



**Stantec Consulting Corporation**  
1060 Andrew Drive, Suite 140  
West Chester, PA 19380  
Tel: (610) 840-2500  
Fax: (610) 840-2501

**Stantec**

November 23, 2010

Paula Murphy  
Sunoco (R&S)  
Philadelphia Refinery  
3144 Passyunk Avenue  
Philadelphia, Pennsylvania 19145

**RE: Tank Closure Assessment Report for ASTs PB 140, 141, 237, 279, and 298  
Sunoco Philadelphia Refinery, Point Breeze Processing Area, Philadelphia, PA  
PADEP Facility ID #: 51-19781; Tank Numbers 031A, 032A, 053A, 059A, and 060A**

Dear Paula Murphy:

## **INTRODUCTION**

Stantec Consulting Corporation (Stantec) has prepared this Tank Closure Assessment Report for aboveground storage tanks (ASTs) PB 140, PB 141, PB 237, PB 279, and PB 298 located within the Sunoco Philadelphia Refinery in Philadelphia, Pennsylvania. These tank numbers are referenced by the PADEP as tank numbers 031A, 032A, 053A, 059A, 060A (respectively) in the Point Breeze Processing Area (PB). These ASTs are located within Area of Interest (AOI) 2 in the northwest quadrant of the Point Breeze Processing Area. **Figure 1** is a site location map showing the facility location with respect to the surrounding area and **Figure 2** is a site plan which identifies AOI 2 and the referenced AST locations.

The ASTs were formerly closed-in-place with Amended Registration and Closure Report forms previously submitted to PADEP by Sunoco (see **Appendix A** for tank closure documents). PB 140 (PADEP Tank #031A) is an AST approximately 50 feet in diameter and which has historically been used to store No. 2 Fuel Oil. PB 140 had the capacity to hold 600,600 gallons of product and was closed-in-place on February 14, 2008. PB 141 (PADEP Tank#032A) was a 617,400-gallon capacity tank which was historically used to store Clarified Slurry Oil (CSO). PB 237 (PADEP Tank #053A) was a 163,800-gallon capacity tank which was historically used to store Light Cycle Oil (LCO). PB 279 (PADEP Tank #059A) was historically used to store CSO and had a capacity of 529,200 gallons. PB 298 (PADEP Tank #060A) was historically used to store recovered oil and had a capacity of 760,200 gallons. ASTs PB 141, PB 237, PB 279, and PB 298 were closed-in-place on October 11, 2002.

The PADEP-approved tank closure sampling plan for ASTs PB 140, PB 141, PB 237, PB 279, and PB 298 consists of four shallow soil samples per tank as well as the installation and sampling of

November 23, 2010

*Reference: ASTs PB 140, 141, 237, 279, and 298 Tank Closure Assessment Report*

downgradient and upgradient groundwater monitoring wells. Three (3) monitoring wells were proposed in the plan; however, due to spatial constraints from aboveground and underground utilities, two (2) wells were completed. The installation of monitoring wells and sampling of groundwater was performed concurrently with site characterization activities for AOI 2 which were conducted to document current environmental conditions at AOI 2 in accordance with the 2003 Consent Order & Agreement (CO&A), the 2004 Current Conditions Report and Comprehensive Remedial Plan (CCR), and to evaluate whether the remedial objectives of the CO&A are being met based on the current conditions. The details for the monitoring well installation and sampling are documented in the Site Characterization/Remedial Investigation Report (SCR/RIR) Area of Interest 2 by Langan Engineering and Environmental Services (Langan) and dated September 29, 2010, which was submitted to the Pennsylvania Department of Environmental Protection (PADEP).

Stantec performed the soil boring installation and sampling activities in accordance with the PADEP technical document "Closure Requirements for Aboveground Storage Tank Systems" (257-4200-001) and in accordance with the sampling plan designed in an on-site meeting between PADEP and Sunoco on January 20, 2010. The constituents of concern (COCs) are the parameters for PADEP leaded gasoline and No. 2, 4, 5, and 6 fuel oils.

## **SOIL INVESTIGATION**

On April 8 and 22, 2010, Stantec collected a total of twenty (20) soil samples from the perimeter areas of ASTs PB 140, PB 141, PB 237, PB 279, and PB 298 (**Figure 3**). Four (4) soil borings were installed around each tank perimeter and to the extent possible were aligned with associated piping in the northeast, southeast, southwest, and northwest quadrants of each tank. Boreholes were completed using a properly decontaminated stainless steel hand auger. Soil samples were collected at a depth of 1 foot below ground surface (bgs) and consisted of dry, brown to black, silty sand with gravel. No groundwater was encountered in the soil borings.

Each soil sample was collected using a dedicated sampler and placed into laboratory-provided glassware with preservatives if required. In addition, all samples were preserved at a temperature of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$  (Celsius) prior to shipment to the analytical laboratory by application of ice. This temperature was maintained during shipment by placing ice in zip-top bags above, around, and below the sample containers.

In order to characterize subsurface soil conditions, soil samples were analyzed for benzene, toluene, ethylbenzene, xylenes, cumene (isopropylbenzene), naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane (EDC), methyl-tertiary-butyl-ether (MTBE), 1,2-

November 23, 2010

*Reference: ASTs PB 140, 141, 237, 279, and 298 Tank Closure Assessment Report*

dibromoethane [ethylene dibromide] (EDB), fluorene, anthracene, pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene, phenanthrene, chrysene, and lead. Soil samples were submitted to Pennsylvania-certified Lancaster Laboratories (LL) in New Holland, Pennsylvania for analysis of volatile organic compounds (VOCs) by EPA SW-846 Method 8260B, semi-volatile organic compounds (SVOCs) by EPA SW-846 Method 8310, and lead by SW-846 Method 6010B.

## **SOIL SAMPLING RESULTS**

For purposes of evaluating the analytical data obtained through the characterization activities for the ASTs, the used aquifer, medium-specific concentrations (MSCs) for non-residential properties developed by PADEP to implement the Statewide Health Standard under Act 2 have been used as a basis for comparison. Given both the current use of the site and the anticipated use of the site in the future, the MSCs for non-residential property provide appropriate grounds for evaluation. In addition, while groundwater at the site is not currently used nor planned to be used for drinking water or agricultural purposes, the MSCs applicable to non-residential properties overlying used aquifers (with total dissolved solids less than 2,500 milligrams per liter) have been chosen as a conservative basis for comparison.

The highest value between 100 times the groundwater MSC and the generic value MSC was selected to represent the soil to groundwater numeric value. The used aquifer, non-residential soil to groundwater numeric value was then compared with the non-residential direct contact value for surface soil (0 to 2 feet bgs). The more stringent of the soil to groundwater value and the direct contact value was selected as the applicable soil MSC, otherwise referred to as the Statewide Health Standard (SHS).

The soil analytical data are summarized on **Table 1**. The soil sampling results were compared to the applicable MSCs under Act 2 for non-residential properties overlying used aquifers. All COCs in soil samples collected from the ASTs assessment were below applicable MSCs except for benzo(a)pyrene and lead. Benzo(a)pyrene was detected at 45 milligrams per kilogram (mg/kg) in soil sample 141 NE (1.0) and 15 mg/kg in soil sample 140 NW (1.0) which exceed the applicable MSC of 11 mg/kg. The 75%/10X rule, as described in Section 250.707(b)(2)(i) of the Act 2 requirements, was applied to the analytical results to evaluate attainment of the applicable MSCs. The 75%/10X rule requires that 75% of the soil samples collected for demonstration of attainment be equal to or below the cleanup standard and that no single sample result exceed the standard by more than ten times. Neither of the detected benzo(a)pyrene concentrations in soil exceed the applicable MSC by 10 times and 90% of the detected soil concentrations are equal to or below the

November 23, 2010

*Reference: ASTs PB 140, 141, 237, 279, and 298 Tank Closure Assessment Report*

MSC. Therefore attainment of the standard is demonstrated for benzo(a)pyrene through application of the 75%/10X rule.

Lead detected in soil at concentrations above the applicable non-residential soil MSC of 450 mg/kg included the following:

- 279 SW (1.0) 3,080 mg/kg;
- 279 SE (1.0) 592 mg/kg;
- 279 NW (1.0) 1,470 mg/kg;
- 141 NE (1.0) 1,940 mg/kg;
- 141 SE (1.0) 1,200 mg/kg;
- 140 SW (1.0) 2,740 mg/kg;
- 140 NE (1.0) 459 mg/kg;
- 140 NW (1.0) 616 mg/kg; and
- 298 SE (1.0) 1,240 mg/kg.

Therefore, on-site worker direct contact exposure of lead above the applicable MSC could be reasonably expected under the current and intended future non-residential use of the ASTs PB 140, PB 141, PB 237, PB 279, and PB 298 area of the refinery. Copies of the laboratory analytical data reports for the soil samples are included in **Appendix B**.

## **GROUNDWATER CHARACTERIZATION**

### ***Groundwater Well Installation***

Three (3) monitoring wells were proposed in the tank closure sampling plan for ASTs PB 140, PB 141, PB 237, PB 279, and PB 298. However, due to spatial constraints from aboveground impediments and underground utilities, two (2) wells, S-303 and S-328 were installed (see **Figure 3**). S-328 is generally upgradient of the tank field and S-303 is generally downgradient of the tank field. The monitoring well installation and groundwater sampling was conducted concurrently with site characterization activities for AOI 2 and reported to PADEP in the SCR/RIR AOI 2 by Langan dated September 29, 2010.

Monitoring wells S-303 and S-328 were installed on May 21, 2010 and June 11, 2010, respectively by Parrat Wolff, Inc. (PWI) of East Syracuse, New York under the direct supervision of Aquaterra Technologies, Inc. (Aquaterra) and Langan. Both monitoring wells were drilled utilizing hollow stem auger and were completed to a depth of 26 feet bgs to monitor the shallow/intermediate water table aquifer above the clay. Monitoring wells were installed and constructed in accordance with the Site

November 23, 2010

*Reference: ASTs PB 140, 141, 237, 279, and 298 Tank Closure Assessment Report*

Characterization Work Plan (Work Plan) for AOI 2 dated March 19, 2010. Following well construction, the monitoring wells were developed according to the Work Plan and were surveyed by Langan to establish the location and elevation of the inner and outer casing and ground surface at each point to the nearest 0.01 foot relative to mean sea level.

### ***Groundwater Sampling***

On July 12 and July 26, 2010, Aquaterra performed groundwater sampling for S-303 and S-328 respectively, in accordance with the Work Plan for AOI 2. Light non-aqueous phase liquid (LNAPL) was not observed in either monitoring well. All monitoring well sampling summary data was documented in the SCR/RIR AOI 2 by Langan dated September 29, 2010 and subsequently submitted to PADEP.

Following well purging activities, groundwater samples were collected by lowering a disposable bailer slowly into the monitoring well to minimize excess agitation. The bailer was filled with water from the top of the water table and retrieved. Samples were then collected in laboratory-prepared bottleware and immediately placed on ice. In order to characterize groundwater conditions, groundwater samples were analyzed for benzene, toluene, ethylbenzene, xylenes, cumene, MTBE, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, EDC, EDB, naphthalene, fluorene, pyrene, phenanthrene, chrysene, and dissolved lead. Groundwater samples were submitted to LL for analysis of VOCs by EPA SW-846 Method 8260B, SVOCs by EPA SW-846 Method 8270C, EDB by EPA SW-846 Method 8011, and dissolved lead by SW-846 Method 6020. Dissolved lead samples were filtered prior to analysis by LL.

## **GROUNDWATER CHARACTERIZATION RESULTS**

For the purpose of evaluating analytical data obtained during the AOI 2 characterization activities, groundwater results from the two wells in the vicinity of ASTs PB 140, PB 141, PB 237, PB 279, and PB 298 were screened against the PADEP non-residential used aquifer (TDS $\leq$  2,500) groundwater MSCs. The groundwater analytical results for S-303 and S-328 are presented in **Table 2**. The laboratory analytical reports for the groundwater samples are included in **Appendix C**.

All of the groundwater results for COCs in S-303 and S-328 were below their respective PADEP non-residential groundwater MSCs except for benzene in S-303. Benzene was detected at a concentration of 6 micrograms per liter ( $\mu\text{g/L}$ ) which was slightly above the MSC of 5  $\mu\text{g/L}$ .

According to the results of the fate and transport modeling using the Quick Domenico (QD) model documented in the September 29, 2010 SCR/RIR AOI 2 by Langan, the groundwater with a

November 23, 2010

*Reference: ASTs PB 140, 141, 237, 279, and 298 Tank Closure Assessment Report*

benzene concentration above its respective groundwater MSCs in S-303 is not predicted to migrate beyond the AOI 2 boundary. Therefore, the elevated concentrations in groundwater will not reach either the boundary of the Refinery or the Schuylkill River. Furthermore, groundwater in well S-303 is within the groundwater capture zone of the Pollock Street Sewer Total Fluids Recovery System.

## **GROUNDWATER FLOW, POTENTIAL MIGRATION PATHWAYS, AND SITE RECEPTORS**

Groundwater flow direction for the shallow/intermediate aquifer is illustrated on the site-wide groundwater elevation map (**Figure 4**). Groundwater flow in the shallow/intermediate zone in the vicinity of ASTs PB 140, PB 141, PB 237, PB 279, and PB 298 is generally controlled by recovery wells along the Pollock Street Sewer. The nearest site receptor is horizontal well 1 (HW-1) which is part of the Pollock Street Sewer Total Fluids Recovery System.

The Pollock Street Sewer Total Fluids Recovery System consists of total fluids (groundwater and LNAPL) recovery from nine vertical recovery wells (RW-100, RW-101, RW-102, RW-103, RW-105, RW-106, RW-110, RW-111, and RW-112) and three horizontal recovery wells (HW-1, HW-2, and HW-3) along Pollock Street Sewer. The Total Fluids Recovery System was installed to prevent LNAPL from entering the Schuylkill River via the Pollock Street Sewer and surrounding backfill around the sewer. Detailed information regarding the operation and maintenance of the Pollock Street System is included in quarterly Remediation Status Reports for the Philadelphia Refinery prepared by Stantec and submitted to PADEP by Sunoco on a quarterly basis.

The nearest surface water body to ASTs PB 140, PB 141, PB 237, PB 279, and PB 298 is the Schuylkill River which represents the western boundary of AOI 2. Previous investigations verified that no groundwater monitoring wells located within 1.5 miles of the Refinery are used for drinking water or agricultural use. Also, there are no complete direct contact exposure pathways and no human health receptors for groundwater in the vicinity of the referenced ASTs due to on-site Refinery Safety Procedures and required personal protective equipment (PPE).

This site is an active refinery on industrial property and there are currently no occupied buildings within 175 feet of ASTs PB 140, PB 141, PB 237, PB 279, and PB 298. Access to AOI 2 is restricted by the Schuylkill River, fencing, and by security measures. Based on the results of the vapor intrusion evaluation as documented in the September 29, 2010 SCR/RIR AOI 2 by Langan, no soil or groundwater analytical results in the vicinity of the referenced ASTs exceeded the non-residential United States Environmental Protection Agency (EPA)/PADEP default screening values or the Occupational Safety and Health Administration (OSHA) permissible exposure limits (PEL)

screening values. Therefore, there are no complete exposure pathways from groundwater or soil into indoor air at the on-site receptors.

There is a potential direct exposure pathway to surface soils (0 to 2 feet bgs) to on-site workers. Further evaluation of the lead concentrations in soil which exceeded the applicable non-residential soil MSC is warranted.

## **RECOMMENDATIONS AND CONCLUSIONS**

Based on the current and future intended non-residential site use and the results of the tank closure assessment activities, conclusions and recommendations follow:

- Concentrations of lead detected in surface soil samples 279 SW 1.0 (3,080 mg/kg), 279 SE 1.0 (592 mg/kg), 279 NW 1.0 (1,470 mg/kg), 141 NE 1.0 (1,940 mg/kg), 141 SE 1.0 (1,200 mg/kg), 140 SW 1.0 (2,740 mg/kg), 140 NE 1.0 (459 mg/kg), 140 NW 1.0 (616 mg/kg), and 298 SE 1.0 (1,240 mg/kg) were above the applicable non-residential soil MSC.
- The only potential exposure pathway is to shallow soil by direct contact to surface soils by on-site workers. Sunoco will determine and document a site-specific, risk-based standard for lead and a plan to delineate the lead concentrations in soil which exceed the calculated standard in the AOI 2 Cleanup Plan.
- All other surface soil samples were below applicable non-residential soil MSCs.
- All of the groundwater results for COCs in S-303 and S-328 were below their respective PADEP non-residential groundwater MSCs except for benzene in S-303. Benzene was detected at a concentration of 6 µg/L which was slightly above the MSC of 5 µg/L.
- According to QD fate and transport modeling results, the groundwater with a benzene concentration above its respective groundwater MSCs in S-303 is not predicted to migrate either to the boundary of the Refinery or the Schuylkill River. Furthermore, groundwater in well S-303 is within the groundwater capture zone of the Pollock Street Sewer Total Fluids Recovery System.
- Vapor intrusion evaluation results indicate there are no complete exposure pathways from groundwater or soil into indoor air at the on-site receptors in the area of this tank assessment.

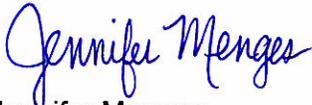
November 23, 2010

*Reference: ASTs PB 140, 141, 237, 279, and 298 Tank Closure Assessment Report*

Should you have any questions or require additional information regarding this closure site assessment report for ASTs PB 140, PB 141, PB 237, PB 279, and PB 298, please contact Jennifer Menges at (610) 840-2540 or by email at [jennifer.menges@stantec.com](mailto:jennifer.menges@stantec.com).

Sincerely,

**STANTEC CONSULTING CORPORATION**



Jennifer Menges  
Project Manager

Attachments:

Figure 1 – Site Location Map

Figure 2 – Site Plan

Figure 3 – Soil Boring and Monitoring Well Locations Map – PB ASTs 140, 141, 237, 279, and 298

Figure 4 – Site-Wide Groundwater Elevation Map for Shallow and Intermediate Monitoring Wells

Table 1 – Soil Analytical Results Summary

Table 2 – Groundwater Analytical Results Summary

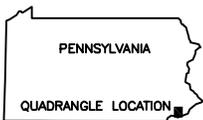
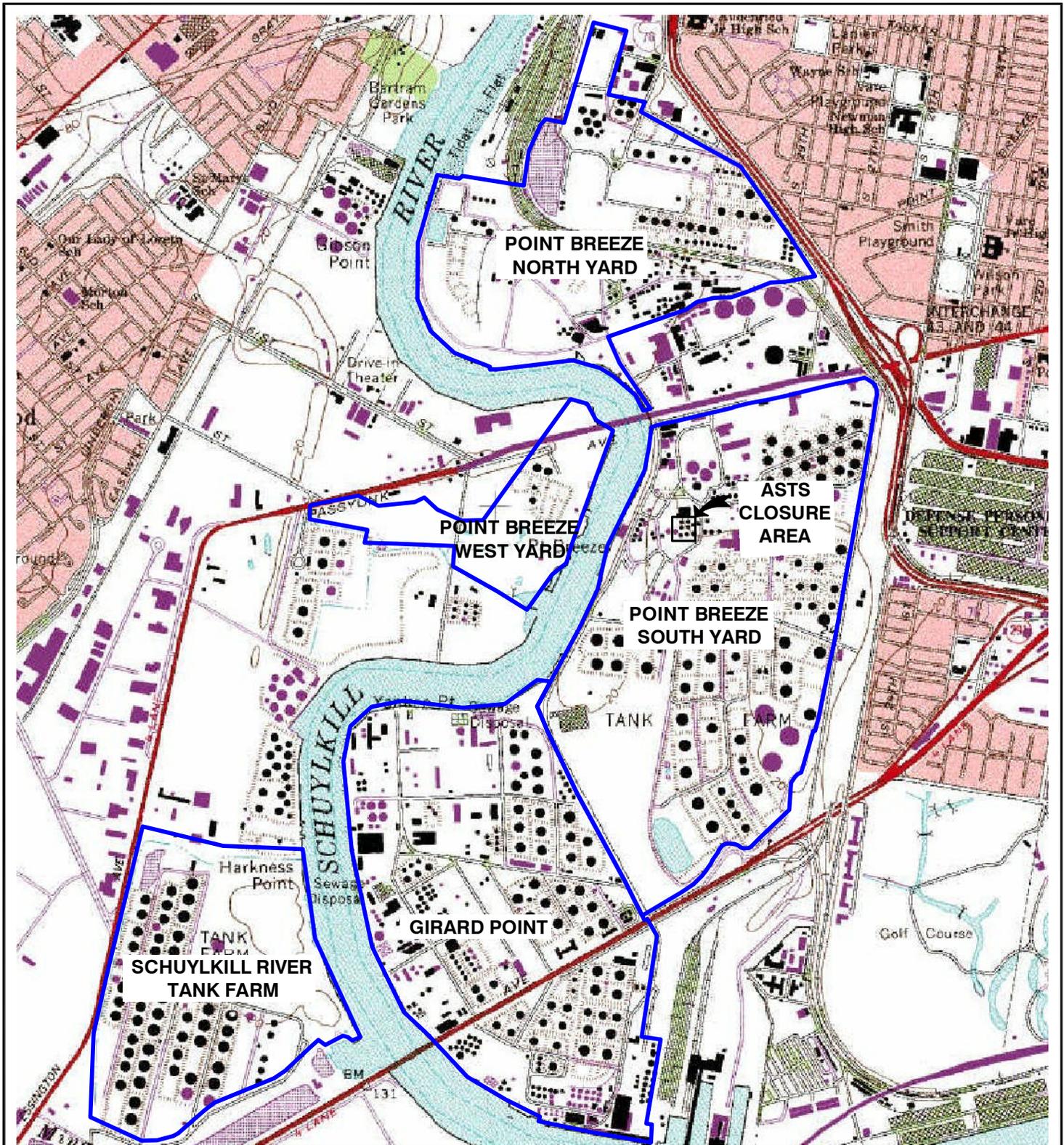
Appendix A – PADEP Tank Closure Documents

Appendix B – Laboratory Analytical Data Reports (Soil)

Appendix C – Laboratory Analytical Data Reports (Groundwater)

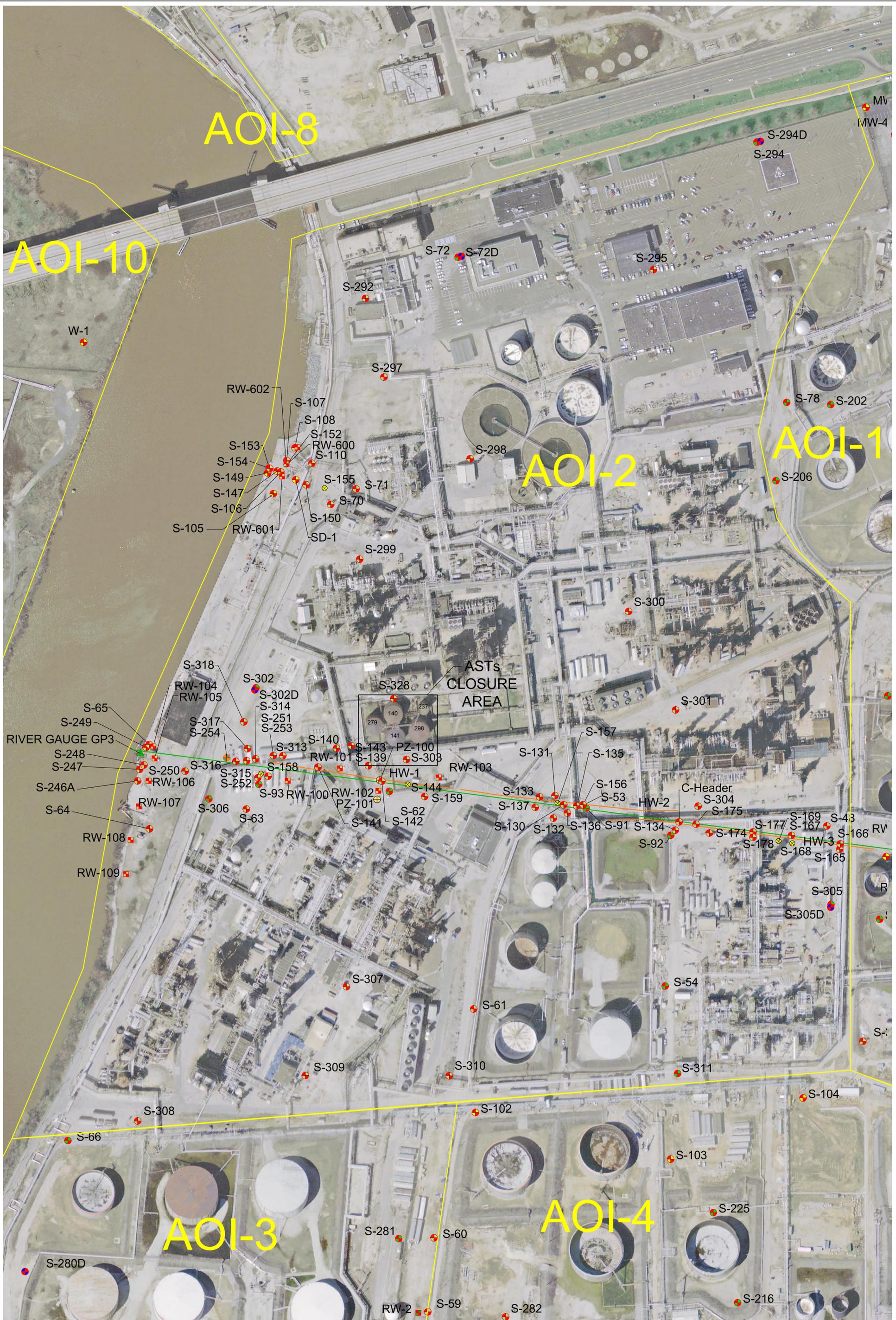
cc: Jim Oppenheim – Sunoco, Inc.  
Frank Aceto – Stantec  
Stantec Project File

**FIGURES**



REFERENCE: USGS 7.5 MINUTE QUADRANGLE; PHILADELPHIA, PENNSYLVANIA-NEW JERSEY; 1995

 <p><b>Stantec Consulting Services, Inc.</b> 1060 ANDREW DRIVE, SUITE 140 WEST CHESTER, PENNSYLVANIA 19380 Tel. 610.840.2500 Fax. 610.840.2501 www.stantec.com</p>	<p>FOR:</p> <p>SUNOCO, INC. PHILADELPHIA REFINERY PHILADELPHIA, PENNSYLVANIA</p>		<p><b>SITE LOCATION MAP PHILADELPHIA REFINERY POINT BREEZE ASTs CLOSURE AREA</b></p>		<p>FIGURE:</p> <p><b>1</b></p>
	<p>JOB NUMBER:</p>	<p>DRAWN BY:</p> <p>TFB</p>	<p>CHECKED BY:</p> <p>JLM</p>	<p>APPROVED BY:</p> <p>JLM</p>	<p>DATE:</p> <p>11/15/2010</p>



