21.45	0.00
		3/15/2007	9.14	9.14	20.86	0.00
		6/15/2007	9.77	9.77	20.23	0.00
		9/15/2007	11.20	11.20	18.80	0.00
		12/15/2007	10.93	10.93	19.07	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton Trade	GP-1	9/11/2003	2.90	2.90	22.10	0.00
		9/15/2003	2.93	2.93	22.07	0.00
		9/19/2003	2.94	2.94	22.06	0.00
		10/1/2003	3.12	3.12	21.88	0.00
		10/8/2003	3.10	3.10	21.90	0.00
		11/4/2003	3.08	3.08	21.92	0.00
		12/15/2003	2.89	2.89	22.11	0.00
		3/15/2004	6.85	6.85	18.15	0.00
		4/28/2004	3.04	3.04	21.96	0.00
		5/15/2004	3.07	3.07	21.93	0.00
		6/15/2004	3.11	3.11	21.89	0.00
		12/15/2004	3.15	3.15	21.85	0.00
		3/15/2005	4.00	4.00	21.00	0.00
		6/15/2005	3.13	3.13	21.87	0.00
		9/15/2005	3.19	3.19	21.81	0.00
		12/15/2005	3.48	3.48	21.52	0.00
		3/15/2006	3.84	3.84	21.16	0.00
		6/30/2006	3.62	3.62	21.38	0.00
		9/15/2006	2.98	2.98	22.02	0.00
		12/15/2006	3.29	3.29	21.71	0.00
		3/15/2007	3.17	3.17	21.83	0.00
		6/15/2007	3.18	3.18	21.82	0.00
		9/15/2007	3.41	3.41	21.59	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton Trade	GP-2	9/11/2003	7.81	7.81	17.19	0.00
		9/15/2003	7.82	7.82	17.18	0.00
		9/19/2003	7.84	7.84	17.16	0.00
		10/1/2003	7.77	7.77	17.23	0.00
		10/8/2003	7.79	7.79	17.21	0.00
		11/4/2003	7.77	7.77	17.23	0.00
		12/15/2003	7.43	7.43	17.57	0.00
		3/15/2004	7.65	7.65	17.35	0.00
		4/28/2004	7.47	7.47	17.53	0.00
		5/15/2004	7.39	7.39	17.61	0.00
		6/15/2004	7.35	7.35	17.65	0.00
		12/15/2004	7.35	7.35	17.65	0.00
		3/15/2005	7.80	7.80	17.20	0.00
		6/15/2005	7.35	7.35	17.65	0.00
		7/15/2005	4.29	10.59	20.71	6.30
		8/11/2005	5.24	5.68	19.76	0.44
		8/31/2005	5.61	6.02	19.39	0.41
		9/15/2005	7.42	7.42	17.58	0.00
		12/15/2005	7.32	7.32	17.68	0.00
		3/15/2006	7.64	7.64	17.36	0.00
		6/30/2006	7.52	7.52	17.48	0.00
		9/15/2006	7.30	7.30	17.70	0.00
		12/15/2006	7.43	7.43	17.57	0.00
		3/15/2007	7.67	7.67	17.33	0.00
		6/15/2007	7.31	7.31	17.69	0.00
		9/15/2007	7.24	7.24	17.76	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton Trade	GP-3	9/11/2003	5.03	5.03	19.97	0.00
		9/15/2003	5.05	5.05	19.95	0.00
		9/19/2003	5.07	5.07	19.93	0.00
		10/1/2003	5.16	5.16	19.84	0.00
		10/8/2003	5.71	5.71	19.29	0.00
		11/4/2003	5.60	5.60	19.40	0.00
		12/15/2003	3.74	3.74	21.26	0.00
		3/15/2004	6.57	6.57	18.43	0.00
		4/28/2004	5.15	5.15	19.85	0.00
		5/15/2004	5.25	5.25	19.75	0.00
		6/15/2004	5.20	5.20	19.80	0.00
		12/15/2004	5.76	5.76	19.24	0.00
		3/15/2005	5.74	5.74	19.26	0.00
		6/15/2005	5.27	5.27	19.73	0.00
		9/15/2005	5.52	5.52	19.48	0.00
		12/15/2005	5.68	5.68	19.32	0.00
		3/15/2006	5.85	5.85	19.15	0.00
		6/30/2006	5.64	5.64	19.36	0.00
		9/15/2006	5.25	5.25	19.75	0.00
		12/15/2006	5.58	5.58	19.42	0.00
		3/15/2007	5.04	5.04	19.96	0.00
		6/15/2007	5.32	5.32	19.68	0.00
		9/15/2007	5.62	5.62	19.38	0.00

