



October 31, 2017

Reference No 11109614.3

Mr. David C. Brown  
PA DEP Southeast Regional Office  
2 E. Main Street  
Norristown, PA 19401-4915

Dear David:

**Re: Response to Comments dated August 31, 2017  
AOI-7 Remedial Investigation Report  
Philadelphia Energy Solutions Complex**

On behalf of Evergreen Resources Group, LLC (Evergreen), the following presents responses to the Commonwealth of Pennsylvania Department of Environmental Protection (PADEP) comments and questions received in a letter dated August 31, 2017 regarding the AOI 7 Remedial Investigation Report dated June 9, 2017, prepared by GHD Services Inc. submitted to the PADEP for the former Sunoco Philadelphia Refinery, currently the Philadelphia Energy Solutions (PES) Refining and Marketing, LLC facility (Site) located at 3144 West Passyunk Avenue, Philadelphia, PA 19145.

For ease of review, the original comment is presented in bold italics, followed by a response.

**PADEP Comment 1:**

***Four historic releases are described in Section 3.4. Please provide the date of each release. What products were released from the "charge line from Tank 284 to 1232 Unit" and "9th and L Ave between Unit 433 and 1232 Unit"?***

**Response:**

The dates of the releases are:

- Crude Oil Release at M Avenue at 1232 Unit occurred on October 29, 1993.
- Slop Oil Backup from Sewer near 1232 Unit occurred on March 2, 2007.
- Charge Line from Tank 284 to 1232 Unit release of 'residual oil' occurred on September 27, 2008.
- 9<sup>th</sup> and L Avenue Release between Unit 433 and 1232 Unit – release of gasoline on March 6, 2006

**PADEP Comment 2:**

***One exceedance of the benzo(a)pyrene direct contact MSC was identified in shallow soil (near Tank 1100). EPA issued a new IRIS toxicological review of benzo(a)pyrene in Jan 2017. Evergreen might consider calculating a site-specific numerical value for benzo(a)pyrene or performing a risk assessment using the updated toxicological information.***



**Response:**

Evergreen is planning to submit a site-wide human health risk assessment for the entire Site. Evergreen will consider including benzo(a)pyrene with the updated toxicological information in the site-wide risk assessment.

**PADEP Comment 3:**

*I note that the four deep monitoring wells are all on the upgradient and side-gradient perimeter of AOI 7 (Figures 15 and 20). There are no interior deep wells in the areas of storage tanks and other potential sources, and there are no downgradient point-of-compliance deep wells. To properly perform the fate-and-transport analysis, I recommend that Evergreen install at least one deep monitoring well near the western (river) border of AOI 7. [§250.408(b), (e)].*

**Response:**

Evergreen is planning to submit a site-wide fate and transport report using the 3D numerical model developed for the site. The installation of deep wells will be considered on a site-wide basis in conjunction with the site-wide fate and transport report. A status update on the 3D numerical modeling efforts was prepared by Stantec in response to this question and is included as Attachment A.

**PADEP Comment 4:**

*GHD concluded that LNAPL is "of limited mobility." However, compared to some other recent reports submitted by Evergreen, there is little discussion and supporting information for this statement. Langan's Feb 2012 RIR included a LNAPL analysis using the API model (Appendix E). But there has been no evaluation of LNAPL transmissivity or a lines-of-evidence assessment, for instance. DEP requests further evaluation and discussion of the LNAPL stability conclusions.*

**Response:**

Evergreen plans to collect two LNAPL samples in the vicinity of C-106 for characterization to assist in LNAPL analysis using the API model. Evergreen will provide the results of this sampling, API model results and other lines of evidence for LNAPL stability in LNAPL assessment to be included in the site-wide Cleanup Plan.

**PADEP Comment 5:**

*Some wells (e.g., C-97 and C-106) have shown increased LNAPL thicknesses since 2012. An updated LNAPL evaluation should be performed.*

**Response:**

As discussed in response to Comments 4, Evergreen intends on submitting an updated LNAPL assessment in the site-wide Cleanup Plan. Wells with increasing LNAPL thicknesses associated with the



No. 3. Separator remedial system are the responsibility of PES. PES will coordinate LNAPL evaluations for the No. 3 Separator system, which will be provided to the PADEP at a later date.

**PADEP Comment 6:**

***I recommend that Evergreen demonstrate hydraulic control of the LNAPL and dissolved phase plumes around the No. 3 Separator.***

**Response:**

As discussed in relation to Comment 5, the No. 3. Separator remedial system is the responsibility of PES. PES will coordinate evaluation of the No. 3 Separator system which will be provided to the PADEP at a later date.

**PADEP Comment 7:**

***Why were indoor air samples collected on only the second floor of the 440 building, and none on the first floor (Table 12)? Sampling should normally be performed on the lowest occupied floor.***

**Response:**

Building 440 was inadvertently not sampled in March 2016. However, samples were collected from both the first and second floors of Building 440 in March 2017. The results of the March 2017 samples are included as Attachment B to this letter and will be included in the site-wide Cleanup Plan.

**PADEP Comment 8:**

***Aerial images and maps show numerous structures and trailers throughout AOI 7. (For example, various pump houses (343, 413, 463, 483), locker houses (309, 594), building 714, and several white-roofed structures north of the 433 Unit.) I request that Evergreen provide a list and a map of all enclosed structures and trailers intended for human occupancy currently in AOI 7. Evergreen should document whether each structure is a potential VI receptor. (For instance, is the structure regularly occupied? Do the trailers have skirts which will cause an accumulation of vapors under the floors?) For each structure an explanation should be provided of how the vapor intrusion pathway is being evaluated. We recommend that Evergreen collect additional representative data from buildings and trailers if the exposure pathway for occupants may be complete. [§250.404(a), 408(a)].***

**Response:**

Evergreen completed an updated building survey on October 12 and 14, 2017, based on the PADEP September 8, 2017, teleconference and October 6, 2017, follow-up email. Evergreen will provide justifications for why structures have not been sampled even though they are potential VI receptors (e.g., only one of a group of trailers in an area). These data will be included in a separate site-wide submittal per your request.



Evergreen intends to complete an additional indoor air sampling event during the 2017 heating season (November-December), as appropriate based on the results of this building survey and as follow-up to previous sampling efforts if needed.

To address specific buildings identified above, Buildings 413 and 343 are no longer present at the Site. Building 463 is the former Unit 137 control room, which has been replaced with Building 6622 (located outside of the battery limits of the unit). Building 714 is an unoccupied building housing tertiary equipment for wastewater disposal and treating for the Girard Point wastewater treatment plant. There are no trailers in AOI-7 with the exception of one Handex contractor trailer, which is unskirted and a new Am-Quip trailer that is skirted with a perforated (soffit-like) material.

There are numerous closed and open containers (closed shipping type and roll-off open storage) and other rectangular structures (elevated electrical substations and instrumentation buildings) which from an aerial photo may appear to be contractor trailers. The 'white-roofed structures' north of 433 Unit are temporary tent structures that serve as materials storage.

Building 309 was identified by PES as containing only lockers and that the building was not routinely occupied during the 2016 building survey. During the 2017 update to the building survey, it was identified that there are now offices within this building. Therefore, Evergreen plans to collect an indoor air sample from this building during the 2017 heating season.

Building 594 was identified in containing only lockers and that the building was not routinely occupied during the 2016 building survey, which was confirmed during the 2017 update. Therefore, based on a lack of routine occupancy indoor air samples are not necessary in Building 594.

Evergreen has not been able to find any information whatsoever on Building 483, which is not on a current PES building list nor any figure that we have been able to locate. Please provide information on this building number, location, etc. that caused it to be included in PADEP's comments.

**PADEP Comment 9:**

***Some reporting levels in the indoor air sample analyses exceeded applicable screening values (Table 13). Please refer to DEP's FAQs on the VI guidance for the application of PQLs to screening.***

**Response:**

A revised laboratory report, Attachment B, included with this response that now includes the PQLs for the indoor air samples. As shown in this report and revised Table 13, included in Attachment C all of the reported non-detect values (1,2- dibromoethane) that exceeded the screening values are the PQL values. Therefore, no additional sampling is required in accordance with the DEP's FAQ on the VI guidance.

**PADEP Comment 10:**

***In the PNDI review, The Pennsylvania Fish and Boat Commission identified three threatened/endangered species at AOI 7 (Appendix H). What are those species? Given that the eastern redbelly turtle and the Atlantic sturgeon are species of concern in the Schuylkill River near***



***the Philadelphia Refinery, there is a potentially complete exposure pathway for these species at AOI 7, and further ecological assessment is required. [§250.402(d)].***

**Response:**

GHD called PAFBC to request the identity of the three threatened/endangered species and was told that PAFBC would not share the details of the threatened/endangered species with the public. GHD followed up on 10-13-17 with PAFBC to request the information again based on the PADEP's discussions with PAFBC but has not received any reply to this request. Per your request and as discussed on 10-13-17, Evergreen will conduct an ecological assessment for the whole complex along the river boundary and also conduct a survey for exceptional value wetlands.

Evergreen intends to submit a site-wide fate and transport report for the Site, as discussed in response to Comment 3. The diffuse mixing between groundwater and surface water will be evaluated in the site-wide fate and transport report.

**PADEP Comment 11:**

***In Figure 18, two of the outdoor sample locations are not marked (AA-16-002 and -003). The indoor air sample symbol was omitted for the 440 building. Please provide a corrected figure.***

**Response:**

Figure 18 has been updated to include outdoor sample locations and indoor air sample location for Building 440 in March 2017 and is included in Attachment C.

**PADEP Comment 12:**

***Table 3a omits the soil-to-groundwater MSC for lead (450 mg/kg). There are several exceedances of this standard. The table should be corrected.***

**Response:**

Table 3A has been updated with the soil to groundwater MSC and is included in Attachment C.

**PADEP Comment 13:**

***The numbered footnotes are missing from Table 6. Please provide.***

**Response:**

This issue has been addressed and updated Table 6 included in Attachment C

**PADEP Comment 14:**

***The four deep wells (C-50D, C-129D, C-134D, and C-144D) are not listed in Table 6. Provide a corrected version with the well information.***



**Response:**

This issue has been addressed and updated Table 6 is included with this response and is included in Attachment C.

**PADEP Comment 15:**

***Table 13 does not include applicable site-specific standard VI screening values.***

**Response:**

This issue has been addressed and updated Table 13 is included with this response. Table 13 has also been updated to include data from both March 2016 and March 2017 and is included in Attachment C.

**PADEP Comment 16:**

***In future reporting, please include horizontal lines in tables so readers can more easily match data to the substance names in the left column.***

**Response:**

In future reporting, horizontal lines will be included on tables.

**PADEP Comment 17:**

***The HASP is not a required item for the RIR (Appendix B). If submitted, it can be electronic only. (A sampling and analysis plan and a quality assurance plan are required per §250.408(c)).***

**Response:**

In future RIR Reports, the HASP will not be submitted unless requested. If requested, the HASP will be submitted in electronic format. The sampling and analysis plan and quality assurance plan were included in Appendix B.

**PADEP Comment 18:**

***I could not find laboratory reports for the Mar 2016 indoor air sampling in Appendix D. Please provide these reports. [§250.408(c)].***

**Response:**

The March 2016 indoor air sampling laboratory report is included with this response and is included in Attachment B.

**PADEP Comment 19:**

***The field data sheets for the 440 building were missing from Appendix K.***



**Response:**

Building 440 was inadvertently not sampled in March 2016. However, samples were collected from both the first and second floors of Building 440 in March 2017. The field sheet from the sampling are included in Attachment D. The results of the March 2017 samples are included in revised Table 13 (Attachment C) and will be included in the site-wide Cleanup Plan.

***I recommend that the "indoor air sampling field data sheets" (Appendix K) include information on building characteristics (HVAC operation, ventilation, etc.).***

**Response:**

In future reporting, building characteristics including building specifications will be provided as noted in the response to Comment 8.

**PADEP Comment 21:**

***In future reporting, please include tabs in the hardcopy at the beginning of each appendix.***

**Response:**

In future Reports, tabs will be provided in the hardcopy at the beginning of each appendix.

Should you have any questions on the above, please do not hesitate to contact us.

Sincerely,

GHD

A handwritten signature in blue ink that reads "Colleen Costello".

Colleen Costello, Principal

CC/kf/1

Encl.

cc: Tiffani Doerr, Evergreen Resources Management  
Francis Ramacciotti, GHD

# Attachment A

## Stantec Response to PADEP Comments

**Attachment A**  
**Stantec Response to PADEP Comment #3**  
**Prepared October 23, 2017**

***PADEP Comment #3***

***3. I note that the four deep monitoring wells are all on the up-gradient and side-gradient perimeter of AOI 7 (Figures 15 and 20). There are no interior deep wells in the areas of storage tanks and other potential sources, and there are no downgradient point-of-compliance deep wells. To properly perform the fate-and-transport analysis, I recommend that Evergreen install at least one deep monitoring well near the western (river) border of AOI 7. [§250.408(b), (e)]***

**Stantec Response**

Stantec is tasked with preparing a site-wide fate-and-transport analysis for Evergreen using a groundwater numerical model. The model is currently undergoing a steady-state calibration to the May 2017 annual gauging dataset that includes consideration of data from more than 1,000 wells, including wells at the former Defense Supply Center Philadelphia (DSCP) and Philadelphia Gas Works Passyunk Facility (PGW). Correlation of lithologies and interpretation of depositional sequences in the context of regional Coastal Plain geology indicates that approximately 90 of the wells in the study area are open to the lower aquifer hydrostratigraphic unit. As defined by Stantec (2016) and Stantec (2017a), the lower aquifer (also referred to as the deep aquifer at the PES Complex) is a semi-confined aquifer that is primarily composed of Cretaceous-age sediments of the Potomac-Raritan-Magothy (PRM) aquifer system middle sand, lower clay (where present), and lower sand units. At the PES Complex, the lower aquifer is semi-confined by the PRM middle clay because that unit is mappable and is of sufficiently low permeability (aquitard) to create artesian conditions.