SOURCE: BASEMAP PROVIDED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES



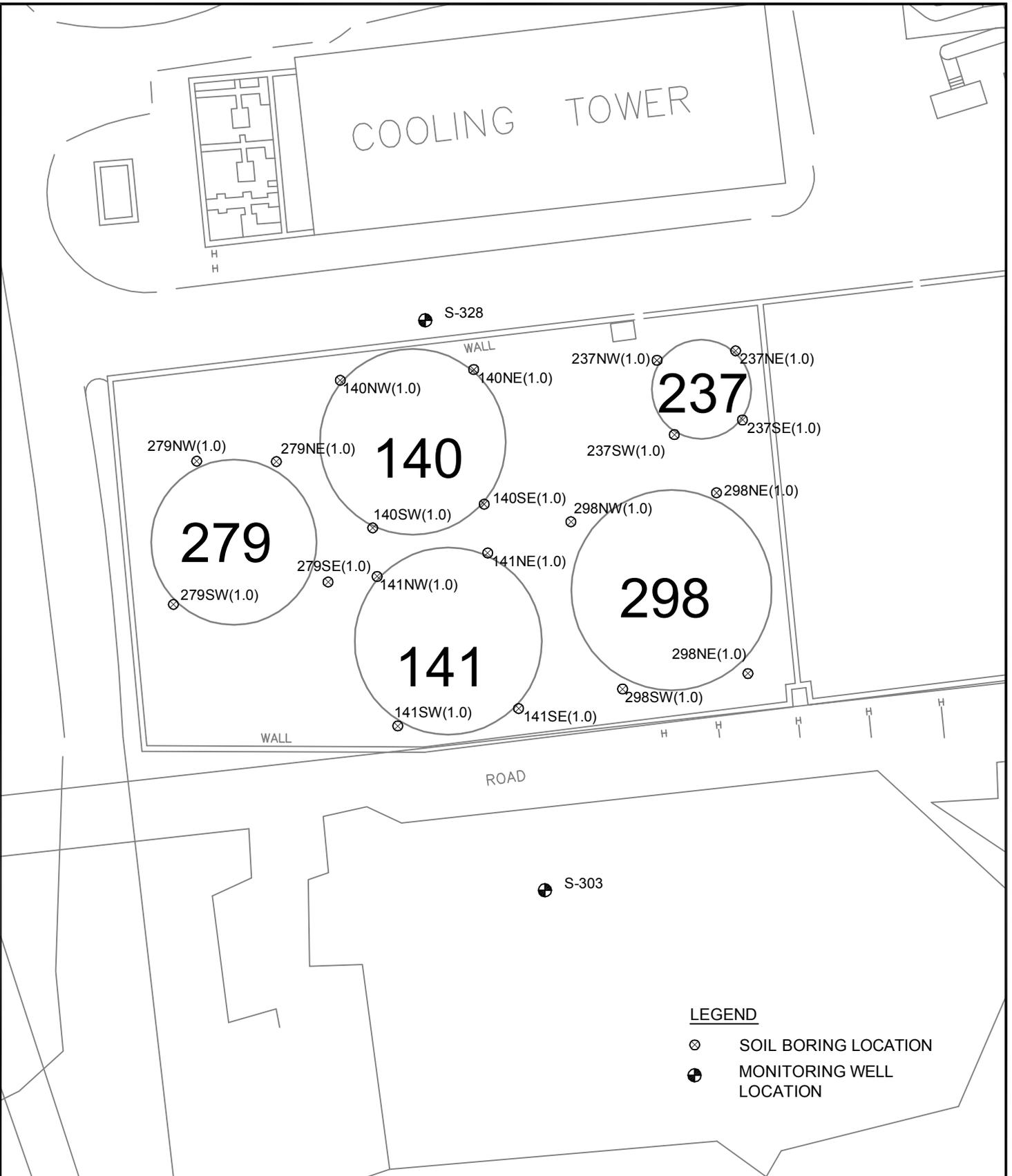
- |  |                              |                                    |
|--|------------------------------|------------------------------------|
| SHALLOW / INTERMEDIATE MONITORING WELL | PIEZOMETER                   | SHALLOW/INTERMEDIATE RECOVERY WELL |
| POLLOCK STREET SEWER                   | DEEP MONITORING WELL         | INTERMEDIATE RECOVERY WELL         |
| POLLOCK STREET HORIZONTAL WELL         | INTERMEDIATE MONITORING WELL | ABANDONED/INACCESSIBLE WELL        |
|  | SHALLOW MONITORING WELL      | STAFF GAUGE                        |
|  | OTHER MONITORING WELL        | AOIs                               |

SITE PLAN - (AOI-2)  
FIGURE 2

FOR: Sunoco, Inc. (R&M)  
Philadelphia Refinery  
3144 Passyunk Avenue  
Philadelphia, PA. 19145

SCALE: 1"=50'  
DATE: 11/19/09  
DRAWN BY: JAC

FILEPATH:\V:\2134active\cadd files\1-Clients\Sunoco\PHILLY REFINERY\GIS\CADD\PHILLY REFINERY SITE\PLAN-1003.DWG\ibudd\Nov 16, 2010 at 8:57\Layout.rvt FIG3



**LEGEND**

- ⊗ SOIL BORING LOCATION
- ⊕ MONITORING WELL LOCATION

 <p><b>Stantec Consulting Corporation</b>          1060 ANDREW DRIVE, SUITE 140          WEST CHESTER, PENNSYLVANIA          19380          Tel. 610.840.2500          Fax. 610.840.2501          www.stantec.com</p>	FOR:  <b>SUNOCO, INC.</b> <b>PHILADELPHIA REFINERY</b> <b>PHILADELPHIA, PENNSYLVANIA</b>		<b>SOIL BORING AND MONITORING WELL</b> <b>LOCATIONS MAP</b> <b>PB ASTs 140, 141, 237, 279, AND 298</b>		FIGURE:  <b>3</b>
	JOB NUMBER: 213401245	DRAWN BY: TFB	CHECKED BY: JLM	APPROVED BY: JLM	DATE: 11/15/2010



SOURCE: BASEMAP PROVIDED BY LANGAN ENGINEERING AND ENVIRONMENTAL SERVICES

**LEGEND**

- |   |   |                            |                                    |
|---|---|----------------------------|------------------------------------|
| SHALLOW / INTERMEDIATE / DEEP MONITORING WELL | SHALLOW / INTERMEDIATE O <sub>2</sub> MONITORING WELL | PIEZOMETER                 | SHALLOW/INTERMEDIATE RECOVERY WELL |
| SHALLOW / INTERMEDIATE MONITORING WELL        | DEEP MONITORING WELL                                  | DEEP RECOVERY WELL         | DAMAGED WELL                       |
| POLLOCK STREET SEWER                          | INTERMEDIATE MONITORING WELL                          | INTERMEDIATE RECOVERY WELL | ABANDONED/INACCESSIBLE WELL        |
| POLLOCK STREET HORIZONTAL WELL                | SHALLOW MONITORING WELL                               | SHALLOW RECOVERY WELL      | AOIs                               |
|   | OTHER MONITORING WELL                                 | OTHER RECOVERY WELL        |                                    |

-11.42 GROUNDWATER ELEVATION (JULY AND AUGUST 2010)  
 GROUNDWATER ELEVATION CONTOUR (CONTOUR INTERVAL = 1.0 FOOT)

NOTE:  
 NOT ALL WELL DATA WAS USED TO GENERATE GROUNDWATER CONTOURS

SITE-WIDE GROUNDWATER ELEVATION MAP FOR SHALLOW AND INTERMEDIATE MONITORING WELLS

**FIGURE 4**

FOR Sunoco, Inc. (R&M)  
 Philadelphia Refinery  
 3144 Passayunk Avenue  
 Philadelphia, PA. 19145

SCALE: 1"=500'  
 DATE: 10/20/10  
 SHEET: 40

**TABLES**

**Table 1**  
**Soil Analytical Result Summary**  
**Sunoco - Philadelphia Refinery**  
**Point Breeze ASTs 140, 141, 237, 279, and 298**

	Sample Location			279 SW (1.0)	279 SE (1.0)	279 NW (1.0)	279 NE (1.0)	141 NE (1.0)	141 SE (1.0)	141 SW (1.0)	141 NW (1.0)	140 SW (1.0)	140 SE (1.0)	140 NE (1.0)	140 NW (1.0)	298 NW (1.0)	298 SW (1.0)	298 SE (1.0)	298 NE (1.0)	237 NW (1.0)	237 SW (1.0)	237 SE (1.0)	237 NE (1.0)	
	Depth (ft)			1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
	Date			4/8/2010	4/8/2010	4/8/2010	4/8/2010	4/8/2010	4/8/2010	4/8/2010	4/8/2010	4/8/2010	4/22/2010	4/22/2010	4/22/2010	4/22/2010	4/22/2010	4/22/2010	4/22/2010	4/22/2010	4/22/2010	4/22/2010	4/22/2010	4/22/2010
Volatil Compounds	Non-Residential Direct Contact MSC (0-2 ft)	Non-Residential Soil to Groundwater 100x GW MSC	Non-Residential Soil to Groundwater Generic Value																					
Benzene	210	0.5	0.13	0.004 J	0.018	0.001 J	0.012	0.002 J	0.003 J	0.0008 J	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.0007 J	0.004 J	ND (0.0005)	ND (0.0005)	0.008	ND (0.0006)	ND (0.0006)	ND (0.0006)	0.002 J	0.002 J	
Ethylbenzene	10,000	70	46	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.005 J	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0009)	ND (0.001)	ND (0.001)	ND (0.003)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)					
Isopropylbenzene (Cumene)	10,000	230	1,600	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.002 J	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0009)	ND (0.001)	ND (0.001)	ND (0.003)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)					
Naphthalene	56,000	10	25	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.14	ND (0.001)	ND (0.001)	0.002 J	ND (0.0009)	ND (0.001)	ND (0.001)	0.004 J	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)					
Toluene	10,000	100	44	0.002 J	0.001 J	ND (0.001)	0.004 J	0.004 J	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0009)	ND (0.001)	ND (0.001)	0.005 J	ND (0.001)	ND (0.001)	0.003 J	ND (0.001)					
1,2,4-Trimethylbenzene	320	3.5	20	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.26 J	ND (0.001)	ND (0.001)	0.005 J	ND (0.0009)	ND (0.001)	ND (0.001)	0.008 J	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)					
1,3,5-Trimethylbenzene	320	3.5	6.2	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.26	ND (0.001)	ND (0.001)	0.003 J	ND (0.0009)	ND (0.001)	ND (0.001)	0.009 J	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)					
Xylenes (Total)	10,000	1,000	990	ND (0.001)	ND (0.001)	ND (0.001)	0.002 J	0.51	ND (0.001)	ND (0.001)	0.001 J	ND (0.0009)	ND (0.001)	ND (0.001)	0.004 J	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)					
Methyl Tertiary Butyl Ether	3,200	2	0.28	ND (0.0005)	ND (0.0005)	ND (0.0006)	ND (0.0005)	ND (0.0007)	ND (0.0005)	ND (0.0006)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0006)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0008)	ND (0.0006)	ND (0.0006)	ND (0.0006)	ND (0.0005)	ND (0.0005)	
1,2-Dibromoethane (EDB)	0.93	0.005	0.0012	ND (0.001)	ND (0.0009)	ND (0.001)	ND (0.001)	ND (0.003)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)												
1,2-Dichloroethane (EDC)	63	0.5	0.1	ND (0.001)	ND (0.0009)	ND (0.001)	ND (0.001)	ND (0.003)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)												
<b>Semi-Volatile Compounds</b>																								
Anthracene	190,000	6.6	350	ND (0.15)	2.0	1.4	ND (0.017)	50	ND (0.17)	0.59 J	0.20 J	ND (0.58)	0.012 J	ND (0.35)	ND (3.8)	ND (0.016)	ND (0.008)	ND (0.055)	ND (0.17)	ND (0.0082)	ND (0.016)	ND (0.016)	ND (0.016)	ND (0.016)
Benzo(a)anthracene	110	0.36	320	0.31	4.7	5	0.093	49	0.59	0.61	0.83	0.36	0.012	0.32	11	ND (0.020)	0.014 J	0.076	ND (0.031)	0.016 J	0.012 J	0.030 J	0.022 J	0.022 J
Benzo(a)pyrene	11	0.02	46	0.41	4.1	4.9	0.21	45	0.71	2.9	1.6	5.8	0.026	1.1	15	0.032	0.021	0.27	1.4	0.024	0.027 J	0.18	0.037	0.037
Benzo(b)fluoranthene	110	0.12	170	0.41	3.3	4.5	0.13	58	0.60	2.6	2.1	7.3	0.0099	1.6	21	0.024 J	0.018	0.15	0.66	0.021	0.018 J	0.11	0.036	0.036
Benzo(g,h,i)perylene	170,000	0.026	180	1.5 J	6.2	10	0.78	71	3.2	4.0	6.6	20	0.12	2.1	21	0.56	0.070 J	0.93	5.6	0.083 J	0.11 J	1.1	0.21	0.21
Chrysene	11,000	0.19	230	ND (0.44)	4.3	4.0	ND (0.080)	180	0.58 J	ND (1.9)	ND (2.9)	8.4	ND (0.039)	2.1	50	ND (0.047)	ND (0.024)	ND (0.11)	ND (0.18)	ND (0.024)	ND (0.048)	ND (0.093)	ND (0.049)	ND (0.049)
Fluorene	110,000	190	3,800	ND (0.74)	ND (0.78)	ND (0.87)	ND (0.084)	63	ND (0.84)	ND (0.79)	ND (0.78)	3.8	0.043 J	0.99	4.1	0.096 J	ND (0.040)	0.60 J	0.87 J	ND (0.041)	ND (0.080)	0.11 J	ND (0.081)	ND (0.081)
Phenanthrene	190,000	110	10,000	0.42 J	8.4	6.5	0.11 J	250	0.48 J	1.4	0.65 J	ND (0.43)	0.13	1.0	24	0.038 J	0.025 J	0.25 J	0.20 J	0.026 J	0.10 J	0.061 J	ND (0.033)	ND (0.033)
Pyrene	84,000	13	2,200	0.96 J	9.9	10	ND (0.20)	ND (230)	1.2 J	7.0	3.9	11	0.040 J	1.8	41	0.45	0.048 J	0.68 J	2.6	0.047 J	0.096 J	0.42	0.085 J	0.085 J
<b>Metals</b>																								
Lead	1,000	0.5	450	3,080	592	1,470	338	1,940	1,200	288	425	2,740	231	459	616	193	274	1,240	448	293	207	195	185	185

**Notes:**  
All results are presented in mg/kg unless noted otherwise.  
Non-Residential Used Aquifer Medium-Specific Concentrations (MSCs) with TDS <= 2,500 mg/L were chosen for comparison of soil sample results.  
**0.5** Indicates the applicable Non-Residential Statewide Health Standard for the unsaturated soil samples collected.  
**45** Indicates an exceedence of the applicable Non-Residential Statewide Health Standard.  
J - Indicates an estimated value below the laboratory reporting limit.  
bgs - below ground surface  
ND (0.029) - Not detected above the laboratory method detection limit (in parenthesis).

**Table 2**  
**Groundwater Analytical Result Summary**  
**Sunoco - Philadelphia Refinery Point Breeze ASTs 140, 141, 237, 279, and 298**

CONSTITUENTS OF CONCERN	PADEP Non-Residential Used Aquifer with Total Dissolved Solids < or = 2,500 mg/L Groundwater MSCs	Groundwater Monitoring Well Sample Location	S-303**	S-328
		Sample ID	S-303_072610	S-328_071210
		Date	07/26/2010	07/12/2010
		Units for Results	Groundwater Result	Groundwater Result
<b>Volatile Organic Compounds</b>				
Benzene	5	ug/l	6	ND (1)
Ethylbenzene	700	ug/l	ND (1)	ND (1)
Isopropylbenzene (Cumene)	2,300	ug/l	13	13
Toluene	1,000	ug/l	1	ND (1)
1,2,4-Trimethylbenzene	35	ug/l	ND (2)	ND (2)
1,3,5-Trimethylbenzene	35	ug/l	ND (2)	ND (2)
Xylenes (Total)	10,000	ug/l	2	ND (1)
Methyl Tertiary Butyl Ether	20	ug/l	ND (1)	3
1,2-Dibromoethane (EDB)	0.05	ug/l	ND (0.029)	ND (0.029)
1,2-Dichloroethane (EDC)	5	ug/l	ND (1)	ND (1)
<b>Semi-Volatile Organic Compounds</b>				
Chrysene	1.9	ug/l	ND (24)	ND (5)
Fluorene	1,900	ug/l	28	ND (5)
Naphthalene	100	ug/l	48	ND (5)
Phenanthrene	1,100	ug/l	54	12
Pyrene	130	ug/l	ND (24)	ND (5)
<b>Metals</b>				
Lead	0.005	mg/l	ND (0.0010)	ND (0.0010)

Notes:

mg/L or mg/l = milligrams per liter

ug/l = micrograms per liter

PADEP MSCs = Pennsylvania Department of Environmental Protection Medium-Specific Concentrations for Groundwater

ND (24) Indicates the laboratory reporting limit was above the applicable PADEP MSC.

45 Indicates an exceedence of the PADEP Non-Residential Groundwater MSC.

\*\* = Samples were diluted.

ND (1) Indicates the groundwater result was not detected above the laboratory limit of quantitation (in parenthesis).

**APPENDIX A**  
**PADEP TANK CLOSURE REPORTS**  
PB ASTs 140, 141, 237, 279, and 298  
Sunoco, Inc. – Philadelphia Refinery  
Philadelphia, Pennsylvania



**Sunoco Inc.**  
3144 Passyunk Avenue  
Philadelphia PA 19145-5000  
215-339-2000

Certified Mail Return Receipt Requested: 7002 0460 0003 1935 7647

February 15, 2008

PA DEP  
Division of Storage Tanks  
PO Box 8762  
Harrisburg, PA 17105-8762  
Attn: Sharon Peterson

FILE 0017

**RE: Sunoco, Inc. (R&M) Philadelphia Refinery  
Storage Tank Registration Amendments – Closures in Place  
Girard Point Process Area (Facility ID# 51-36558)  
Point Breeze Process Area (Facility ID# 51-19781)**

Dear Ms. Peterson:

Enclosed please find Storage Tanks Registration/Permitting Application Forms for aboveground storage tank registration status changes. The following aboveground storage tanks registration statuses are changed from currently in service to permanently closed (closed in place).

**Girard Point Process Area (Facility ID# 51-36558)**

- > PA Seq 168A (Sunoco Tank # GP R 111)
- > PA Seq 138A (Sunoco Tank # GP U 1001)
- > PA Seq 120A (Sunoco Tank # GP R 1046)
- > PA Seq 132A (Sunoco Tank # GP U 693)

**Point Breeze Process Area (Facility ID# 51-19781)**

- > PA Seq 149A (Sunoco Tank # PB 8T 208)
- > PA Seq 030A (Sunoco Tank # PB 139)
- > PA Seq 194A (Sunoco Tank # PB 11V 10)
- > PA Seq 031A (Sunoco Tank # PB 140)

Should you have any questions or comments in reference to this matter please contact me at 215-339-2074.

Very truly yours,

Scott A. Baker  
Supervisor, Environmental Department

February 15, 2008  
PA DEP  
Division of Storage Tanks  
PO Box 8762  
Harrisburg, PA 17105-8762  
Attn: Sharon Peterson  
Page 2

Enclosures (Storage Tank Registration/Permitting Application Forms)

SAB/rmr

C: J. Grawe (GP - Main Office)

File: **Tank (AST) Registrations Amended (Closures & Demo) 2008**



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

**STORAGE TANKS REGISTRATION / PERMITTING  
APPLICATION FORM**

Before completing this form, read the step-by-step instructions provided in this application package.

DEP USE ONLY			
Client ID# _____	APS ID# _____	Date Received _____	
Site ID# _____	Auth ID# _____		
Facility ID# _____	Account # _____		
General Notes _____			

**I. PURPOSE OF SUBMITTAL**

**INITIAL** (Applies to First-Time Facility Registration)

- Register Tanks(s) to be Used
- Register Tank(s) to be Temporarily Out of Use
- Register Tank(s) to be Removed
- Register Tank(s) to be Closed in Place

**AMENDED** (Applies to Currently Registered Tank(s) or Existing Facility)

- Changed Owner Information
- Changed Contact Information
- Changed Facility Information
- Changed Facility Operation Information
- Changed to Currently In Use Tank(s)
- Added Tank(s) to Existing Facility
- Changed to Temporarily Out of Use Tank(s)
- Changed to Permanently Closed Tank(s)
- Changed Product
- Changed to Exempt Tank(s)

**CHANGE OF OWNERSHIP**

- Tanks Changed Ownership and Remain at Same Facility

**II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION**

DEP Client ID# _____	Client Type/Code _____	Fee Kind (check one if applicable)		
		<input type="checkbox"/> Volunteer Fire Co/EMS Org	<input type="checkbox"/> State Govt	<input type="checkbox"/> Fed Govt
Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Sunoco Incorporated	231743283			
Individual Last Name	First Name	MI	Suffix	SSN
		MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
3144 Passyunk Avenue				
Address Last Line - City	State	ZIP+4	Country	
Philadelphia	PA	19145-5299	USA	
Client Contact Last Name	First Name	MI	Suffix	
Rosendorn	Ron	M		
Client Contact Title	Phone	Ext		
Sr. Env. Eng. Spec.	215-339-2217			
E-mail Address	FAX			
rmrosendorn@sunocoinc.com	215-339-2657			

**III. SITE INFORMATION**

DEP Site ID# \_\_\_\_\_ Site Name  
Point Breeze Process Area

EPA ID# PAD049791098 Estimated Number of Employees to be Present at Site 900

Description of Site  
Petroleum Refinery

County Name	Municipality	City	Boro	Twp	State
Philadelphia	Philadelphia	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

County Name	Municipality	City	Boro	Twp	State
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Site Location Line 1 \_\_\_\_\_ Site Location Line 2 \_\_\_\_\_  
3144 Passyunk Avenue

Site Location Last Line - City	State	ZIP+4
Philadelphia	PA	19145-5299

**Detailed Written Directions to Site**  
From 400 Market St. Harrisburg, PA: Start out going SOUTHEAST on S 4TH ST toward GRACE ST (0.1 mi). S 4TH ST becomes MULBERRY ST (0.1 mi). Turn SLIGHT RIGHT (0.1 mi). Turn RIGHT onto S CAMERON ST / PA-230 (0.4 mi). Turn LEFT onto PAXTON ST (0.2 mi). Turn RIGHT onto S 13TH ST (0.1 mi). Merge onto I-83 N via the ramp on the LEFT toward HERSHEY (2.5 mi). Merge onto I-283 S via EXIT 46A toward AIRPORT / LANCASTER / I-76 / PENNA TURNPIKE (3.0 mi). Merge onto I-76 E / PENNSYLVANIA TURNPIKE toward PHILADELPHIA (Portions toll) (79.0 mi). Merge onto I-76 E via EXIT 326 toward I-476 / PHILADELPHIA / US-202 / VALLEY FORGE (Portions toll) (21.1 mi). Take the PASSYUNK AVE / OREGON AVE exit- EXIT 347B (0.2 mi). Turn SLIGHT RIGHT onto W PASSYUNK AVE (0.1 mi). Turn LEFT to stay on W PASSYUNK AVE (<0.1 mi). Turn RIGHT on W FRONTAGE AVE (0.2 mi). End at 3144 W Passyunk Ave, Philadelphia, PA 19145-5208, US

Site Contact Last Name	First Name	MI	Suffix
	Ron	M	

Site Contact Title	Site Contact Firm
Sr. Env. Eng. Spec.	Sunoco Incorporated

Mailing Address Line 1	Mailing Address Line 2
3144 Passyunk Avenue	

Address Last Line - City	State	ZIP+4
Philadelphia	PA	19145-5299

Phone	Ext	FAX	E-mail Address
215-339-2217		215-339-2657	rmrosendorn@sunocoinc.com

NAICS Codes (Two- & Three-Digit Codes - List All That Apply)	6-Digit Code (Optional)
	324110

Site to Client Relationship  
Same

### IV. FACILITY INFORMATION

DEP Storage Tank Facility ID# 51-19781	Facility Name Point Breeze Process Area	Facility Kind Manufacturing/Industrial				
Facility Location Line 1 (if different than Site Location)		Facility Location Line 2				
Facility Location Last Line - City		State                      ZIP+4				
Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
Horizontal Accuracy Measure	Feet		--or--	Meters		
Horizontal Reference Datum Code	<input type="checkbox"/> North American Datum of 1927 <input type="checkbox"/> North American Datum of 1983 <input type="checkbox"/> World Geodetic System of 1984					
Horizontal Collection Method Code						
Reference Point Code						
Altitude	Feet		--or--	Meters		
Altitude Datum Name	<input type="checkbox"/> The National Geodetic Vertical Datum of 1929 <input type="checkbox"/> The North American Vertical Datum of 1988 (NAVD88)					
Altitude (Vertical) Location Datum Collection Method Code						
Geometric Type Code						
Data Collection Date						
Source Map Scale Number			Inch(es) =	Feet		
			--or--	Centimeter(s) =	Meters	

### FACILITY OPERATOR INFORMATION

Same as Owner Identified in Section II.                       Different than Owner Identified in Section II; identified below.

DEP Client ID#		Client Type / Code			
Organization Name or Registered Fictitious Name			Employer ID# (EIN)	Dun & Bradstreet ID#	
Individual Last Name	First Name	MI	Suffix	SSN	
Additional Individual Last Name	First Name	MI	Suffix	SSN	
Mailing Address Line 1		Mailing Address Line 2			
Address Last Line - City		State	ZIP+4	Country	
Client Contact Last Name	First Name	MI	Suffix		
Client Contact Title		Phone	Ext		
E-mail Address			FAX		
Flammable & Combustible Liquid Permit # (if applicable)					
State or Municipality that Issued the Permit					



Facility ID# 51-19781

Facility Name Sunoco, Inc. - Point Breeze Process Area

**VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE**

Write the Tank Number(s) and place an  in the appropriate box for each tank that was removed or closed in place.