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton Trade	GP-4	9/11/2003	5.47	5.47	19.53	0.00
		9/15/2003	5.49	5.49	19.51	0.00
		9/19/2003	5.51	5.51	19.49	0.00
		10/1/2003	5.57	5.57	19.43	0.00
		10/8/2003	5.82	5.82	19.18	0.00
		11/4/2003	5.72	5.72	19.28	0.00
		12/15/2003	5.49	5.49	19.51	0.00
		3/15/2004	6.36	8.75	18.32	2.39
		4/28/2004	5.28	9.01	19.22	3.73
		5/15/2004	5.70	6.21	19.23	0.51
		6/15/2004	5.59	6.59	19.28	1.00
		8/15/2004	5.50	6.81	19.32	1.31
		12/15/2004	6.24	6.87	18.67	0.63
		3/15/2005	6.24	9.33	18.34	3.09
		6/15/2005	5.00	10.89	19.20	5.89
		9/15/2005	6.05	6.23	18.93	0.18
		10/15/2005	5.54	6.25	19.36	0.71
		11/15/2005	5.57	7.24	19.20	1.67
		12/15/2005	5.98	6.38	18.97	0.40
		3/15/2006	6.14	8.80	18.50	2.66
		4/15/2006	5.25	8.37	19.33	3.12
		5/15/2006	5.04	8.28	19.52	3.24
		6/30/2006	5.63	9.23	18.88	3.60
		7/15/2006	5.76	6.27	19.17	0.51
		8/15/2006	5.79	6.29	19.14	0.50
		9/15/2006	5.22	6.54	19.60	1.32
		12/15/2006	5.83	7.97	18.88	2.14
		1/15/2007	5.25	7.80	19.41	2.55
		2/15/2007	6.03	9.22	18.54	3.19
		3/15/2007	5.49	9.87	18.92	4.38
		4/15/2007	4.81	7.62	19.81	2.81
		5/15/2007	5.42	7.51	19.30	2.09
		6/15/2007	5.57	7.23	19.21	1.66
		9/15/2007	5.69	7.93	19.01	2.24
		10/15/2007	5.75	8.80	18.84	3.05
		11/15/2007	6.79	8.30	18.01	1.51

Former ExxonMobil Baltimore Terminal Gauging Data

Area	Well No	Gauge Date	Depth to Product	Depth to Water	Potentiometric Elevation	Apparent Thickness
Canton Trade	GP-5	9/11/2003	5.38	5.38	19.62	0.00
		9/15/2003	5.41	5.41	19.59	0.00
		9/19/2003	5.43	5.43	19.57	0.00
		10/1/2003	5.85	5.85	19.15	0.00
		10/8/2003	5.96	5.96	19.04	0.00
		11/4/2003	5.90	5.90	19.10	0.00
		12/15/2003	5.66	5.66	19.34	0.00
		3/15/2004	3.94	3.94	21.06	0.00
		4/28/2004	6.01	6.01	18.99	0.00
		5/15/2004	5.94	5.94	19.06	0.00
		6/15/2004	5.86	5.86	19.14	0.00
		12/15/2004	6.43	6.43	18.57	0.00
		3/15/2005	6.71	6.71	18.29	0.00
		6/15/2005	5.90	5.91	19.10	0.01
		9/15/2005	6.11	6.11	18.89	0.00
		12/15/2005	6.47	6.47	18.53	0.00
		3/15/2006	6.74	6.74	18.26	0.00
		6/30/2006	6.33	6.33	18.67	0.00
		9/15/2006	5.97	5.97	19.03	0.00
		12/15/2006	6.34	6.34	18.66	0.00
		3/15/2007	6.30	6.30	18.70	0.00
		6/15/2007	5.94	5.94	19.06	0.00
		9/15/2007	6.24	6.24	18.76	0.00

ATTACHMENT III

Executive Summary - Mobility

Site Name: ExxonMobil Baltimore Off-Site CAP

Project Manager: Mullis

Date of Analysis: 4/25/2008

Title of Simulations: Off-Site CAP 2904

Initial Conditions

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	Selected S_{ro} (%)
1	1	Fine Sand	0.6644	0.2