Stratigraphic Profiles E – E' (AOI 7 RIR Figure 8) and F – F' (Stantec, 2017a) demonstrate the relative continuity of the PRM middle clay to the east and northeast of AOI 7 (**Figures 1 – 3**). The profiles have been updated for this comment response letter to include well construction (not previously included on Profile E) and the May 2017 annual gauging water levels and interpolated aquifer surfaces. They have also been updated to separate Holocene alluvium from that of the Pleistocene. An additional update to Profile F was the projection of well C-50D onto the section to show that the well, although considered deep in relation to other wells in AOI 7, is screened in the unconfined aquifer (i.e., C-50D is not a lower aquifer well). Lastly, it has been recently confirmed that well C-65D is blocked approximately 4 feet below ground surface and may have been blocked prior to 1995. As such, there are two available lower aquifer wells in AOI 7 (wells C-129D and C-144D).

The stratigraphic profiles indicate that beneath AOI 7, most of the PRM deposits (including the middle clay) have been cut and replaced by a thick sequence of mostly organic-rich, muddy deposits of geologically-recent (Holocene) age. In places beneath the Holocene deposits, glacial-age tributary alluvium and/or lower terrace deposits (Jengo, 2006) are interpreted to be present atop remnants of the PRM lower sand and/or bedrock. Beneath areas along the Schuylkill River perimeter, such as beneath

AOI 7, the lower aquifer can include Pleistocene-age alluvium in addition to remnants of the PRM and is semi-confined by the Holocene deposits. The Holocene deposits thin and pinch out along the eastern AOI 7 boundary against higher elevations underlain by an older Pleistocene terrace (correlative to the Cape May Formation Unit 2 in New Jersey and undifferentiated Delaware Bay Group deposits in Delaware). These conditions are noted to demonstrate that the lower aquifer beneath AOI 7 is not particularly vulnerable to the vertical migration of contamination from potential shallow sources in AOI 7.

Lower aquifer contours (Stantec, 2017b) indicate that groundwater flow is generally to the west beneath AOI 7. Groundwater samples collected from lower aquifer wells along the AOI 7/AOI 3 up-gradient boundary support that in the context of applicable Act 2 standards, dissolved petroleum hydrocarbon plumes migrating into AOI 7 from an AOI 3 (or other) source do not exhibit significantly-elevated concentrations of constituents of concern. These observations, when considered in conjunction with the noted geologic conditions, support the opinion that additional AOI 7 lower aquifer wells are not necessary at this time. However, it is noted that additional lower aquifer wells may be considered by Evergreen during Cleanup Plan activities. AOI 7 down-gradient point-of-compliance well(s) could be justified if it is predicted that up-gradient dissolved hydrocarbon plumes in the lower aquifer pose a risk to the Schuylkill River or receptors to the west via groundwater flow under the river.

## References

- Jengo, J.W. (2006). Stratigraphy and Radiocarbon Dates of Pleistocene and Holocene-Age Deposits, Delaware County, Pennsylvania – Rectifying the Presence of the Cape May Formation and the Trenton Gravel in the Delaware Valley, Northeastern Geology & Environmental Sciences Vol. 28, No. 1, p. 45-76.
- Stantec (2016). Remedial Investigation Report, Area of Interest 1, Philadelphia Refining Complex, Philadelphia, Pennsylvania.
- Stantec (2017a). Remedial Investigation Report, Area of Interest 4, Philadelphia Refining Complex, Philadelphia, Pennsylvania.
- Stantec (2017b). Groundwater Remediation Status Report, First Half 2017, Philadelphia Refinery Remediation Program.

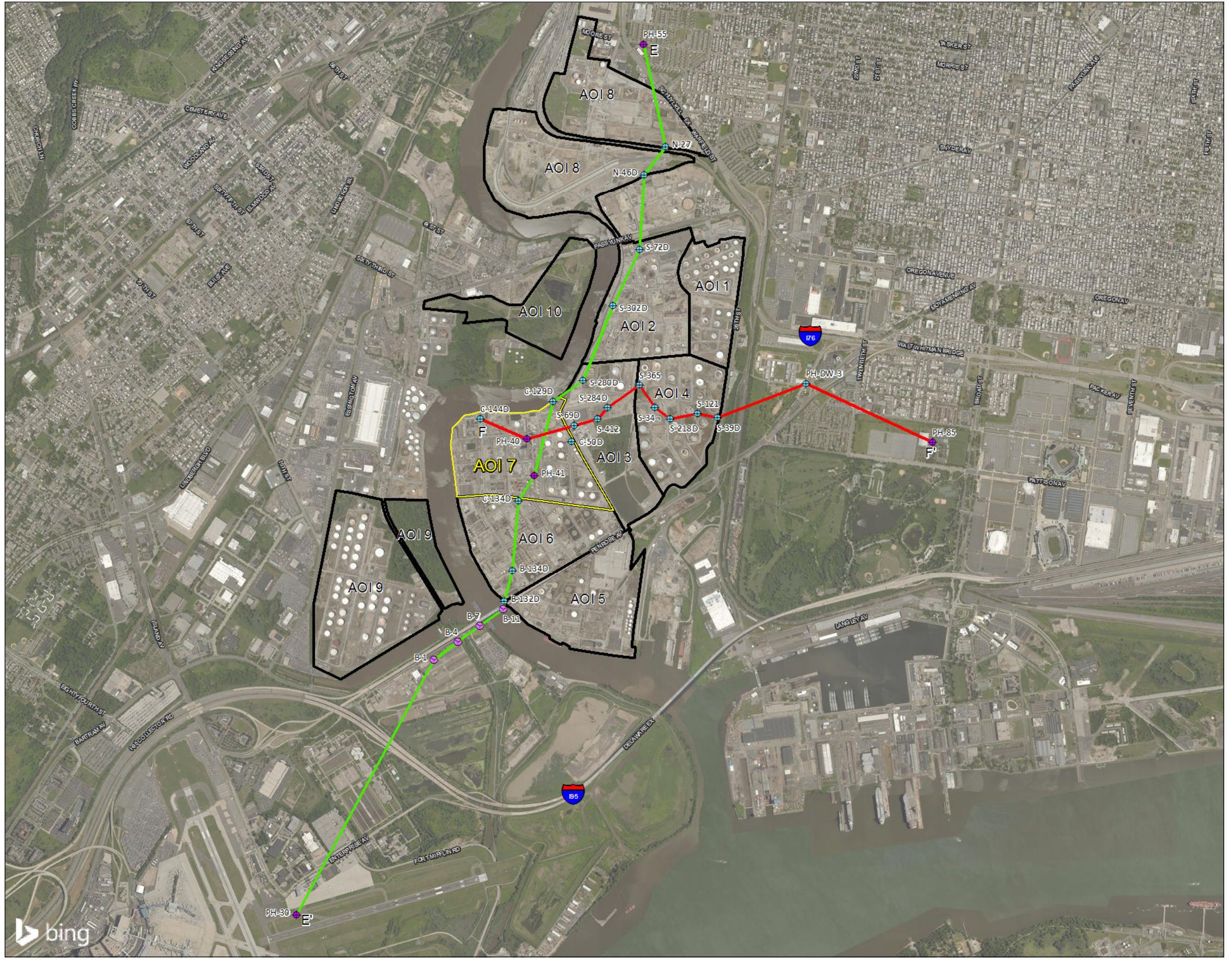


Figure No.  
1

## STRATIGRAPHIC PROFILE LOCATION MAP

Client/Project  
PHILADELPHIA REFINERY OPERATIONS, A SERIES OF  
EVERGREEN RESOURCES GROUP, LLC  
PHILADELPHIA REFINING COMPLEX  
3144 PASSYUNK AVENUE, PHILADELPHIA, PA 19145

Project Location  
City of Philadelphia,  
Philadelphia County,  
Pennsylvania  
Prepared by GWC on 10/18/2017  
Technical Review by JKD on 10/18/2017  
Independent Review by ADK on 10/19/2017

213402454

Prepared by GWC on 10/18/2017  
Technical Review by JKD on 10/18/2017  
Independent Review by ADK on 10/19/2017

0 2,200 4,400  
1:26,400 (At original document size of 11x17)  
N

### LEGEND

- ◆ WELL
- ◆ HISTORIC WELL
- HISTORIC BORING
- AREA OF INTEREST (AOI) BOUNDARY
- AOI 7 BOUNDARY

### STRATIGRAPHIC PROFILE

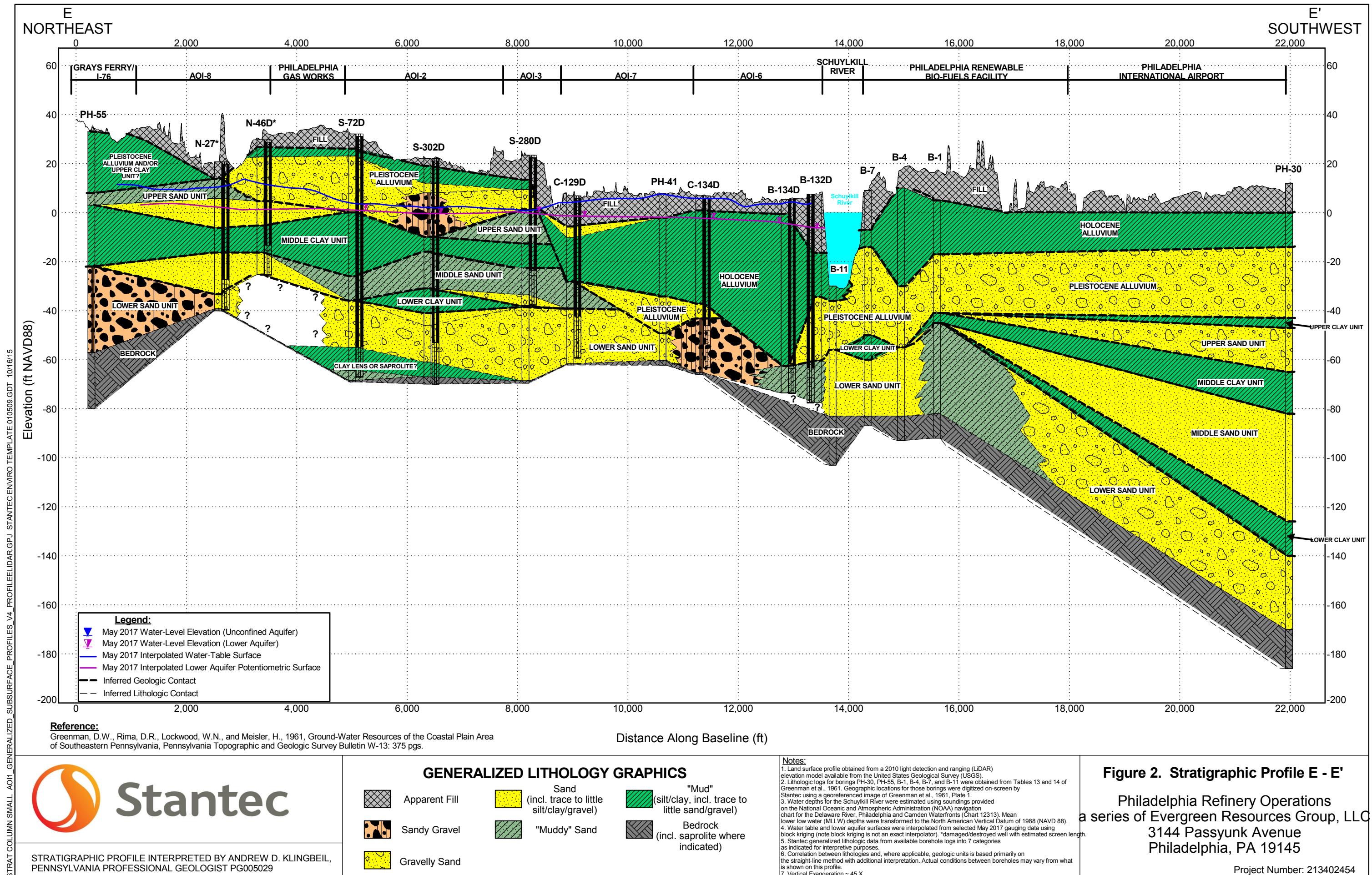
- E - E'  
F - F'

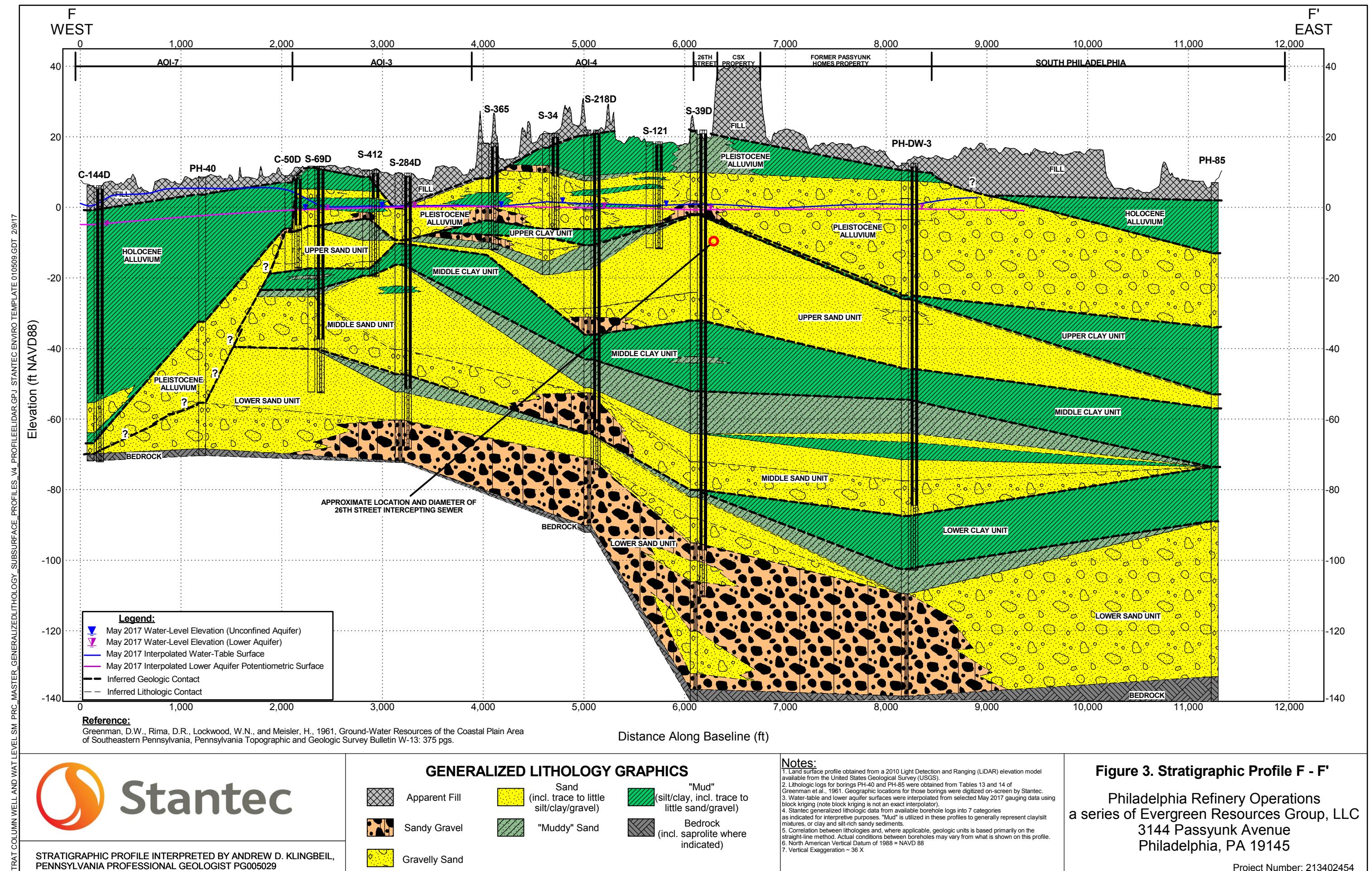


### Notes

1. Vertical Datum: North American Vertical Datum of 1988 (NAVD 88)
2. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
3. Source: Stantec
4. Service Layer Credits: © 2017 DigitalGlobe ©CNES (2017) Distribution Airbus DS © 2017 Microsoft Corporation  
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# Attachment B