	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	149A	030A	194A	031A								
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Closure document submitted to the appropriate DEP regional office.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Closure document kept on file by owner.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>							

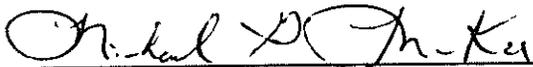
**IX. OWNER CERTIFICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Michael G. McKee

  
Owner Signature

Facility Manager  
Title

18 February 2008  
Date

**Information & Invoices should be sent to:**

- Tank Owner Contact
- Site Contact
- Facility Operator
- Other Responsible Party Identified Below

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1		Mailing Address Line 2		
Address Last Line - City		State	ZIP+4	Country
Client to Site (Facility) Relationship				

### X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

**SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)**

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
031A	Christopher R. Hieggel	API 12A	#5263	AFMX	#385	Christopher Hieggel	2-14-08

### XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

**SIGNATURE & CERTIFICATION OF INSPECTOR(S)**

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

### XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#						





Sunoco Inc.  
3144 Passyunk Avenue  
Philadelphia PA 19145-5200  
215 339 2000

Certified Mail Return Receipt Requested: 7002 0460 0003 1935 5902

September 19, 2006

PA DEP  
Southeast Region  
Division of Storage Tanks  
2 East Main Street  
Norristown, PA 19401

FILE COPY

**RE: 30-day Notification of Intent to Close Aboveground Storage Tank**

Dear Sir or Madam:

This is to provide 30-day notification that Sunoco intends to permanently close the following aboveground storage tank:

Facility ID #51-19781 Point Breeze Process Area

Tank Seq # 031A (Sunoco tank # PB 140)

Attached is the completed Aboveground Storage Tank System Closure Notification Form for this tank.

Should you have any questions or comments in reference to this matter please contact me at 215-339-2074.

Very truly yours,

A handwritten signature in cursive script that reads "Scott A. Baker".

Scott A. Baker  
Supervisor, Environmental Department

SB/rmr

**File: Tank (AST) Registrations Amended (Closure & Demo) 2006**

CC: C. Ochoa - GP MOB  
C. D'Souza - GP MOB

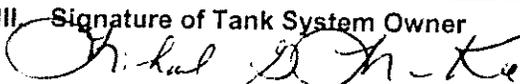


COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

DATE RECEIVED: \_\_\_\_\_

## ABOVEGROUND STORAGE TANK SYSTEM CLOSURE NOTIFICATION FORM

**NOTE:** Notification of permanent closure must be received by the appropriate regional office of the Department at least 30 days prior to initiation of the closure activities.

<b>I. Owner of Tank System</b>			
Owner Name Sunoco, Inc. (R & M)			
Street Address 3144 Passyunk Ave		Phone Number ( 215 ) 339-2217	
City Philadelphia	State PA	Zip Code 19145	
<b>II. Location of Tank System</b>			
Facility Name Sunoco, Inc. - Point Breeze Process Area		Facility Identification Number 51-19781	
Street Address 3144 Passyunk Ave		City Philadelphia	State PA
Municipality Philadelphia		Zip Code 19145	
County Philadelphia			
Contact Person Ron Rosendorn		Phone Number (215) 339-2217	
<b>III. Month/Day/Year of Proposed Closure</b> <u>10 / 25 / 2006</u>			
<b>IV. Certified Installer/Company Performing Tank Handling Activities</b>			
Certified Installer Name Daniel R. Stabilito		Installer Certification Number 5371	
Street Address 415 Boot Road		Phone Number ( 610 ) 518-0303	
City Downingtown	State PA	Zip Code 19335	
Certified Company Name LVI Services, Inc..		Company Certification Number 1643	
<b>V. Contractor/Individual Performing Site Assessment Activities</b>			
Name of Contractor or Individual Secor International			
Street Address 102 Pickering Way - Suite 200		Phone Number ( 484 ) 875-3075	
City Exton	State PA	Zip Code 19341	
<b>VI. Description of Aboveground Storage Tank Systems (See reverse side of form)</b>			
<b>VII. Will this closure involve replacement of at least one old tank with a new tank?</b>			
Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
<b>VIII. Signature of Tank System Owner</b> 			<b>Date</b> 9/27/2006

VI. Description of Aboveground Storage Tank System (Complete for each tank undergoing closure)				
Tank Registration Number	031A			
Estimated Total Capacity (Gallons)	600,600			
Substance(s) Stored Throughout Operating Life of Tank (Check All That Apply)	<b>a. Petroleum</b>			
	Unleaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Leaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Aviation Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Jet Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Diesel Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	New Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Used Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other, Please Specify			
	<b>b. Hazardous Substance</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Name of Principal CERCLA Substance			
	AND			
	Chemical Abstract Service (CAS) No.			
	<b>c. Unknown</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proposed Closure Method (Check Only One)	<b>a. Removal</b>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<b>b. Closure-in-Place</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<b>c. Change-In-Service</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partial System Closure (Yes or No)	No			
Tank Registration Number				
Estimated Total Capacity (Gallons)				
Substance(s) Stored Throughout Operating Life of Tank (Check All That Apply)	<b>a. Petroleum</b>			
	Unleaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Leaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Aviation Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Jet Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Diesel Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	New Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Used Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other, Please Specify			
	<b>b. Hazardous Substance</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Name of Principal CERCLA Substance			
	AND			
	Chemical Abstract Service (CAS) No.			
	<b>c. Unknown</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proposed Closure Method (Check Only One)	<b>a. Removal</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<b>b. Closure-in-Place</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<b>c. Change-In-Service</b>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partial System Closure (Yes or No)				

September 19, 2006  
PADEP – S. E. Regional Office  
2 East Main Street  
Norristown, PA 19401  
Page 2

Approval List:

L. Kuserk

A handwritten signature in cursive script that reads "Joe A. Kuserk".

R. Rosendorn

Handwritten initials "RR" in a bold, blocky font.





**Sunoco, Inc.**  
3144 Passyunk Avenue  
Philadelphia PA 19145-5299  
215 339 2000

October 28, 2002

Pa Department of Environmental Protection  
P.O. Box 8762  
Harrisburg, PA 17105-8762

Attention: Storage Tank Division

**Sunoco, Inc. (R&M)**  
**Point Breeze Processing Area**  
**Facility ID# 51-19781**

Enclosed is one (1) Registration/Permitting of Storage Tanks form # 3930-PM-WC0014. This form has been completed for the permanent closure in place of (7) registered tanks **019A, 032A, 053A, 059A, 060A, 084A, and 085A**. The associated Sunoco tank numbers **67, 141, 237, 279, 298, 662 and 664**.

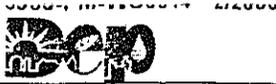
If you have any questions please call 215-339-2120.

Sincerely,

A handwritten signature in black ink that reads "Jim Tucker". The signature is written in a cursive style and is positioned above the printed name.

Jim Tucker

Sr. Environmental Engineering Specialist



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF WATERSHED CONSERVATION

REGISTRATION / PERMITTING OF STORAGE TANKS

**I. PURPOSE OF SUBMITTAL (Check All Those That Apply)**

INITIAL	AMENDED	CHANGE OF OWNERSHIP
<input type="checkbox"/> Initial	<input type="checkbox"/> Changed Previous Info	<input type="checkbox"/> Sold
<input type="checkbox"/> Registration for Removal of Unregistered Tank(s)	<input type="checkbox"/> Added Tank(s)	<input type="checkbox"/> Purchased
<input type="checkbox"/> Registration for Un-Registered Tank(s) Closed in Place	<input type="checkbox"/> Tank(s) Temporarily Out of Use	<input type="checkbox"/> All Tanks (Will Remain at Same Facility)
	<input checked="" type="checkbox"/> Removed / Closed Tank(s)	<input type="checkbox"/> Some Tanks (Will Remain at Same Facility)
	<input type="checkbox"/> Exempted Tank(s)	<input type="checkbox"/> Some Tanks (Relocated to Another Regulated Facility)
	<input type="checkbox"/> Changed from Regulated to Unregulated Substance or Use	<input type="checkbox"/> Some Tanks (Relocated to a New Facility and the Tanks are to be Registered)
	<input type="checkbox"/> Relocated Tank(s)	

STATE USE ONLY

**II.A. TANK OWNER / APPLICANT INFORMATION (Type or Print Legibly in Ink)**

Storage Tank Client I.D. No. (State Use Only) \_\_\_\_\_ DEP Client ID No. \_\_\_\_\_

Organization Name or Registered Fictitious Name SUNOCO, INC. (R&M) Employer ID No. (EIN) 231743283

Individual Last Name \_\_\_\_\_ First Name \_\_\_\_\_ MI \_\_\_\_\_ Suffix \_\_\_\_\_ SSN \_\_\_\_\_

Mailing Address Line 1 3144 PASSYUNK AVE Mailing Address Line 2 \_\_\_\_\_

Address Last Line -- City PHILADELPHIA State PA ZIP+4 19145-5299 Country USA Phone No. 215-339-2120

**TYPE OF OWNER/BUSINESS (Check Only One)**

Local Government	Corporate	Private
<input type="checkbox"/> Vol. Fire Co./EMS Org.	<input checked="" type="checkbox"/> Corporation/PA	<input type="checkbox"/> Partnership/General
<input type="checkbox"/> Federal Government	<input type="checkbox"/> Corporation/Non-PA	<input type="checkbox"/> Partnership/Limited
<input type="checkbox"/> State Government	<input type="checkbox"/> Assn./Organization	<input type="checkbox"/> Sole Proprietorship
		<input type="checkbox"/> Individual(s)
		<input type="checkbox"/> Assn./Organization

**II.B. CHANGE OF OWNERSHIP (The new owner is to complete all sections of this form including this section if some or all tanks have been purchased/transferred.)**

Previous Owner Name: \_\_\_\_\_ Date of Purchase/Transfer \_\_\_\_\_

Mailing Address Line 1 \_\_\_\_\_ Mailing Address Line 2 \_\_\_\_\_

Address Last Line -- City \_\_\_\_\_ State \_\_\_\_\_ ZIP+4 \_\_\_\_\_ Country \_\_\_\_\_ Phone No. \_\_\_\_\_

Previous Facility ID No. \_\_\_\_\_ Previous Tank Nos. \_\_\_\_\_

**III. FACILITY/SITE INFORMATION (Type or Print Legibly in Ink)**

**A. Storage Tank.** Facility ID No. 51-19781 Facility/Site Name POINT BREEZE PROCESSING AREA DEP Site ID # \_\_\_\_\_

Site Location Line 1 3144 PASSYUNK AVE Site Location Line 2 \_\_\_\_\_

Site Location Last Line -- City PHILADELPHIA State PA ZIP+4 19145-5299 EPA ID# PAD002289700

County Name PHILADELPHIA Municipality \_\_\_\_\_ Check One: City  Boro  Twp  Phone No. \_\_\_\_\_

**Type of Facility (Check Only One)**

<input type="checkbox"/> 00 Unknown	<input type="checkbox"/> 05 Auto Dealership	<input type="checkbox"/> 10 Federal, Military	<input type="checkbox"/> 15 Trucking/Transport
<input type="checkbox"/> 01 Gas Station	<input type="checkbox"/> 06 Railroad	<input type="checkbox"/> 11 Commercial	<input type="checkbox"/> 16 Utility
<input type="checkbox"/> 02 Petroleum Distributor	<input type="checkbox"/> 07 Local Government	<input checked="" type="checkbox"/> 12 Industrial	<input type="checkbox"/> 17 Farm
<input type="checkbox"/> 03 Air Taxi	<input type="checkbox"/> 08 State Government	<input type="checkbox"/> 13 Residential	<input type="checkbox"/> 18 Convenience Store
<input type="checkbox"/> 04 Aircraft Owner	<input type="checkbox"/> 09 Federal, Non-Military	<input type="checkbox"/> 14 Contractor	<input type="checkbox"/> 99 Other

**B. Fire Safety Permit No. (if applicable)**

**C. Contact (check only one)**  Send all mail to owner/applicant address  Send all mail to facility/site location  Send all mail to contact address listed below

Contact Last Name: TUCKER First Name: JAMES MI R Suffix: \_\_\_\_\_

Mailing Address Line 1 3144 PASSYUNK AVE Mailing Address Line 2 \_\_\_\_\_

Address Last Line -- City PHILADELPHIA State PA ZIP+4 19145-5299 Country USA Phone No. 215-339-2120



FACILITY ID NO. - 51-19781

Facility Name Point Breeze Process Area

**V. INFORMATION FOR ABOVEGROUND AND UNDERGROUND NEW TANK INSTALLATIONS**  
 (Write the Tank Number(s) and place a check (✓) in the appropriate box for each component that was installed.)

	Tank Number	N										
<b>TANK CONSTRUCTION AND CORROSION PROTECTION (1)</b>												
(A) SINGLE WALL UNPROTECTED STEEL	<input type="checkbox"/>											
(B) CATHODICALLY PROTECTED STEEL (GALVANIC)	<input type="checkbox"/>											
(C) CATHODICALLY PROTECTED STEEL (IMPRESSED CURRENT)	<input type="checkbox"/>											
(D) DOUBLE WALL UNPROTECTED STEEL	<input type="checkbox"/>											
(E) SINGLE WALL FIBERGLASS	<input type="checkbox"/>											
(F) DOUBLE WALL FIBERGLASS	<input type="checkbox"/>											
(G) JACKETED STEEL OR DOUBLE WALL ACT-100	<input type="checkbox"/>											
(H) STEEL WITH FRP COATING	<input type="checkbox"/>											
(I) STEEL WITH LINED INTERIOR	<input type="checkbox"/>											
(J) CONCRETE	<input type="checkbox"/>											
(O) CATHODICALLY PROTECTED DOUBLE WALL STEEL (GALVANIC)	<input type="checkbox"/>											
(P) CATHODICALLY PROTECTED STEEL WITH LINER	<input type="checkbox"/>											
(Q) DOUBLE BOTTOM (AST's ONLY)	<input type="checkbox"/>											
(R) MOLDED PLASTIC FORM (AST's ONLY)	<input type="checkbox"/>											
(99) OTHER (SPECIFY)	<input type="checkbox"/>											
<b>UNDERGROUND PIPING CONSTRUCTION AND CORROSION PROTECTION (2)</b>												
(A) BARE STEEL	<input type="checkbox"/>											
(B) CATHODICALLY PROTECTED STEEL	<input type="checkbox"/>											
(C) COPPER	<input type="checkbox"/>											
(D) FIBERGLASS	<input type="checkbox"/>											
(E) FLEXIBLE (NON-METALLIC)	<input type="checkbox"/>											
(S) NONE	<input type="checkbox"/>											
(I) DOUBLE WALL METALLIC PRIMARY	<input type="checkbox"/>											
(J) DOUBLE WALL RIGID (FRP) PRIMARY	<input type="checkbox"/>											
(K) DOUBLE WALL FLEXIBLE PRIMARY	<input type="checkbox"/>											
(L) TRENCH LINER	<input type="checkbox"/>											
(M) JACKETED	<input type="checkbox"/>											
(99) OTHER (SPECIFY)	<input type="checkbox"/>											
<b>ABOVEGROUND PIPING CONSTRUCTION AND CORROSION PROTECTION (3)</b>												
(A) BARE STEEL	<input type="checkbox"/>											
(B) CATHODICALLY PROTECTED STEEL	<input type="checkbox"/>											
(C) COPPER	<input type="checkbox"/>											
(D) FIBERGLASS	<input type="checkbox"/>											
(E) FLEXIBLE (NON-METALLIC)	<input type="checkbox"/>											
(G) NONE	<input type="checkbox"/>											
(99) OTHER (SPECIFY)	<input type="checkbox"/>											
<b>PRODUCT DELIVERY (PIPING) SYSTEM (4)</b>												
(A) SUCTION: CHECK VALVE AT PUMP	<input type="checkbox"/>											
(B) SUCTION: CHECK VALVE AT TANK	<input type="checkbox"/>											
(C) PRESSURE	<input type="checkbox"/>											
(D) GRAVITY FED	<input type="checkbox"/>											
(E) NONE	<input type="checkbox"/>											

Detach instructions and return this entire form with all appropriate signatures to the Division of Storage Tanks

FACILITY ID NO. — 51-19781

Facility Name Point Breeze Process Area

**V. INFORMATION FOR ABOVEGROUND AND UNDERGROUND NEW TANK INSTALLATIONS (cont.)**  
 (Write the Tank Number(s) and place a check (✓) in the appropriate box for each component that was installed.)

	Tank Number										
<b>SPILL PREVENTION (6) USTs ONLY</b>											
(Y) YES	<input type="checkbox"/>										
(N) NO	<input type="checkbox"/>										
(E) FILL IN LESS THAN 25 GALLONS	<input type="checkbox"/>										
<b>OVERFILL PREVENTION PRESENT (7)</b>											
(Y) YES	<input type="checkbox"/>										
(N) NO	<input type="checkbox"/>										
(E) FILL IN LESS THAN 25 GALLONS	<input type="checkbox"/>										
<b>VAPOR RECOVERY PRESENT (11)</b>											
(A) STAGE I INSTALLED	<input type="checkbox"/>										
(B) STAGE II INSTALLED	<input type="checkbox"/>										
(C) STAGE I AND II INSTALLED	<input type="checkbox"/>										
(D) NONE	<input type="checkbox"/>										
<b>EMERGENCY CONTAINMENT (16) ASTs ONLY</b>											
(Y) YES	<input type="checkbox"/>										
(N) NO	<input type="checkbox"/>										
<b>SECONDARY CONTAINMENT (17) ASTs ONLY</b>											
YES	<input type="checkbox"/>										
(N) NO	<input type="checkbox"/>										

**VI. ABOVEGROUND AND UNDERGROUND TANK INFORMATION FOR REMOVAL FROM SERVICE**  
 (Write the Tank Number(s) and place a check (✓) in the appropriate box for each tank that was removed or closed in place.)

	Tank Number	Tank Number	Tank Number	Tank Number	Tank Number	Tank Number						
	019A	032A	053A	059A	060A	084A	085A					
TANK REMOVED	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
TANK CLOSED IN PLACE	<input checked="" type="checkbox"/>	<input type="checkbox"/>										
CONTAMINATION SUSPECTED OR OBSERVED AND NOTIFICATION OF CONTAMINATION FORM WAS SUBMITTED	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
CLOSURE DOCUMENT SUBMITTED TO THE APPROPRIATE DEP REGIONAL OFFICE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
CLOSURE DOCUMENT KEPT ON FILE BY OWNER	<input checked="" type="checkbox"/>	<input type="checkbox"/>										

Detach this entire form and return with all appropriate signatures to the Division of Storage Tanks





Bcc: Ray Toto  
Mario Cruz – G.P./MO Box 250  
Harry Buchmann – 14 Service Bldg. Box 180

Closure In Place – Point Breeze Tanks – 67, 141, 237, 279, 298, 662, 664





Sunoco, Inc.  
3144 Passyunk Avenue  
Philadelphia PA 19115-6209  
215-339-1000

July 22, 2002

Mr. Stephan Brown  
Pa Department of Environmental Protection  
Lee Park – Suite 6010  
555 North Lane  
Conshohocken, PA 19428

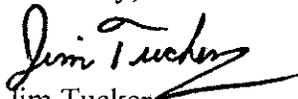
RE: Facility ID #51- 19781  
Sunoco, Inc. (R&M)  
Point Breeze Processing Area

Dear Mr. Brown:

Sunoco, is planning to permanently close storage tanks **032A, 053A, 059A, and 084A**.  
The associated Sunoco tank numbers are **141, 237, 279, and 662**.

I have enclosed the required thirty (30) day closure notification form for your file and review. If you should have any questions please contact me at 215-339-2120.

Sincerely,

  
Jim Tucker

Sr. Environmental  
Engineering Specialist

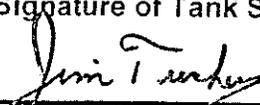
COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

DATE RECEIVED: \_\_\_\_\_

ATTACHMENT 3

**ABOVEGROUND STORAGE TANK SYSTEM  
CLOSURE NOTIFICATION FORM**

NOTE: Notification of permanent closure must be received by the appropriate regional office of the Department at least 30 days prior to initiation of the closure activities.

<b>I. Owner of Tank System</b>			
Owner Name Sunoco, Inc. (R&M)			
Street Address 3144 Passyunk Ave.		Phone Number 215-339-2000	
City Philadelphia	State PA	Zip Code 19145	
<b>II. Location of Tank System</b>			
Facility Name Sunoco, Inc. (R&M) - Point Breeze Processing Area		Facility Identification Number 51-19781	
Street Address 3144 Passyunk Ave.		City Philadelphia	State PA
Municipality Philadelphia		Zip Code 19145	
County Philadelphia			
Contact Person Jim Tucker		Phone Number 215-339-2120	
Month/Day/Year of Proposed Closure      12/31/2002			
<b>IV. Certified Installer/Company Performing Tank Handling Activities</b>			
Certified Installer Name David S. Wiechecki		Installer Certification Number 3951	
Street Address 3415 West 2nd Street		Phone Number 610 494 3171	
City Trainer	State PA	Zip Code 19061	
Certified Company Name International Scrap Iron and Metal Co.		Company Certification Number 860	
<b>V. Contractor/Individual Performing Site Assessment Activities</b>			
Name of Contractor or Individual International Scrap Iron and Metal Co.			
Street Address 3415 West 2nd Street		Phone Number 610 494 3171	
City Trainer	State PA	Zip Code 19061	
<b>VI. Description of Aboveground Storage Tank Systems (See reverse side of form)</b>			
<b>VII. Will this closure involve replacement of at least one old tank with a new tank?</b>			
Yes _____ No <input checked="" type="checkbox"/> X _____			
<b>Signature of Tank System Owner</b>			<b>Date</b>
			07/22/02

**VI. Description of Aboveground Storage Tank System (Complete for each tank undergoing closure)**

Tank Registration Number	032A	053A	059A	084A
Estimated Total Capacity (Gallons)	617,400	163,800	529,200	2,935,800
Substance(s) Stored a. Petroleum				
Throughout Operating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Life of Tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Check All That Apply)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unleaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aviation Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jet Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diesel Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
New Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Used Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, Please Specify	FRAC BOTTOMS	WASH OIL	FRAC BOTTOMS	
b. Hazardous Substance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name of Principal CERCLA Substance				
AND				
Chemical Abstract Service (CAS) No.				
c. Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proposed a. Removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closure Method b. Closure-In-Place	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
(Check Only One) c. Change-In-Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partial System Closure (Yes or No)	NO	NO	NO	NO
Tank Registration Number				
Estimated Total Capacity (Gallons)				
Substance(s) Stored a. Petroleum				
Throughout Operating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Life of Tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Check All That Apply)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unleaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Aviation Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jet Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diesel Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fuel Oil No. 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
New Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Used Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, Please Specify				
b. Hazardous Substance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name of Principal CERCLA Substance				
AND				
Chemical Abstract Service (CAS) No.				
c. Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proposed a. Removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Closure Method b. Closure-In-Place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Check Only One) c. Change-In-Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partial System Closure (Yes or No)				

Bcc: Al Hornung- GP/MO Basement  
Mario Cruz - GP/MO Box 250  
Eric Schneider - PB/MO  
Harry Buchmann - PB/14SB Box 180

*TKS. 141, 237, 279, 662*





**Sunoco, Inc.**  
3144 Passyunk Avenue  
Philadelphia PA 19145-5200  
215.339.2000

September 16, 2002

Mr. Stephan Brown  
Pa Department of Environmental Protection  
Lee Park – Suite 6010  
555 North Lane  
Conshohocken, PA 19428

RE: Facility ID #51- 19781  
Sunoco, Inc. (R&M)  
Point Breeze Processing Area

Dear Mr. Brown:

Sunoco, is planning to permanently close storage tank **060A**. The associated Sunoco tank number is **298**.

I have enclosed the required thirty (30) day closure notification form for your file and review. If you should have any questions please contact me at 215-339-2120.

Sincerely,

A handwritten signature in black ink that reads "Jim Tucker".

Jim Tucker  
Sr. Environmental  
Engineering Specialist

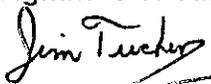
COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

DATE RECEIVED: \_\_\_\_\_

ATTACHMENT 3

**ABOVEGROUND STORAGE TANK SYSTEM  
CLOSURE NOTIFICATION FORM**

NOTE: Notification of permanent closure must be received by the appropriate regional office of the Department at least 30 days prior to initiation of the closure activities.

<b>I. Owner of Tank System</b>			
Owner Name Sunoco, Inc. (R&M)			
Street Address 3144 Passyunk Ave.		Phone Number 215-339-2000	
City Philadelphia	State PA	Zip Code 19145	
<b>II. Location of Tank System</b>			
Facility Name Sunoco, Inc. (R&M) - Point Breeze Processing Area		Facility Identification Number 51-19781	
Street Address 3144 Passyunk Ave.	City Philadelphia	State PA	Zip Code 19145
Municipality Philadelphia	County Philadelphia		
Contact Person Jim Tucker		Phone Number 215-339-2120	
<b>Month/Day/Year of Proposed Closure</b>		12/31/2002	
<b>Certified Installer/Company Performing Tank Handling Activities</b>			
Certified Installer Name Samuel Dixon		Installer Certification Number 1746	
Street Address 1000 Union Landing Road		Phone Number 856-764-1210	
City Riverton	State NJ	Zip Code 08077	
Certified Company Name W&K Welding & Tank Erectors, Inc.		Company Certification Number 385	
<b>V. Contractor/Individual Performing Site Assessment Activities</b>			
Name of Contractor or Individual W&K Welding & Tank Erectors, Inc.			
Street Address 1000 Union Landing Road		Phone Number 856-764-1210	
City Riverton	State NJ	Zip Code 08077	
<b>VI. Description of Aboveground Storage Tank Systems (See reverse side of form)</b>			
<b>VII. Will this closure involve replacement of at least one old tank with a new tank?</b>			
Yes _____ No <u>  X  </u>			
<b>Signature of Tank System Owner</b> 			<b>Date</b> 09/16/02

VI. Description of Aboveground Storage Tank System (Complete for each tank undergoing closure)

Tank Registration Number		060A			
Estimated Total Capacity (Gallons)		760,200			
Substance(s) Stored a. Petroleum Throughout Operating Life of Tank (Check All That Apply)	Unleaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Leaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Aviation Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Jet Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Diesel Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	New Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Used Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other, Please Specify	Recovered Oil			
b. Hazardous Substance		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name of Principal CERCLA Substance					
AND					
Chemical Abstract Service (CAS) No.					
c. Unknown		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proposed Closure Method (Check Only One)	a. Removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-In-Place	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-In-Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partial System Closure (Yes or No)		NO			
Tank Registration Number					
Estimated Total Capacity (Gallons)					
Substance(s) Stored a. Petroleum Throughout Operating Life of Tank (Check All That Apply)	Unleaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Leaded Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Aviation Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Jet Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Diesel Fuel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Fuel Oil No. 6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	New Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Used Motor Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	Other, Please Specify				
b. Hazardous Substance		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Name of Principal CERCLA Substance					
AND					
Chemical Abstract Service (CAS) No.					
c. Unknown		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Proposed Closure Method (Check Only One)	a. Removal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	b. Closure-In-Place	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	c. Change-In-Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Partial System Closure (Yes or No)					

Bcc: Al Hornung- GP/MO Basement  
Mario Cruz - GP/MO Box 250  
Eric Schneider - PB/MO  
Harry Buchmann - PB/14SB Box 180

298



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

ABOVEGROUND STORAGE TANK SYSTEM  
CLOSURE REPORT FORM

SECTION II. Tank Handling Information

PB141

Facility ID Number 51-19981  
Tank Registration ID Number(s) 0.32A

Yes N/A

1. Briefly describe the excavation and initial on-site staging of uncontaminated/contaminated soil and debris:

N/A

2. Briefly describe the method of piping system closure and the closure of the piping systems including the quantity and condition of the piping:

PIPING VALVES REMOVED & REMAINING P.P. NG BLINDED

3. Briefly describe the condition of the tanks and any problems encountered during tank handling or tank removal activities:

NONE

TANK IN GOOD CONDITION.