Simulation Number	LNAPL Type	LNAPL Zone Thickness (ft)	Saturation Condition
1	Custom	3.8	Vertical Equilibrium

Results

Simulation Number	Type Area Volume (gals)	% Interval Greater than Field S_{ro}	Max S_o	Average S_o	Mobility (ft/day)	Plume Velocity (ft/day)
1	7.57E+02	9.24E+00	0.22	8.33E-02	7.82E-01	1.56E-03

User Input Parameters

Soil Properties

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	van Genutchen n	Srw	Sro	K (ft/d)	Total Porosity
1	1	Fine Sand	0.6644	2.61	0.32	0.20	3.28E+00	0.43

Groundwater Condition Input Parameters

Simulation Number	Groundwater Darcy Flux (ft/day)	Linear Velocity (ft/day)	Groundwater Gradient (ft/ft)
1	6.56E-03	2.24E-02	2.00E-03

Source Area Input Parameters

Simulation Number	Vertical Formation Thickness (ft)	Depth to Top of LNAPL (ft)	Length of LNAPL Zone (ft)	Width of LNAPL Zone (ft)
1	3.80	14.00	25.00	25.00

LNAPL Properties

Simulation Number	Product Type	Oil/Water IFT (dynes/cm)	Oil/Air IFT (dynes/cm)	Oil Density (gm/cc)	Viscosity (cp)
1	Custom	25.00	25.00	0.87	5.80

Method Used to Calculate LNAPL Saturation Input Parameters

Simulation Number	Method Used To Calculate LNAPL Saturation	Source Volitilization	Criteria For Minimum Mobility (ft/day)
1	Equilibrium LNAPL Distribution	Volatilization Included	3.30E+00

Executive Summary - Mobility

Site Name: ExxonMobil Off-Site CAP

Project Manager: Mullis

Date of Analysis: 4/25/2008

Title of Simulations: Off-Site CAP #38

Initial Conditions

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	Selected S_{ro} (%)
1	1	Silty Sand	0.5517	0.23

Simulation Number	LNAPL Type	LNAPL Zone Thickness (ft)	Saturation Condition
1	Custom	10.0	Vertical Equilibrium

Results

Simulation Number	Type Area Volume (gals)	% Interval Greater than Field S_{ro}	Max S_o	Average S_o	Mobility (ft/day)	Plume Velocity (ft/day)
1	2.69E+03	1.79E+01	0.28	1.25E-01	8.64E-02	8.64E-04

User Input Parameters

Soil Properties

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	van Genutchen n	Srw	Sro	K (ft/d)	Total Porosity
1	1	Silty Sand	0.5517	2.02	0.36	0.23	9.58E-01	0.41

Groundwater Condition Input Parameters

Simulation Number	Groundwater Darcy Flux (ft/day)	Linear Velocity (ft/day)	Groundwater Gradient (ft/ft)
1	9.58E-03	3.65E-02	1.00E-02

Source Area Input Parameters

Simulation Number	Vertical Formation Thickness (ft)	Depth to Top of LNAPL (ft)	Length of LNAPL Zone (ft)	Width of LNAPL Zone (ft)
1	10.00	6.00	25.00	25.00

LNAPL Properties

Simulation Number	Product Type	Oil/Water IFT (dynes/cm)	Oil/Air IFT (dynes/cm)	Oil Density (gm/cc)	Viscosity (cp)
1	Custom	25.00	25.00	0.91	31.60

Method Used to Calculate LNAPL Saturation Input Parameters

Simulation Number	Method Used To Calculate LNAPL Saturation	Source Volitilization	Criteria For Minimum Mobility (ft/day)
1	Equilibrium LNAPL Distribution	Volatilization Included	9.58E-01

Executive Summary - Mobility

Site Name: ExxonMobil Baltimore Off-Site CAP

Project Manager: Mullis

Date of Analysis: 4/25/2008

Title of Simulations: Off-Site CAP #41

Initial Conditions

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	Selected S_{ro} (%)
1	1	Silty Sand	0.5517	0.23

Simulation Number	LNAPL Type	LNAPL Zone Thickness (ft)	Saturation Condition
1	Custom	1.25	Vertical Equilibrium