## Laboratory Report

September 01, 2017

## GHD - S/E

Sample Delivery Group: L827327  
Samples Received: 04/04/2016  
Project Number: 11102524  
Description: Evergreen  
Site: PES  
Report To: Paul McMahon  
2055 Niagara Falls Boulevard  
Niagara Falls, NY 14304

Entire Report Reviewed By:



Mark W. Beasley  
Technical Service Representative

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

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<b>Cn: Case Narrative</b>	<b>7</b>	<b>4</b> Cn
<b>Sr: Sample Results</b>	<b>8</b>	<b>5</b> Sr
IA-AOI3-018 L827327-01	8	<b>6</b> Qc
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IA-AOI6-178 L827327-03	10	<b>8</b> Al
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IA-AOI6-295-1 L827327-05	12	
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IA-AOI7-450-2 L827327-09	16	
IA-AOI7-450-3 L827327-10	17	
IA-AOI7-450-4 L827327-11	18	
IA-AOI7-450-5 L827327-12	19	
IA-AOI7-442 L827327-13	20	
IA-AOI7-711 L827327-14	21	
IA-AOI7-OUTDOOR L827327-15	22	
IA-AOI7-6622 L827327-16	23	
IA-AOI7-6626 L827327-17	24	
IA-AOI7-6625 L827327-18	25	
IA-AOI8-6642 L827327-19	26	
IA-AOI8-6641 L827327-20	27	
IA-AOI8-3326 L827327-21	28	
IA-AOI8-27 L827327-22	29	
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IA-AOI8-OUTDOOR L827327-24	31	
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## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



IA-AOI3-018 L827327-01 Air			Collected by Rich Burns	Collected date/time 03/29/16 14:55	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862542	1	04/08/16 01:59	04/08/16 01:59	GLN
IA-AOI6-726 L827327-02 Air			Collected by Rich Burns	Collected date/time 03/29/16 15:39	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862542	1	04/08/16 02:45	04/08/16 02:45	GLN
IA-AOI6-178 L827327-03 Air			Collected by Rich Burns	Collected date/time 03/29/16 15:42	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862542	1	04/08/16 03:30	04/08/16 03:30	GLN
IA-AOI6-OUTDOOR-032916 L827327-04 Air			Collected by Rich Burns	Collected date/time 03/29/16 15:45	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862542	1	04/08/16 04:14	04/08/16 04:14	GLN
IA-AOI6-295-1 L827327-05 Air			Collected by Rich Burns	Collected date/time 03/29/16 15:54	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 02:22	04/08/16 02:22	GLN
IA-AOI6-295-2 L827327-06 Air			Collected by Rich Burns	Collected date/time 03/29/16 15:56	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 03:11	04/08/16 03:11	GLN
IA-AOI7-595 L827327-07 Air			Collected by Rich Burns	Collected date/time 03/29/16 16:04	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 04:00	04/08/16 04:00	GLN
IA-AOI7-450-1 L827327-08 Air			Collected by Rich Burns	Collected date/time 03/29/16 16:13	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862702	1	04/07/16 19:49	04/07/16 19:49	GLN



## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



IA-AOI7-450-2 L827327-09 Air			Collected by Rich Burns	Collected date/time 03/29/16 16:18	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862702	1	04/07/16 20:38	04/07/16 20:38	GLN
IA-AOI7-450-3 L827327-10 Air			Collected by Rich Burns	Collected date/time 03/29/16 16:21	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862702	1	04/07/16 21:29	04/07/16 21:29	GLN
IA-AOI7-450-4 L827327-11 Air			Collected by Rich Burns	Collected date/time 03/29/16 15:23	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 04:50	04/08/16 04:50	GLN
IA-AOI7-450-5 L827327-12 Air			Collected by Rich Burns	Collected date/time 03/29/16 15:26	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 05:39	04/08/16 05:39	GLN
IA-AOI7-442 L827327-13 Air			Collected by Rich Burns	Collected date/time 03/29/16 16:38	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 06:27	04/08/16 06:27	GLN
IA-AOI7-711 L827327-14 Air			Collected by Rich Burns	Collected date/time 03/29/16 17:20	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 07:17	04/08/16 07:17	GLN
IA-AOI7-OUTDOOR L827327-15 Air			Collected by Rich Burns	Collected date/time 03/29/16 17:01	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 08:04	04/08/16 08:04	GLN
IA-AOI7-6622 L827327-16 Air			Collected by Rich Burns	Collected date/time 03/29/16 17:30	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 08:55	04/08/16 08:55	GLN



## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



IA-AOI7-6626 L827327-17 Air			Collected by Rich Burns	Collected date/time 03/29/16 17:35	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 09:46	04/08/16 09:46	GLN
IA-AOI7-6625 L827327-18 Air			Collected by Rich Burns	Collected date/time 03/29/16 17:42	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862833	1	04/08/16 10:33	04/08/16 10:33	GLN
IA-AOI8-6642 L827327-19 Air			Collected by Rich Burns	Collected date/time 03/29/16 08:35	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862704	1	04/08/16 01:39	04/08/16 01:39	GLN
IA-AOI8-6641 L827327-20 Air			Collected by Rich Burns	Collected date/time 03/29/16 17:57	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862704	1	04/08/16 02:31	04/08/16 02:31	GLN
IA-AOI8-3326 L827327-21 Air			Collected by Rich Burns	Collected date/time 03/29/16 18:10	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862704	1	04/08/16 03:21	04/08/16 03:21	GLN
IA-AOI8-27 L827327-22 Air			Collected by Rich Burns	Collected date/time 03/29/16 18:16	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862704	1	04/08/16 04:09	04/08/16 04:09	GLN
IA-AOI8-27-DUP L827327-23 Air			Collected by Rich Burns	Collected date/time 03/29/16 18:16	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862704	1	04/08/16 05:25	04/08/16 05:25	GLN
IA-AOI8-OUTDOOR L827327-24 Air			Collected by Rich Burns	Collected date/time 03/29/16 18:30	Received date/time 04/04/16 09:30
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862704	1	04/08/16 06:14	04/08/16 06:14	GLN

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

## SAMPLE SUMMARY

ONE LAB. NATIONWIDE.



FIELD BLANK L827327-25 Air

Collected by	Collected date/time	Received date/time
Rich Burns	03/29/16 00:00	04/04/16 09:30

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst
Volatile Organic Compounds (MS) by Method TO-15	WG862704	1	04/08/16 07:03	04/08/16 07:03	GLN

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> Gl
- <sup>8</sup> Al
- <sup>9</sup> Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times. All MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Mark W. Beasley  
Technical Service Representative

- <sup>1</sup> Cp
- <sup>2</sup> Tc
- <sup>3</sup> Ss
- <sup>4</sup> Cn
- <sup>5</sup> Sr
- <sup>6</sup> Qc
- <sup>7</sup> GI
- <sup>8</sup> AI
- <sup>9</sup> SC



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	1.64	5.25		1	<a href="#">WG862542</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862542</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862542</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.133	0.577	J	1	<a href="#">WG862542</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.230	1.13		1	<a href="#">WG862542</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862542</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862542</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	1.27	4.79		1	<a href="#">WG862542</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.250	1.23		1	<a href="#">WG862542</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862542</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.198	0.858	J	1	<a href="#">WG862542</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.514	2.23		1	<a href="#">WG862542</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		104				<a href="#">WG862542</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	1.08	3.46		1	<a href="#">WG862542</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862542</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862542</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.0905	0.392	J	1	<a href="#">WG862542</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.295	1.45		1	<a href="#">WG862542</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862542</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862542</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.547	2.06		1	<a href="#">WG862542</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.136	0.669	J	1	<a href="#">WG862542</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862542</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.114	0.496	J	1	<a href="#">WG862542</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.349	1.51	J	1	<a href="#">WG862542</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		98.8				<a href="#">WG862542</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	1.58	5.05		1	<a href="#">WG862542</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862542</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862542</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.0982	0.426	J	1	<a href="#">WG862542</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.324	1.60		1	<a href="#">WG862542</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862542</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862542</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.683	2.57		1	<a href="#">WG862542</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.152	0.747	J	1	<a href="#">WG862542</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862542</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.132	0.572	J	1	<a href="#">WG862542</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.405	1.76		1	<a href="#">WG862542</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		101				<a href="#">WG862542</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	1.24	3.95		1	<a href="#">WG862542</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862542</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862542</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.0834	0.361	J	1	<a href="#">WG862542</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.350	1.72		1	<a href="#">WG862542</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862542</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862542</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.755	2.85		1	<a href="#">WG862542</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.106	0.518	J	1	<a href="#">WG862542</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862542</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.122	0.527	J	1	<a href="#">WG862542</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.365	1.58	J	1	<a href="#">WG862542</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		98.5				<a href="#">WG862542</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	1.24	3.97		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.170	0.736	J	1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.153	0.750	J	1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	0.427	2.23	B J	1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.829	3.12		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.445	2.18		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	0.138	0.677	J	1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.197	0.852	J	1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.507	2.20		1	<a href="#">WG862833</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		97.2				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	1.23	3.94		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.221	0.960		1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.170	0.837	J	1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	0.188	0.985	B J	1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.826	3.11		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.415	2.04		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	0.128	0.630	J	1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.196	0.850	J	1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.529	2.29		1	<a href="#">WG862833</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		100				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	1.45	4.63		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.158	0.686	J	1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.136	0.668	J	1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	0.298	1.56	B J	1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	1.46	5.51		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.221	1.09		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.206	0.891		1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.573	2.48		1	<a href="#">WG862833</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		99.5				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.315	1.00		1	<a href="#">WG862702</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862702</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862702</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.259	1.12		1	<a href="#">WG862702</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862702</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862702</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	0.309	1.62	J	1	<a href="#">WG862702</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	2.78	10.5		1	<a href="#">WG862702</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.214	1.05		1	<a href="#">WG862702</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	0.105	0.515	J	1	<a href="#">WG862702</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.385	1.67		1	<a href="#">WG862702</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	1.06	4.58		1	<a href="#">WG862702</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		96.7				<a href="#">WG862702</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.269	0.860		1	<a href="#">WG862702</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862702</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862702</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.174	0.755	J	1	<a href="#">WG862702</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862702</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862702</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862702</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.835	3.15		1	<a href="#">WG862702</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.159	0.781	J	1	<a href="#">WG862702</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862702</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.185	0.804	J	1	<a href="#">WG862702</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.483	2.09		1	<a href="#">WG862702</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		95.5				<a href="#">WG862702</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ppbv	ug/m3	ppbv	ug/m3			
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.305	0.973		1	<a href="#">WG862702</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862702</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862702</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.0935	0.405	J	1	<a href="#">WG862702</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862702</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862702</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862702</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	1.09	4.12		1	<a href="#">WG862702</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.144	0.706	J	1	<a href="#">WG862702</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862702</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.130	0.564	J	1	<a href="#">WG862702</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.338	1.47	J	1	<a href="#">WG862702</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		97.5				<a href="#">WG862702</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.483	1.54		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.274	1.19		1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	2.37	8.91		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.251	1.23		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	0.0873	0.428	J	1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.305	1.32		1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.724	3.14		1	<a href="#">WG862833</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		97.8				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.622	1.99		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.594	2.58		1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.108	0.531	J	1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	13.2	49.8		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.434	2.13		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	0.163	0.799	J	1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.662	2.87		1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	1.82	7.89		1	<a href="#">WG862833</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		97.2				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.525	1.68		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.318	1.38		1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	5.06	19.1		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.249	1.22		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.313	1.36		1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.838	3.63		1	<a href="#">WG862833</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		97.2				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.694	2.22		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.176	0.764	J	1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.116	0.568	J	1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	1.04	3.93		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.599	2.94		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	0.201	0.984		1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.240	1.04		1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.568	2.46		1	<a href="#">WG862833</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		99.9				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.415	1.32		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.129	0.558	J	1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	1.07	4.05		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.142	0.694	J	1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.165	0.717	J	1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.458	1.99		1	<a href="#">WG862833</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		97.5				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	1.10	3.52		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	1.14	4.94		1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.259	1.27		1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	0.0969	0.349	J	1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	1.93	7.29		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	4.41	21.6		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	1.39	6.81		1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	1.80	7.79		1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	3.89	16.9		1	<a href="#">WG862833</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		98.3				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	1.05	3.36		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.370	1.60		1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.425	2.09		1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.811	3.06		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.777	3.81		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	0.242	1.19		1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.471	2.04		1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	1.19	5.15		1	<a href="#">WG862833</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		105				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.512	1.63		1	<a href="#">WG862833</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862833</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862833</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.974	4.22		1	<a href="#">WG862833</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	0.132	0.648	J	1	<a href="#">WG862833</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862833</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	0.398	2.09	B J	1	<a href="#">WG862833</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	18.9	71.4		1	<a href="#">WG862833</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	1.30	6.40		1	<a href="#">WG862833</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	0.362	1.78		1	<a href="#">WG862833</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	1.10	4.75		1	<a href="#">WG862833</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	2.83	12.3		1	<a href="#">WG862833</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		97.7				<a href="#">WG862833</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.130	0.416	J	1	<a href="#">WG862704</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862704</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862704</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	U	U		1	<a href="#">WG862704</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862704</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862704</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862704</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.326	1.23		1	<a href="#">WG862704</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.197	0.965	J	1	<a href="#">WG862704</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862704</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	U	U		1	<a href="#">WG862704</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.133	0.574	J	1	<a href="#">WG862704</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		101				<a href="#">WG862704</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.161	0.514	J	1	<a href="#">WG862704</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862704</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862704</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.131	0.570	J	1	<a href="#">WG862704</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862704</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862704</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862704</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.680	2.56		1	<a href="#">WG862704</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	0.139	0.683	J	1	<a href="#">WG862704</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862704</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.109	0.474	J	1	<a href="#">WG862704</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.288	1.25	J	1	<a href="#">WG862704</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		101				<a href="#">WG862704</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.134	0.427	J	1	<a href="#">WG862704</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862704</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862704</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	0.104	0.450	J	1	<a href="#">WG862704</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862704</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862704</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862704</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.302	1.14		1	<a href="#">WG862704</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	U	U		1	<a href="#">WG862704</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862704</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.130	0.564	J	1	<a href="#">WG862704</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.410	1.78		1	<a href="#">WG862704</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		99.3				<a href="#">WG862704</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.0969	0.310	J	1	<a href="#">WG862704</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862704</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862704</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	U	U		1	<a href="#">WG862704</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862704</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862704</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862704</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.190	0.717	J	1	<a href="#">WG862704</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	U	U		1	<a href="#">WG862704</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862704</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	U	U		1	<a href="#">WG862704</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.100	0.435	J	1	<a href="#">WG862704</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		98.6				<a href="#">WG862704</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.179	0.572	J	1	<a href="#">WG862704</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862704</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862704</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	U	U		1	<a href="#">WG862704</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862704</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862704</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862704</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	0.268	1.01		1	<a href="#">WG862704</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	U	U		1	<a href="#">WG862704</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862704</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	U	U		1	<a href="#">WG862704</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.146	0.634	J	1	<a href="#">WG862704</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		104				<a href="#">WG862704</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1	RDL1	RDL2	Result	Result	Qualifier	Dilution	Batch
			ppbv	ppbv	ug/m3	ppbv	ug/m3			
Benzene	71-43-2	78.10	0.0460	0.200	0.639	0.140	0.448	J	1	<a href="#">WG862704</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862704</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862704</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	U	U		1	<a href="#">WG862704</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862704</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862704</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862704</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	2.19	8.26		1	<a href="#">WG862704</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	U	U		1	<a href="#">WG862704</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862704</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	0.0840	0.364	J	1	<a href="#">WG862704</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	0.221	0.959	J	1	<a href="#">WG862704</a>
(S)-1,4-Bromofluorobenzene	460-00-4	175		60.0-140		97.2				<a href="#">WG862704</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc



## Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL1 ppbv	RDL1 ppbv	RDL2 ug/m3	Result ppbv	Result ug/m3	Qualifier	Dilution	Batch
Benzene	71-43-2	78.10	0.0460	0.200	0.639	U	U		1	<a href="#">WG862704</a>
1,2-Dibromoethane	106-93-4	188	0.0185	0.200	1.54	U	U		1	<a href="#">WG862704</a>
1,2-Dichloroethane	107-06-2	99	0.0616	0.200	0.810	U	U		1	<a href="#">WG862704</a>
Ethylbenzene	100-41-4	106	0.0506	0.200	0.867	U	U		1	<a href="#">WG862704</a>
Isopropylbenzene	98-82-8	120.20	0.0563	0.200	0.983	U	U		1	<a href="#">WG862704</a>
MTBE	1634-04-4	88.10	0.0505	0.200	0.721	U	U		1	<a href="#">WG862704</a>
Naphthalene	91-20-3	128	0.154	0.630	3.30	U	U		1	<a href="#">WG862704</a>
Toluene	108-88-3	92.10	0.0499	0.200	0.753	U	U		1	<a href="#">WG862704</a>
1,2,4-Trimethylbenzene	95-63-6	120	0.0483	0.200	0.982	U	U		1	<a href="#">WG862704</a>
1,3,5-Trimethylbenzene	108-67-8	120	0.0631	0.200	0.982	U	U		1	<a href="#">WG862704</a>
o-Xylene	95-47-6	106	0.0633	0.200	0.867	U	U		1	<a href="#">WG862704</a>
m&p-Xylene	1330-20-7	106	0.0946	0.400	1.73	U	U		1	<a href="#">WG862704</a>
(S) 1,4-Bromofluorobenzene	460-00-4	175		60.0-140		96.1				<a href="#">WG862704</a>

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> GI<sup>8</sup> Al<sup>9</sup> Sc



L827327-01,02,03,04

## Method Blank (MB)

(MB) R3127322-3 04/07/16 13:58

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Benzene	U		0.0460	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichloroethane	U		0.0616	0.200
Ethylbenzene	U		0.0506	0.200
Isopropylbenzene	U		0.0563	0.200
MTBE	U		0.0505	0.200
Naphthalene	U		0.154	0.630
Toluene	U		0.0499	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
(S) 1,4-Bromofluorobenzene	97.3		60.0-140	

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3127322-1 04/07/16 12:34 • (LCSD) R3127322-2 04/07/16 13:15

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
MTBE	3.75	3.43	3.42	91.3	91.3	70.0-130			0.0600	25
Benzene	3.75	3.87	3.99	103	106	70.0-130			2.94	25
1,2-Dichloroethane	3.75	3.85	3.92	103	105	70.0-130			1.83	25
Toluene	3.75	3.90	4.03	104	107	70.0-130			3.41	25
1,2-Dibromoethane	3.75	3.89	3.97	104	106	70.0-130			1.92	25
Ethylbenzene	3.75	3.95	4.11	105	110	70.0-130			3.97	25
m&p-Xylene	7.50	8.00	8.28	107	110	70.0-130			3.52	25
o-Xylene	3.75	3.96	4.10	106	109	70.0-130			3.65	25
1,3,5-Trimethylbenzene	3.75	4.11	4.26	109	114	70.0-130			3.67	25
1,2,4-Trimethylbenzene	3.75	4.01	4.17	107	111	70.0-130			3.77	25
Naphthalene	3.75	4.22	4.37	113	116	52.0-158			3.31	25
Isopropylbenzene	3.75	3.96	4.13	106	110	70.0-130			4.13	25
(S) 1,4-Bromofluorobenzene			100	100	60.0-140					



L827327-08,09,10

## Method Blank (MB)

(MB) R3127081-3 04/07/16 09:22

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv							
Benzene	U		0.0460	0.200							
1,2-Dibromoethane	U		0.0185	0.200							
1,2-Dichloroethane	U		0.0616	0.200							
Ethylbenzene	U		0.0506	0.200							
Isopropylbenzene	U		0.0563	0.200							
MTBE	U		0.0505	0.200							
Naphthalene	U		0.154	0.630							
Toluene	U		0.0499	0.200							
1,2,4-Trimethylbenzene	U		0.0483	0.200							
1,3,5-Trimethylbenzene	U		0.0631	0.200							
m&p-Xylene	U		0.0946	0.400							
o-Xylene	U		0.0633	0.200							
(S) 1,4-Bromofluorobenzene	98.0			60.0-140							

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3127081-1 04/07/16 07:55 • (LCSD) R3127081-2 04/07/16 08:39

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
MTBE	3.75	4.13	4.21	110	112	70.0-130			1.90	25
Benzene	3.75	4.11	4.18	109	111	70.0-130			1.73	25
1,2-Dichloroethane	3.75	4.02	4.10	107	109	70.0-130			1.96	25
Toluene	3.75	4.14	4.21	110	112	70.0-130			1.57	25
1,2-Dibromoethane	3.75	4.15	4.22	111	113	70.0-130			1.74	25
Ethylbenzene	3.75	4.19	4.23	112	113	70.0-130			1.03	25
m&p-Xylene	7.50	8.27	8.33	110	111	70.0-130			0.780	25
o-Xylene	3.75	4.19	4.25	112	113	70.0-130			1.37	25
1,3,5-Trimethylbenzene	3.75	4.21	4.25	112	113	70.0-130			0.880	25
1,2,4-Trimethylbenzene	3.75	4.21	4.27	112	114	70.0-130			1.41	25
Naphthalene	3.75	4.42	4.48	118	119	52.0-158			1.32	25
Isopropylbenzene	3.75	4.23	4.28	113	114	70.0-130			1.19	25
(S) 1,4-Bromofluorobenzene			99.4	98.9	60.0-140					

[L827327-19,20,21,22,23,24,25](#)

## Method Blank (MB)

(MB) R3127282-3 04/07/16 17:18

Analyte	MB Result ppbv	<u>MB Qualifier</u>	MB MDL ppbv	MB RDL ppbv								
Benzene	U		0.0460	0.200								
1,2-Dibromoethane	U		0.0185	0.200								
1,2-Dichloroethane	U		0.0616	0.200								
Ethylbenzene	U		0.0506	0.200								
Isopropylbenzene	U		0.0563	0.200								
MTBE	U		0.0505	0.200								
Naphthalene	0.204		0.154	0.630								
Toluene	U		0.0499	0.200								
1,2,4-Trimethylbenzene	U		0.0483	0.200								
1,3,5-Trimethylbenzene	U		0.0631	0.200								
m&p-Xylene	U		0.0946	0.400								
o-Xylene	U		0.0633	0.200								
(S) 1,4-Bromofluorobenzene	97.7			60.0-140								

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3127282-1 04/07/16 15:44 • (LCSD) R3127282-2 04/07/16 16:30

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	<u>LCS Qualifier</u>	<u>LCSD Qualifier</u>	RPD %	RPD Limits %		
MTBE	3.75	4.04	4.11	108	110	70.0-130			1.86	25		
Benzene	3.75	4.15	4.06	111	108	70.0-130			2.32	25		
1,2-Dichloroethane	3.75	4.13	3.99	110	106	70.0-130			3.48	25		
Toluene	3.75	4.11	4.08	109	109	70.0-130			0.740	25		
1,2-Dibromoethane	3.75	4.30	4.21	115	112	70.0-130			2.07	25		
Ethylbenzene	3.75	4.11	4.08	110	109	70.0-130			0.930	25		
m&p-Xylene	7.50	8.10	7.95	108	106	70.0-130			1.82	25		
o-Xylene	3.75	4.10	4.05	109	108	70.0-130			1.08	25		
1,3,5-Trimethylbenzene	3.75	4.09	4.06	109	108	70.0-130			0.600	25		
1,2,4-Trimethylbenzene	3.75	4.14	4.11	110	110	70.0-130			0.750	25		
Naphthalene	3.75	4.43	4.24	118	113	52.0-158			4.51	25		
Isopropylbenzene	3.75	4.11	4.05	110	108	70.0-130			1.36	25		
(S) 1,4-Bromofluorobenzene			104	102	60.0-140							



L827327-05,06,07,11,12,13,14,15,16,17,18

## Method Blank (MB)

(MB) R3127543-3 04/08/16 01:33

Analyte	MB Result ppbv	MB Qualifier	MB MDL ppbv	MB RDL ppbv
Benzene	U		0.0460	0.200
1,2-Dibromoethane	U		0.0185	0.200
1,2-Dichloroethane	U		0.0616	0.200
Ethylbenzene	U		0.0506	0.200
Isopropylbenzene	U		0.0563	0.200
MTBE	U		0.0505	0.200
Naphthalene	0.195		0.154	0.630
Toluene	U		0.0499	0.200
1,2,4-Trimethylbenzene	U		0.0483	0.200
1,3,5-Trimethylbenzene	U		0.0631	0.200
m&p-Xylene	U		0.0946	0.400
o-Xylene	U		0.0633	0.200
(S) 1,4-Bromofluorobenzene	98.7		60.0-140	

<sup>1</sup>Cp<sup>2</sup>Tc<sup>3</sup>Ss<sup>4</sup>Cn<sup>5</sup>Sr<sup>6</sup>Qc<sup>7</sup>Gl<sup>8</sup>Al<sup>9</sup>Sc

## Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3127543-1 04/08/16 00:02 • (LCSD) R3127543-2 04/08/16 00:48

Analyte	Spike Amount ppbv	LCS Result ppbv	LCSD Result ppbv	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
MTBE	3.75	3.87	4.06	103	108	70.0-130			4.79	25
Benzene	3.75	3.81	3.99	101	106	70.0-130			4.76	25
1,2-Dichloroethane	3.75	3.86	4.00	103	107	70.0-130			3.57	25
Toluene	3.75	3.91	4.05	104	108	70.0-130			3.49	25
1,2-Dibromoethane	3.75	3.98	4.17	106	111	70.0-130			4.74	25
Ethylbenzene	3.75	3.90	4.08	104	109	70.0-130			4.52	25
m&p-Xylene	7.50	7.87	8.28	105	110	70.0-130			5.02	25
o-Xylene	3.75	3.95	4.14	105	111	70.0-130			4.86	25
1,3,5-Trimethylbenzene	3.75	3.89	4.07	104	108	70.0-130			4.46	25
1,2,4-Trimethylbenzene	3.75	4.08	4.21	109	112	70.0-130			3.21	25
Naphthalene	3.75	4.72	4.87	126	130	52.0-158			3.12	25
Isopropylbenzene	3.75	4.00	4.15	107	111	70.0-130			3.83	25
(S) 1,4-Bromofluorobenzene			99.5	100	60.0-140					



## Abbreviations and Definitions

MDL	Method Detection Limit.	<sup>1</sup> Cp
RDL	Reported Detection Limit.	<sup>2</sup> Tc
Rec.	Recovery.	<sup>3</sup> Ss
RPD	Relative Percent Difference.	<sup>4</sup> Cn
SDG	Sample Delivery Group.	<sup>5</sup> Sr
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.	<sup>6</sup> Qc
U	Not detected at the Reporting Limit (or MDL where applicable).	<sup>7</sup> Gl
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.	<sup>8</sup> Al
Dilution	If the sample matrix contains an interfering material, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.	<sup>9</sup> Sc
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.	
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.	
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.	