4. Briefly describe the method used to purge the tanks of and monitor for hazardous or explosive vapors:

CONTINUOUS MONITORING.

5. If tanks were cleaned on-site:

a. Briefly describe the tank cleaning process:

b. If subcontracted, name and address of company that performed the tank cleaning:

ALLSTATE POWERVAC - 1998

6. If tanks were closed-in-place, briefly describe how tanks were rendered inoperative, marked permanently closed with date, vented and secured to prevent unauthorized entry:

P.P. NG AIR GAPPED FROM TANK. E.O.I. REMOVED

TANK STERILIZED WITH CLOSED IN PLACE & DATE OF CLOSURE

HANDLED COVERED WITH MESH SCREEN

SECTION II. (continued)

7. If contamination was suspected or observed, the "Notification of Contamination" form was submitted.

I, Samuel J. Dreyer, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed the tank handling activities associated with the closure of the above referenced storage tank(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.

Samuel J. Dreyer  
Signature of Certified Installer

11/13/02  
Date

1746  
Installer Certification Number

385  
Company Certification Number

W & K Welding  
Company Name

1000 Union Landing Rd  
Street

Cinn N.J 08077  
City/Town, State, Zip

856-764-1210  
Phone



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

ABOVEGROUND STORAGE TANK SYSTEM  
CLOSURE REPORT FORM

SECTION II. Tank Handling Information

PB 237

Facility ID Number 51-19781  
Tank Registration ID Number(s) 0539

Yes N/A

1. Briefly describe the excavation and initial on-site staging of uncontaminated/contaminated soil and debris:

NONE

2. Briefly describe the method of piping system closure and the closure of the piping systems including the quantity and condition of the piping:

PIPING VALVES REMOVED REMAINING PIPING BLINDED

3. Briefly describe the condition of the tanks and any problems encountered during tank handling or tank removal activities:

NONE  
TANK IN GOOD CONDITION

4. Briefly describe the method used to purge the tanks of and monitor for hazardous or explosive vapors:

CONTINUOUS MONITORING

5. If tanks were cleaned on-site:

a. Briefly describe the tank cleaning process:

b. If subcontracted, name and address of company that performed the tank cleaning:

ALLSTATE POWERVAC - 1998

6. If tanks were closed-in-place, briefly describe how tanks were rendered inoperative, marked permanently closed with date, vented and secured to prevent unauthorized entry:

ALL PIPING AIR GAPPED FROM TANK. E&E REMOVED  
TANK STENCILED WITH CLOSED IN PLACE & DATE OF CLOSURE  
MANHOLE COVERED WITH MESH SCREEN

SECTION II. (continued)

7. If contamination was suspected or observed, the "Notification of Contamination" form was submitted.

I, Samuel J. Dixon, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed the tank handling activities associated with the closure of the above referenced storage tank(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.

Samuel J. Dixon  
Signature of Certified Installer

11/13/02  
Date

1746  
Installer Certification Number

385  
Company Certification Number

WAK Welding  
Company Name

1000 Union Landing Rd  
Street

Crown P.O. 08047  
City/Town, State, Zip

856-764-1210  
Phone



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

ABOVEGROUND STORAGE TANK SYSTEM  
CLOSURE REPORT FORM

SECTION II. Tank Handling Information

PB 219

Facility ID Number 51-19781  
Tank Registration ID Number(s) 059A

Yes N/A

1. Briefly describe the excavation and initial on-site staging of uncontaminated/contaminated soil and debris:

N/A

2. Briefly describe the method of piping system closure and the closure of the piping systems including the quantity and condition of the piping:

PIPING VALVES REMOVED & REMAINING PIPING BLINDED.

3. Briefly describe the condition of the tanks and any problems encountered during tank handling or tank removal activities:

NONE

TANK IN GOOD CONDITION.

4. Briefly describe the method used to purge the tanks of and monitor for hazardous or explosive vapors:

CONTINUOUS MONITORING.

5. If tanks were cleaned on-site:

a. Briefly describe the tank cleaning process:

b. If subcontracted, name and address of company that performed the tank cleaning:

ALLSTATE POWER VAC - 1998

6. If tanks were closed-in-place, briefly describe how tanks were rendered inoperative, marked permanently closed with date, vented and secured to prevent unauthorized entry:

P.P.ING AIR GAPPED FROM TANK. EYE REMOVED  
TANK STENCILED WITH CLOSED IN PLACE & DATE OF CLOSURE  
MANHEAD COVERED WITH MESH SCREEN.

SECTION II. (continued)

7. If contamination was suspected or observed, the "Notification of Contamination" form was submitted.

I, Samuel J. Dixon, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to  
(Print Name)  
unsworn falsification to authorities) that I am the certified installer who performed the tank handling activities associated with the closure of the above referenced storage tank(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.

Samuel J. Dixon  
Signature of Certified Installer

11/13/02  
Date

1746  
Installer Certification Number

385  
Company Certification Number

W & K Welding  
Company Name

1000 Union Landing Rd  
Street

C.W.V. N.J. 08077  
City/Town, State, Zip

856-764-1310  
Phone



COMMONWEALTH OF PENNSYLVANIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
BUREAU OF LAND RECYCLING AND WASTE MANAGEMENT

ABOVEGROUND STORAGE TANK SYSTEM  
CLOSURE REPORT FORM

SECTION II. Tank Handling Information

PR 298

Facility ID Number 51-19781  
Tank Registration ID Number(s) 060A

Yes N/A

1. Briefly describe the excavation and initial on-site staging of uncontaminated/contaminated soil and debris:

NONE

2. Briefly describe the method of piping system closure and the closure of the piping systems including the quantity and condition of the piping:

PIPING VALVES REMOVED. REMAINING PIPING BLINDED.

3. Briefly describe the condition of the tanks and any problems encountered during tank handling or tank removal activities:

NONE  
TANK IN GOOD CONDITION.

4. Briefly describe the method used to purge the tanks of and monitor for hazardous or explosive vapors:

CONTINUOUS MONITORING.

5. If tanks were cleaned on-site:

a. Briefly describe the tank cleaning process: \_\_\_\_\_

b. If subcontracted, name and address of company that performed the tank cleaning:

SNOU ENVIRONMENTAL SERVICES. - 1998

6. If tanks were closed-in-place, briefly describe how tanks were rendered inoperative, marked permanently closed with date, vented and secured to prevent unauthorized entry:

PIPING AIR GAPPED FROM TANK. E&I REMOVED  
TANK STENCILED WITH CLOSED IN PLACE & DATE OF CLOSURE  
MANHEAD COVERED WITH MESH SCREEN.

SECTION II. (continued)

7. If contamination was suspected or observed, the "Notification of Contamination" form was submitted.

I, SAMUEL J. DIXON, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to  
(Print Name)  
unsworn falsification to authorities) that I am the certified installer who performed the tank handling activities associated with the closure of the above referenced storage tank(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.

Samuel J. Dixon  
Signature of Certified Installer

11/13/02  
Date

1746  
Installer Certification Number

385  
Company Certification Number

WAK Welding  
Company Name

1000 Union Landing Rd  
Street

Cinn. N.J. 08047  
City/Town, State, Zip

856-764-1210  
Phone

**APPENDIX B**  
**LABORATORY ANALYTICAL REPORTS (SOIL)**  
PB ASTs 140, 141, 237, 279, and 298  
Sunoco, Inc. – Philadelphia Refinery  
Philadelphia, Pennsylvania

## ANALYTICAL RESULTS

Prepared for:

Sunoco c/o Stantec  
1060 Andrew Drive  
Suite 140  
West Chester PA 19380

610-840-2540

Prepared by:

Lancaster Laboratories  
2425 New Holland Pike  
Lancaster, PA 17605-2425

April 20, 2010

Project: Sunoco Philly PB 140 Area ASTs Closure

Samples arrived at the laboratory on Friday, April 09, 2010. The PO# for this group is PHILADELPHIA.  
The group number for this submittal is 1189820.

<u>Client Sample Description</u>	<u>Lancaster Labs (LLI) #</u>
279 SW (1.0) Grab Soil Sample	5950765
279 SE (1.0) Grab Soil Sample	5950766
279 NW (1.0) Grab Soil Sample	5950767
279 NE (1.0) Grab Soil Sample	5950768
141 NE (1.0) Grab Soil Sample	5950769
141 SE (1.0) Grab Soil Sample	5950770
141 SW (1.0) Grab Soil Sample	5950771
141 NW (1.0) Grab Soil Sample	5950772

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC      Sunoco c/o Stantec  
COPY TO

Attn: Jennifer Menges

Questions? Contact your Client Services Representative  
Loran A Carter at (717) 656-2300

Respectfully Submitted,



Max E. Snavelly  
Senior Specialist

**Sample Description: 279 SW (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs**

**LLI Sample # SW 5950765  
LLI Group # 1189820  
PA**

**Project Name: Sunoco Philly PB 140 Area ASTs Closure**

Collected: 04/08/2010 11:10 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

279SW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS Volatiles</b>		<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	4 J	0.5	0.91
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.91
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.91
10102	Ethylbenzene	100-41-4	N.D.	1	0.91
10102	Isopropylbenzene	98-82-8	N.D.	1	0.91
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.91
10102	Naphthalene	91-20-3	N.D.	1	0.91
10102	Toluene	108-88-3	2 J	1	0.91
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.91
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.91
10102	Xylene (Total)	1330-20-7	N.D.	1	0.91

The GC/MS volatile internal standard peak areas were outside the QC limits for both the initial analysis and the re-analysis. The values reported here are from the initial analysis of the sample. A surrogate recovery was also outside of QC limits for the re-analysis.

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	150	10
00941	Benzo(a)anthracene	56-55-3	310	74	10
00941	Benzo(a)pyrene	50-32-8	410	74	10
00941	Benzo(b)fluoranthene	205-99-2	410	59	10
00941	Benzo(g,h,i)perylene	191-24-2	1,500 J	440	10
00941	Chrysene	218-01-9	N.D.	440	10
00941	Fluorene	86-73-7	N.D.	740	10
00941	Phenanthrene	85-01-8	420 J	300	10
00941	Pyrene	129-00-0	960 J	740	10

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955	Lead	7439-92-1	3,080	3.30 5

Wet Chemistry	SM20 2540 G	%	%	
00111	Moisture	n.a.	9.9	0.50 1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description:** 279 SW (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs

**LLI Sample #** SW 5950765  
**LLI Group #** 1189820  
PA

**Project Name:** Sunoco Philly PB 140 Area ASTs Closure

**Collected:** 04/08/2010 11:10 by TC

**Account Number:** 11183

**Submitted:** 04/09/2010 16:45

Sunoco c/o Stantec

**Reported:** 04/20/2010 at 17:03

1060 Andrew Drive

**Discard:** 06/20/2010

Suite 140

West Chester PA 19380

279SW

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201010220803	04/08/2010 11:10	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201010220803	04/08/2010 11:10	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201010220803	04/08/2010 11:10	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101042AA	04/14/2010 23:48	Sara E Johnson	0.91
00941	PAH's in Solids by HPLC	SW-846 8310	1	10102SLG026	04/14/2010 15:14	Mark A Clark	10
03338	PAH Solid Extraction	SW-846 3550B	1	10102SLG026	04/13/2010 09:55	Olivia Arosemena	1
06955	Lead	SW-846 6010B	1	101025708001	04/13/2010 17:23	John P Hook	5
05708	SW SW846 ICP Digest	SW-846 3050B	1	101025708001	04/13/2010 08:20	Denise K Conners	1
00111	Moisture	SM20 2540 G	1	10103820002A	04/13/2010 15:53	Scott W Freisher	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description:** 279 SE (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs

**LLI Sample #** SW 5950766  
**LLI Group #** 1189820  
PA

**Project Name:** Sunoco Philly PB 140 Area ASTs Closure

Collected: 04/08/2010 11:20 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

279SE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	18	0.5	0.83
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.83
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.83
10102	Ethylbenzene	100-41-4	N.D.	1	0.83
10102	Isopropylbenzene	98-82-8	N.D.	1	0.83
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.83
10102	Naphthalene	91-20-3	N.D.	1	0.83
10102	Toluene	108-88-3	1 J	1	0.83
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.83
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.83
10102	Xylene (Total)	1330-20-7	N.D.	1	0.83

The GC/MS volatile internal standard peak areas were outside the QC limits for both the initial analysis and the re-analysis. The values reported here are from the initial analysis of the sample.

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	2,000	160	10
00941	Benzo(a)anthracene	56-55-3	4,700	78	10
00941	Benzo(a)pyrene	50-32-8	4,100	78	10
00941	Benzo(b)fluoranthene	205-99-2	3,300	62	10
00941	Benzo(g,h,i)perylene	191-24-2	6,200	470	10
00941	Chrysene	218-01-9	4,300	470	10
00941	Fluorene	86-73-7	N.D.	780	10
00941	Phenanthrene	85-01-8	8,400	310	10
00941	Pyrene	129-00-0	9,900	780	10

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	592	0.678	1

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	14.1	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

**Sample Description: 279 SE (1.0) Grab Soil Sample**  
Sunoco Philly PB 140 Area ASTs

**LLI Sample # SW 5950766**  
**LLI Group # 1189820**  
PA

**Project Name: Sunoco Philly PB 140 Area ASTs Closure**

Collected: 04/08/2010 11:20 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

279SE

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201010220803	04/08/2010 11:20	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201010220803	04/08/2010 11:20	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201010220803	04/08/2010 11:20	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101042AA	04/15/2010 03:34	Sara E Johnson	0.83
00941	PAH's in Solids by HPLC	SW-846 8310	1	10102SLG026	04/14/2010 16:01	Mark A Clark	10
03338	PAH Solid Extraction	SW-846 3550B	1	10102SLG026	04/13/2010 09:55	Olivia Arosemena	1
06955	Lead	SW-846 6010B	1	101025708001	04/13/2010 16:47	John P Hook	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101025708001	04/13/2010 08:20	Denise K Conners	1
00111	Moisture	SM20 2540 G	1	10103820002A	04/13/2010 15:53	Scott W Freisher	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: 279 NW (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs

LLI Sample # SW 5950767  
LLI Group # 1189820  
PA

Project Name: Sunoco Philly PB 140 Area ASTs Closure

Collected: 04/08/2010 11:30 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

279NW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	1 J	0.6	0.95
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.95
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.95
10102	Ethylbenzene	100-41-4	N.D.	1	0.95
10102	Isopropylbenzene	98-82-8	N.D.	1	0.95
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.6	0.95
10102	Naphthalene	91-20-3	N.D.	1	0.95
10102	Toluene	108-88-3	N.D.	1	0.95
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.95
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.95
10102	Xylene (Total)	1330-20-7	N.D.	1	0.95

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	1,400	170	10
00941	Benzo(a)anthracene	56-55-3	5,000	87	10
00941	Benzo(a)pyrene	50-32-8	4,900	87	10
00941	Benzo(b)fluoranthene	205-99-2	4,500	70	10
00941	Benzo(g,h,i)perylene	191-24-2	10,000	520	10
00941	Chrysene	218-01-9	4,000	520	10
00941	Fluorene	86-73-7	N.D.	870	10
00941	Phenanthrene	85-01-8	6,500	350	10
00941	Pyrene	129-00-0	10,000	870	10

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	1,470	3.90	5

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	23.8	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description:** 279 NW (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs

**LLI Sample #** SW 5950767  
**LLI Group #** 1189820  
PA

**Project Name:** Sunoco Philly PB 140 Area ASTs Closure

Collected: 04/08/2010 11:30 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

279NW

## Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201010220803	04/08/2010 11:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201010220803	04/08/2010 11:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201010220803	04/08/2010 11:30	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101042AA	04/15/2010 00:11	Sara E Johnson	0.95
00941	PAH's in Solids by HPLC	SW-846 8310	1	10102SLG026	04/15/2010 03:42	Mark A Clark	10
03338	PAH Solid Extraction	SW-846 3550B	1	10102SLG026	04/13/2010 09:55	Olivia Arosemena	1
06955	Lead	SW-846 6010B	1	101025708001	04/13/2010 17:26	John P Hook	5
05708	SW SW846 ICP Digest	SW-846 3050B	1	101025708001	04/13/2010 08:20	Denise K Connors	1
00111	Moisture	SM20 2540 G	1	10103820002A	04/13/2010 15:53	Scott W Freisher	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description:** 279 NE (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs

**LLI Sample #** SW 5950768  
**LLI Group #** 1189820  
PA

**Project Name:** Sunoco Philly PB 140 Area ASTs Closure

**Collected:** 04/08/2010 11:40 by TC

**Account Number:** 11183

**Submitted:** 04/09/2010 16:45

Sunoco c/o Stantec

**Reported:** 04/20/2010 at 17:03

1060 Andrew Drive

**Discard:** 06/20/2010

Suite 140

West Chester PA 19380

279NE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	12	0.5	0.78
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.78
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.78
10102	Ethylbenzene	100-41-4	N.D.	1	0.78
10102	Isopropylbenzene	98-82-8	N.D.	1	0.78
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.78
10102	Naphthalene	91-20-3	N.D.	1	0.78
10102	Toluene	108-88-3	4 J	1	0.78
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.78
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.78
10102	Xylene (Total)	1330-20-7	2 J	1	0.78

The GC/MS volatile internal standard peak areas were outside the QC limits for both the initial analysis and the re-analysis. The values reported here are from the initial analysis of the sample.

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	17	1
00941	Benzo(a)anthracene	56-55-3	93	8.4	1
00941	Benzo(a)pyrene	50-32-8	210	8.4	1
00941	Benzo(b)fluoranthene	205-99-2	130	6.7	1
00941	Benzo(g,h,i)perylene	191-24-2	780	50	1
00941	Chrysene	218-01-9	N.D.	80	1
00941	Fluorene	86-73-7	N.D.	84	1
00941	Phenanthrene	85-01-8	110 J	33	1
00941	Pyrene	129-00-0	N.D.	200	1

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the presence of interferences near their retention times, normal reporting limits were not attained for several target compounds. The reporting limits for these compounds were raised accordingly.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	338	0.745	1

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	20.3	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description:** 279 NE (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs

**LLI Sample #** SW 5950768  
**LLI Group #** 1189820  
PA

**Project Name:** Sunoco Philly PB 140 Area ASTs Closure

Collected: 04/08/2010 11:40 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

279NE

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201010220803	04/08/2010 11:40	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201010220803	04/08/2010 11:40	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201010220803	04/08/2010 11:40	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101061AA	04/16/2010 06:20	Holly Berry	0.78
00941	PAH's in Solids by HPLC	SW-846 8310	1	10102SLG026	04/15/2010 02:56	Mark A Clark	1
03338	PAH Solid Extraction	SW-846 3550B	1	10102SLG026	04/13/2010 09:55	Olivia Arosemena	1
06955	Lead	SW-846 6010B	1	101025708001	04/13/2010 16:52	John P Hook	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101025708001	04/13/2010 08:20	Denise K Connors	1
00111	Moisture	SM20 2540 G	1	10103820002A	04/13/2010 15:53	Scott W Freisher	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description: 141 NE (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs**

**LLI Sample # SW 5950769  
LLI Group # 1189820  
PA**

**Project Name: Sunoco Philly PB 140 Area ASTs Closure**

Collected: 04/08/2010 14:00 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

141NE

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Method Detection Limit	Dilution Factor
<b>GC/MS Volatiles</b>		<b>SW-846 8260B</b>	<b>ug/kg</b>		<b>ug/kg</b>	
10102	Benzene	71-43-2	2	J	0.7	1.04
10102	1,2-Dibromoethane	106-93-4	N.D.		1	1.04
10102	1,2-Dichloroethane	107-06-2	N.D.		1	1.04
10102	Ethylbenzene	100-41-4	5	J	1	1.04
10102	Isopropylbenzene	98-82-8	2	J	1	1.04
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.		0.7	1.04
10102	Naphthalene	91-20-3	140		1	1.04
10102	Toluene	108-88-3	4	J	1	1.04
10102	1,2,4-Trimethylbenzene	95-63-6	260	J	86	61.04
10102	1,3,5-Trimethylbenzene	108-67-8	260		1	1.04
10102	Xylene (Total)	1330-20-7	51		1	1.04

The GC/MS volatile internal standard peak areas were outside the QC limits for both the initial analysis and the re-analysis. The values reported here are from the initial analysis of the sample.

The concentration reported for 1,2,4-trimethylbenzene is estimated since it exceeded the calibration range of the instrument when determined by the low level method, but was less than the quantitation limit when determined by the high level method. The result reported is from the high level determination.

GC/MS	Semivolatiles	SW-846 8310	ug/kg		ug/kg	
00941	Anthracene	120-12-7	50,000		380	20
00941	Benzo(a)anthracene	56-55-3	49,000		190	20
00941	Benzo(a)pyrene	50-32-8	45,000		190	20
00941	Benzo(b)fluoranthene	205-99-2	58,000		150	20
00941	Benzo(g,h,i)perylene	191-24-2	71,000		1,100	20
00941	Chrysene	218-01-9	180,000		1,100	20
00941	Fluorene	86-73-7	63,000		1,900	20
00941	Phenanthrene	85-01-8	250,000		750	20
00941	Pyrene	129-00-0	N.D.		230,000	20

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for pyrene. The reporting limit for this compound was raised accordingly.

Metals	SW-846 6010B	mg/kg		mg/kg		
06955	Lead	7439-92-1	1,940		4.16	5

Wet Chemistry	SM20 2540 G	%		%	



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description:** 141 NE (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs

**LLI Sample #** SW 5950769  
**LLI Group #** 1189820  
PA

**Project Name:** Sunoco Philly PB 140 Area ASTs Closure

**Collected:** 04/08/2010 14:00 by TC

**Account Number:** 11183

**Submitted:** 04/09/2010 16:45

Sunoco c/o Stantec

**Reported:** 04/20/2010 at 17:03

1060 Andrew Drive

**Discard:** 06/20/2010

Suite 140

West Chester PA 19380

141NE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>Wet Chemistry</b>			<b>SM20 2540 G</b>	<b>%</b>	<b>%</b>
00111	Moisture	n.a.	29.3	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201010220803	04/08/2010 14:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201010220803	04/08/2010 14:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201010220803	04/08/2010 14:00	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101042AA	04/15/2010 02:27	Sara E Johnson	1.04
10102	UST - Soils by 8260B	SW-846 8260B	1	R101051AA	04/15/2010 13:54	Nicholas R Rossi	61.04
00941	PAH's in Solids by HPLC	SW-846 8310	1	10102SLG026	04/14/2010 21:16	Mark A Clark	20
03338	PAH Solid Extraction	SW-846 3550B	1	10102SLG026	04/13/2010 09:55	Olivia Arosemena	1
06955	Lead	SW-846 6010B	1	101025708001	04/13/2010 17:29	John P Hook	5
05708	SW SW846 ICP Digest	SW-846 3050B	1	101025708001	04/13/2010 08:20	Denise K Connors	1
00111	Moisture	SM20 2540 G	1	10103820002A	04/13/2010 15:53	Scott W Freisher	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 1 of 2

Sample Description: 141 SE (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs

LLI Sample # SW 5950770  
LLI Group # 1189820  
PA

Project Name: Sunoco Philly PB 140 Area ASTs Closure

Collected: 04/08/2010 14:15 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

141SE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	3 J	0.5	0.78
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.78
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.78
10102	Ethylbenzene	100-41-4	N.D.	1	0.78
10102	Isopropylbenzene	98-82-8	N.D.	1	0.78
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.78
10102	Naphthalene	91-20-3	N.D.	1	0.78
10102	Toluene	108-88-3	N.D.	1	0.78
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.78
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.78
10102	Xylene (Total)	1330-20-7	N.D.	1	0.78

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	170	10
00941	Benzo(a)anthracene	56-55-3	590	84	10
00941	Benzo(a)pyrene	50-32-8	710	84	10
00941	Benzo(b)fluoranthene	205-99-2	600	68	10
00941	Benzo(g,h,i)perylene	191-24-2	3,200	510	10
00941	Chrysene	218-01-9	580 J	510	10
00941	Fluorene	86-73-7	N.D.	840	10
00941	Phenanthrene	85-01-8	480 J	340	10
00941	Pyrene	129-00-0	1,200 J	840	10

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	1,200	0.746	1

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	21.1	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description: 141 SE (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs**

**LLI Sample # SW 5950770  
LLI Group # 1189820  
PA**

**Project Name: Sunoco Philly PB 140 Area ASTs Closure**

Collected: 04/08/2010 14:15 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

141SE

## Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201010220803	04/08/2010 14:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201010220803	04/08/2010 14:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201010220803	04/08/2010 14:15	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101042AA	04/15/2010 01:42	Sara E Johnson	0.78
00941	PAH's in Solids by HPLC	SW-846 8310	1	10102SLG026	04/14/2010 17:33	Mark A Clark	10
03338	PAH Solid Extraction	SW-846 3550B	1	10102SLG026	04/13/2010 09:55	Olivia Arosemena	1
06955	Lead	SW-846 6010B	1	101025708001	04/13/2010 16:58	John P Hook	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101025708001	04/13/2010 08:20	Denise K Connors	1
00111	Moisture	SM20 2540 G	1	10103820002A	04/13/2010 15:53	Scott W Freisher	1

**Sample Description: 141 SW (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs**

**LLI Sample # SW 5950771  
LLI Group # 1189820  
PA**

**Project Name: Sunoco Philly PB 140 Area ASTs Closure**

Collected: 04/08/2010 14:30 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

141SW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS Volatiles SW-846 8260B</b>					
10102	Benzene	71-43-2	0.8 J	0.6	0.97
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.97
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.97
10102	Ethylbenzene	100-41-4	N.D.	1	0.97
10102	Isopropylbenzene	98-82-8	N.D.	1	0.97
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.6	0.97
10102	Naphthalene	91-20-3	N.D.	1	0.97
10102	Toluene	108-88-3	N.D.	1	0.97
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.97
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.97
10102	Xylene (Total)	1330-20-7	N.D.	1	0.97

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	590 J	160	10
00941	Benzo(a)anthracene	56-55-3	610	79	10
00941	Benzo(a)pyrene	50-32-8	2,900	79	10
00941	Benzo(b)fluoranthene	205-99-2	2,600	63	10
00941	Benzo(g,h,i)perylene	191-24-2	4,000	470	10
00941	Chrysene	218-01-9	N.D.	1,900	10
00941	Fluorene	86-73-7	N.D.	790	10
00941	Phenanthrene	85-01-8	1,400	320	10
00941	Pyrene	129-00-0	7,000	790	10

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for chrysene. The reporting limit for this compound was raised accordingly.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	288	0.682	1

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	15.4	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

**Sample Description: 141 SW (1.0) Grab Soil Sample**  
**Sunoco Philly PB 140 Area ASTs**

**LLI Sample # SW 5950771**  
**LLI Group # 1189820**  
**PA**

**Project Name: Sunoco Philly PB 140 Area ASTs Closure**

Collected: 04/08/2010 14:30 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

141SW

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201010220803	04/08/2010 14:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201010220803	04/08/2010 14:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201010220803	04/08/2010 14:30	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101061AA	04/16/2010 07:28	Holly Berry	0.97
00941	PAH's in Solids by HPLC	SW-846 8310	1	10102SLG026	04/14/2010 18:20	Mark A Clark	10
03338	PAH Solid Extraction	SW-846 3550B	1	10102SLG026	04/13/2010 09:55	Olivia Arosemena	1
06955	Lead	SW-846 6010B	1	101025708001	04/13/2010 17:02	John P Hook	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101025708001	04/13/2010 08:20	Denise K Conners	1
00111	Moisture	SM20 2540 G	1	10103820002A	04/13/2010 15:53	Scott W Freisher	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description:** 141 NW (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs

**LLI Sample #** SW 5950772  
**LLI Group #** 1189820  
PA

**Project Name:** Sunoco Philly PB 140 Area ASTs Closure

Collected: 04/08/2010 14:45 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

141NW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS Volatiles</b>		<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	N.D.	0.5	0.86
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.86
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.86
10102	Ethylbenzene	100-41-4	N.D.	1	0.86
10102	Isopropylbenzene	98-82-8	N.D.	1	0.86
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.86
10102	Naphthalene	91-20-3	2 J	1	0.86
10102	Toluene	108-88-3	N.D.	1	0.86
10102	1,2,4-Trimethylbenzene	95-63-6	5 J	1	0.86
10102	1,3,5-Trimethylbenzene	108-67-8	3 J	1	0.86
10102	Xylene (Total)	1330-20-7	1 J	1	0.86

The GC/MS volatile internal standard peak areas were outside the QC limits for both the initial analysis and the re-analysis. The values reported here are from the initial analysis of the sample. A surrogate recovery was also outside of QC limits for the re-analysis.