Results

Simulation Number	Type Area Volume (gals)	% Interval Greater than Field S_{ro}	Max S_o	Average S_o	Mobility (ft/day)	Plume Velocity (ft/day)
1	9.58E+00	0.00E+00	0.01	3.58E-03	1.35E-02	1.35E-04

User Input Parameters

Soil Properties

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	van Genutchen n	Srw	Sro	K (ft/d)	Total Porosity
1	1	Silty Sand	0.5517	2.02	0.36	0.23	9.58E-01	0.41

Groundwater Condition Input Parameters

Simulation Number	Groundwater Darcy Flux (ft/day)	Linear Velocity (ft/day)	Groundwater Gradient (ft/ft)
1	9.58E-03	3.65E-02	1.00E-02

Source Area Input Parameters

Simulation Number	Vertical Formation Thickness (ft)	Depth to Top of LNAPL (ft)	Length of LNAPL Zone (ft)	Width of LNAPL Zone (ft)
1	1.25	6.00	25.00	25.00

LNAPL Properties

Simulation Number	Product Type	Oil/Water IFT (dynes/cm)	Oil/Air IFT (dynes/cm)	Oil Density (gm/cc)	Viscosity (cp)
1	Custom	25.00	25.00	0.91	40.00

Method Used to Calculate LNAPL Saturation Input Parameters

Simulation Number	Method Used To Calculate LNAPL Saturation	Source Volitilization	Criteria For Minimum Mobility (ft/day)
1	Equilibrium LNAPL Distribution	Volatilization Included	9.58E-01

Executive Summary - Mobility

Site Name: ExxonMobil Baltimore Off-Site CAP

Project Manager: Mullis

Date of Analysis: 4/25/2008

Title of Simulations: Off-Site CAP #52

Initial Conditions

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	Selected S_{ro} (%)
1	1	Fine Sand	0.6644	0.2

Simulation Number	LNAPL Type	LNAPL Zone Thickness (ft)	Saturation Condition
1	Custom	3.0	Vertical Equilibrium

Results

Simulation Number	Type Area Volume (gals)	% Interval Greater than Field S_{ro}	Max S_o	Average S_o	Mobility (ft/day)	Plume Velocity (ft/day)
1	1.48E+02	0.00E+00	0.07	2.19E-02	5.26E-02	5.26E-04

User Input Parameters

Soil Properties

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	van Genutchen n	Srw	Sro	K (ft/d)	Total Porosity
1	1	Fine Sand	0.6644	2.61	0.32	0.20	3.28E+00	0.43

Groundwater Condition Input Parameters

Simulation Number	Groundwater Darcy Flux (ft/day)	Linear Velocity (ft/day)	Groundwater Gradient (ft/ft)
1	3.28E-02	1.12E-01	1.00E-02

Source Area Input Parameters

Simulation Number	Vertical Formation Thickness (ft)	Depth to Top of LNAPL (ft)	Length of LNAPL Zone (ft)	Width of LNAPL Zone (ft)
1	3.00	6.00	25.00	25.00

LNAPL Properties

Simulation Number	Product Type	Oil/Water IFT (dynes/cm)	Oil/Air IFT (dynes/cm)	Oil Density (gm/cc)	Viscosity (cp)
1	Custom	25.00	25.00	0.91	40.00

Method Used to Calculate LNAPL Saturation Input Parameters

Simulation Number	Method Used To Calculate LNAPL Saturation	Source Volitilization	Criteria For Minimum Mobility (ft/day)
1	Equilibrium LNAPL Distribution	Volatilization Included	3.20E+00

Executive Summary - Mobility

Site Name: ExxonMobil Baltimore Off-Site CAP

Project Manager: Mullis

Date of Analysis: 4/25/2008

Title of Simulations: Off-Site CAP GP-4

Initial Conditions

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	Selected S_{ro} (%)
1	1	Fine Sand	0.6644	0.2

Simulation Number	LNAPL Type	LNAPL Zone Thickness (ft)	Saturation Condition
1	Custom	6.0	Vertical Equilibrium

Results

Simulation Number	Type Area Volume (gals)	% Interval Greater than Field S_{ro}	Max S_o	Average S_o	Mobility (ft/day)	Plume Velocity (ft/day)
1	3.14E+03	5.04E+01	0.45	2.08E-01	1.55E+00	1.55E-02