## Qualifier      Description

B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.



ESC Lab Sciences is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our "one location" design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be **YOUR LAB OF CHOICE**.

\* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

## State Accreditations

Alabama	40660	Nevada	TN-03-2002-34
Alaska	UST-080	New Hampshire	2975
Arizona	AZ0612	New Jersey—NELAP	TN002
Arkansas	88-0469	New Mexico	TN00003
California	01157CA	New York	11742
Colorado	TN00003	North Carolina	Env375
Connecticut	PH-0197	North Carolina <sup>1</sup>	DW21704
Florida	E87487	North Carolina <sup>2</sup>	41
Georgia	NELAP	North Dakota	R-140
Georgia <sup>1</sup>	923	Ohio—VAP	CL0069
Idaho	TN00003	Oklahoma	9915
Illinois	200008	Oregon	TN200002
Indiana	C-TN-01	Pennsylvania	68-02979
Iowa	364	Rhode Island	221
Kansas	E-10277	South Carolina	84004
Kentucky <sup>1</sup>	90010	South Dakota	n/a
Kentucky <sup>2</sup>	16	Tennessee <sup>14</sup>	2006
Louisiana	AI30792	Texas	T 104704245-07-TX
Maine	TN0002	Texas <sup>5</sup>	LAB0152
Maryland	324	Utah	6157585858
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	109
Minnesota	047-999-395	Washington	C1915
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA
Nebraska	NE-OS-15-05		

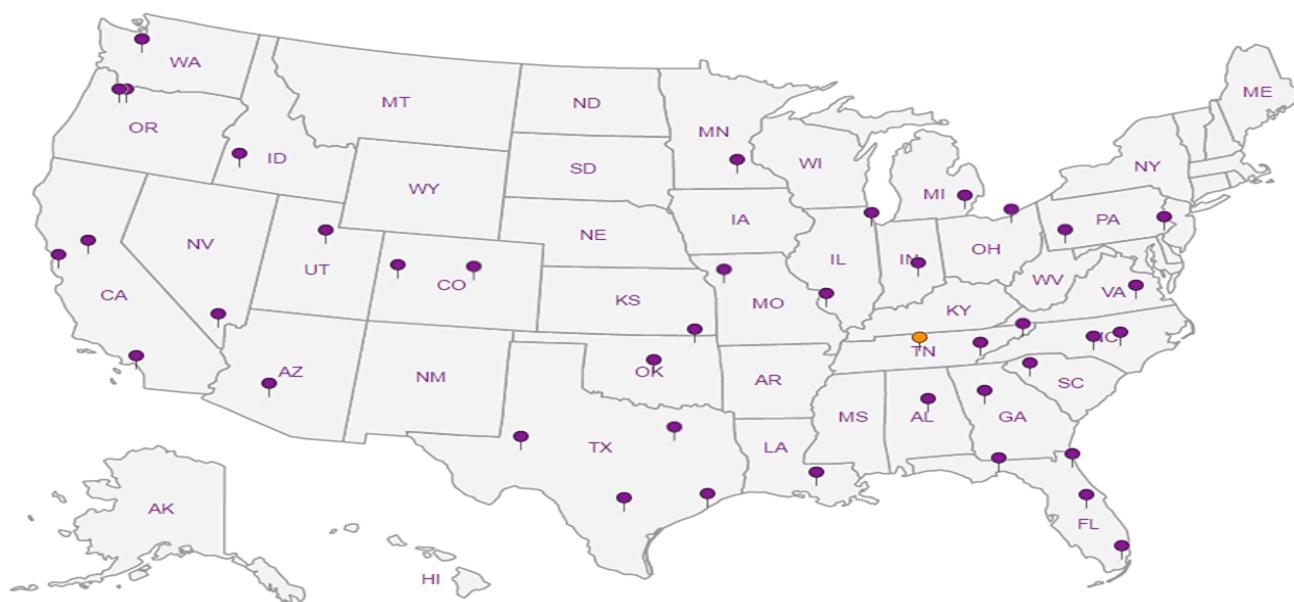
## Third Party & Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC	100789
A2LA – ISO 17025 <sup>5</sup>	1461.02	DOD	1461.01
Canada	1461.01	USDA	S-67674
EPA–Crypto	TN00003		

<sup>1</sup> Drinking Water <sup>2</sup> Underground Storage Tanks <sup>3</sup> Aquatic Toxicity <sup>4</sup> Chemical/Microbiological <sup>5</sup> Mold <sup>n/a</sup> Accreditation not applicable

## Our Locations

ESC Lab Sciences has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. **ESC Lab Sciences performs all testing at our central laboratory.**

<sup>1</sup> Cp<sup>2</sup> Tc<sup>3</sup> Ss<sup>4</sup> Cn<sup>5</sup> Sr<sup>6</sup> Qc<sup>7</sup> Gl<sup>8</sup> Al<sup>9</sup> Sc







YOUR LAB OF CHOICE

12065 Lebanon Rd  
Mount Juliet, TN 37122  
Phone: 615-758-5858  
Phone: 800-767-5859  
Fax: 615-758-5859



L #

Table #

Acctnum: SUNGHD

Template: T110832

Prelogin: P546860

TSR: 134 - Mark W. Beasley

PB:

Shipped Via: FedEX Standard

Rem./Contaminant Sample # (lab only)

-21

-22

-23

-24

-25

-26

-27

Billing Information:  Paul McMahon 1755 Wittingham Pl., Ste. 500 Dallas, TX 75234				Analysis / Container / Preservative									
Report to: Paul McMahon				Email To: Paul.McMahon@ghd.com, David.Steele@ghd.com, Richard.Burns@ghd.com									
Project Description: Sunoco/Evergreen				City/State Collected: PHILA, PA									
Phone: 716-297-6150		Client Project # 11102524		Lab Project # SUNGHD-11102524									
Fax:													
Collected by (print): Rich Burns		Site/Facility ID # PES		P.O. #									
Collected by (signature): Rich Burns		Rush? (Lab MUST Be Notified) Same Day 200% Next Day 100% Two Day 50% Three Day 25%		Date Results Needed									
Immediately Packed on Ice N Y				Email? No X Yes		No. of Cntrs							
				FAX? No Yes									
Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	TO-15 Summa							
IA-A018-3326	—	Air	—	3.29.16	1042/1810		1	X					
IA-A018-27	—	Air	—	3.29.16	1052/1816	1	X						
IA-A018-27-Dsp	—	Air	—	3.29.16	1052/1816	1	X						
IA-A018-OUTDOOR	—	Air	—	3.29.16	1103/1830	1	X						
		Air				1	X						
		Air				1	X						
		Air				1	X						
		Air				1	X						
		Air				1	X						
		Air				1	X						
FIELD BLANK	—	Air	—	3.29.16	—	1	X						

\* Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other

Remarks: FIELD BLANK  
CAN 1992See SSOW FOR TD-15  
Short List

pH \_\_\_\_\_ Temp \_\_\_\_\_

Flow \_\_\_\_\_ Other \_\_\_\_\_

Hold #	Condition: (lab use only)	
TD J		
Samples returned via: <input type="checkbox"/> UPS	<input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Courier <input type="checkbox"/>	
Temp: <i>Anb.</i>	°C Bottles Received: 25	
COC Seal Intact: Y N NA		
pH Checked:	NCF:	

Relinquished by: (Signature)

Date:

4.1.16

Time:

1500

Received by: (Signature)

FED EX

Samples returned via:  UPS FedEx  Courier Temp: *Anb.* °C Bottles Received: 25

Relinquished by: (Signature)

Date:

Time:

Received by: (Signature)

FED EX

Date: 4.4.16 Time: 0930

Relinquished by: (Signature)

Date:

Time:

Received for lab by: (Signature)

FED EX

# GHD Simplified Scope of Work (SSOW)/Laboratory Services Purchase Order

**Project Summary:**

Project Name: Sunoco/Evergreen  
 GHD Project No./Phase/Task: 11102524  
 Project Location: Philadelphia, PA  
 Client Name: Sunoco/Evergreen  
 QAPP Title:

**Database Summary:**

Database Maintained:  Yes  No

SSOW Ref. Code

11102524-002

Database Facility Code: 11102641 MH

FOR INTERNAL USE ONLY - CODING

Note: Is there more than one laboratory

for this event? ( SSOW\_\_ of \_\_ )  Yes  No**Event Summary:**

Phase/Study Title: Air Sampling  
 Event Description: Air Sampling  
 Start Date: 3/24/16  
 Sampling Duration: TBD

Rush TAT:  NA  
 Final Report & EDD TAT: 21 BD Sample Batching: sample event  
 Date Bottles Required: 3/24/2016  
 Bottle Shipping Address Philadelphia Energy Solutions, Central Warehouse, c/o Tim Delk,  
 3144 Passyunk Avenue, Philadelphia, PA 19145  
 Phone Number: 609-815-5829 Attention: Tim Delk

Sampling Frequency: one-time

Contacts:	Name	Address	Phone	Cell	Email
<b>Client Project Manager:</b>					
<b>Consulting Firm:</b>	GHD Services Inc				david.steele@ghd.com
Project Manager:	David Steele	410 Eagleview Blvd, Exton PA	610-321-1800		
Project Coordinator					
Field Leader:	Rich Burns	410 Eagleview Blvd, Exton PA	610-321-1800		richard.burns@ghd.com
<b>Laboratory (Vendor):</b>	ESC				dramsey@esclifesciences.com
Lab Project Manager:	Mark Beasley	12065 Lebanon Road, Mt. Juliet, TN 37122	(615) 773-9672	(615) 330-1602	mbeasley@esclabsciences.com
<b>Chemistry/Data Mgt. Firm:</b>	GHD Services, Inc.				
Chemist :	McMahon, Paul	2055 Niagara Falls Blvd, Niagara Falls, New York 14304	716-297-6150		
Database Analyst:					

**Lab Deliverables**

EDD Format  GHD EQuIS EZEDD  GHD EQuIS 4-file  Other (Please Specify) \_\_\_\_\_  
 Hardcopy Level Requested  GHD Standard  Expanded  Other (Please Specify) \_\_\_\_\_

**Additional Reporting Requirements**

Form 1's include:  MDLs  PQLs  J Values  
 TICs:  Yes  No  
 Soil Reporting:  Dry  Wet

**Lab Deliverables Distribution**

Rush TAT Data (email deliverable only): \_\_\_\_\_ Per Evergreen and GHD Requirements  
 Final EDD & Result Summary ( PDF ): \_\_\_\_\_  
 Final Lab Report  PDF  CD  Hard Copy : \_\_\_\_\_  
 Dave Steele, Paul McMahon

**GHD Data Review Level**

Compliance  Reduced Validation  Reg III Innovative  
 Full Validation  10/90-Full/Innovative  Other (Please Specify) \_\_\_\_\_

**Data Management Deliverables**

EQuIS Database  Cross Tab Table  Flat File  Databox  Other (please specify): \_\_\_\_\_

**Data Management Deliverables Distribution**

Distribution List: \_\_\_\_\_ Dave Steele

Database Exports -  
 Reporting down to MDL  Yes  No

Data Management DV TAT: 2 weeks

**Comments**

Please report in ppbv and ug/m3

\*\*\* additional Final Lab Report copy (in \*.pdf format) is available on GHD's MyPortal Site in the Project File folder or on Program specific SharePoint site; please contact project Chemist  
 SSOW Email Distribution List: david.steele@ghd.com; richard.burns@ghd.com; dramsey@esclifesciences.com; mbeasley@esclabsciences.com; ; Jennifer.Devonshire@ghd.com

Prepared By:	Paul McMahon	Date:	3/22/2016	Revision No.:	Revision Date:
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L827327

# GHD Simplified Scope of Work (SSOW)/Laboratory Services Purchase Order

SSOW Ref. Code  
11102524-002

Project Name: Sunoco/Evergreen  
GHD Project No./Phase/Task: 11102524  
Project Location: Philadelphia, PA

Phase/Study Title: Air Sampling  
Event Description: Air Sampling

Parameter	CAS #	Analytes	Targeted Reporting Limits	Action Limits (if applicable)	Units
VOCs	107-06-2	1,2-Dichloroethane	0.2		ppbv
	95-63-6	1,2,4-Trimethylbenzene	0.2		ppbv
	108-67-8	1,3,5-Trimethylbenzene	0.2		ppbv
	71-43-2	Benzene	0.2		ppbv
	98-82-8	Cumene	0.2		ppbv
	100-41-4	Ethylbenzene	0.2		ppbv
	106-93-4	Ethylene dibromide	0.2		ppbv
	1634-04-4	Methyl tertiary butyl ether	0.2		ppbv
	108-88-3	Toluene	0.2		ppbv
	1330-20-7	Xylenes (total)	0.2		ppbv
	91-20-3	Naphthalene	0.2		ppbv

Attachment C  
Figure 18, Table 3a, Table 6, and Table 13



Source: Microsoft Product Screen Shot(s) Reprinted with permission from Microsoft Corporation, Acquisition Date: June 2014, Accessed: 2016.