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	200 J	160	10
00941	Benzo(a)anthracene	56-55-3	830	78	10
00941	Benzo(a)pyrene	50-32-8	1,600	78	10
00941	Benzo(b)fluoranthene	205-99-2	2,100	62	10
00941	Benzo(g,h,i)perylene	191-24-2	6,600	470	10
00941	Chrysene	218-01-9	N.D.	2,900	10
00941	Fluorene	86-73-7	N.D.	780	10
00941	Phenanthrene	85-01-8	650 J	310	10
00941	Pyrene	129-00-0	3,900	780	10

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for chrysene. The reporting limit for this compound was raised accordingly.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955	Lead	7439-92-1	425	0.694 1

Wet Chemistry	SM20 2540 G	%	%	
00111	Moisture	n.a.	14.4	0.50 1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

**Sample Description: 141 NW (1.0) Grab Soil Sample  
Sunoco Philly PB 140 Area ASTs**

**LLI Sample # SW 5950772  
LLI Group # 1189820  
PA**

**Project Name: Sunoco Philly PB 140 Area ASTs Closure**

Collected: 04/08/2010 14:45 by TC

Account Number: 11183

Submitted: 04/09/2010 16:45

Sunoco c/o Stantec

Reported: 04/20/2010 at 17:03

1060 Andrew Drive

Discard: 06/20/2010

Suite 140

West Chester PA 19380

141NW

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201010220803	04/08/2010 14:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201010220803	04/08/2010 14:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201010220803	04/08/2010 14:45	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101042AA	04/15/2010 02:49	Sara E Johnson	0.86
00941	PAH's in Solids by HPLC	SW-846 8310	1	10102SLG026	04/14/2010 19:06	Mark A Clark	10
03338	PAH Solid Extraction	SW-846 3550B	1	10102SLG026	04/13/2010 09:55	Olivia Arosemena	1
06955	Lead	SW-846 6010B	1	101025708001	04/13/2010 17:05	John P Hook	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101025708001	04/13/2010 08:20	Denise K Conners	1
00111	Moisture	SM20 2540 G	1	10103820002A	04/13/2010 15:53	Scott W Freisher	1

## Quality Control Summary

 Client Name: Sunoco c/o Stantec  
 Reported: 04/20/10 at 05:03 PM

Group Number: 1189820

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

### Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: R101051AA	Sample number(s): 5950769							
1,2,4-Trimethylbenzene	N.D.	50.	ug/kg	91	93	79-120	2	30
Batch number: X101042AA	Sample number(s): 5950765-5950767,5950769-5950770,5950772							
Benzene	N.D.	0.5	ug/kg	96	97	80-120	1	30
1,2-Dibromoethane	N.D.	1.	ug/kg	91	90	80-120	2	30
1,2-Dichloroethane	N.D.	1.	ug/kg	95	92	71-129	3	30
Ethylbenzene	N.D.	1.	ug/kg	100	100	80-120	0	30
Isopropylbenzene	N.D.	1.	ug/kg	102	101	76-120	1	30
Methyl Tertiary Butyl Ether	N.D.	0.5	ug/kg	109	107	74-121	2	30
Naphthalene	N.D.	1.	ug/kg	95	88	59-123	7	30
Toluene	N.D.	1.	ug/kg	101	99	80-120	2	30
1,2,4-Trimethylbenzene	N.D.	1.	ug/kg	103	103	79-120	0	30
1,3,5-Trimethylbenzene	N.D.	1.	ug/kg	99	100	78-120	2	30
Xylene (Total)	N.D.	1.	ug/kg	96	95	80-120	1	30
Batch number: X101061AA	Sample number(s): 5950768,5950771							
Benzene	N.D.	0.5	ug/kg	99	101	80-120	1	30
1,2-Dibromoethane	N.D.	1.	ug/kg	89	90	80-120	1	30
1,2-Dichloroethane	N.D.	1.	ug/kg	93	95	71-129	2	30
Ethylbenzene	N.D.	1.	ug/kg	103	103	80-120	0	30
Isopropylbenzene	N.D.	1.	ug/kg	104	105	76-120	1	30
Methyl Tertiary Butyl Ether	N.D.	0.5	ug/kg	107	110	74-121	3	30
Naphthalene	N.D.	1.	ug/kg	84	88	59-123	5	30
Toluene	N.D.	1.	ug/kg	103	106	80-120	2	30
1,2,4-Trimethylbenzene	N.D.	1.	ug/kg	106	106	79-120	0	30
1,3,5-Trimethylbenzene	N.D.	1.	ug/kg	103	103	78-120	0	30
Xylene (Total)	N.D.	1.	ug/kg	98	98	80-120	0	30
Batch number: 10102SLG026	Sample number(s): 5950765-5950772							
Anthracene	N.D.	0.67	ug/kg	87		71-105		
Benzo(a)anthracene	N.D.	0.33	ug/kg	87		74-111		
Benzo(a)pyrene	N.D.	0.33	ug/kg	84		65-106		
Benzo(b)fluoranthene	N.D.	0.27	ug/kg	92		75-113		
Benzo(g,h,i)perylene	N.D.	2.0	ug/kg	98		75-112		
Chrysene	N.D.	2.0	ug/kg	96		74-112		
Fluorene	N.D.	3.3	ug/kg	97		75-111		
Phenanthrene	N.D.	1.3	ug/kg	99		77-111		
Pyrene	N.D.	3.3	ug/kg	96		71-109		
Batch number: 101025708001	Sample number(s): 5950765-5950772							
Lead	N.D.	0.594	mg/kg	92		80-120		
Batch number: 10103820002A	Sample number(s): 5950765-5950772							
Moisture				100		99-101		

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: Sunoco c/o Stantec  
 Reported: 04/20/10 at 05:03 PM

Group Number: 1189820

### Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: X101042AA	Sample number(s): 5950765-5950767, 5950769-5950770, 5950772 UNSPK: P950939								
Benzene	106		55-143						
1,2-Dibromoethane	100		54-129						
1,2-Dichloroethane	105		53-143						
Ethylbenzene	108		44-141						
Isopropylbenzene	106		38-144						
Methyl Tertiary Butyl Ether	122		55-129						
Naphthalene	91		10-138						
Toluene	114		50-146						
1,2,4-Trimethylbenzene	128		37-149						
1,3,5-Trimethylbenzene	116		38-150						
Xylene (Total)	108		44-136						
Batch number: X101061AA	Sample number(s): 5950768, 5950771 UNSPK: P954135								
Benzene	90		55-143						
1,2-Dibromoethane	94		54-129						
1,2-Dichloroethane	91		53-143						
Ethylbenzene	92		44-141						
Isopropylbenzene	83		38-144						
Methyl Tertiary Butyl Ether	104		55-129						
Naphthalene	42		10-138						
Toluene	105		50-146						
1,2,4-Trimethylbenzene	93		37-149						
1,3,5-Trimethylbenzene	94		38-150						
Xylene (Total)	86		44-136						
Batch number: 10102SLG026	Sample number(s): 5950765-5950772 UNSPK: P949949								
Anthracene	88	86	71-107	2	50				
Benzo(a)anthracene	45	43	22-67	4	50				
Benzo(a)pyrene	89	83	60-122	7	50				
Benzo(b)fluoranthene	97	88	23-157	9	50				
Benzo(g,h,i)perylene	99	96	46-138	3	50				
Chrysene	95	94	64-108	1	50				
Fluorene	98	96	71-117	2	50				
Phenanthrene	99	97	61-127	2	50				
Pyrene	97	95	67-119	2	50				
Batch number: 101025708001	Sample number(s): 5950765-5950772 UNSPK: P950884 BKG: P950884								
Lead	89	143*	75-125	26*	20	13.1	12.0	9	20
Batch number: 10103820002A	Sample number(s): 5950765-5950772 BKG: P944645								
Moisture						39.3	41.6	6	15

### Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: Sunoco c/o Stantec  
 Reported: 04/20/10 at 05:03 PM

Group Number: 1189820

### Surrogate Quality Control

 Analysis Name: 8260 Master Scan (soil)  
 Batch number: R101051AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
Blank	89	92	88	87
LCS	84	89	84	82
LCSD	87	90	87	84
Limits:	71-114	70-109	70-123	70-111

 Analysis Name: UST - Soils by 8260B  
 Batch number: X101042AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5950765	90	93	92	75
5950766	91	92	102	69*
5950767	91	93	89	80
5950769	97	99	109	52*
5950770	89	91	88	80
5950772	92	91	95	78
Blank	87	89	87	82
LCS	88	91	95	89
LCSD	87	89	95	87
MS	88	92	95	86
Limits:	71-114	70-109	70-123	70-111

 Analysis Name: UST - Soils by 8260B  
 Batch number: X101061AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5950768	94	91	111	62*
5950771	90	94	88	80
Blank	88	84	87	83
LCS	87	87	94	88
LCSD	88	88	95	88
MS	89	92	97	81
Limits:	71-114	70-109	70-123	70-111

 Analysis Name: PAH's in Solids by HPLC  
 Batch number: 10102SLG026

	Nitrobenzene	Triphenylene
5950765	103	169*
5950766	106	264*
5950767	211*	271*
5950768	105	149*
5950769	112	5023*
5950770	105	173*
5950771	106	594*
5950772	101	211*
Blank	95	110
LCS	98	112
MS	96	111
MSD	95	108

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

Client Name: Sunoco c/o Stantec  
Reported: 04/20/10 at 05:03 PM

Group Number: 1189820

### Surrogate Quality Control

Limits: 59-118

58-142

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

# Analysis Request/ Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # 11183 Group# 1189820 Sample # 5950765-72 **COC #** 232546

Please print. Instructions on reverse side correspond with circled numbers.

<b>1</b> Client: <u>Stantec</u> Acct. #: _____ Project Name/#: <u>Sun-Philly-Alternate Tank Closure</u> PWSID #: _____ Project Manager: <u>S. Menges / A. Carter</u> P.O. #: _____ Sampler: <u>T. Charrington</u> Quote #: _____ Name of state where samples were collected: <u>PA</u>				<b>4</b> Matrix <input type="checkbox"/> Possible Check if Applicable <input type="checkbox"/> NPDES <input type="checkbox"/> Other		<b>5</b> Analyses Requested Preservation Codes				For Lab Use Only FSC: _____ SCR#: _____				
				Total # of Containers <u>PADEP leaded gasoline</u> <u>Fuel Oil No. 2, 4, 5, 6</u>		Preservation Codes H=HCl    T=Thiosulfate N=HNO <sub>3</sub> B=NaOH S=H <sub>2</sub> SO <sub>4</sub> O=Other				<b>6</b> Remarks Temperature of samples upon receipt (if requested)				
<b>2</b> Sample Identification			<b>3</b> Composite	Grab	Date Collected	Time Collected								
			Soil	Water	Other									
279 SW (1.0)			X	X		4	X	X					Temp 1.8-2.8°C	
279 SE (1.0)			X	X		4	X	X						
279 NW (1.0)			X	X		4	X	X						
279 NE (1.0)			X	X		4	X	X						
141 NE (1.0)			X	X		4	X	X						
141 SE (1.0)			X	X		4	X	X						
141 SW (1.0)			X	X		4	X	X						
141 NW (1.0)			X	X		4	X	X						

<b>7</b> Turnaround Time Requested (TAT) (please circle): <u>Normal</u> Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: _____ Rush results requested by (please circle): Phone Fax E-mail Phone #: _____ Fax #: _____ E-mail address: _____				Relinquished by: <u>[Signature]</u> Date: <u>4/9/10</u> Time: <u>11:45</u> Received by: <u>[Signature]</u> Date: <u>4/9/10</u> Time: <u>11:45</u>	
<b>8</b> Data Package Options (please circle if required) Type I (validation/NJ Reg) TX TRRP-13 Type II (Tier II) MA MCP CT RCP Type III (Reduced NJ) Site-specific QC (MS/MSD/Dup)? Yes No Type IV (CLP SOW) (If yes, indicate QC sample and submit replicate volume.) Type VI (Raw Data Only) Internal COC Required? Yes / No				Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: _____ Date: _____ Time: _____ Relinquished by: _____ Date: _____ Time: _____ Received by: <u>Kate Hartline</u> Date: <u>4/9/10</u> Time: <u>10:45</u>	
SDG Complete? Yes No					

## Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>N.D.</b>	none detected	<b>BMQL</b>	Below Minimum Quantitation Level
<b>TNTC</b>	Too Numerous To Count	<b>MPN</b>	Most Probable Number
<b>IU</b>	International Units	<b>CP Units</b>	cobalt-chloroplatinate units
<b>umhos/cm</b>	micromhos/cm	<b>NTU</b>	nephelometric turbidity units
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>Cal</b>	(diet) calories	<b>lb.</b>	pound(s)
<b>meq</b>	milliequivalents	<b>kg</b>	kilogram(s)
<b>g</b>	gram(s)	<b>mg</b>	milligram(s)
<b>ug</b>	microgram(s)	<b>l</b>	liter(s)
<b>ml</b>	milliliter(s)	<b>ul</b>	microliter(s)
<b>m3</b>	cubic meter(s)	<b>fib &gt;5 um/ml</b>	fibers greater than 5 microns in length per ml
<b>&lt;</b>	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

### Organic Qualifiers

<b>A</b>	TIC is a possible aldol-condensation product
<b>B</b>	Analyte was also detected in the blank
<b>C</b>	Pesticide result confirmed by GC/MS
<b>D</b>	Compound quantitated on a diluted sample
<b>E</b>	Concentration exceeds the calibration range of the instrument
<b>J</b>	Estimated value
<b>N</b>	Presumptive evidence of a compound (TICs only)
<b>P</b>	Concentration difference between primary and confirmation columns >25%
<b>U</b>	Compound was not detected
<b>X,Y,Z</b>	Defined in case narrative

### Inorganic Qualifiers

<b>B</b>	Value is <CRDL, but ≥IDL
<b>E</b>	Estimated due to interference
<b>M</b>	Duplicate injection precision not met
<b>N</b>	Spike amount not within control limits
<b>S</b>	Method of standard additions (MSA) used for calculation
<b>U</b>	Compound was not detected
<b>W</b>	Post digestion spike out of control limits
<b>*</b>	Duplicate analysis not within control limits
<b>+</b>	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.



## ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories  
2425 New Holland Pike  
Lancaster, PA 17605-2425

Prepared for:

Sunoco c/o Stantec  
1060 Andrew Drive  
Suite 140  
West Chester PA 19380

May 06, 2010

Project: Sun-Philly-Point Breeze ASTs

Submittal Date: 04/23/2010  
Group Number: 1191780  
PO Number: PHILADELPHIA  
State of Sample Origin: PA

<u>Client Sample Description</u>	<u>Lancaster Labs (LLI) #</u>
140SW(1.0) Grab Soil Sample	5963126
140SE(1.0) Grab Soil Sample	5963127
140NE(1.0) Grab Soil Sample	5963128
140NW(1.0) Grab Soil Sample	5963129
298NW(1.0) Grab Soil Sample	5963130
298SW(1.0) Grab Soil Sample	5963131
298SE(1.0) Grab Soil Sample	5963132
298NE(1.0) Grab Soil Sample	5963133
237NW(1.0) Grab Soil Sample	5963134
237SW(1.0) Grab Soil Sample	5963135
237SE(1.0) Grab Soil Sample	5963136
237NE(1.0) Grab Soil Sample	5963137

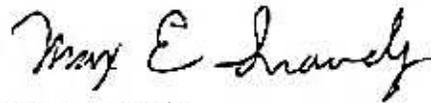
The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC      Sunoco c/o Stantec  
COPY TO

Attn: Jennifer Menges

Questions? Contact your Client Services Representative  
Loran A Carter at (717) 656-2300 Ext. 1375

Respectfully Submitted,



Max E. Snavelly  
Senior Specialist

**Sample Description: 140SW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963126  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 10:00 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

140SW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	N.D.	0.5	0.86
10102	1,2-Dibromoethane	106-93-4	N.D.	0.9	0.86
10102	1,2-Dichloroethane	107-06-2	N.D.	0.9	0.86
10102	Ethylbenzene	100-41-4	N.D.	0.9	0.86
10102	Isopropylbenzene	98-82-8	N.D.	0.9	0.86
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.86
10102	Naphthalene	91-20-3	N.D.	0.9	0.86
10102	Toluene	108-88-3	N.D.	0.9	0.86
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	0.9	0.86
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	0.9	0.86
10102	Xylene (Total)	1330-20-7	N.D.	0.9	0.86

Surrogate recoveries are outside of QC limits for the GC/MS volatile fraction. The analysis was repeated and the reanalysis surrogate recoveries are also out of specification indicating a matrix effect. An internal standard peak area is also outside the QC limits for the re-analysis.

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	580	10
00941	Benzo(a)anthracene	56-55-3	360	14	10
00941	Benzo(a)pyrene	50-32-8	5,800	70	50
00941	Benzo(b)fluoranthene	205-99-2	7,300	56	50
00941	Benzo(g,h,i)perylene	191-24-2	20,000	84	10
00941	Chrysene	218-01-9	8,400	84	10
00941	Fluorene	86-73-7	3,800	140	10
00941	Phenanthrene	85-01-8	N.D.	430	10
00941	Pyrene	129-00-0	11,000	140	10

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the presence of interferences near their retention times, normal reporting limits were not attained for several target compounds. The reporting limits for these compounds were raised accordingly.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	2,740	3.10	5

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	5.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

**Sample Description: 140SW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963126  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 10:00 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

140SW

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 10:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 10:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 10:00	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 01:34	Angela D Sneeringer	0.86
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 02:58	Mark A Clark	10
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 19:00	Mark A Clark	50
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101165708002	04/29/2010 23:56	John W Yanzuk II	5
05708	SW SW846 ICP Digest	SW-846 3050B	1	101165708002	04/26/2010 20:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description: 140SE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963127  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 10:15 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

140SE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	N.D.	0.5	0.9
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.9
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.9
10102	Ethylbenzene	100-41-4	N.D.	1	0.9
10102	Isopropylbenzene	98-82-8	N.D.	1	0.9
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.9
10102	Naphthalene	91-20-3	N.D.	1	0.9
10102	Toluene	108-88-3	N.D.	1	0.9
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.9
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.9
10102	Xylene (Total)	1330-20-7	N.D.	1	0.9

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	12	J	5
00941	Benzo(a)anthracene	56-55-3	12		5
00941	Benzo(a)pyrene	50-32-8	26		5
00941	Benzo(b)fluoranthene	205-99-2	9.9		5
00941	Benzo(g,h,i)perylene	191-24-2	120		5
00941	Chrysene	218-01-9	N.D.		5
00941	Fluorene	86-73-7	43	J	5
00941	Phenanthrene	85-01-8	130		5
00941	Pyrene	129-00-0	40	J	5

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for chrysene. The reporting limit for this compound was raised accordingly.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	231	0.716	1

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	17.0	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

**Sample Description: 140SE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963127  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 10:15 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

140SE

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 10:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 10:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 10:15	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 01:57	Angela D Sneeringer	0.9
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/06/2010 06:59	Mark A Clark	5
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101165708002	04/27/2010 21:55	John W Yanzuk II	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101165708002	04/26/2010 20:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

**Sample Description: 140NE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963128  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 10:30 by TC

Sunoco c/o Stantec

Submitted: 04/23/2010 18:15

1060 Andrew Drive

Reported: 05/06/2010 13:01

Suite 140

Discard: 07/06/2010

West Chester PA 19380

140NW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	0.7 J	0.6	0.97
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.97
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.97
10102	Ethylbenzene	100-41-4	N.D.	1	0.97
10102	Isopropylbenzene	98-82-8	N.D.	1	0.97
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.6	0.97
10102	Naphthalene	91-20-3	N.D.	1	0.97
10102	Toluene	108-88-3	N.D.	1	0.97
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.97
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.97
10102	Xylene (Total)	1330-20-7	N.D.	1	0.97
<b>GC/MS</b>	<b>Semivolatiles</b>	<b>SW-846 8310</b>	<b>ug/kg</b>	<b>ug/kg</b>	
00941	Anthracene	120-12-7	N.D.	350	20
00941	Benzo(a)anthracene	56-55-3	320	18	20
00941	Benzo(a)pyrene	50-32-8	1,100	18	20
00941	Benzo(b)fluoranthene	205-99-2	1,600	14	20
00941	Benzo(g,h,i)perylene	191-24-2	2,100	110	20
00941	Chrysene	218-01-9	2,100	110	20
00941	Fluorene	86-73-7	990	180	20
00941	Phenanthrene	85-01-8	1,000	71	20
00941	Pyrene	129-00-0	1,800	180	20

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for anthracene. The reporting limit for this compound was raised accordingly.

<b>Metals</b>	<b>SW-846 6010B</b>	<b>mg/kg</b>	<b>mg/kg</b>	
06955	Lead	7439-92-1	459	0.798
<b>Wet Chemistry</b>	<b>SM20 2540 G</b>	<b>%</b>	<b>%</b>	
00111	Moisture	n.a.	24.8	0.50
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

**Sample Description: 140NE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963128  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 10:30 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

140NW

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 10:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 10:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 10:30	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 06:28	Angela D Sneeringer	0.97
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 06:41	Mark A Clark	20
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101165708002	04/27/2010 21:59	John W Yanzuk II	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101165708002	04/26/2010 20:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

**Sample Description: 140NW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963129  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 10:45 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

140NE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	4 J	1	2.3
10102	1,2-Dibromoethane	106-93-4	N.D.	3	2.3
10102	1,2-Dichloroethane	107-06-2	N.D.	3	2.3
10102	Ethylbenzene	100-41-4	N.D.	3	2.3
10102	Isopropylbenzene	98-82-8	N.D.	3	2.3
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	1	2.3
10102	Naphthalene	91-20-3	4 J	3	2.3
10102	Toluene	108-88-3	5 J	3	2.3
10102	1,2,4-Trimethylbenzene	95-63-6	8 J	3	2.3
10102	1,3,5-Trimethylbenzene	108-67-8	9 J	3	2.3
10102	Xylene (Total)	1330-20-7	4 J	3	2.3

The GC/MS volatile internal standard peak areas were outside the QC limits. A surrogate recovery was also outside of QC limits. The analysis was repeated using the remaining sample vial but could not be reported, because the vial leaked during the analysis. The values reported here are from the initial analysis of the sample.

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	3,800	20
00941	Benzo(a)anthracene	56-55-3	11,000	63	20
00941	Benzo(a)pyrene	50-32-8	15,000	63	20
00941	Benzo(b)fluoranthene	205-99-2	21,000	130	50
00941	Benzo(g,h,i)perylene	191-24-2	21,000	380	20
00941	Chrysene	218-01-9	50,000	380	20
00941	Fluorene	86-73-7	4,100	630	20
00941	Phenanthrene	85-01-8	24,000	250	20
00941	Pyrene	129-00-0	41,000	630	20

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for anthracene. The reporting limit for this compound was raised accordingly.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	616	0.689	1
Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	15.5	0.50	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description: 140NW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963129  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 10:45 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

140NE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
	<b>Wet Chemistry</b>	<b>SM20 2540 G</b>	<b>%</b>	<b>%</b>	
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.					