User Input Parameters

Soil Properties

Simulation Number	Layer	Soil Type	van Genutchen Alpha (1/ft)	van Genutchen n	Srw	Sro	K (ft/d)	Total Porosity
1	1	Fine Sand	0.6644	2.61	0.32	0.20	3.28E+00	0.43

Groundwater Condition Input Parameters

Simulation Number	Groundwater Darcy Flux (ft/day)	Linear Velocity (ft/day)	Groundwater Gradient (ft/ft)
1	3.28E-02	1.12E-01	1.00E-02

Source Area Input Parameters

Simulation Number	Vertical Formation Thickness (ft)	Depth to Top of LNAPL (ft)	Length of LNAPL Zone (ft)	Width of LNAPL Zone (ft)
1	6.00	6.00	25.00	25.00

LNAPL Properties

Simulation Number	Product Type	Oil/Water IFT (dynes/cm)	Oil/Air IFT (dynes/cm)	Oil Density (gm/cc)	Viscosity (cp)
1	Custom	25.00	25.00	0.84	4.50

Method Used to Calculate LNAPL Saturation Input Parameters

Simulation Number	Method Used To Calculate LNAPL Saturation	Source Volitilization	Criteria For Minimum Mobility (ft/day)
1	Equilibrium LNAPL Distribution	Volatilization Included	3.20E+00

MARTEL

Sensible Scientific Solutions

Certificate of Analysis

Friday, April 18, 2008

Prepared expressly for:

GeoTrans, Inc
844 West Street
Suite 100
Annapolis, MD 21401
Attention: Steve Cook

AMENDED

Report for Lab No: 53378.
Project Identification: XOM Baltimore Sample Analysis, 4/2/08.
P.O. Number: 2604.049

MARTEL NO. 53378 000001 — CLIENT SAMPLE IDENTIFICATION: 2904 XOM Baltimore — Sample Date/Time: 04/02/2008 11:30

Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial
Kinematic Viscosity at 40 C	2.4	cSt	ASTM D445		04/03/2008 13:27 SCN
Specific Gravity (Pycnometer)	0.87		ASTM D1217		04/07/2008 09:48 SCN
Viscosity @ 20 deg C (Brookfield)	5.8	cP	ASTM D2669m		04/17/2008 16:00 SCN

MARTEL NO. 53378 000002 — CLIENT SAMPLE IDENTIFICATION: GP-4 XOM Baltimore — Sample Date/Time: 04/02/2008 11:00

Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial
Kinematic Viscosity at 40 C	1.7	cSt	ASTM D445		04/03/2008 13:27 SCN
Specific Gravity (Pycnometer)	0.84		ASTM D1217		04/07/2008 09:48 SCN
Viscosity @ 20 deg C (Brookfield)	4.5	cP	ASTM D2669m		04/17/2008 16:00 SCN

MARTEL NO. 53378 000003 — CLIENT SAMPLE IDENTIFICATION: 38 XOM Baltimore — Sample Date/Time: 04/02/2008 10:00

Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial
Kinematic Viscosity at 40 C	14.7	cSt	ASTM D445		04/03/2008 14:29 SCN
Specific Gravity (Pycnometer)	0.91		ASTM D1217		04/07/2008 09:48 SCN
Viscosity @ 20 deg C (Brookfield)	31.6	cP	ASTM D2669m		04/17/2008 16:00 SCN

MARTEL NO. 53378 000004 — CLIENT SAMPLE IDENTIFICATION: 52 XOM Baltimore — Sample Date/Time: 04/02/2008 09:30

Compound	Test Value	Test Unit	Method	Detection Limit	Analysis Date/Time/Initial
Kinematic Viscosity at 40 C	19.7	cSt	ASTM D445		04/03/2008 14:29 SCN
Specific Gravity (Pycnometer)	0.91		ASTM D1217		04/07/2008 09:48 SCN
Viscosity @ 20 deg C (Brookfield)	insuffic.	size	ASTM D2669m		04/17/2008 16:00 SCN

MARTEL

Sensible Scientific Solutions

Martel Laboratories JDS Inc.

1025 Cromwell Bridge Road - Baltimore, Maryland 21286
PH 410-825-7790 FAX 410-821-1054 EMAIL: vk@martellabs.com

GEOMD

All Procedures used are in accordance with the following methods:

American Society for Testing and Materials, "Annual Book of ASTM Standards". Martel is not responsible for sample collection or transportation to the laboratory.