PHILADELPHIA ENERGY SOLUTIONS FACILITY  
PHILADELPHIA, PENNSYLVANIA

11109614-01  
Oct 31, 2017

## INDOOR AIR AND AMBIENT AIR SAMPLING LOCATIONS

FIGURE 18

Table 3a

**Surface Soil Analytical Results Summary**  
**Statewide Health Standards**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location:					AOI7-BH-16-001	AOI7-BH-16-002	AOI7-BH-16-003	AOI7-BH-16-005	AOI7-BH-16-006	AOI7-BH-16-006
Sample ID:					AOI7-BH-16-001-0-2-070116	AOI7-BH-16-002-0-2-071216	AOI7-BH-16-003-0-2-071216	AOI7-BH-16-005-0-2-062816	AOI7-BH-16-006-0-2-062816	
Sample Date:					07/01/2016	07/12/2016	07/12/2016	06/28/2016	06/28/2016	06/28/2016
Sample Depth:					0.0-2.0 ft	0.0-2.0 ft				
Parameters	Units	Act 2 Non-Residential Used Aquifer Direct Contact MSC	Act 2 Non-Residential SHS	SSS (Lead)	a	b	c			
<b>Volatile Organic Compounds</b>										
1,2,4-Trimethylbenzene	mg/kg	560	35	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006)	0.62	
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.005	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006) <sup>b</sup>	ND(0.24) <sup>b</sup>	
1,2-Dichloroethane	mg/kg	86	0.5	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006)	ND(0.24)	
1,3,5-Trimethylbenzene	mg/kg	10000	210	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006)	0.13 J	
Benzene	mg/kg	290	0.5	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006)	ND(0.24)	
Ethylbenzene	mg/kg	890	70	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006)	ND(0.24)	
Isopropyl benzene	mg/kg	10000	2500	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006)	ND(0.24)	
Methyl tert butyl ether (MTBE)	mg/kg	8600	2.0	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006)	ND(0.24)	
Toluene	mg/kg	10000	100	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006)	ND(0.24)	
Xylenes (total)	mg/kg	8000	1000	-	ND(0.004)	ND(0.005)	ND(0.004)	ND(0.006)	0.20 J	
<b>Semi-Volatile Organic Compounds</b>										
Anthracene	mg/kg	190000	350	-	0.005 J	0.020	ND(0.018)	0.59	0.60	
Benzo(a)anthracene	mg/kg	130	130	-	0.017 J	0.088	ND(0.018)	0.77	0.83	
Benzo(a)pyrene	mg/kg	12	12	-	0.017 J	0.062	ND(0.018)	0.66	1.0	
Benzo(b)fluoranthene	mg/kg	76	76	-	0.026	0.085	ND(0.018)	0.79	1.3	
Benzo(g,h,i)perylene	mg/kg	190000	180	-	0.019	0.051	0.008 J	0.60	0.42	
Benzo(k)fluoranthene	mg/kg	76	76	-	-	-	-	-	-	
Chrysene	mg/kg	760	230	-	0.018 J	0.200	ND(0.018)	0.89	4.7	
Fluorene	mg/kg	130000	3800	-	ND(0.018)	0.015 J	ND(0.018)	0.22	3.1	
Naphthalene	mg/kg	760	25	-	0.009 J	0.019 J	ND(0.018)	5.2	0.30	
Phenanthrene	mg/kg	190000	10000	-	0.015 J	0.15	0.005 J	1.7	8.7	
Pyrene	mg/kg	96000	2200	-	0.025	0.11	0.006 J	0.87	2.8	
<b>Metals - Total</b>										
Chromium VI (hexavalent)	mg/kg	220	190	-	-	-	-	-	-	
Lead	mg/kg	1000	450	2240	10.2	98.3	ND(13.4)	130	63.6	
Mercury	mg/kg	510	10	-	-	-	-	-	-	
<b>General Chemistry</b>										
Percent Moisture	%	-	-		7.2	10.4	6.6	26.6	12.4	

## Notes:

- a PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Direct Contact, Non-Residential, Surface Soil (0-2 feet), August 27, 2016.
- b PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Minimum of Direct Contact and Soil to Groundwater Max(Generic vs x100), Used Aquifers TDS <= 2500, Non-residential, August 27, 2016.
- c Site Specific Standard for Lead (SSS)
- ND Not detected at the associated reporting limit.
- J Estimated concentration.
- ND(10)<sup>b</sup>** Indicates reporting limit was above the applicable standard.
- 1.4 J<sup>b</sup>** Indicates detected value was above the applicable standard
- ft feet

Table 3a

**Surface Soil Analytical Results Summary**  
**Statewide Health Standards**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location:					AOI7-BH-16-007	AOI7-BH-16-008	AOI7-BH-16-009	AOI7-BH-16-010	AOI7-BH-16-011
Sample ID:					AOI7-BH-16-007-0-2-062816	AOI7-BH-16-008-0-2-062816	AOI7-BH-16-009-062816-0-2	AOI7-BH-16-010-062816-0-2	AOI7-BH-16-011-062816-0-2
Sample Date:					06/28/2016	06/28/2016	06/28/2016	06/28/2016	06/28/2016
Sample Depth:					0.0-2.0 ft				
Parameters	Units	Act 2 Non-Residential Used Aquifer Direct Contact MSC	Act 2 Non-Residential SHS	SSS (Lead)	a	b	c		
<b>Volatile Organic Compounds</b>									
1,2,4-Trimethylbenzene	mg/kg	560	35	-	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.007)	ND(0.006)
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.005	-	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.007) <sup>b</sup>	ND(0.006) <sup>b</sup>
1,2-Dichloroethane	mg/kg	86	0.5	-	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.007)	ND(0.006)
1,3,5-Trimethylbenzene	mg/kg	10000	210	-	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.007)	ND(0.006)
Benzene	mg/kg	290	0.5	-	ND(0.005)	0.0008 J	0.002 J	ND(0.007)	ND(0.006)
Ethylbenzene	mg/kg	890	70	-	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.007)	ND(0.006)
Isopropyl benzene	mg/kg	10000	2500	-	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.007)	ND(0.006)
Methyl tert butyl ether (MTBE)	mg/kg	8600	2.0	-	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.007)	ND(0.006)
Toluene	mg/kg	10000	100	-	ND(0.005)	0.002 J	0.002 J	0.001 J	ND(0.006)
Xylenes (total)	mg/kg	8000	1000	-	ND(0.005)	ND(0.005)	ND(0.005)	ND(0.007)	ND(0.006)
<b>Semi-Volatile Organic Compounds</b>									
Anthracene	mg/kg	190000	350	-	0.067	0.10	0.11	1.1	0.91
Benzo(a)anthracene	mg/kg	130	130	-	0.078	0.13	0.24	2.7	0.96
Benzo(a)pyrene	mg/kg	12	12	-	0.053	0.20	0.26	2.1	0.81
Benzo(b)fluoranthene	mg/kg	76	76	-	0.094	0.17	0.52	2.7	1.2
Benzo(g,h,i)perylene	mg/kg	190000	180	-	0.11	0.14	0.51	1.4	0.72
Benzo(k)fluoranthene	mg/kg	76	76	-	-	-	-	-	-
Chrysene	mg/kg	760	230	-	0.086	0.45	0.40	2.9	1.2
Fluorene	mg/kg	130000	3800	-	0.023	0.043	0.035	0.54	0.43
Naphthalene	mg/kg	760	25	-	0.28	0.34	0.48	10	9.5
Phenanthrene	mg/kg	190000	10000	-	0.15	0.25	0.27	3.9	3.0
Pyrene	mg/kg	96000	2200	-	0.098	0.23	0.40	3.6	1.2
<b>Metals - Total</b>									
Chromium VI (hexavalent)	mg/kg	220	190	-	-	-	-	-	-
Lead	mg/kg	1000	450	2240	241	85.4	526 <sup>c</sup>	399	321
Mercury	mg/kg	510	10	-	-	-	-	-	-
<b>General Chemistry</b>									
Percent Moisture	%	-	-		19.0	15.8	20.6	30.9	29.5

## Notes:

- a PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Direct Contact, Non-Residential, Surface Soil (0-2 feet), August 27, 2016.
- b PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Minimum of Direct Contact and Soil to Groundwater Max(Generic vs x100), Used Aquifers TDS <= 2500, Non-residential, August 27, 2016.
- c Site Specific Standard for Lead (SSS)
- ND Not detected at the associated reporting limit.
- J Estimated concentration.
- ND(10)<sup>b</sup>** Indicates reporting limit was above the applicable standard.
- 1.4 J<sup>b</sup>** Indicates detected value was above the applicable standard
- ft feet

Table 3a

**Surface Soil Analytical Results Summary**  
**Statewide Health Standards**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location:					AOI7-BH-16-012 AOI7-BH-16-012-062816-0-2	AOI7-BH-16-013 AOI7-BH-16-013-0-2-062916	AOI7-BH-16-014 AOI7-BH-16-014-0-2-062916	AOI7-BH-16-015 AOI7-BH-16-015-0-2-062916	AOI7-BH-16-016 AOI7-BH-16-016-062816-0-2
Sample ID:					06/28/2016	06/29/2016	06/29/2016	06/29/2016	06/28/2016
Sample Date:					0.0-2.0 ft				
Sample Depth:									
Parameters	Units	Act 2 Non-Residential Used Aquifer Direct Contact MSC	Act 2 Non-Residential SHS	SSS (Lead)	a	b	c		
<b>Volatile Organic Compounds</b>									
1,2,4-Trimethylbenzene	mg/kg	560	35	-	ND(0.640)	ND(0.660)	ND(0.007)	ND(0.008)	ND(0.004)
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.005	-	ND(0.640) <sup>b</sup>	ND(0.660) <sup>b</sup>	ND(0.007) <sup>b</sup>	ND(0.008) <sup>b</sup>	ND(0.004)
1,2-Dichloroethane	mg/kg	86	0.5	-	ND(0.640) <sup>b</sup>	ND(0.660) <sup>b</sup>	ND(0.007)	ND(0.008)	ND(0.004)
1,3,5-Trimethylbenzene	mg/kg	10000	210	-	ND(0.640)	ND(0.660)	ND(0.007)	ND(0.008)	ND(0.004)
Benzene	mg/kg	290	0.5	-	0.079 J	ND(0.660) <sup>b</sup>	ND(0.007)	ND(0.008)	ND(0.004)
Ethylbenzene	mg/kg	890	70	-	ND(0.640)	ND(0.660)	ND(0.007)	ND(0.008)	ND(0.004)
Isopropyl benzene	mg/kg	10000	2500	-	ND(0.640)	ND(0.660)	ND(0.007)	ND(0.008)	ND(0.004)
Methyl tert butyl ether (MTBE)	mg/kg	8600	2.0	-	ND(0.640)	ND(0.660)	ND(0.007)	ND(0.008)	ND(0.004)
Toluene	mg/kg	10000	100	-	0.810	0.280 J	ND(0.007)	ND(0.008)	ND(0.004)
Xylenes (total)	mg/kg	8000	1000	-	0.220 J	ND(0.660)	ND(0.007)	ND(0.008)	ND(0.004)
<b>Semi-Volatile Organic Compounds</b>									
Anthracene	mg/kg	190000	350	-	2.4	2.5	1.6	1.2	0.012 J
Benzo(a)anthracene	mg/kg	130	130	-	2	2.2	1.3	1.4	0.025
Benzo(a)pyrene	mg/kg	12	12	-	1.5	1.3	1.2	1.3	0.021
Benzo(b)fluoranthene	mg/kg	76	76	-	1.8	1.8	1.9	1.8	0.035
Benzo(g,h,i)perylene	mg/kg	190000	180	-	1.1	0.75	1.2	1.3	0.023
Benzo(k)fluoranthene	mg/kg	76	76	-	-	-	-	-	-
Chrysene	mg/kg	760	230	-	2.4	2.8	1.7	1.8	0.032
Fluorene	mg/kg	130000	3800	-	2	2.2	0.88	0.47	0.006 J
Naphthalene	mg/kg	760	25	-	11	8	22	12	0.017 J
Phenanthrene	mg/kg	190000	10000	-	4.3	5.9	5	3.4	0.028
Pyrene	mg/kg	96000	2200	-	4.2	6.3	1.9	1.6	0.039
<b>Metals - Total</b>									
Chromium VI (hexavalent)	mg/kg	220	190	-	-	-	-	-	-
Lead	mg/kg	1000	450	2240	295	418	566 <sup>c</sup>	386	21.4
Mercury	mg/kg	510	10	-	-	-	-	-	-
<b>General Chemistry</b>									
Percent Moisture	%	-	-		44.3	44.1	35.5	36.3	8.1

## Notes:

- a PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Direct Contact, Non-Residential, Surface Soil (0-2 feet), August 27, 2016.
- b PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Minimum of Direct Contact and Soil to Groundwater Max(Generic vs x100), Used Aquifers TDS <= 2500, Non-residential, August 27, 2016.
- c Site Specific Standard for Lead (SSS)
- ND Not detected at the associated reporting limit.
- J Estimated concentration.
- ND(10)<sup>b</sup>** Indicates reporting limit was above the applicable standard.
- 1.4 J<sup>b</sup>** Indicates detected value was above the applicable standard
- ft feet

Table 3a

**Surface Soil Analytical Results Summary**  
**Statewide Health Standards**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location:											
Sample ID:											
Sample Date:											
Sample Depth:											
Parameters	Units	Act 2 Non-Residential Used Aquifer Direct Contact MSC	Act 2 Non-Residential SHS	SSS (Lead)	AOI7-BH-16-017 AOI7-BH-16-017-0-2-071116 07/11/2016 0.0-2.0 ft	AOI7-BH-16-019 AOI7-BH-16-019-0-2-070616 07/06/2016 0.0-2.0 ft	AOI7-BH-16-020 AOI7-BH-16-020-0-2-062816 06/28/2016 0.0-2.0 ft	AOI7-BH-16-020 AOI7-BH-16-020-0-2-070116 07/01/2016 0.0-2.0 ft	AOI7-BH-16-021 AOI7-BH-16-021-0-2-063016 06/30/2016 0.0-2.0 ft		
<b>Volatile Organic Compounds</b>											
1,2,4-Trimethylbenzene	mg/kg	560	35	-	-	0.002 J	ND(0.009)	ND(0.004)	ND(0.004)		
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.005	-	-	ND(0.004)	ND(0.009) <sup>b</sup>	ND(0.004)	ND(0.004)		
1,2-Dichloroethane	mg/kg	86	0.5	-	-	ND(0.004)	ND(0.009)	ND(0.004)	ND(0.004)		
1,3,5-Trimethylbenzene	mg/kg	10000	210	-	-	0.002 J	ND(0.009)	ND(0.004)	ND(0.004)		
Benzene	mg/kg	290	0.5	-	-	0.0006 J	ND(0.009)	ND(0.004)	ND(0.004)		
Ethylbenzene	mg/kg	890	70	-	-	ND(0.004)	ND(0.009)	ND(0.004)	ND(0.004)		
Isopropyl benzene	mg/kg	10000	2500	-	-	0.002 J	ND(0.009)	ND(0.004)	ND(0.004)		
Methyl tert butyl ether (MTBE)	mg/kg	8600	2.0	-	-	ND(0.004)	ND(0.009)	ND(0.004)	ND(0.004)		
Toluene	mg/kg	10000	100	-	-	0.0009 J	ND(0.009)	ND(0.004)	ND(0.004)		
Xylenes (total)	mg/kg	8000	1000	-	-	0.002 J	ND(0.009)	ND(0.004)	ND(0.004)		
<b>Semi-Volatile Organic Compounds</b>											
Anthracene	mg/kg	190000	350	-	-	0.18	0.024	0.3	0.19		
Benzo(a)anthracene	mg/kg	130	130	-	-	0.27	0.11	0.53	0.53		
Benzo(a)pyrene	mg/kg	12	12	-	3.2	0.22	0.085	0.48	0.48		
Benzo(b)fluoranthene	mg/kg	76	76	-	-	0.26	0.13	0.63	0.61		
Benzo(g,h,i)perylene	mg/kg	190000	180	-	-	0.29	0.076	0.59	0.33		
Benzo(k)fluoranthene	mg/kg	76	76	-	-	-	-	-	-		
Chrysene	mg/kg	760	230	-	-	0.57	0.14	0.6	0.48		
Fluorene	mg/kg	130000	3800	-	-	0.25	0.008 J	0.15	0.074		
Naphthalene	mg/kg	760	25	-	-	0.68	0.025	1.0	0.15		
Phenanthrene	mg/kg	190000	10000	-	-	0.83	0.078	0.9	0.74		
Pyrene	mg/kg	96000	2200	-	-	0.45	0.18	0.84	0.95		
<b>Metals - Total</b>											
Chromium VI (hexavalent)	mg/kg	220	190	-	-	-	-	-	-		
Lead	mg/kg	1000	450	2240	-	117	13.9	351	77.5		
Mercury	mg/kg	510	10	-	-	-	-	-	-		
<b>General Chemistry</b>											
Percent Moisture	%	-	-		32.5	16.0	20.9	16.7	18.7		