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 10:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 10:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 10:45	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101191AA	04/29/2010 20:00	Emily R Styer	2.3
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 08:13	Mark A Clark	20
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 19:45	Mark A Clark	50
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101165708002	04/27/2010 22:02	John W Yanzuk II	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101165708002	04/26/2010 20:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

**Sample Description: 298NW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963130  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 11:00 by TC

Sunoco c/o Stantec

1060 Andrew Drive

Submitted: 04/23/2010 18:15

Suite 140

Reported: 05/06/2010 13:01

West Chester PA 19380

Discard: 07/06/2010

298NW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	N.D.	0.5	0.91
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.91
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.91
10102	Ethylbenzene	100-41-4	N.D.	1	0.91
10102	Isopropylbenzene	98-82-8	N.D.	1	0.91
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.91
10102	Naphthalene	91-20-3	N.D.	1	0.91
10102	Toluene	108-88-3	N.D.	1	0.91
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.91
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.91
10102	Xylene (Total)	1330-20-7	N.D.	1	0.91

The GC/MS volatile internal standard peak areas were outside the QC limits for both the initial analysis and the re-analysis. The values reported here are from the initial analysis of the sample.

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	16	20
00941	Benzo(a)anthracene	56-55-3	N.D.	20	20
00941	Benzo(a)pyrene	50-32-8	32	7.9	20
00941	Benzo(b)fluoranthene	205-99-2	24 J	6.3	20
00941	Benzo(g,h,i)perylene	191-24-2	560	47	20
00941	Chrysene	218-01-9	N.D.	47	20
00941	Fluorene	86-73-7	96 J	79	20
00941	Phenanthrene	85-01-8	38 J	32	20
00941	Pyrene	129-00-0	450	79	20

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for benzo(a)anthracene. The reporting limit for this compound was raised accordingly.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955	Lead	7439-92-1	193	0.697

Wet Chemistry	SM20 2540 G	%	%	
00111	Moisture	n.a.	15.6	0.50

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

**Sample Description: 298NW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963130  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 11:00 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

298NW

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 11:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 11:00	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 11:00	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 02:42	Angela D Sneeringer	0.91
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 08:59	Mark A Clark	20
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101165708002	04/27/2010 22:05	John W Yanzuk II	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101165708002	04/26/2010 20:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

**Sample Description: 298SW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963131  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 11:15 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

298SW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	N.D.	0.5	0.88
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.88
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.88
10102	Ethylbenzene	100-41-4	N.D.	1	0.88
10102	Isopropylbenzene	98-82-8	N.D.	1	0.88
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.88
10102	Naphthalene	91-20-3	N.D.	1	0.88
10102	Toluene	108-88-3	N.D.	1	0.88
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.88
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.88
10102	Xylene (Total)	1330-20-7	N.D.	1	0.88

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	8.0	10
00941	Benzo(a)anthracene	56-55-3	14 J	4.0	10
00941	Benzo(a)pyrene	50-32-8	21	4.0	10
00941	Benzo(b)fluoranthene	205-99-2	18	3.2	10
00941	Benzo(g,h,i)perylene	191-24-2	70 J	24	10
00941	Chrysene	218-01-9	N.D.	24	10
00941	Fluorene	86-73-7	N.D.	40	10
00941	Phenanthrene	85-01-8	25 J	16	10
00941	Pyrene	129-00-0	48 J	40	10

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	274	0.717	1

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	17.1	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 11:15	Client Supplied	1

**Sample Description: 298SW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963131  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 11:15 by TC

Sunoco c/o Stantec

1060 Andrew Drive

Submitted: 04/23/2010 18:15

Suite 140

Reported: 05/06/2010 13:01

West Chester PA 19380

Discard: 07/06/2010

298SW

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 11:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 11:15	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 03:05	Angela D Sneeringer	0.88
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 11:03	Mark A Clark	10
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101165708002	04/27/2010 22:09	John W Yanzuk II	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101165708002	04/26/2010 20:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

**Sample Description: 298SE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963132  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 11:30 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

298SE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	8	0.8	1.06
10102	1,2-Dibromoethane	106-93-4	N.D.	2	1.06
10102	1,2-Dichloroethane	107-06-2	N.D.	2	1.06
10102	Ethylbenzene	100-41-4	N.D.	2	1.06
10102	Isopropylbenzene	98-82-8	N.D.	2	1.06
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.8	1.06
10102	Naphthalene	91-20-3	N.D.	2	1.06
10102	Toluene	108-88-3	3 J	2	1.06
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	2	1.06
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	2	1.06
10102	Xylene (Total)	1330-20-7	N.D.	2	1.06

A GC/MS volatile internal standard peak area was outside the QC limits for the initial analysis. The analysis was repeated and a reanalysis surrogate recovery was also out of specification indicating a matrix effect. The values reported here are from the initial analysis of the sample.

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	55	20
00941	Benzo(a)anthracene	56-55-3	76	19	20
00941	Benzo(a)pyrene	50-32-8	270	19	20
00941	Benzo(b)fluoranthene	205-99-2	150	15	20
00941	Benzo(g,h,i)perylene	191-24-2	930	110	20
00941	Chrysene	218-01-9	N.D.	110	20
00941	Fluorene	86-73-7	600 J	190	20
00941	Phenanthrene	85-01-8	250 J	75	20
00941	Pyrene	129-00-0	680 J	190	20

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for anthracene. The reporting limit for this compound was raised accordingly.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	1,240	4.08	5

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	29.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

**Sample Description: 298SE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963132  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 11:30 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

298SE

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 11:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 11:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 11:30	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 03:50	Angela D Sneeringer	1.06
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 11:49	Mark A Clark	20
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101165708002	04/30/2010 00:06	John W Yanzuk II	5
05708	SW SW846 ICP Digest	SW-846 3050B	1	101165708002	04/26/2010 20:10	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

**Sample Description: 298NE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963133  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 11:45 by TC

Sunoco c/o Stantec

Submitted: 04/23/2010 18:15

1060 Andrew Drive

Reported: 05/06/2010 13:01

Suite 140

Discard: 07/06/2010

West Chester PA 19380

298NE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	N.D.	0.6	1
10102	1,2-Dibromoethane	106-93-4	N.D.	1	1
10102	1,2-Dichloroethane	107-06-2	N.D.	1	1
10102	Ethylbenzene	100-41-4	N.D.	1	1
10102	Isopropylbenzene	98-82-8	N.D.	1	1
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.6	1
10102	Naphthalene	91-20-3	N.D.	1	1
10102	Toluene	108-88-3	N.D.	1	1
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	1
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	1
10102	Xylene (Total)	1330-20-7	N.D.	1	1
<b>GC/MS</b>	<b>Semivolatiles</b>	<b>SW-846 8310</b>	<b>ug/kg</b>	<b>ug/kg</b>	
00941	Anthracene	120-12-7	N.D.	170	20
00941	Benzo(a)anthracene	56-55-3	N.D.	31	20
00941	Benzo(a)pyrene	50-32-8	1,400	31	20
00941	Benzo(b)fluoranthene	205-99-2	660	24	20
00941	Benzo(g,h,i)perylene	191-24-2	5,600	180	20
00941	Chrysene	218-01-9	N.D.	180	20
00941	Fluorene	86-73-7	870 J	310	20
00941	Phenanthrene	85-01-8	200 J	120	20
00941	Pyrene	129-00-0	2,600	310	20

The surrogate data is outside the QC limits due to unresolvable matrix problems evident in the sample chromatogram.

The usual reporting limits were not attained due to the matrix of the sample or interferences observed in the HPLC PAH analysis.

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for anthracene. The reporting limit for this compound was raised accordingly.

<b>Metals</b>	<b>SW-846 6010B</b>	<b>mg/kg</b>	<b>mg/kg</b>	
06955	Lead	7439-92-1	448	0.661
<b>Wet Chemistry</b>	<b>SM20 2540 G</b>	<b>%</b>	<b>%</b>	
00111	Moisture	n.a.	12.7	0.50
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

**Sample Description: 298NE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963133  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 11:45 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

298NE

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 11:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 11:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 11:45	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 04:12	Angela D Sneeringer	1
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 12:35	Mark A Clark	20
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101185708002	04/29/2010 05:39	Tara L Snyder	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101185708002	04/28/2010 20:22	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

**Sample Description: 237NW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963134  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 12:30 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

237NW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	N.D.	0.6	0.91
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.91
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.91
10102	Ethylbenzene	100-41-4	N.D.	1	0.91
10102	Isopropylbenzene	98-82-8	N.D.	1	0.91
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.6	0.91
10102	Naphthalene	91-20-3	N.D.	1	0.91
10102	Toluene	108-88-3	N.D.	1	0.91
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.91
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.91
10102	Xylene (Total)	1330-20-7	N.D.	1	0.91

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	8.2	10
00941	Benzo(a)anthracene	56-55-3	16 J	4.1	10
00941	Benzo(a)pyrene	50-32-8	24	4.1	10
00941	Benzo(b)fluoranthene	205-99-2	21	3.3	10
00941	Benzo(g,h,i)perylene	191-24-2	83 J	24	10
00941	Chrysene	218-01-9	N.D.	24	10
00941	Fluorene	86-73-7	N.D.	41	10
00941	Phenanthrene	85-01-8	26 J	16	10
00941	Pyrene	129-00-0	47 J	41	10

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	293	0.713	1

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	18.3	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 12:30	Client Supplied	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description: 237NW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963134  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 12:30 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

237NW

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 12:30	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 12:30	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 04:35	Angela D Sneeringer	0.91
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 14:00	Mark A Clark	10
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101185708002	04/29/2010 05:48	Tara L Snyder	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101185708002	04/28/2010 20:22	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

**Sample Description: 237SW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963135  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 12:45 by TC

Sunoco c/o Stantec

Submitted: 04/23/2010 18:15

1060 Andrew Drive

Reported: 05/06/2010 13:01

Suite 140

Discard: 07/06/2010

West Chester PA 19380

237SW

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	N.D.	0.6	0.96
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.96
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.96
10102	Ethylbenzene	100-41-4	N.D.	1	0.96
10102	Isopropylbenzene	98-82-8	N.D.	1	0.96
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.6	0.96
10102	Naphthalene	91-20-3	N.D.	1	0.96
10102	Toluene	108-88-3	N.D.	1	0.96
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.96
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.96
10102	Xylene (Total)	1330-20-7	N.D.	1	0.96
<b>GC/MS</b>	<b>Semivolatiles</b>	<b>SW-846 8310</b>	<b>ug/kg</b>	<b>ug/kg</b>	
00941	Anthracene	120-12-7	N.D.	16	20
00941	Benzo(a)anthracene	56-55-3	12 J	8.0	20
00941	Benzo(a)pyrene	50-32-8	27 J	8.0	20
00941	Benzo(b)fluoranthene	205-99-2	18 J	6.4	20
00941	Benzo(g,h,i)perylene	191-24-2	110 J	48	20
00941	Chrysene	218-01-9	N.D.	48	20
00941	Fluorene	86-73-7	N.D.	80	20
00941	Phenanthrene	85-01-8	100 J	32	20
00941	Pyrene	129-00-0	96 J	80	20

<b>Metals</b>	<b>SW-846 6010B</b>	<b>mg/kg</b>	<b>mg/kg</b>	
06955 Lead	7439-92-1	207	0.712	1

<b>Wet Chemistry</b>	<b>SM20 2540 G</b>	<b>%</b>	<b>%</b>	
00111 Moisture	n.a.	16.6	0.50	1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 12:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 12:45	Client Supplied	1

**Sample Description: 237SW(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963135  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 12:45 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

237SW

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 12:45	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 04:58	Angela D Sneeringer	0.96
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 14:46	Mark A Clark	20
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101185708002	04/29/2010 05:51	Tara L Snyder	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101185708002	04/28/2010 20:22	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

**Sample Description: 237SE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963136  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 13:15 by TC

Sunoco c/o Stantec

1060 Andrew Drive

Submitted: 04/23/2010 18:15

Suite 140

Reported: 05/06/2010 13:01

West Chester PA 19380

Discard: 07/06/2010

237SE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	2 J	0.5	0.91
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.91
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.91
10102	Ethylbenzene	100-41-4	N.D.	1	0.91
10102	Isopropylbenzene	98-82-8	N.D.	1	0.91
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.91
10102	Naphthalene	91-20-3	N.D.	1	0.91
10102	Toluene	108-88-3	1 J	1	0.91
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.91
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.91
10102	Xylene (Total)	1330-20-7	N.D.	1	0.91

The GC/MS volatile internal standard peak areas were outside the QC limits for the initial analysis. The sample was re-analyzed using the remaining sample vial, and all internal standard peak areas were within QC limits. The re-analysis was performed 2 minutes outside of the method specified 12 hour tune period. The values reported here are from the re-analysis of the sample.

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	16	20
00941	Benzo(a)anthracene	56-55-3	30 J	8.1	20
00941	Benzo(a)pyrene	50-32-8	180	8.1	20
00941	Benzo(b)fluoranthene	205-99-2	110	6.4	20
00941	Benzo(g,h,i)perylene	191-24-2	1,100	48	20
00941	Chrysene	218-01-9	N.D.	93	20
00941	Fluorene	86-73-7	110 J	81	20
00941	Phenanthrene	85-01-8	61 J	32	20
00941	Pyrene	129-00-0	420	81	20

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Due to the presence of an interferent near its retention time, the normal reporting limit was not attained for chrysene. The reporting limit for this compound was raised accordingly.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955	Lead	7439-92-1	195	0.725 1

Wet Chemistry	SM20 2540 G	%	%	
00111	Moisture	n.a.	17.2	0.50 1
"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.				



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description: 237SE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963136  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 13:15 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

237SE

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 13:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 13:15	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 13:15	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 09:49	Emily R Styer	0.91
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 16:11	Mark A Clark	20
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101185708002	04/29/2010 05:54	Tara L Snyder	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101185708002	04/28/2010 20:22	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description: 237NE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963137  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 13:45 by TC Sunoco c/o Stantec  
1060 Andrew Drive  
Submitted: 04/23/2010 18:15 Suite 140  
Reported: 05/06/2010 13:01 West Chester PA 19380  
Discard: 07/06/2010

237NE

CAT No.	Analysis Name	CAS Number	Dry Result	Dry Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/kg</b>	<b>ug/kg</b>	
10102	Benzene	71-43-2	2 J	0.5	0.86
10102	1,2-Dibromoethane	106-93-4	N.D.	1	0.86
10102	1,2-Dichloroethane	107-06-2	N.D.	1	0.86
10102	Ethylbenzene	100-41-4	N.D.	1	0.86
10102	Isopropylbenzene	98-82-8	N.D.	1	0.86
10102	Methyl Tertiary Butyl Ether	1634-04-4	N.D.	0.5	0.86
10102	Naphthalene	91-20-3	N.D.	1	0.86
10102	Toluene	108-88-3	N.D.	1	0.86
10102	1,2,4-Trimethylbenzene	95-63-6	N.D.	1	0.86
10102	1,3,5-Trimethylbenzene	108-67-8	N.D.	1	0.86
10102	Xylene (Total)	1330-20-7	N.D.	1	0.86

GC/MS	Semivolatiles	SW-846 8310	ug/kg	ug/kg	
00941	Anthracene	120-12-7	N.D.	16	20
00941	Benzo(a)anthracene	56-55-3	22 J	8.1	20
00941	Benzo(a)pyrene	50-32-8	37	8.1	20
00941	Benzo(b)fluoranthene	205-99-2	36	6.5	20
00941	Benzo(g,h,i)perylene	191-24-2	210	49	20
00941	Chrysene	218-01-9	N.D.	49	20
00941	Fluorene	86-73-7	N.D.	81	20
00941	Phenanthrene	85-01-8	N.D.	33	20
00941	Pyrene	129-00-0	85 J	81	20

Due to the sample matrix an initial dilution was necessary to perform the analysis. Therefore, the reporting limits for the PAH by HPLC compounds were raised.

Metals	SW-846 6010B	mg/kg	mg/kg	
06955 Lead	7439-92-1	185	0.719	1

Wet Chemistry	SM20 2540 G	%	%	
00111 Moisture	n.a.	18.2	0.50	1

"Moisture" represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported above is on an as-received basis.

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07579	GC/MS-Field PreservedMeOH-NC	SW-846 5035	1	201011620932	04/22/2010 13:45	Client Supplied	1

**Sample Description: 237NE(1.0) Grab Soil Sample  
Sun-Philly-Point Breeze ASTs**

**LLI Sample # SW 5963137  
LLI Group # 1191780  
Account # 11183**

**Project Name: Sun-Philly-Point Breeze ASTs**

Collected: 04/22/2010 13:45 by TC

Sunoco c/o Stantec

1060 Andrew Drive

Submitted: 04/23/2010 18:15

Suite 140

Reported: 05/06/2010 13:01

West Chester PA 19380

Discard: 07/06/2010

237NE

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
02392	L/H Field Preserved Bisulfate	SW-846 5035	1	201011620932	04/22/2010 13:45	Client Supplied	1
02392	L/H Field Preserved Bisulfate	SW-846 5035	2	201011620932	04/22/2010 13:45	Client Supplied	1
10102	UST - Soils by 8260B	SW-846 8260B	1	X101172AA	04/28/2010 05:43	Angela D Sneeringer	0.86
00941	PAH's in Solids by HPLC	SW-846 8310	1	10116SLD026	05/05/2010 16:56	Mark A Clark	20
03338	PAH Solid Extraction	SW-846 3550B	1	10116SLD026	04/26/2010 14:50	Doreen K Robles	1
06955	Lead	SW-846 6010B	1	101185708002	04/29/2010 05:57	Tara L Snyder	1
05708	SW SW846 ICP Digest	SW-846 3050B	1	101185708002	04/28/2010 20:22	Annamaria Stipkovits	1
00111	Moisture	SM20 2540 G	1	10117820002B	04/27/2010 09:55	William C Schwebel	1

## Quality Control Summary

 Client Name: Sunoco c/o Stantec  
 Reported: 05/06/10 at 01:01 PM

Group Number: 1191780

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

### Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Batch number: X101172AA	Sample number(s): 5963126-5963128, 5963130-5963137							
Benzene	N.D.	0.5	ug/kg	95	95	80-120	0	30
1,2-Dibromoethane	N.D.	1.	ug/kg	95	92	80-120	3	30
1,2-Dichloroethane	N.D.	1.	ug/kg	98	97	71-129	1	30
Ethylbenzene	N.D.	1.	ug/kg	97	96	80-120	1	30
Isopropylbenzene	N.D.	1.	ug/kg	96	97	76-120	0	30
Methyl Tertiary Butyl Ether	N.D.	0.5	ug/kg	101	99	74-121	2	30
Naphthalene	N.D.	1.	ug/kg	89	87	59-123	2	30
Toluene	N.D.	1.	ug/kg	96	96	80-120	0	30
1,2,4-Trimethylbenzene	N.D.	1.	ug/kg	97	96	79-120	1	30
1,3,5-Trimethylbenzene	N.D.	1.	ug/kg	97	97	78-120	0	30
Xylene (Total)	N.D.	1.	ug/kg	97	96	80-120	1	30
Batch number: X101191AA	Sample number(s): 5963129							
Benzene	N.D.	0.5	ug/kg	99	94	80-120	6	30
1,2-Dibromoethane	N.D.	1.	ug/kg	93	90	80-120	3	30
1,2-Dichloroethane	N.D.	1.	ug/kg	103	98	71-129	5	30
Ethylbenzene	N.D.	1.	ug/kg	100	96	80-120	4	30
Isopropylbenzene	N.D.	1.	ug/kg	101	95	76-120	6	30
Methyl Tertiary Butyl Ether	N.D.	0.5	ug/kg	99	96	74-121	3	30
Naphthalene	N.D.	1.	ug/kg	82	84	59-123	2	30
Toluene	N.D.	1.	ug/kg	98	95	80-120	3	30
1,2,4-Trimethylbenzene	N.D.	1.	ug/kg	100	98	79-120	2	30
1,3,5-Trimethylbenzene	N.D.	1.	ug/kg	102	99	78-120	3	30
Xylene (Total)	N.D.	1.	ug/kg	98	95	80-120	3	30
Batch number: 10116SLD026	Sample number(s): 5963126-5963137							
Anthracene	N.D.	0.67	ug/kg	90		71-105		
Benzo(a)anthracene	N.D.	0.33	ug/kg	93		74-111		
Benzo(a)pyrene	N.D.	0.33	ug/kg	86		65-106		
Benzo(b)fluoranthene	N.D.	0.27	ug/kg	97		75-113		
Benzo(g,h,i)perylene	N.D.	2.0	ug/kg	104		75-112		
Chrysene	N.D.	2.0	ug/kg	102		74-112		
Fluorene	N.D.	3.3	ug/kg	101		75-111		
Phenanthrene	N.D.	1.3	ug/kg	104		77-111		
Pyrene	N.D.	3.3	ug/kg	104		71-109		
Batch number: 101165708002	Sample number(s): 5963126-5963132							
Lead	N.D.	0.600	mg/kg	96		80-120		
Batch number: 101185708002	Sample number(s): 5963133-5963137							
Lead	N.D.	0.600	mg/kg	97		80-120		
Batch number: 10117820002B	Sample number(s): 5963126-5963137							
Moisture				100		99-101		

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: Sunoco c/o Stantec  
 Reported: 05/06/10 at 01:01 PM

Group Number: 1191780

### Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u> <u>RPD</u>	<u>BKG</u> <u>MAX</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup RPD</u> <u>Max</u>
Batch number: X101172AA	Sample number(s): 5963126-5963128, 5963130-5963137 UNSPK: P962413							
Benzene	105		55-143					
1,2-Dibromoethane	113		54-129					
1,2-Dichloroethane	115		53-143					
Ethylbenzene	102		44-141					
Isopropylbenzene	100		38-144					
Methyl Tertiary Butyl Ether	117		55-129					
Naphthalene	91		10-138					
Toluene	105		50-146					
1,2,4-Trimethylbenzene	104		37-149					
1,3,5-Trimethylbenzene	103		38-150					
Xylene (Total)	103		44-136					
Batch number: X101191AA	Sample number(s): 5963129 UNSPK: P963848							
Benzene	99		55-143					
1,2-Dibromoethane	109		54-129					
1,2-Dichloroethane	111		53-143					
Ethylbenzene	97		44-141					
Isopropylbenzene	97		38-144					
Methyl Tertiary Butyl Ether	113		55-129					
Naphthalene	97		10-138					
Toluene	97		50-146					
1,2,4-Trimethylbenzene	96		37-149					
1,3,5-Trimethylbenzene	99		38-150					
Xylene (Total)	97		44-136					
Batch number: 10116SLD026	Sample number(s): 5963126-5963137 UNSPK: 5963126							
Anthracene	224 (2)	181 (2)	71-107	21	50			
Benzo(a)anthracene	-68*	-289*	22-67	134*	50			
Benzo(a)pyrene	-6237	-7821	60-122	39	50			
	(2)	(2)						
Benzo(b)fluoranthene	-10804	-14235	23-157	71*	50			
	(2)	(2)						
Benzo(g,h,i)perylene	-2304	-2659	46-138	15	50			
	(2)	(2)						
Chrysene	-3050	-3788	64-108	127*	50			
	(2)	(2)						
Fluorene	-222	-261	71-117	13	50			
	(2)	(2)						
Phenanthrene	373*	178*	61-127	71*	50			
Pyrene	-953	-1166	67-119	45	50			
	(2)	(2)						
Batch number: 101165708002	Sample number(s): 5963126-5963132 UNSPK: P962951 BKG: P962951							
Lead	108	96	75-125	6	20	15.2	15.2	0
	(2)	(2)						20
Batch number: 101185708002	Sample number(s): 5963133-5963137 UNSPK: P963797 BKG: P963797							
Lead	-1782	-928	75-125	13	20	1,220	1,020	19
	(2)	(2)						20

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: Sunoco c/o Stantec  
 Reported: 05/06/10 at 01:01 PM

Group Number: 1191780

### Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u> <u>RPD</u>	<u>RPD</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup RPD</u> <u>Max</u>
Batch number: 10117820002B						BKG: P962517			
Moisture			Sample number(s): 5963126-5963137			44.8	46.8	4	15

### Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

 Analysis Name: UST - Soils by 8260B  
 Batch number: X101172AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5963126	103	114*	95	98
5963127	101	107	99	87
5963128	103	111*	92	100
5963130	103	105	105	82
5963131	103	109	93	100
5963132	108	109	111	81
5963133	103	109	94	95
5963134	101	104	93	97
5963135	102	107	93	99
5963136	101	106	101	86
5963137	103	108	94	102
Blank	101	103	95	99
LCS	100	104	102	99
LCSD	99	104	101	100
MS	102	103	102	96
Limits:	71-114	70-109	70-123	70-111

 Analysis Name: UST - Soils by 8260B  
 Batch number: X101191AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5963129	111	116*	122	72
Blank	100	97	96	97
LCS	101	102	102	101
LCSD	99	101	102	100
MS	102	112*	99	99
Limits:	71-114	70-109	70-123	70-111

 Analysis Name: PAH's in Solids by HPLC  
 Batch number: 10116SLD026

	Nitrobenzene	Triphenylene
5963126	107	2527*
5963127	89	88
5963128	55*	185*
5963129	82	728*

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

Client Name: Sunoco c/o Stantec  
Reported: 05/06/10 at 01:01 PM

Group Number: 1191780

### Surrogate Quality Control

5963130	83	145*
5963131	89	107
5963132	114	280*
5963133	81	490*
5963134	87	102
5963135	91	97
5963136	81	120
5963137	86	101
Blank	92	114
LCS	99	115
MS	111	857*
MSD	105	559*

---

Limits: 59-118 58-142

\*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

# Analysis Request/ Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # 11183 Group# 1191780 Sample # 5963126-37 **COC #** 221630

Please print. Instructions on reverse side correspond with circled numbers.