Specific gravity reported at 20 C. Effort to analyze 53378-4 for brookfield viscosity failed due to insufficient sample size.

QC _____ Approved _____

Date 4/18/08 Date 4/18/8

MARTEL *CHAIN OF CUSTODY / SAMPLE INFORMATION FORM*

Martel Laboratories JDS Inc. • 1025 Cromwell Bridge Road • Baltimore, MD 21286 • (410) 825-7790 • FAX (410) 821-1054 Email: vk@martellabs.com

MARTEL Log # S 3378 Client Code

Client Name/Phone/FAX GEOTRANS (STEVE COX) / 410 507 2696 / 410 523 5730

Client Address 3801 BOSTON STREET, BALTIMORE, MD 21224

Invoice Address 844 WEST STREET, ANNAPOLIS, MD 21401

Sampler NICK MONICO

Project Name/# XOM BALTIMORE 2604.049

Contract/P.O Number 2604.049

Sample Turnaround Time STANDARD

Station No./ Sample ID	Station Location	Matrix	Container Description/ Preservation Status	Potentially Hazardous?	# of Containers	Date	Time	Analyses Required/Comments
2904	XOM BALTIMORE	LNAPL	1 L amber		1	4/2	1130	VISC 40, Spec gravity
GP-4			1 L amber		1	4/2	1100	VISC 40, " "
38			.5 L amber		1	4/2	1000	VISC 40, " "
52			.5 L amber		1	4/2	0930	VISC 40, " "
					1	4/2		VISC 40, " "

Transferred by:	Received by:	Date	Time
Jeff Cornwell	AJG	4/2/08	1700
Transferred by:	Received by:	Date	Time
Transferred by:	Received by:	Date	Time

Cooler Receipt Information (LAB USE ONLY)

Sufficient ice? - Yes/No If No, temp.= _____

Sample containers pres'd? - Yes/No If No, explain

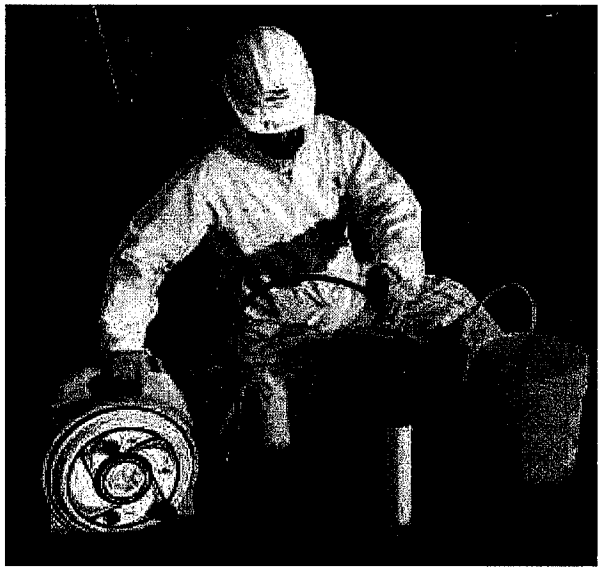
Custody Seal present/intact? - Yes/No NA

Initials: AJG Date: 4/2/08

ATTACHMENT IV

C.E.T. SPILL BUDDY

SPILL BUDDY PRO™ OVERVIEW



The Spill Buddy™ is a compact, manually operated, floating petroleum product (LNAPL) pump, which uses sensors based on proven Spill Buster™ technology to determine the product/water interface. The Spill Buddy can also be used to remove heavier-than-water (DNAPL) contaminants.

The Spill Buddy Pro is a combination of a manually operated product pump and an interface probe. This system is used to measure the "depth-to-product" and "depth-to-water" in test wells. The integrated measuring tape and audible feedback allows the user to determine the thickness of the product layer.

Using either system, the operator can pump the product from the well by activating a small switch located on the reel assembly. Pumped product is discharged through a hose on the back side of the reel assembly, into a collection container.

Use of the Spill Buddy and Spill Buddy Pro systems is very cost effective, when compared to the traditional method of product recovery from groundwater monitoring wells. Traditionally, product has been recovered by using a hand-bailing device. This requires the collection of groundwater in addition to the product. The contaminated water is then treated as hazardous waste and must be disposed of accordingly. Hand-bailing is also very time consuming. Use of the Spill Buddy and Spill Buddy Pro to remove free phase contamination from groundwater monitoring wells is quick and easy.