## Notes:

- a PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Direct Contact, Non-Residential, Surface Soil (0-2 feet), August 27, 2016.
- b PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Minimum of Direct Contact and Soil to Groundwater Max(Generic vs x100), Used Aquifers TDS <= 2500, Non-residential, August 27, 2016.
- c Site Specific Standard for Lead (SSS)
- ND Not detected at the associated reporting limit.
- J Estimated concentration.
- ND(10)<sup>b</sup>** Indicates reporting limit was above the applicable standard.
- 1.4 J<sup>b</sup>** Indicates detected value was above the applicable standard
- ft feet

Table 3a

**Surface Soil Analytical Results Summary**  
**Statewide Health Standards**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location:										
Sample ID:										
Sample Date:										
Sample Depth:										
Parameters	Units	Act 2 Non-Residential Used Aquifer Direct Contact MSC	Act 2 Non-Residential SHS	SSS (Lead)	AOI7-BH-16-022 AOI7-BH-16-022-0-2-070516 07/05/2016	AOI7-BH-16-023 AOI7-BH-16-023-0-2-070116 07/01/2016	AOI7-BH-16-024 AOI7-BH-16-024-0-2-070716 07/07/2016	AOI7-BH-16-025 AOI7-BH-16-025-0-2-070116 07/01/2016	AOI7-BH-16-026 AOI7-BH-16-026-0-2-070116 07/01/2016	
		a	b	c						
<b>Volatile Organic Compounds</b>										
1,2,4-Trimethylbenzene	mg/kg	560	35	-	ND(0.005)	ND(0.005)	ND(0.004)	1.0 J	ND(0.006)	
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.005	-	ND(0.005)	ND(0.005)	ND(0.004)	ND(4.1) <sup>b</sup>	ND(0.006) <sup>b</sup>	
1,2-Dichloroethane	mg/kg	86	0.5	-	ND(0.005)	ND(0.005)	ND(0.004)	ND(4.1) <sup>b</sup>	ND(0.006)	
1,3,5-Trimethylbenzene	mg/kg	10000	210	-	ND(0.005)	ND(0.005)	ND(0.004)	ND(4.1)	ND(0.006)	
Benzene	mg/kg	290	0.5	-	ND(0.005)	ND(0.005)	ND(0.004)	0.82 J <sup>b</sup>	0.001 J	
Ethylbenzene	mg/kg	890	70	-	ND(0.005)	ND(0.005)	ND(0.004)	1.6 J	ND(0.006)	
Isopropyl benzene	mg/kg	10000	2500	-	ND(0.005)	ND(0.005)	ND(0.004)	3.4 J	0.004 J	
Methyl tert butyl ether (MTBE)	mg/kg	8600	2.0	-	ND(0.005)	ND(0.005)	ND(0.004)	ND(4.1) <sup>b</sup>	ND(0.006)	
Toluene	mg/kg	10000	100	-	ND(0.005)	0.002 J	ND(0.004)	1.1 J	ND(0.006)	
Xylenes (total)	mg/kg	8000	1000	-	ND(0.005)	ND(0.005)	ND(0.004)	2.0 J	0.002 J	
<b>Semi-Volatile Organic Compounds</b>										
Anthracene	mg/kg	190000	350	-	1.3	0.200 J	0.004 J	2.0	0.053 J	
Benzo(a)anthracene	mg/kg	130	130	-	2.2	0.46	0.009 J	1.8	0.26	
Benzo(a)pyrene	mg/kg	12	12	-	2.1	0.38	0.014 J	1.9	0.37	
Benzo(b)fluoranthene	mg/kg	76	76	-	3.1	0.80	0.017 J	2.3	0.57	
Benzo(g,h,i)perylene	mg/kg	190000	180	-	1.6	0.43	0.016 J	1.6	0.39	
Benzo(k)fluoranthene	mg/kg	76	76	-	-	-	-	-	-	
Chrysene	mg/kg	760	230	-	2.3	0.54	0.012 J	2.1	0.40	
Fluorene	mg/kg	130000	3800	-	0.8	0.063 J	ND(0.018)	1.8	ND(0.190)	
Naphthalene	mg/kg	760	25	-	5.5	1.1	0.009 J	64 <sup>b</sup>	0.120 J	
Phenanthrene	mg/kg	190000	10000	-	3.5	0.72	0.008 J	5.1	0.23	
Pyrene	mg/kg	96000	2200	-	3.5	0.67	0.016 J	3.4	0.61	
<b>Metals - Total</b>										
Chromium VI (hexavalent)	mg/kg	220	190	-	-	-	-	-	-	
Lead	mg/kg	1000	450	2240	119	268	6.35	533 <sup>c</sup>	50.3	
Mercury	mg/kg	510	10	-	-	-	-	-	-	
<b>General Chemistry</b>										
Percent Moisture	%	-	-		20.3	23.3	6.3	27.7	12.8	

## Notes:

- a PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Direct Contact, Non-Residential, Surface Soil (0-2 feet), August 27, 2016.
- b PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Minimum of Direct Contact and Soil to Groundwater Max(Generic vs x100), Used Aquifers TDS <= 2500, Non-residential, August 27, 2016.
- c Site Specific Standard for Lead (SSS)
- ND Not detected at the associated reporting limit.
- J Estimated concentration.
- ND(10)<sup>b</sup>** Indicates reporting limit was above the applicable standard.
- 1.4 J<sup>b</sup>** Indicates detected value was above the applicable standard
- ft feet

Table 3a

**Surface Soil Analytical Results Summary**  
**Statewide Health Standards**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location:					AOI7-BH-16-027 AOI7-BH-16-027-0-2-070716	AOI7-BH-16-028 AOI7-BH-16-028-0-2-071216	AOI7-BH-16-032 AOI7-BH-16-032-0-2-071216	AOI7-BH-16-034 AOI7-BH-16-034-0-2-070816	AOI7-BH-16-035 AOI7-BH-16-035-0-2-070816
Sample ID:					07/07/2016	07/12/2016	07/12/2016	07/08/2016	07/08/2016
Sample Date:					0.0-2.0 ft				
Sample Depth:									
Parameters	Units	Act 2 Non-Residential Used Aquifer Direct Contact MSC	Act 2 Non-Residential SHS	SSS (Lead)	AOI7-BH-16-027 AOI7-BH-16-027-0-2-070716	AOI7-BH-16-028 AOI7-BH-16-028-0-2-071216	AOI7-BH-16-032 AOI7-BH-16-032-0-2-071216	AOI7-BH-16-034 AOI7-BH-16-034-0-2-070816	AOI7-BH-16-035 AOI7-BH-16-035-0-2-070816
		a	b	c					
<b>Volatile Organic Compounds</b>									
1,2,4-Trimethylbenzene	mg/kg	560	35	-	ND(0.004)	ND(0.006)	ND(0.004)	1.0	ND(0.004)
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.005	-	ND(0.004)	ND(0.006) <sup>b</sup>	ND(0.004)	ND(0.41) <sup>b</sup>	ND(0.004)
1,2-Dichloroethane	mg/kg	86	0.5	-	ND(0.004)	ND(0.006)	ND(0.004)	ND(0.41)	ND(0.004)
1,3,5-Trimethylbenzene	mg/kg	10000	210	-	ND(0.004)	ND(0.006)	ND(0.004)	ND(0.41)	ND(0.004)
Benzene	mg/kg	290	0.5	-	ND(0.004)	0.010	ND(0.004)	0.390 J	0.002 J
Ethylbenzene	mg/kg	890	70	-	ND(0.004)	ND(0.006)	ND(0.004)	0.150 J	ND(0.004)
Isopropyl benzene	mg/kg	10000	2500	-	ND(0.004)	ND(0.006)	ND(0.004)	0.250 J	ND(0.004)
Methyl tert butyl ether (MTBE)	mg/kg	8600	2.0	-	ND(0.004)	ND(0.006)	ND(0.004)	ND(0.41)	ND(0.004)
Toluene	mg/kg	10000	100	-	ND(0.004)	0.015	ND(0.004)	0.670	0.002 J
Xylenes (total)	mg/kg	8000	1000	-	ND(0.004)	0.004 J	ND(0.004)	1.500	ND(0.004)
<b>Semi-Volatile Organic Compounds</b>									
Anthracene	mg/kg	190000	350	-	0.014 J	1.0	0.010 J	1.0	0.34
Benzo(a)anthracene	mg/kg	130	130	-	0.025	2.0	0.03	1.8	0.72
Benzo(a)pyrene	mg/kg	12	12	-	0.034	1.7	0.038	1.8	0.55
Benzo(b)fluoranthene	mg/kg	76	76	-	0.053	2.2	0.069	2.5	0.69
Benzo(g,h,i)perylene	mg/kg	190000	180	-	0.046	1.6	0.046	1.6	0.56
Benzo(k)fluoranthene	mg/kg	76	76	-	-	-	-	-	-
Chrysene	mg/kg	760	230	-	0.034	2.2	0.049	2.8	0.73
Fluorene	mg/kg	130000	3800	-	0.004 J	0.22	ND(0.018)	0.83	0.11
Naphthalene	mg/kg	760	25	-	0.04	3.3	0.009 J	10	0.20
Phenanthrene	mg/kg	190000	10000	-	0.029	2.6	0.031	3.1	1.4
Pyrene	mg/kg	96000	2200	-	0.035	2.8	0.062	2.3	1.3
<b>Metals - Total</b>									
Chromium VI (hexavalent)	mg/kg	220	190	-	-	-	-	-	-
Lead	mg/kg	1000	450	2240	5.12	499 <sup>c</sup>	8.24	424	59.9
Mercury	mg/kg	510	10	-	-	-	-	-	-
<b>General Chemistry</b>									
Percent Moisture	%	-	-	-	4.0	24.5	7.1	27.9	12.3

## Notes:

- a PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Direct Contact, Non-Residential, Surface Soil (0-2 feet), August 27, 2016.
- b PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Minimum of Direct Contact and Soil to Groundwater Max(Generic vs x100), Used Aquifers TDS <= 2500, Non-residential, August 27, 2016.
- c Site Specific Standard for Lead (SSS)
- ND Not detected at the associated reporting limit.
- J Estimated concentration.
- ND(10)<sup>b</sup>** Indicates reporting limit was above the applicable standard.
- 1.4 J<sup>b</sup>** Indicates detected value was above the applicable standard
- ft feet

Table 3a

**Surface Soil Analytical Results Summary**  
**Statewide Health Standards**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location:										
Sample ID:										
Sample Date:										
Sample Depth:										
Parameters	Units	Act 2 Non-Residential Used Aquifer Direct Contact MSC	Act 2 Non-Residential SHS	SSS (Lead)	AOI7-BH-16-036 AOI7-BH-16-036-0-2-063016 06/30/2016 0.0-2.0 ft	AOI7-BH-16-037 AOI7-BH-16-037-0-2-062916 06/29/2016 0.0-2.0 ft	AOI7-BH-16-038 AOI7-BH-16-038-0-2-063016 06/30/2016 0.0-2.0 ft	AOI7-BH-16-039 AOI7-BH-16-039-0-2-062916 06/29/2016 0.0-2.0 ft	AOI7-BH-16-040 AOI7-BH-16-040-0-2-062916 06/29/2016 0.0-2.0 ft	
	a	b	c							
<b>Volatile Organic Compounds</b>										
1,2,4-Trimethylbenzene	mg/kg	560	35	-	0.14 J	ND(2.3)	ND(0.005)	0.001 J	ND(0.004)	
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.005	-	ND(0.49) <sup>b</sup>	ND(2.3) <sup>b</sup>	ND(0.005)	ND(0.004)	ND(0.004)	
1,2-Dichloroethane	mg/kg	86	0.5	-	ND(0.49)	ND(2.3) <sup>b</sup>	ND(0.005)	ND(0.004)	ND(0.004)	
1,3,5-Trimethylbenzene	mg/kg	10000	210	-	ND(0.49)	ND(2.3)	ND(0.005)	ND(0.004)	ND(0.004)	
Benzene	mg/kg	290	0.5	-	0.089 J	ND(2.3) <sup>b</sup>	ND(0.005)	0.004 J	0.001 J	
Ethylbenzene	mg/kg	890	70	-	0.11 J	ND(2.3)	ND(0.005)	ND(0.004)	ND(0.004)	
Isopropyl benzene	mg/kg	10000	2500	-	ND(0.49)	ND(2.3)	ND(0.005)	ND(0.004)	ND(0.004)	
Methyl tert butyl ether (MTBE)	mg/kg	8600	2.0	-	ND(0.49)	ND(2.3) <sup>b</sup>	ND(0.005)	ND(0.004)	ND(0.004)	
Toluene	mg/kg	10000	100	-	1.4	0.610 J	0.001 J	0.002 J	0.001 J	
Xylenes (total)	mg/kg	8000	1000	-	0.26 J	ND(2.3)	ND(0.005)	0.002 J	0.0008 J	
<b>Semi-Volatile Organic Compounds</b>										
Anthracene	mg/kg	190000	350	-	1.6	1.2	0.16 J	0.009 J	0.21	
Benzo(a)anthracene	mg/kg	130	130	-	1.4	0.89	0.54	0.032	0.33	
Benzo(a)pyrene	mg/kg	12	12	-	1.5	0.91	0.69	0.027	0.25	
Benzo(b)fluoranthene	mg/kg	76	76	-	2.3	1.4	0.8	0.037	0.23	
Benzo(g,h,i)perylene	mg/kg	190000	180	-	1.4	0.99	0.72	0.043	0.28	
Benzo(k)fluoranthene	mg/kg	76	76	-	-	-	-	-	-	
Chrysene	mg/kg	760	230	-	1.6	1.2	0.65	0.063	0.72	
Fluorene	mg/kg	130000	3800	-	1.1	0.77	0.059 J	0.005 J	0.27	
Naphthalene	mg/kg	760	25	-	21	10	1.4	0.02	0.087	
Phenanthrene	mg/kg	190000	10000	-	4.7	3.9	0.65	0.05	1.1	
Pyrene	mg/kg	96000	2200	-	2.2	1.5	0.64	0.04	0.78	
<b>Metals - Total</b>										
Chromium VI (hexavalent)	mg/kg	220	190	-	-	-	-	-	-	
Lead	mg/kg	1000	450	2240	368	313	40.6	42.3	309	
Mercury	mg/kg	510	10	-	-	-	-	-	-	
<b>General Chemistry</b>										
Percent Moisture	%	-	-		36.9	37.1	22.6	7.0	7.4	