0.70C

1 of 2

For Lab Use Only

FSC: \_\_\_\_\_  
SCR#: \_\_\_\_\_

1 Client: Stantec Acct. #: \_\_\_\_\_  
 Project Name/ #: SUN-Philly-PointBraz ASTs PWSID #: \_\_\_\_\_  
 Project Manager: A. Carter / J. Menges P.O. #: \_\_\_\_\_  
 Sampler: T. Charrington Quote #: \_\_\_\_\_  
 Name of state where samples were collected: PA

4

Matrix		5 Analyses Requested	
Plastic Check #	NPDES Applicable	Preservation Codes	
Total # of Containers			
PAPER	leaded		
Fuel Oil	2,4,5,6		

6

Preservation Codes	
H=HCl	T=Thiosulfate
N=HNO <sub>3</sub>	B=NaOH
S=H <sub>2</sub> SO <sub>4</sub>	O=Other

2

Sample Identification	Date Collected	Time Collected	3		Soil	Water	Other	Total # of Containers	4		Remarks	Temperature of samples upon receipt (if requested)
			Grab	Composite					PAPER	Fuel Oil		
140 SW(1.0)	4/22/10	1000	X		X			4	X	X		
140 SE(1.0)		1015	X		X			4	X	X		
140 NE(1.0)		1030	X		X			4	X	X		
140 NW(1.0)		1045	X		X			4	X	X		
298 NW(1.0)		1100	X		X			4	X	X		
298 SW(1.0)		1115	X		X			4	X	X		
298 SE(1.0)		1130	X		X			4	X	X		
298 NE(1.0)		1145	X		X			4	X	X		
237NW(1.0)		1230	X		X			4	X	X		
237SW(1.0)	1245	X		X			4	X	X			

7 Turnaround Time Requested (TAT) (please circle): Normal Rush  
 (Rush TAT is subject to Lancaster Laboratories approval and surcharge.)  
 Date results are needed: \_\_\_\_\_  
 Rush results requested by (please circle): Phone Fax E-mail  
 Phone #: \_\_\_\_\_ Fax #: \_\_\_\_\_  
 E-mail address: Jennifer.menges@stantec.com

Relinquished by:	Date	Time	Received by:	Date	Time
<u>[Signature]</u>	4/23	1320	<u>Hang Weng</u>	4/23/10	13:20
<u>Hang Weng</u>	4/23/10	18:15			
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time
Relinquished by:	Date	Time	Received by:	Date	Time

8 Data Package Options (please circle if required)

Type I (validation/NJ Reg)	TX TRRP-13	SDG Complete? Yes No
Type II (Tier II)	MA MCP CT RCP	
Type III (Reduced NJ)	Site-specific QC (MS/MSD/Dup)? Yes No	
Type IV (CLP SOW)	(If yes, indicate QC sample and submit triplicate volume.)	
Type VI (Raw Data Only)	Internal COC Required? Yes / No	



## Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>N.D.</b>	none detected	<b>BMQL</b>	Below Minimum Quantitation Level
<b>TNTC</b>	Too Numerous To Count	<b>MPN</b>	Most Probable Number
<b>IU</b>	International Units	<b>CP Units</b>	cobalt-chloroplatinate units
<b>umhos/cm</b>	micromhos/cm	<b>NTU</b>	nephelometric turbidity units
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>Cal</b>	(diet) calories	<b>lb.</b>	pound(s)
<b>meq</b>	milliequivalents	<b>kg</b>	kilogram(s)
<b>g</b>	gram(s)	<b>mg</b>	milligram(s)
<b>ug</b>	microgram(s)	<b>l</b>	liter(s)
<b>ml</b>	milliliter(s)	<b>ul</b>	microliter(s)
<b>m3</b>	cubic meter(s)	<b>fib &gt;5 um/ml</b>	fibers greater than 5 microns in length per ml
<b>&lt;</b>	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

### Organic Qualifiers

<b>A</b>	TIC is a possible aldol-condensation product
<b>B</b>	Analyte was also detected in the blank
<b>C</b>	Pesticide result confirmed by GC/MS
<b>D</b>	Compound quantitated on a diluted sample
<b>E</b>	Concentration exceeds the calibration range of the instrument
<b>J</b>	Estimated value
<b>N</b>	Presumptive evidence of a compound (TICs only)
<b>P</b>	Concentration difference between primary and confirmation columns >25%
<b>U</b>	Compound was not detected
<b>X,Y,Z</b>	Defined in case narrative

### Inorganic Qualifiers

<b>B</b>	Value is <CRDL, but ≥IDL
<b>E</b>	Estimated due to interference
<b>M</b>	Duplicate injection precision not met
<b>N</b>	Spike amount not within control limits
<b>S</b>	Method of standard additions (MSA) used for calculation
<b>U</b>	Compound was not detected
<b>W</b>	Post digestion spike out of control limits
<b>*</b>	Duplicate analysis not within control limits
<b>+</b>	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.

**APPENDIX C**  
**LABORATORY ANALYTICAL REPORTS**  
**(GROUNDWATER)**

PB ASTs 140, 141, 237, 279, and 298  
Sunoco, Inc. – Philadelphia Refinery  
Philadelphia, Pennsylvania

## ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories  
2425 New Holland Pike  
Lancaster, PA 17605-2425

Prepared for:

SUN: Aquaterra Tech.  
PO Box 744  
West Chester PA 19381

August 02, 2010

Project: SUN: Philadelphia Refinery AOI-2

Submittal Date: 07/13/2010

Group Number: 1202807

PO Number: PHILADELPHIA REFINERY

State of Sample Origin: PA

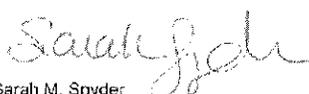
<u>Client Sample Description</u>	<u>Lancaster Labs (LLI) #</u>
S-298_070810 Grab Water	6030815
S-299_070810 Grab Water	6030816
S-300_070810 Grab Water	6030817
S-301_070810 Grab Water	6030818
S-304_070810 Grab Water	6030819
S-309_070810 Grab Water	6030820
S-310_070810 Grab Water	6030821
S-312_070810 Grab Water	6030822
S-253_070910 Grab Water	6030823
S-302_070910 Grab Water	6030824
S-306_070910 Grab Water	6030825
S-314_070910 Grab Water	6030826
S-316_070910 Grab Water	6030827
S-317_070910 Grab Water	6030828
S-318_070910 Grab Water	6030829
S-251_071210 Grab Water	6030830
S-252_071210 Grab Water	6030831
S-139_071210 Grab Water	6030832
S-140_071210 Grab Water	6030833
S-141_071210 Grab Water	6030834
S-143_071210 Grab Water	6030835
S-303_071210 Grab Water	6030836
S-328_071210 Grab Water	6030837

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Langan	Attn: Dennis Webster
ELECTRONIC COPY TO	SUN: Aquaterra Tech.	Attn: Megan Breen
ELECTRONIC COPY TO	SUN: Aquaterra Tech.	Attn: Tiffani Doerr
ELECTRONIC COPY TO	LLI	Attn: EDD Group
ELECTRONIC COPY TO	Langan	Attn: Kristen Ward

Questions? Contact your Client Services Representative  
Jessica A Oknefski at (717) 656-2300 Ext. 1815

Respectfully Submitted,



Sarah M. Snyder  
Senior Specialist

**Sample Description:** S-303\_071210 Grab Water  
 Philadelphia Refinery AOI-2  
 COC: 237713 S-303\_071210

LLI Sample # WW 6030836  
 LLI Group # 1202807  
 Account # 10132

**Project Name:** SUN: Philadelphia Refinery AOI-2

Collected: 07/12/2010 11:40 by SS

SUN: Aquaterra Tech.

PO Box 744

Submitted: 07/13/2010 15:10

West Chester PA 19381

Reported: 08/02/2010 15:15

Discard: 08/17/2010

A2303

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
<b>GC/MS Volatiles</b> SW-846 8260B						
10943	Benzene	71-43-2	4	ug/l	ug/l	1
10943	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10943	Ethylbenzene	100-41-4	< 1	1	0.5	1
10943	Isopropylbenzene	98-82-8	38	2	0.5	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	1	1	0.5	1
10943	Toluene	108-88-3	1	1	0.5	1
10943	1,2,4-Trimethylbenzene	95-63-6	< 2	2	0.5	1
10943	1,3,5-Trimethylbenzene	108-67-8	< 2	2	0.5	1
10943	Xylene (Total)	1330-20-7	2	1	0.5	1
<b>GC Miscellaneous</b> SW-846 8011						
07879	Ethylene dibromide	106-93-4	< 0.028	0.028	ug/l	1
<b>Metals Dissolved</b> SW-846 6020						
06035	Lead	7439-92-1	< 0.0010	0.0010	mg/l	1

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11  
 This sample was filtered in the lab for dissolved metals.  
 Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P102014AA	07/20/2010 23:38	Kelly E Keller	1
10943	BTEX/MTBE/Cumene/EDC/TMBs	SW-846 8260B	1	P102014AA	07/20/2010 23:38	Kelly E Keller	1
07879	EDB in Wastewater	SW-846 8011	1	101950015A	07/17/2010 17:41	James H Place	1
07786	EDB Extraction	SW-846 8011	1	101950015A	07/15/2010 09:00	Edwin Ortiz	1
06035	Lead	SW-846 6020	1	101966050002A	07/16/2010 12:50	Choon Y Tian	1
06050	ICP/MS SW-846 Water Digest	SW-846 3010A modified	1	101966050002	07/15/2010 19:45	Mirit S Shenouda	1

\*=This limit was used in the evaluation of the final result

**Sample Description:** S-328\_071210 Grab Water  
 Philadelphia Refinery AOI-2  
 COC: 237713 S-328\_071210

LLI Sample # WW 6030837  
 LLI Group # 1202807  
 Account # 10132

**Project Name:** SUN: Philadelphia Refinery AOI-2

Collected: 07/12/2010 12:50 by SS

SUN: Aquaterra Tech.

PO Box 744

Submitted: 07/13/2010 15:10

West Chester PA 19381

Reported: 08/02/2010 15:15

Discard: 08/17/2010

A2328

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
<b>GC/MS Volatiles SW-846 8260B ug/l ug/l ug/l</b>						
10943	Benzene	71-43-2	< 1	1	0.5	1
10943	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10943	Ethylbenzene	100-41-4	< 1	1	0.5	1
10943	Isopropylbenzene	98-82-8	13	2	0.5	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	3	1	0.5	1
10943	Toluene	108-88-3	< 1	1	0.5	1
10943	1,2,4-Trimethylbenzene	95-63-6	< 2	2	0.5	1
10943	1,3,5-Trimethylbenzene	108-67-8	< 2	2	0.5	1
10943	Xylene (Total)	1330-20-7	< 1	1	0.5	1
<b>GC/MS Semivolatiles SW-846 8270C ug/l ug/l ug/l</b>						
07805	Chrysene	218-01-9	< 5	5	0.9	1
07805	Fluorene	86-73-7	< 5	5	0.9	1
07805	Naphthalene	91-20-3	< 5	5	0.9	1
07805	Phenanthrene	85-01-8	12	5	0.9	1
07805	Pyrene	129-00-0	< 5	5	0.9	1
<b>GC Miscellaneous SW-846 8011 ug/l ug/l ug/l</b>						
07879	Ethylene dibromide	106-93-4	< 0.029	0.029	0.0096	1
<b>Metals Dissolved SW-846 6020 mg/l mg/l mg/l</b>						
06035	Lead	7439-92-1	< 0.0010	0.0010	0.000050	1

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11  
 This sample was filtered in the lab for dissolved metals.  
 Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P102014AA	07/21/2010 00:06	Kelly E Keller	1
10943	BTEX/MTBE/Cumene/EDC/TMBS	SW-846 8260B	1	P102014AA	07/21/2010 00:06	Kelly E Keller	1
07805	PAHs by 8270	SW-846 8270C	1	10195WAJ026	07/23/2010 11:45	Brian K Graham	1
07807	BNA Water Extraction	SW-846 3510C	1	10195WAJ026	07/15/2010 06:15	Timothy J Attenberger	1
07879	EDB in Wastewater	SW-846 8011	1	101950015A	07/17/2010 18:40	James H Place	1
07786	EDB Extraction	SW-846 8011	1	101950015A	07/15/2010 09:00	Edwin Ortiz	1
06035	Lead	SW-846 6020	1	101966050002A	07/16/2010 12:30	Choon Y Tian	1
06050	ICP/MS SW-846 Water Digest	SW-846 3010A modified	1	101966050002	07/15/2010 19:45	Mirit S Shenouda	1

\*=This limit was used in the evaluation of the final result

## Quality Control Summary

 Client Name: SUN: Aquaterra Tech.  
 Reported: 08/02/10 at 03:15 PM

Group Number: 1202807

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

### Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: D101971AA Sample number(s): 6030815-6030818,6030820-6030829									
Benzene	< 1	1.	0.5	ug/l	90	89	79-120	0	30
1,2-Dichloroethane	< 1	1.	0.5	ug/l	93	95	70-130	2	30
Ethylbenzene	< 1	1.	0.5	ug/l	101	100	79-120	2	30
Isopropylbenzene	< 2	2.	0.5	ug/l	104	104	77-120	1	30
Methyl Tertiary Butyl Ether	< 1	1.	0.5	ug/l	99	103	76-120	4	30
Toluene	< 1	1.	0.5	ug/l	100	99	79-120	1	30
1,2,4-Trimethylbenzene	< 2	2.	0.5	ug/l	111	111	74-120	0	30
1,3,5-Trimethylbenzene	< 2	2.	0.5	ug/l	109	109	75-120	1	30
Xylene (Total)	< 1	1.	0.5	ug/l	108	107	80-120	0	30
Batch number: P101991AA Sample number(s): 6030830-6030835									
Benzene	< 1	1.	0.5	ug/l	109	110	79-120	1	30
1,2-Dichloroethane	< 1	1.	0.5	ug/l	87	89	70-130	1	30
Ethylbenzene	< 1	1.	0.5	ug/l	84	85	79-120	1	30
Isopropylbenzene	< 2	2.	0.5	ug/l	80	83	77-120	4	30
Methyl Tertiary Butyl Ether	< 1	1.	0.5	ug/l	107	109	76-120	2	30
Toluene	< 1	1.	0.5	ug/l	91	94	79-120	3	30
1,2,4-Trimethylbenzene	< 2	2.	0.5	ug/l	81	84	74-120	3	30
1,3,5-Trimethylbenzene	< 2	2.	0.5	ug/l	82	86	75-120	4	30
Xylene (Total)	< 1	1.	0.5	ug/l	85	87	80-120	2	30
Batch number: P102011AA Sample number(s): 6030831									
1,2-Dichloroethane	< 1	1.	0.5	ug/l	74	75	70-130	1	30
Ethylbenzene	< 1	1.	0.5	ug/l	88	89	79-120	1	30
Isopropylbenzene	< 2	2.	0.5	ug/l	84	86	77-120	2	30
Methyl Tertiary Butyl Ether	< 1	1.	0.5	ug/l	90	92	76-120	2	30
Toluene	< 1	1.	0.5	ug/l	95	97	79-120	2	30
1,2,4-Trimethylbenzene	< 2	2.	0.5	ug/l	89	88	74-120	1	30
1,3,5-Trimethylbenzene	< 2	2.	0.5	ug/l	90	89	75-120	1	30
Xylene (Total)	< 1	1.	0.5	ug/l	89	90	80-120	2	30
Batch number: P102014AA Sample number(s): 6030836-6030837									
Benzene	< 1	1.	0.5	ug/l	98	100	79-120	2	30
1,2-Dichloroethane	< 1	1.	0.5	ug/l	80	81	70-130	1	30
Ethylbenzene	< 1	1.	0.5	ug/l	90	90	79-120	0	30
Isopropylbenzene	< 2	2.	0.5	ug/l	89	90	77-120	1	30
Methyl Tertiary Butyl Ether	< 1	1.	0.5	ug/l	103	100	76-120	2	30
Toluene	< 1	1.	0.5	ug/l	93	94	79-120	1	30
1,2,4-Trimethylbenzene	< 2	2.	0.5	ug/l	87	87	74-120	0	30
1,3,5-Trimethylbenzene	< 2	2.	0.5	ug/l	87	87	75-120	0	30
Xylene (Total)	< 1	1.	0.5	ug/l	92	91	80-120	0	30
Batch number: Z101992AA Sample number(s): 6030819									
Benzene	< 1	1.	0.5	ug/l	95		79-120		
1,2-Dichloroethane	< 1	1.	0.5	ug/l	90		70-130		
Ethylbenzene	< 1	1.	0.5	ug/l	97		79-120		

\*- Outside of specification

\*\*-This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: SUN: Aquaterra Tech.  
 Reported: 08/02/10 at 03:15 PM

Group Number: 1202807

### Laboratory Compliance Quality Control

<u>Analysis Name</u>	<u>Blank Result</u>	<u>Blank LOQ**</u>	<u>Blank MDL</u>	<u>Report Units</u>	<u>LCS %REC</u>	<u>LCSD %REC</u>	<u>LCS/LCSD Limits</u>	<u>RPD</u>	<u>RPD Max</u>
Isopropylbenzene	< 2	2.	0.5	ug/l	97		77-120		
Methyl Tertiary Butyl Ether	< 1	1.	0.5	ug/l	97		76-120		
Toluene	< 1	1.	0.5	ug/l	98		79-120		
1,2,4-Trimethylbenzene	< 2	2.	0.5	ug/l	98		74-120		
1,3,5-Trimethylbenzene	< 2	2.	0.5	ug/l	96		75-120		
Xylene (Total)	< 1	1.	0.5	ug/l	99		80-120		
Batch number: Z102011AA Sample number(s): 6030825									
Benzene	< 1	1.	0.5	ug/l	90		79-120		
Ethylbenzene	< 1	1.	0.5	ug/l	92		79-120		
Batch number: 10195WAA026 Sample number(s): 6030815-6030834									
Chrysene	< 5	5.	1	ug/l	97	97	82-112	0	30
Fluorene	< 5	5.	1	ug/l	111	113	82-113	1	30
Naphthalene	< 5	5.	1	ug/l	93	91	77-107	2	30
Phenanthrene	< 5	5.	1	ug/l	102	100	83-112	2	30
Pyrene	< 5	5.	1	ug/l	107	107	80-115	1	30
Batch number: 10195WAJ026 Sample number(s): 6030837									
Chrysene	< 5	5.	1	ug/l	98	99	82-112	2	30
Fluorene	< 5	5.	1	ug/l	108	106	82-113	2	30
Naphthalene	< 5	5.	1	ug/l	96	96	77-107	1	30
Phenanthrene	< 5	5.	1	ug/l	98	99	83-112	2	30
Pyrene	< 5	5.	1	ug/l	106	107	80-115	1	30
Batch number: 101950014A Sample number(s): 6030815-6030834									
Ethylene dibromide	< 0.030	0.030	0.010	ug/l	92	96	60-140	4	20
Batch number: 101950015A Sample number(s): 6030835-6030837									
Ethylene dibromide	< 0.030	0.030	0.010	ug/l	96	96	60-140	0	20
Batch number: 101966050001A Sample number(s): 6030815-6030834									
Lead	< 0.0010	0.0010	0.00005	mg/l	100		90-115		
			0						
Batch number: 101966050002A Sample number(s): 6030835-6030837									
Lead	< 0.0010	0.0010	0.00005	mg/l	99		90-115		
			0						

### Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS %REC</u>	<u>MSD %REC</u>	<u>MS/MSD Limits</u>	<u>RPD</u>	<u>RPD MAX</u>	<u>BKG Conc</u>	<u>DUP Conc</u>	<u>DUP RPD</u>	<u>Dup RPD Max</u>
Batch number: D101971AA Sample number(s): 6030815-6030818,6030820-6030829 UNSPK: 6030817									
Benzene	116		80-126						
1,2-Dichloroethane	91		66-141						
Ethylbenzene	100		71-134						
Isopropylbenzene	148*		75-128						
Methyl Tertiary Butyl Ether	228 (2)		72-126						

\*- Outside of specification

\*\*-This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: SUN: Aquaterra Tech.  
 Reported: 08/02/10 at 03:15 PM

Group Number: 1202807

### Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

<u>Analysis Name</u>	<u>MS</u> <u>%REC</u>	<u>MSD</u> <u>%REC</u>	<u>MS/MSD</u> <u>Limits</u>	<u>RPD</u> <u>RPD</u>	<u>BKG</u> <u>MAX</u>	<u>BKG</u> <u>Conc</u>	<u>DUP</u> <u>Conc</u>	<u>DUP</u> <u>RPD</u>	<u>Dup RPD</u> <u>Max</u>
Toluene	101		80-125						
1,2,4-Trimethylbenzene	106		72-130						
1,3,5-Trimethylbenzene	104		72-131						
Xylene (Total)	105		79-125						
Batch number: P101991AA      Sample number(s): 6030830-6030835 UNSPK: P030840									
Benzene	114		80-126						
1,2-Dichloroethane	88		66-141						
Ethylbenzene	87		71-134						
Isopropylbenzene	84		75-128						
Methyl Tertiary Butyl Ether	109		72-126						
Toluene	96		80-125						
1,2,4-Trimethylbenzene	82		72-130						
1,3,5-Trimethylbenzene	84		72-131						
Xylene (Total)	88		79-125						
Batch number: P102011AA      Sample number(s): 6030831 UNSPK: P034448									
1,2-Dichloroethane	79		66-141						
Ethylbenzene	96		71-134						
Isopropylbenzene	94		75-128						
Methyl Tertiary Butyl Ether	95		72-126						
Toluene	105		80-125						
1,2,4-Trimethylbenzene	97		72-130						
1,3,5-Trimethylbenzene	100		72-131						
Xylene (Total)	97		79-125						
Batch number: P102014AA      Sample number(s): 6030836-6030837 UNSPK: P030838									
Benzene	108		80-126						
1,2-Dichloroethane	85		66-141						
Ethylbenzene	100		71-134						
Isopropylbenzene	98		75-128						
Methyl Tertiary Butyl Ether	107		72-126						
Toluene	104		80-125						
1,2,4-Trimethylbenzene	95		72-130						
1,3,5-Trimethylbenzene	95		72-131						
Xylene (Total)	100		79-125						
Batch number: Z101992AA      Sample number(s): 6030819 UNSPK: P032357									
Benzene	102	101	80-126	1	30				
1,2-Dichloroethane	93	94	66-141	0	30				
Ethylbenzene	104	105	71-134	1	30				
Isopropylbenzene	105	105	75-128	0	30				
Methyl Tertiary Butyl Ether	98	97	72-126	1	30				
Toluene	104	104	80-125	0	30				
1,2,4-Trimethylbenzene	103	104	72-130	1	30				
1,3,5-Trimethylbenzene	102	104	72-131	1	30				
Xylene (Total)	105	105	79-125	0	30				
Batch number: Z102011AA      Sample number(s): 6030825 UNSPK: P032226									
Benzene	97	96	80-126	1	30				
Ethylbenzene	99	101	71-134	2	30				
Batch number: 101950014A      Sample number(s): 6030815-6030834 UNSPK: 6030815 BKG: 6030816									

\*- Outside of specification

\*\*-.This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: SUN: Aquaterra Tech.  
 Reported: 08/02/10 at 03:15 PM

Group Number: 1202807

### Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Ethylene dibromide	87		65-135			< 0.029	< 0.029	9 (1)	30
Batch number: 101950015A Ethylene dibromide	83		65-135			< 0.028	< 0.028	0 (1)	30
Batch number: 101966050001A Lead	101	103	75-125	3	20	< 0.0010	< 0.0010	2 (1)	20
Batch number: 101966050002A Lead	115	108	75-125	7	20	< 0.0010	< 0.0010	3 (1)	20

### Surrogate Quality Control

 Surrogate recoveries which are outside of the QC window are confirmed  
 unless attributed to dilution or otherwise noted on the Analysis Report.

 Analysis Name: UST BTEX, MTBE in Water  
 Batch number: D101971AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6030815	92	94	107	98
6030816	91	95	108	100
6030817	91	95	107	98
6030818	92	96	108	99
6030820	91	97	108	99
6030821	92	94	106	96
6030822	93	94	106	96
6030823	92	94	107	100
6030824	93	93	109	102
6030825	93	97	104	96
6030826	90	93	108	101
6030827	91	96	106	99
6030828	93	97	110	102
6030829	93	96	107	98
Blank	95	97	105	91
LCS	97	101	106	98
LCSD	94	102	106	98
MS	93	101	106	97
Limits:	80-116	77-113	80-113	78-113

 Analysis Name: UST BTEX, MTBE in Water  
 Batch number: P101991AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6030830	99	104	93	95
6030832	98	103	93	95
6030833	100	103	92	96
6030834	97	103	92	96
6030835	100	105	92	95

\*- Outside of specification

\*\*-. This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: SUN: Aquaterra Tech.  
 Reported: 08/02/10 at 03:15 PM

Group Number: 1202807

### Surrogate Quality Control

Blank	98	105	94	92
LCS	98	106	94	93
LCSD	97	106	95	93
MS	97	108	93	92

Limits:	80-116	77-113	80-113	78-113
---------	--------	--------	--------	--------

 Analysis Name: UST BTEX, MTBE in Water  
 Batch number: P102011AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6030831	92	102	102	92
Blank	92	104	104	89
LCS	91	102	103	90
LCSD	91	103	104	92
MS	92	104	104	91

Limits:	80-116	77-113	80-113	78-113
---------	--------	--------	--------	--------

 Analysis Name: UST BTEX, MTBE in Water  
 Batch number: P102014AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6030836	94	102	100	94
6030837	94	101	98	95
Blank	94	103	99	94
LCS	93	104	100	95
LCSD	95	106	98	93
MS	95	105	99	96

Limits:	80-116	77-113	80-113	78-113
---------	--------	--------	--------	--------

 Analysis Name: UST BTEX, MTBE in Water  
 Batch number: Z101992AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6030819	94	94	99	97
Blank	97	96	100	98
LCS	96	98	100	98
MS	97	98	100	97
MSD	96	97	100	98

Limits:	80-116	77-113	80-113	78-113
---------	--------	--------	--------	--------

 Analysis Name: UST BTEX, MTBE in Water  
 Batch number: Z102011AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
Blank	94	92	101	99
LCS	94	95	102	101
MS	94	95	100	100
MSD	93	96	102	102

Limits:	80-116	77-113	80-113	78-113
---------	--------	--------	--------	--------

 Analysis Name: PAHs by 8270  
 Batch number: 10195WAA026  
 Nitrobenzene-d5

2-Fluorobiphenyl      Terphenyl-d14

\*- Outside of specification

\*\*-This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: SUN: Aquaterra Tech.  
 Reported: 08/02/10 at 03:15 PM

Group Number: 1202807

### Surrogate Quality Control

6030815	99	99	69
6030816	66	69	52
6030817	77	66	40*
6030818	91	102	67
6030819	88	104	73
6030820	92	98	72
6030821	79	88	46*
6030822	83	102	89
6030823	81	95	77
6030824	83	99	68
6030825	87	84	54
6030826	91	87	57
6030827	81	90	67
6030828	98	101	71
6030829	98	100	70
6030830	82	79	53
6030831	80	88	54
6030832	84	106	74
6030833	76	85	51
6030834	89	85	62
Blank	94	109	88
LCS	92	103	95
LCSD	91	103	93

Limits: 64-121 63-114 47-114

Analysis Name: PAHs by 8270

Batch number: 10195WAJ026

Nitrobenzene-d5 2-Fluorobiphenyl Terphenyl-d14

6030837	85	94	82
Blank	90	92	84
LCS	92	95	82
LCSD	90	93	83

Limits: 64-121 63-114 47-114

Analysis Name: EDB in Wastewater

Batch number: 101950014A

 1,1,2,2-  
Tetrachloroethane

6030815	118
6030816	106
6030817	88
6030818	109
6030819	100
6030820	136
6030821	93
6030822	93
6030823	96
6030824	133
6030825	139*
6030826	150*
6030827	153*
6030828	136
6030829	109

\*- Outside of specification

\*\*-This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

Client Name: SUN: Aquaterra Tech.  
Reported: 08/02/10 at 03:15 PM

Group Number: 1202807

### Surrogate Quality Control

6030830	104
6030831	114
6030832	119
6030833	123
6030834	159*
Blank	100
DUP	105
LCS	104
LCSD	102
MS	135

---

Limits: 46-136

Analysis Name: EDB in Wastewater  
Batch number: 101950015A  
1,1,2,2-  
Tetrachloroethane

6030835	124
6030836	115
6030837	108
Blank	115
DUP	107
LCS	110
LCSD	104
MS	130

---

Limits: 46-136

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.



# Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>RL</b>	Reporting Limit	<b>BMQL</b>	Below Minimum Quantitation Level
<b>N.D.</b>	none detected	<b>MPN</b>	Most Probable Number
<b>TNTC</b>	Too Numerous To Count	<b>CP Units</b>	cobalt-chloroplatinate units
<b>IU</b>	International Units	<b>NTU</b>	nephelometric turbidity units
<b>umhos/cm</b>	micromhos/cm	<b>ng</b>	nanogram(s)
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>meq</b>	milliequivalents	<b>lb.</b>	pound(s)
<b>g</b>	gram(s)	<b>kg</b>	kilogram(s)
<b>ug</b>	microgram(s)	<b>mg</b>	milligram(s)
<b>ml</b>	milliliter(s)	<b>l</b>	liter(s)
<b>m3</b>	cubic meter(s)	<b>ul</b>	microliter(s)
<b>&lt;</b>	less than - The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
<b>&gt;</b>	greater than		
<b>J</b>	estimated value – The result is $\geq$ the Method Detection Limit (MDL) and $<$ the Limit of Quantitation (LOQ).		
<b>ppm</b>	parts per million - One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture. All other results are reported on an as-received basis.		

## U.S. EPA CLP Data Qualifiers:

Organic Qualifiers	Inorganic Qualifiers
<b>A</b> TIC is a possible aldol-condensation product	<b>B</b> Value is $<$ CRDL, but $\geq$ IDL
<b>B</b> Analyte was also detected in the blank	<b>E</b> Estimated due to interference
<b>C</b> Pesticide result confirmed by GC/MS	<b>M</b> Duplicate injection precision not met
<b>D</b> Compound quantitated on a diluted sample	<b>N</b> Spike sample not within control limits
<b>E</b> Concentration exceeds the calibration range of the instrument	<b>S</b> Method of standard additions (MSA) used for calculation
<b>N</b> Presumptive evidence of a compound (TICs only)	<b>U</b> Compound was not detected
<b>P</b> Concentration difference between primary and confirmation columns $>$ 25%	<b>W</b> Post digestion spike out of control limits
<b>U</b> Compound was not detected	<b>*</b> Duplicate analysis not within control limits
<b>X,Y,Z</b> Defined in case narrative	<b>+</b> Correlation coefficient for MSA $<$ 0.995

Analytical test results meet all requirements of NELAC unless otherwise noted under the individual analysis.

Measurement uncertainty values, as applicable, are available upon request.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** - In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions, and Lancaster hereby objects to any conflicting terms contained in any acceptance or order submitted by client.



## ANALYTICAL RESULTS

Prepared by:

Lancaster Laboratories  
2425 New Holland Pike  
Lancaster, PA 17605-2425

Prepared for:

SUN: Aquaterra Tech.  
PO Box 744  
West Chester PA 19381

August 10, 2010

Project: SUN: Philadelphia Refinery AOI-2

Submittal Date: 07/27/2010

Group Number: 1204825

PO Number: PHILADELPHIA REFINERY

State of Sample Origin: PA

Client Sample Description

S-305D\_072610 Grab Water  
S-302D\_072610 Grab Water  
S-303\_072610 Grab Water  
S-143\_072610 Grab Water

Lancaster Labs (LLI) #

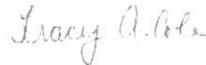
6043277  
6043278  
6043279  
6043280

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Langan	Attn: Dennis Webster
ELECTRONIC COPY TO	SUN: Aquaterra Tech.	Attn: Megan Breen
ELECTRONIC COPY TO	SUN: Aquaterra Tech.	Attn: Tiffani Doerr
ELECTRONIC COPY TO	LLI	Attn: EDD Group
ELECTRONIC COPY TO	Langan	Attn: Kristen Ward

Questions? Contact your Client Services Representative  
Jessica A Oknefski at (717) 656-2300 Ext. 1815

Respectfully Submitted,



Tracy A. Cole  
Senior Specialist

**Sample Description: S-305D\_072610 Grab Water**  
**Philadelphia Refinery AOI-2**  
**COC: 242401 S-305D\_072610**

**LLI Sample # WW 6043277**  
**LLI Group # 1204825**  
**Account # 10132**

**Project Name: SUN: Philadelphia Refinery AOI-2**

Collected: 07/26/2010 14:00 by SS

SUN: Aquaterra Tech.

PO Box 744

Submitted: 07/27/2010 16:20

West Chester PA 19381

Reported: 08/10/2010 15:59

Discard: 08/25/2010

S305D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
<b>GC/MS Volatiles SW-846 8260B</b>						
10943	Benzene	71-43-2	< 1	1	0.5	1
10943	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10943	Ethylbenzene	100-41-4	< 1	1	0.5	1
10943	Isopropylbenzene	98-82-8	5	2	0.5	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10943	Toluene	108-88-3	< 1	1	0.5	1
10943	1,2,4-Trimethylbenzene	95-63-6	< 2	2	0.5	1
10943	1,3,5-Trimethylbenzene	108-67-8	< 2	2	0.5	1
10943	Xylene (Total)	1330-20-7	< 1	1	0.5	1
<b>GC/MS Semivolatiles SW-846 8270C</b>						
07805	Chrysene	218-01-9	< 5	5	1	1
07805	Fluorene	86-73-7	< 5	5	1	1
07805	Naphthalene	91-20-3	< 5	5	1	1
07805	Phenanthrene	85-01-8	< 5	5	1	1
07805	Pyrene	129-00-0	< 5	5	1	1
<b>GC Miscellaneous SW-846 8011</b>						
07879	Ethylene dibromide	106-93-4	< 0.029	0.029	0.0098	1
<b>Metals Dissolved SW-846 6020</b>						
06035	Lead	7439-92-1	< 0.0010	0.0010	0.000050	1

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11  
 This sample was filtered in the lab for dissolved metals.  
 Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P102101AA	07/29/2010 20:25	Daniel H Heller	1
10943	BTEX/MTBE/Cumene/EDC/TMBs	SW-846 8260B	1	P102101AA	07/29/2010 20:25	Daniel H Heller	1
07805	PAHs by 8270	SW-846 8270C	1	10209WAA026	08/01/2010 04:07	Linda M Hartenstine	1
07807	BNA Water Extraction	SW-846 3510C	1	10209WAA026	07/28/2010 14:30	Timothy J Attenberger	1
07879	EDB in Wastewater	SW-846 8011	1	102150023A	08/05/2010 11:53	James H Place	1
07786	EDB Extraction	SW-846 8011	2	102150023A	08/03/2010 21:00	JoElla L Rice	1
06035	Lead	SW-846 6020	1	102106050002A	08/02/2010 17:50	David K Beck	1

\*=This limit was used in the evaluation of the final result



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: S-305D\_072610 Grab Water  
Philadelphia Refinery AOI-2  
COC: 242401 S-305D\_072610

LLI Sample # WW 6043277  
LLI Group # 1204825  
Account # 10132

Project Name: SUN: Philadelphia Refinery AOI-2

Collected: 07/26/2010 14:00 by SS

SUN: Aquaterra Tech.

PO Box 744

Submitted: 07/27/2010 16:20

West Chester PA 19381

Reported: 08/10/2010 15:59

Discard: 08/25/2010

S305D

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06050	ICP/MS SW-846 Water Digest	SW-846 3010A modified	1	102106050002	07/29/2010 20:30	Mirit S Shenouda	1

\*=This limit was used in the evaluation of the final result

**Sample Description:** S-302D\_072610 Grab Water  
 Philadelphia Refinery AOI-2  
 COC: 242401 S-302D\_072610

**LLI Sample #** WW 6043278  
**LLI Group #** 1204825  
**Account #** 10132

**Project Name:** SUN: Philadelphia Refinery AOI-2

Collected: 07/26/2010 11:00 by SS

SUN: Aquaterra Tech.

PO Box 744

Submitted: 07/27/2010 16:20

West Chester PA 19381

Reported: 08/10/2010 15:59

Discard: 08/25/2010

S302D

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
10943	Benzene	71-43-2	< 1	1	0.5	1
10943	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10943	Ethylbenzene	100-41-4	< 1	1	0.5	1
10943	Isopropylbenzene	98-82-8	< 2	2	0.5	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10943	Toluene	108-88-3	< 1	1	0.5	1
10943	1,2,4-Trimethylbenzene	95-63-6	< 2	2	0.5	1
10943	1,3,5-Trimethylbenzene	108-67-8	< 2	2	0.5	1
10943	Xylene (Total)	1330-20-7	< 1	1	0.5	1
<b>GC/MS</b>	<b>Semivolatiles</b>	<b>SW-846 8270C</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
07805	Chrysene	218-01-9	< 5	5	0.9	1
07805	Fluorene	86-73-7	< 5	5	0.9	1
07805	Naphthalene	91-20-3	< 5	5	0.9	1
07805	Phenanthrene	85-01-8	< 5	5	0.9	1
07805	Pyrene	129-00-0	< 5	5	0.9	1
<b>GC</b>	<b>Miscellaneous</b>	<b>SW-846 8011</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
07879	Ethylene dibromide	106-93-4	< 0.029	0.029	0.0098	1
<b>Metals</b>	<b>Dissolved</b>	<b>SW-846 6020</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/l</b>	
06035	Lead	7439-92-1	< 0.0010	0.0010	0.000050	1

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11  
 This sample was filtered in the lab for dissolved metals.  
 Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P102101AA	07/29/2010 20:46	Daniel H Heller	1
10943	BTEX/MTBE/Cumene/EDC/TMSs	SW-846 8260B	1	P102101AA	07/29/2010 20:46	Daniel H Heller	1
07805	PAHs by 8270	SW-846 8270C	1	10209WAA026	08/01/2010 04:56	Linda M Hartenstine	1
07807	BNA Water Extraction	SW-846 3510C	1	10209WAA026	07/28/2010 14:30	Timothy J Attenberger	1
07879	EDB in Wastewater	SW-846 8011	1	102150023A	08/05/2010 13:23	James H Place	1
07786	EDB Extraction	SW-846 8011	2	102150023A	08/03/2010 21:00	JoElla L Rice	1
06035	Lead	SW-846 6020	1	102106050002A	08/02/2010 17:51	David K Beck	1

\*=This limit was used in the evaluation of the final result



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 2 of 2

Sample Description: S-302D\_072610 Grab Water  
Philadelphia Refinery AOI-2  
COC: 242401 S-302D\_072610

LLI Sample # WW 6043278  
LLI Group # 1204825  
Account # 10132

Project Name: SUN: Philadelphia Refinery AOI-2

Collected: 07/26/2010 11:00 by SS

SUN: Aquaterra Tech.

Submitted: 07/27/2010 16:20

PO Box 744

Reported: 08/10/2010 15:59

West Chester PA 19381

Discard: 08/25/2010

S302D

---

## Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06050	ICP/MS SW-846 Water Digest	SW-846 3010A modified	1	102106050002	07/29/2010 20:30	Mirit S Shenouda	1

---

\*=This limit was used in the evaluation of the final result

**Sample Description:** S-303\_072610 Grab Water  
 Philadelphia Refinery AOI-2  
 COC: 242401 S-303\_072610

LLI Sample # WW 6043279  
 LLI Group # 1204825  
 Account # 10132

**Project Name:** SUN: Philadelphia Refinery AOI-2

Collected: 07/26/2010 11:15 by SS

SUN: Aquaterra Tech.

PO Box 744

Submitted: 07/27/2010 16:20

West Chester PA 19381

Reported: 08/10/2010 15:59

Discard: 08/25/2010

S-303

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
<b>GC/MS</b>	<b>Volatiles</b>	<b>SW-846 8260B</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
10943	Benzene	71-43-2	6	1	0.5	1
10943	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10943	Ethylbenzene	100-41-4	< 1	1	0.5	1
10943	Isopropylbenzene	98-82-8	13	2	0.5	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10943	Toluene	108-88-3	1	1	0.5	1
10943	1,2,4-Trimethylbenzene	95-63-6	< 2	2	0.5	1
10943	1,3,5-Trimethylbenzene	108-67-8	< 2	2	0.5	1
10943	Xylene (Total)	1330-20-7	2	1	0.5	1
<b>GC/MS</b>	<b>Semivolatiles</b>	<b>SW-846 8270C</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
07805	Chrysene	218-01-9	< 24	24	5	5
07805	Fluorene	86-73-7	28	24	5	5
07805	Naphthalene	91-20-3	48	24	5	5
07805	Phenanthrene	85-01-8	54	24	5	5
07805	Pyrene	129-00-0	< 24	24	5	5
<b>GC</b>	<b>Miscellaneous</b>	<b>SW-846 8011</b>	<b>ug/l</b>	<b>ug/l</b>	<b>ug/l</b>	
07879	Ethylene dibromide	106-93-4	< 0.029	0.029	0.0097	1
<b>Metals</b>	<b>Dissolved</b>	<b>SW-846 6020</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/l</b>	
06035	Lead	7439-92-1	< 0.0010	0.0010	0.000050	1

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11  
 This sample was filtered in the lab for dissolved metals.  
 Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P102101AA	07/29/2010 21:07	Daniel H Heller	1
10943	BTEX/MTBE/Cumene/EDC/TMS	SW-846 8260B	1	P102101AA	07/29/2010 21:07	Daniel H Heller	1
07805	PAHs by 8270	SW-846 8270C	1	10209WAA026	08/02/2010 22:29	Linda M Hartenstine	5
07807	BNA Water Extraction	SW-846 3510C	1	10209WAA026	07/28/2010 14:30	Timothy J Attenberger	1
07879	EDB in Wastewater	SW-846 8011	1	102150023A	08/05/2010 13:53	James H Place	1
07786	EDB Extraction	SW-846 8011	2	102150023A	08/03/2010 21:00	JoElla L Rice	1
06035	Lead	SW-846 6020	1	102106050002A	08/02/2010 17:57	David K Beck	1

\*=This limit was used in the evaluation of the final result



# Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Page 2 of 2

Sample Description: S-303\_072610 Grab Water  
Philadelphia Refinery AOI-2  
COC: 242401 S-303\_072610

LLI Sample # WW 6043279  
LLI Group # 1204825  
Account # 10132

Project Name: SUN: Philadelphia Refinery AOI-2

Collected: 07/26/2010 11:15 by SS

SUN: Aquaterra Tech.

PO Box 744

West Chester PA 19381

Submitted: 07/27/2010 16:20

Reported: 08/10/2010 15:59

Discard: 08/25/2010

S-303

## Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06050	ICP/MS SW-846 Water Digest	SW-846 3010A modified	1	102106050002	07/29/2010 20:30	Mirit S Shenouda	1

\*=This limit was used in the evaluation of the final result

**Sample Description:** S-143\_072610 Grab Water  
 Philadelphia Refinery AOI-2  
 COC: 242401 S-143\_072610

LLI Sample # WW 6043280  
 LLI Group # 1204825  
 Account # 10132

**Project Name:** SUN: Philadelphia Refinery AOI-2

Collected: 07/26/2010 12:00 by SS

SUN: Aquaterra Tech.

PO Box 744

West Chester PA 19381

Submitted: 07/27/2010 16:20

Reported: 08/10/2010 15:59

Discard: 08/25/2010

S-143

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Limit of Quantitation*	As Received Method Detection Limit	Dilution Factor
<b>GC/MS Volatiles SW-846 8260B</b>						
10943	Benzene	71-43-2	< 1	1 ug/l	0.5 ug/l	1
10943	1,2-Dichloroethane	107-06-2	< 1	1	0.5	1
10943	Ethylbenzene	100-41-4	< 1	1	0.5	1
10943	Isopropylbenzene	98-82-8	< 2	2	0.5	1
10943	Methyl Tertiary Butyl Ether	1634-04-4	< 1	1	0.5	1
10943	Toluene	108-88-3	< 1	1	0.5	1
10943	1,2,4-Trimethylbenzene	95-63-6	< 2	2	0.5	1
10943	1,3,5-Trimethylbenzene	108-67-8	< 2	2	0.5	1
10943	Xylene (Total)	1330-20-7	< 1	1	0.5	1
<b>GC/MS Semivolatiles SW-846 8270C</b>						
07805	Chrysene	218-01-9	< 50	50	10	1
07805	Fluorene	86-73-7	54	50	10	1
07805	Naphthalene	91-20-3	< 50	50	10	1
07805	Phenanthrene	85-01-8	< 50	50	10	1
07805	Pyrene	129-00-0	< 50	50	10	1
Due to the nature of the sample matrix, a reduced aliquot was used for analysis. The reporting limits were raised accordingly.						
<b>GC Miscellaneous SW-846 8011</b>						
07879	Ethylene dibromide	106-93-4	< 0.029	0.029	0.0097	1
<b>Metals Dissolved SW-846 6020</b>						
06035	Lead	7439-92-1	< 0.0010	0.0010	0.000050	1

### General Sample Comments

PA DEP Lab Certification ID 36-00037, Expiration Date: 1/31/11  
 This sample was filtered in the lab for dissolved metals.  
 Trip blank vials were not received by the laboratory for this sample group.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	P102101AA	07/29/2010 21:28	Daniel H Heller	1
10943	BTEX/MTBE/Cumene/EDC/TMBS	SW-846 8260B	1	P102101AA	07/29/2010 21:28	Daniel H Heller	1
07805	PAHs by 8270	SW-846 8270C	1	10209WAA026	08/02/2010 23:17	Linda M Hartenstine	1
07807	BNA Water Extraction	SW-846 3510C	1	10209WAA026	07/28/2010 14:30	Timothy J Attenberger	1
07879	EDB in Wastewater	SW-846 8011	1	102150023A	08/05/2010 14:23	James H Place	1
07786	EDB Extraction	SW-846 8011	2	102150023A	08/03/2010 21:00	JoElla L Rice	1

\*=This limit was used in the evaluation of the final result

**Sample Description:** S-143\_072610 Grab Water  
 Philadelphia Refinery AOI-2  
 COC: 242401 S-143\_072610

LLI Sample # WW 6043280  
 LLI Group # 1204825  
 Account # 10132

**Project Name:** SUN: Philadelphia Refinery AOI-2

Collected: 07/26/2010 12:00 by SS

SUN: Aquaterra Tech.

PO Box 744

Submitted: 07/27/2010 16:20

West Chester PA 19381

Reported: 08/10/2010 15:59

Discard: 08/25/2010

S-143

---

### Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
06035	Lead	SW-846 6020	1	102106050002A	08/02/2010 17:59	David K Beck	1
06050	ICP/MS SW-846 Water Digest	SW-846 3010A modified	1	102106050002	07/29/2010 20:30	Mirit S Shenouda	1

## Quality Control Summary

 Client Name: SUN: Aquaterra Tech.  
 Reported: 08/10/10 at 03:59 PM

Group Number: 1204825

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

### Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank LOQ**	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: P102101AA									
Sample number(s): 6043277-6043280									
Benzene	< 1	1.	0.5	ug/l	95		79-120		
1,2-Dichloroethane	< 1	1.	0.5	ug/l	78		70-130		
Ethylbenzene	< 1	1.	0.5	ug/l	85		79-120		
Isopropylbenzene	< 2	2.	0.5	ug/l	81		77-120		
Methyl Tertiary Butyl Ether	< 1	1.	0.5	ug/l	93		76-120		
Toluene	< 1	1.	0.5	ug/l	92		79-120		
1,2,4-Trimethylbenzene	< 2	2.	0.5	ug/l	84		74-120		
1,3,5-Trimethylbenzene	< 2	2.	0.5	ug/l	85		75-120		
Xylene (Total)	< 1	1.	0.5	ug/l	85		80-120		
Batch number: 10209WAA026									
Sample number(s): 6043277-6043280									
Chrysene	< 5	5.	1	ug/l	92	94	82-112	2	30
Fluorene	< 5	5.	1	ug/l	104	102	82-113	2	30
Naphthalene	< 5	5.	1	ug/l	85	83	77-107	3	30
Phenanthrene	< 5	5.	1	ug/l	93	95	83-112	1	30
Pyrene	< 5	5.	1	ug/l	94	94	80-115	1	30
Batch number: 102150023A									
Sample number(s): 6043277-6043280									
Ethylene dibromide	< 0.030	0.030	0.010	ug/l	96	96	60-140	0	20
Batch number: 102106050002A									
Sample number(s): 6043277-6043280									
Lead	< 0.0010	0.0010	0.00005	mg/l	99		90-115		
			0						

### Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: P102101AA									
Sample number(s): 6043277-6043280 UNSPK: P040514									
Benzene	110	110	80-126	0	30				
1,2-Dichloroethane	88	87	66-141	1	30				
Ethylbenzene	88	89	71-134	1	30				
Isopropylbenzene	76	78	75-128	3	30				
Methyl Tertiary Butyl Ether	105	105	72-126	0	30				
Toluene	103	104	80-125	0	30				
1,2,4-Trimethylbenzene	78	78	72-130	0	30				
1,3,5-Trimethylbenzene	77	77	72-131	1	30				
Xylene (Total)	87	89	79-125	1	30				

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

(1) The result for one or both determinations was less than five times the LOQ.

(2) The unspiked result was more than four times the spike added.

## Quality Control Summary

 Client Name: SUN: Aquaterra Tech.  
 Reported: 08/10/10 at 03:59 PM

Group Number: 1204825

### Sample Matrix Quality Control

 Unspiked (UNSPK) = the sample used in conjunction with the matrix spike  
 Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: 102150023A Ethylene dibromide	78		65-135	3	20	< 0.029	< 0.029	0 (1)	30
Sample number(s): 6043277-6043280 UNSPK: P045867 BKG: P045868									
Batch number: 102106050002A Lead	102	100	75-125	3	20	< 0.0010	< 0.0010	0 (1)	20
Sample number(s): 6043277-6043280 UNSPK: P042439 BKG: P042439									

### Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

 Analysis Name: UST BTEX, MTBE in Water  
 Batch number: P102101AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
6043277	93	103	99	95
6043278	94	102	101	89
6043279	92	101	100	98
6043280	93	101	101	94
Blank	93	102	102	92
LCS	92	105	102	94
MS	93	104	100	91
MSD	93	103	102	95
Limits:	80-116	77-113	80-113	78-113

Analysis Name: PAHs by 8270

Batch number: 10209WAA026

	Nitrobenzene-d5	2-Fluorobiphenyl	Terphenyl-d14
6043277	87	104	81
6043278	84	102	80
6043279	84	97	71
6043280	91	105	58
Blank	86	98	81
LCS	85	98	81
LCSD	84	97	82
Limits:	64-121	63-114	47-114

Analysis Name: EDB in Wastewater

Batch number: 102150023A

	1,1,2,2-Tetrachloroethane
6043277	0*
6043278	97
6043279	96
6043280	97
Blank	101

\*- Outside of specification

\*\*- This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

## Quality Control Summary

Client Name: SUN: Aquaterra Tech.  
Reported: 08/10/10 at 03:59 PM

Group Number: 1204825

### Surrogate Quality Control

DUP	111
LCS	103
LCSD	102
MS	70

---

Limits: 46-136

\*- Outside of specification

\*\* - This limit was used in the evaluation of the final result for the blank

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.



## Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

<b>N.D.</b>	none detected	<b>BMQL</b>	Below Minimum Quantitation Level
<b>TNTC</b>	Too Numerous To Count	<b>MPN</b>	Most Probable Number
<b>IU</b>	International Units	<b>CP Units</b>	cobalt-chloroplatinate units
<b>umhos/cm</b>	micromhos/cm	<b>NTU</b>	nephelometric turbidity units
<b>C</b>	degrees Celsius	<b>F</b>	degrees Fahrenheit
<b>Cal</b>	(diet) calories	<b>lb.</b>	pound(s)
<b>meq</b>	milliequivalents	<b>kg</b>	kilogram(s)
<b>g</b>	gram(s)	<b>mg</b>	milligram(s)
<b>ug</b>	microgram(s)	<b>l</b>	liter(s)
<b>ml</b>	milliliter(s)	<b>ul</b>	microliter(s)
<b>m3</b>	cubic meter(s)	<b>fib &gt;5 um/ml</b>	fibers greater than 5 microns in length per ml
<b>&lt;</b>	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
<b>&gt;</b>	greater than		
<b>ppm</b>	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
<b>ppb</b>	parts per billion		
<b>Dry weight basis</b>	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers	Inorganic Qualifiers
<b>A</b> TIC is a possible aldol-condensation product	<b>B</b> Value is <CRDL, but ≥IDL
<b>B</b> Analyte was also detected in the blank	<b>E</b> Estimated due to interference
<b>C</b> Pesticide result confirmed by GC/MS	<b>M</b> Duplicate injection precision not met
<b>D</b> Compound quantitated on a diluted sample	<b>N</b> Spike amount not within control limits
<b>E</b> Concentration exceeds the calibration range of the instrument	<b>S</b> Method of standard additions (MSA) used for calculation
<b>J</b> Estimated value	<b>U</b> Compound was not detected
<b>N</b> Presumptive evidence of a compound (TICs only)	<b>W</b> Post digestion spike out of control limits
<b>P</b> Concentration difference between primary and confirmation columns >25%	<b>*</b> Duplicate analysis not within control limits
<b>U</b> Compound was not detected	<b>+</b> Correlation coefficient for MSA <0.995
<b>X,Y,Z</b> Defined in case narrative	

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

**WARRANTY AND LIMITS OF LIABILITY** – In accepting analytical work, we warrant the accuracy of test results for the sample as submitted. THE FOREGOING EXPRESS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED. WE DISCLAIM ANY OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING A WARRANTY OF FITNESS FOR PARTICULAR PURPOSE AND WARRANTY OF MERCHANTABILITY. IN NO EVENT SHALL LANCASTER LABORATORIES BE LIABLE FOR INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF PROFIT OR GOODWILL REGARDLESS OF (A) THE NEGLIGENCE (EITHER SOLE OR CONCURRENT) OF LANCASTER LABORATORIES AND (B) WHETHER LANCASTER LABORATORIES HAS BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. We accept no legal responsibility for the purposes for which the client uses the test results. No purchase order or other order for work shall be accepted by Lancaster Laboratories which includes any conditions that vary from the Standard Terms and Conditions of Lancaster Laboratories and we hereby object to any conflicting terms contained in any acceptance or order submitted by client.