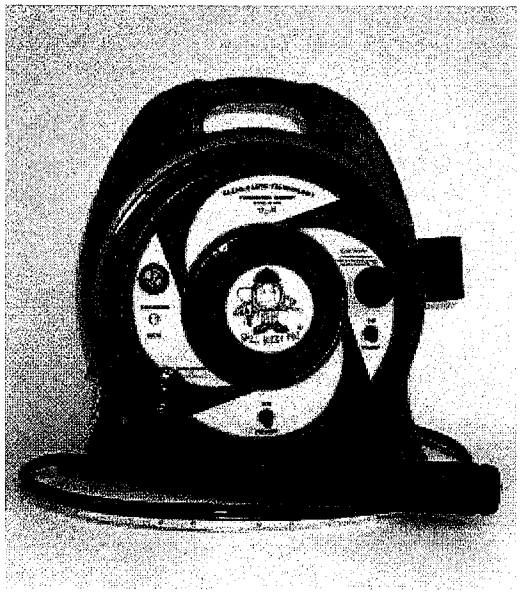
Spill Buddy and Spill Buddy Pro both employ our patented ALPHA-ARRAY™ sensors on the probe that detect the interface between the product and the water. The audible feedback allows the user to determine the water surface and allows product skimming.

The compact probe with enclosed pump easily fits into wells as small as 2" in diameter. The rugged, lightweight, and convenient Spill Buddy units can skim up to 0.7 gallons of product per minute. The Spill Buddy units also have a self contained, rechargeable battery for the sensor electronics and pump. The battery is rechargeable from a 12 VDC source (car battery or cigarette lighter socket-optional) or the wall transformer provided with the unit. The Spill Buddy units will operate for up to one hour of continuous pumping. (approx. 40 gallons) per charge.

C.E.T. SPILL BUDDY

FEATURES

The Spill Buddy™ features:



- Portable pump with water interface detector for product-only recovery.
- For use in 2-inch and larger wells.
- Standard Unit goes 50 feet deep, optional 100 feet deep unit.
- Operated by self-contained rechargeable battery for easy portability.
- Battery provides one hour of continuous use per charge, equivalent to 40 gallons of product.
- Pumps 1 foot of product in a 2" well in 14 seconds at a 50 foot depth.
- Pumps 1 foot of product in a 4" well in 54 seconds at a 50 foot depth.
- Battery can be charged by wall transformer or optional cigarette lighter jack for charging between sites.

The Spill Buddy Pro™ features:

- Portable pump with water interface and product surface detectors.
- Measurement tape reads out in tenths and hundredths of feet. Metric tapes available also.
- For use in 2-inch and larger wells.
- Standard English unit goes 50 feet deep. Standard metric unit goes 15 meters deep.
- Operated by self-contained rechargeable battery for easy portability.
- Battery provides one hour of operation equivalent to 40 gallons of product.

SPILL BUDDY SPECIFICATIONS

Go to the Spill Buddy specifications

C.E.T. SPILL BUDDY

SPECIFICATIONS

Click here for Spill Buddy Pro™

Spill Buddy System™

Size
18.5 x 14.25 x 8.25 - in. (470 x 362 x 210 mm)

Weight
19 LBS (8.6 kg) (with battery)

Pumping Rate
0.7 gpm (2.6 L/min)

Minimum Skimming Thickness
0" (will pump some water in this condition)

Pumping Head
50 ft. (15 m) standard unit. 100 ft (30 m) optional.

Pumping Time
1 hour continuous pumping per battery charge (approx. 40 gallons)

Pump-able Fluids
Water and most hydrocarbons, floaters or sinkers (DNAPLS) Viscosities from 0-10 Cp.

Battery
12 VDC, 5 Amps-hours sealed lead acid (included). (We recommend a second battery for a backup on site.)

Battery Charger

Wall transformer (included). A cigarette-lighter jack is available as an option for charging between sites.

Probe Holder
Large spring clip holds probe up, minimizing dripping.

Operating Temperature Range
0 to +130 degrees F
-18 to +55 degrees C

Spill Buddy Pro System ™

Size
18.5 x 14.25 x 8.25 - in. (470 x 362 x 210 mm)

Weight
22 LBS (11.3 kg) (with battery)

Pumping Rate
0.7 gpm (2.6 L/min)

Minimum Skimming Thickness
0" (will pump some water in this condition)

Pumping Head
50 ft. or 15 meters are standard off the shelf units (Please specify English or Metric when ordering). Longer tapes available with special order -- call for details.

Pumping Time
1 hour continuous pumping per battery charge (approx. 40 gallons)

Pump-able Fluids
Most hydrocarbons, floaters (LNAPLs) or sinkers (DNAPLS). Viscosities from 0-10 Cp.
Medium viscosity pump available capable of pumping viscosities up to 120 Cp.

Battery
12 VDC, 5 Amps-hours sealed lead acid (included). (We recommend a second battery for a backup on site.)

Battery Charger

Wall transformer (included). A cigarette-lighter jack is available as an option for charging between sites.

Probe Holder
Large spring clip holds probe up, minimizing dripping.

Operating Temperature Range
0 to +130 degrees F or
-18 to +55 degrees C

Go to the Spill Buddy & Spill Buddy Pro ordering page

Copyright © 1998-2002
Spill Buster ™ ,Spill Buddy ™ & Spill Buddy Pro ™ are Registered Trade Marks of Bowles Corporation Inc.
Long Point Road, North Ferrisburgh, VT. Telephone: +1 802 425 3447

ATTACHMENT V

LNAPL and Hydrogeologic Characterization Data Collection	
Description	Test Method
Fluid Properties Package: LNAPL and Water (includes dynamic viscosity and fluid density, surface tension for each fluid and interfacial tension).	ASTM D445, ASTM D1481
Drainage Capillary Pressure Data, Centrifugal Method: LNAPL/Water, (includes initial fluid saturations, water production vs. capillary pressure, total porosity, dry bulk density, specific permeability to LNAPL and hydraulic conductivity.	API RP 40, ASTM D425M, EPA 9100

PTS Laboratories
Geotechnical Services
8100 Secura Way • Santa Fe Springs, CA 90670
Phone (562) 907-3607 • FAX (562) 907-3610

Client: Environmental
Client Project ID: Core Recovery Project

PTS Quote No: 00-200
January 2002

Recommended Core Handling/Preservation Field Procedures

Introduction

Following are recommended field procedures for handling, preserving and shipping unconsolidated cores obtained from shallow borings. Coring methods are beyond the scope of these procedures, as every site will have it's own unique problems and those are best addressed by the consultant and coring companies involved.

The goal of any coring operation is to obtain representative, *undisturbed* samples. If the core is being submitted to a laboratory for petrophysical analysis, it is recommended that the laboratory be contacted in advance to discuss the test program and required core size. Often, a compromise must be met between what the laboratory requires and what is practical in the field. Generally a 2" diameter by 6" long sleeve is suitable for most basic tests; horizontal and vertical permeability, TOC, density, grain size, porosity and pore fluid saturations. If larger diameter/continuous coring equipment is available, then a more detailed lithological and petrophysical data profile can be generated.

Procedure

1. Remove sample from core sampler as soon as possible.
   a. If core is in sleeves, fill any void space with saran wrap to minimize core movement, then seal with Teflon film and tape on plastic end caps.
   b. If core is not in sleeves, slide gently from sampler on to split PVC core supports - contact PTS for details. Wrap with Saran and secure with clear box tape.
2. Label each core section with top and bottom depths. Fractions of a foot should be recorded in tenths. Additionally, label multiple sleeves sequentially with A, B, C... etc starting with A on the top (shallowest) sleeve.
3. Immediately place cores in a cooler containing dry ice and freeze to minimize migration of core fluids (alternative: pack core into an ice chest with frozen "Blue Ice" and foam packing/cushioning material).
4. Ship cores at the end of each day by overnight courier (FedEx or AirBorne Express, etc.) to PTS Laboratories. Contact PTS for labeling requirements.

Applicable ASTM Standards

D3550-84: Ring Lined Barrel Sampling of Soils; split spoon or one-piece sampling barrel.
D1587-83: Thin-Walled Tube Sampling of Soils; Pitcher/Shelby tubes.
D4220-89: Preserving and Transporting Soil Samples; basic, does not address contaminated samples.