## Notes:

- a PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Direct Contact, Non-Residential, Surface Soil (0-2 feet), August 27, 2016.
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- c Site Specific Standard for Lead (SSS)
- ND Not detected at the associated reporting limit.
- J Estimated concentration.
- ND(10)<sup>b</sup>** Indicates reporting limit was above the applicable standard.
- 1.4 J<sup>b</sup>** Indicates detected value was above the applicable standard
- ft feet

Table 3a

**Surface Soil Analytical Results Summary**  
**Statewide Health Standards**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location:										
Sample ID:										
Sample Date:										
Sample Depth:										
Parameters	Units	Act 2 Non-Residential Used Aquifer Direct Contact MSC	Act 2 Non-Residential SHS	SSS (Lead)	AOI7-BH-16-041 AOI7-BH-16-041-0-2-070616 07/06/2016 0.0-2.0 ft	AOI7-BH-16-042 AOI7-BH-16-042-0-2-070616 07/06/2016 0.0-2.0 ft	AOI7-BH-16-043 AOI7-BH-16-043-0-2-062916 06/29/2016 0.0-2.0 ft	AOI7-BH-16-044 AOI7-BH-16-044-0-2-071216 07/12/2016 0.0-2.0 ft	AOI7-BH-16-045 AOI7-BH-16-045-0-2-070116 07/01/2016 0.0-2.0 ft	
<b>Volatile Organic Compounds</b>		a	b	c						
1,2,4-Trimethylbenzene	mg/kg	560	35	-	ND(0.005)	0.082 J	ND(0.005)	ND(0.005)	ND(0.004)	
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.005	-	ND(0.005)	ND(0.39) <sup>b</sup>	ND(0.005)	ND(0.005)	ND(0.004)	
1,2-Dichloroethane	mg/kg	86	0.5	-	ND(0.005)	ND(0.39)	ND(0.005)	ND(0.005)	ND(0.004)	
1,3,5-Trimethylbenzene	mg/kg	10000	210	-	ND(0.005)	ND(0.39)	ND(0.005)	ND(0.005)	ND(0.004)	
Benzene	mg/kg	290	0.5	-	0.002 J	0.11 J	0.002 J	ND(0.005)	ND(0.004)	
Ethylbenzene	mg/kg	890	70	-	ND(0.005)	0.12 J	ND(0.005)	ND(0.005)	ND(0.004)	
Isopropyl benzene	mg/kg	10000	2500	-	ND(0.005)	ND(0.39)	ND(0.005)	ND(0.005)	ND(0.004)	
Methyl tert butyl ether (MTBE)	mg/kg	8600	2.0	-	ND(0.005)	ND(0.39)	ND(0.005)	ND(0.005)	ND(0.004)	
Toluene	mg/kg	10000	100	-	ND(0.005)	0.70	0.002 J	ND(0.005)	ND(0.004)	
Xylenes (total)	mg/kg	8000	1000	-	ND(0.005)	0.30 J	ND(0.005)	ND(0.005)	ND(0.004)	
<b>Semi-Volatile Organic Compounds</b>										
Anthracene	mg/kg	190000	350	-	0.014 J	2.0	1.4	0.006 J	ND(0.019)	
Benzo(a)anthracene	mg/kg	130	130	-	0.032	2.7	3.4	0.024	0.016 J	
Benzo(a)pyrene	mg/kg	12	12	-	0.041	3.3	2.4	0.022	0.020	
Benzo(b)fluoranthene	mg/kg	76	76	-	0.057	4.1	3.1	0.039	0.030	
Benzo(g,h,i)perylene	mg/kg	190000	180	-	0.035	2.7	1.7	0.024	0.024	
Benzo(k)fluoranthene	mg/kg	76	76	-	-	-	-	-	0.009 J	
Chrysene	mg/kg	760	230	-	0.043	2.6	3.3	0.030	0.020	
Fluorene	mg/kg	130000	3800	-	0.005 J	1.2	0.48	ND(0.018)	ND(0.019)	
Naphthalene	mg/kg	760	25	-	0.039	8.7	2.5	0.004 J	0.007 J	
Phenanthrene	mg/kg	190000	10000	-	0.032	4.2	3.5	0.018 J	0.012 J	
Pyrene	mg/kg	96000	2200	-	0.057	3.6	4.5	0.038	0.024	
<b>Metals - Total</b>										
Chromium VI (hexavalent)	mg/kg	220	190	-	-	-	-	-	ND(1.7)	
Lead	mg/kg	1000	450	2240	26.1	256	432	ND(29.0)	4.14	
Mercury	mg/kg	510	10	-	-	-	-	-	ND(0.105)	
<b>General Chemistry</b>										
Percent Moisture	%	-	-		7.0	23.3	15.7	7.6	10.7	

## Notes:

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- b PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Minimum of Direct Contact and Soil to Groundwater Max(Generic vs x100), Used Aquifers TDS <= 2500, Non-residential, August 27, 2016.
- c Site Specific Standard for Lead (SSS)
- ND Not detected at the associated reporting limit.
- J Estimated concentration.
- ND(10)<sup>b</sup>** Indicates reporting limit was above the applicable standard.
- 1.4 J<sup>b</sup>** Indicates detected value was above the applicable standard
- ft feet

Table 3a

**Surface Soil Analytical Results Summary**  
**Statewide Health Standards**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location:										
Sample ID:										
Sample Date:										
Sample Depth:										
Parameters	Units	Act 2 Non-Residential Used Aquifer Direct Contact MSC	Act 2 Non-Residential SHS	SSS (Lead)	AOI7-BH-16-046 AOI7-BH-16-046-0-2-070516	AOI7-BH-16-047 AOI7-BH-16-047-0-2-070816	C-170 AOI7-C-170-0-2-070716	C-171 AOI7-C-171-0-2-070516	C-172 AOI7-C-172-0-2-070616	
		a	b	c	07/05/2016 0.0-2.0 ft	07/08/2016 0.0-2.0 ft	07/07/2016 0.0-2.0 ft	07/05/2016 0.0-2.0 ft	07/06/2016 0.0-2.0 ft	
<b>Volatile Organic Compounds</b>										
1,2,4-Trimethylbenzene	mg/kg	560	35	-	0.16 J	0.13 J	1.5	0.11 J	ND(0.006)	
1,2-Dibromoethane (Ethylene dibromide)	mg/kg	3.7	0.005	-	ND(0.34) <sup>b</sup>	ND(0.38) <sup>b</sup>	ND(0.38) <sup>b</sup>	ND(0.33) <sup>b</sup>	ND(0.006) <sup>b</sup>	
1,2-Dichloroethane	mg/kg	86	0.5	-	ND(0.34)	ND(0.38)	ND(0.38)	ND(0.33)	ND(0.006)	
1,3,5-Trimethylbenzene	mg/kg	10000	210	-	ND(0.34)	ND(0.38)	0.27 J	ND(0.33)	ND(0.006)	
Benzene	mg/kg	290	0.5	-	0.37	0.12 J	0.090 J	0.15 J	ND(0.006)	
Ethylbenzene	mg/kg	890	70	-	0.18 J	0.10 J	0.16 J	0.090 J	ND(0.006)	
Isopropyl benzene	mg/kg	10000	2500	-	0.61	ND(0.38)	0.91	ND(0.33)	ND(0.006)	
Methyl tert butyl ether (MTBE)	mg/kg	8600	2.0	-	ND(0.340)	ND(0.38)	ND(0.38)	ND(0.33)	ND(0.006)	
Toluene	mg/kg	10000	100	-	0.50	0.89	0.41	0.39	ND(0.006)	
Xylenes (total)	mg/kg	8000	1000	-	0.88	0.21 J	0.83	0.49	ND(0.006)	
<b>Semi-Volatile Organic Compounds</b>										
Anthracene	mg/kg	190000	350	-	3.5	1.9	2.2	2.9	0.91	
Benzo(a)anthracene	mg/kg	130	130	-	5.0	2.1	2.1 J	4.8	2.0	
Benzo(a)pyrene	mg/kg	12	12	-	5.1	2.4	2.1 J	3.9	2.0	
Benzo(b)fluoranthene	mg/kg	76	76	-	6.4	2.7	2.7	7.0	2.6	
Benzo(g,h,i)perylene	mg/kg	190000	180	-	3.4	2.1	2.4	2.7	1.5	
Benzo(k)fluoranthene	mg/kg	76	76	-	2.2	1.2	-	-	-	
Chrysene	mg/kg	760	230	-	5.9	2.7	3.6	5.1	1.9	
Fluorene	mg/kg	130000	3800	-	5.4	1.0	ND(2.1)	1.8	0.47	
Naphthalene	mg/kg	760	25	-	11	10	6.2	5.0	3.1	
Phenanthrene	mg/kg	190000	10000	-	5.7	3.7	6.3	6.6	2.7	
Pyrene	mg/kg	96000	2200	-	9.0	3.9	5.4	8.5	2.8	
<b>Metals - Total</b>										
Chromium VI (hexavalent)	mg/kg	220	190	-	ND(7.4)	ND(1.9)	-	-	-	
Lead	mg/kg	1000	450	2240	509 <sup>c</sup>	238	793 <sup>c</sup>	324	198	
Mercury	mg/kg	510	10	-	11 <sup>b</sup>	1.15	-	-	-	
<b>General Chemistry</b>										
Percent Moisture	%	-	-		18.5	20.8	18.7	21.2	18.8	

## Notes:

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- b PADEP Act 2 Medium-Specific Concentration (MSCs) for Organic/Inorganic Regulated Substances in Soil, Minimum of Direct Contact and Soil to Groundwater Max(Generic vs x100), Used Aquifers TDS <= 2500, Non-residential, August 27, 2016.
- c Site Specific Standard for Lead (SSS)
- ND Not detected at the associated reporting limit.
- J Estimated concentration.
- ND(10)<sup>b</sup>** Indicates reporting limit was above the applicable standard.
- 1.4 J<sup>b</sup>** Indicates detected value was above the applicable standard
- ft feet

Table 6

**Existing Well Summary**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a Series of Evergreen Resources Group, LLC**

AOI	Well ID	Former Well ID <sup>2</sup>	Well Status	Disposition of Well	Northing <sup>3</sup>	Easting <sup>3</sup>	Well Type <sup>4</sup>	Well Classification/Hydrostratigraphic Unit <sup>5</sup>	Soil Boring Log Available (Y/N)	Contruction Detail Available (Y/N)	Date of Well Completion	Well Construction Details <sup>1</sup>							
												Well Completion Depth (ft/bgs) <sup>6</sup>	Well Diameter (in) <sup>7</sup>	Top of Inner Casing Elevation (ft msl) (NAVD88) <sup>8</sup>	Ground Surface Elevation (ft msl) (NAVD88) <sup>8</sup>	Top of Screen Elev (ft msl) (NAVD88) <sup>8</sup>	Bottom of Screen Elevation (ft msl) (NAVD88) <sup>8</sup>	Depth to Screen (ft bgs) <sup>8</sup>	Screen Length (ft) <sup>9</sup>
AOI 7	C-50D				219609.42	2682342.49	MW	Deep	Y	Y	11/4/1986	26	4	11.49	9.11	-6.89	-16.89	16	10
AOI 7	C-104				219187.87	2679742	MW	Shallow						9.53	6.84				
AOI 7	C-105				219497.38	2679690.47	MW	Shallow						9.17	6.6				
AOI 7	C-106				219755.71	2679710.26	MW	Shallow						11.54	7.9				
AOI 7	C-107	Destroyed			220183.98	2680066.56	MW	Shallow						10.43	7.78				
AOI 7	C-108				219818.81	2680855.79	MW	Shallow						8.27	5.37				
AOI 7	C-109				219230.74	2682312.46	MW	Shallow						10	7.79				
AOI 7	C-110				219405.77	2682469.05	MW	Shallow						12.58	9.2				
AOI 7	C-111				219231.59	2682560.89	MW	Shallow						12.17	9.35				
AOI 7	C-112				218696.61	2682431.45	MW	Shallow						10.96	8.38				
AOI 7	C-113				218797.69	2682817.06	MW	Shallow						11.65	9.16				
AOI 7	C-114				218347.54	2683001.16	MW	Shallow						10.96	8.59				
AOI 7	C-127				220182.15	2680897.06	MW	Shallow	Y	Y	8/20/1992	16	4	9.8	6.7	1.7	-8.3	5	10
AOI 7	C-128	Destroyed			219916.236	2681231.109	MW	Shallow	Y	Y	8/12/1992	16	4	13.57				5	10
AOI 7	C-129				220497.185	2681937.365	MW	Shallow/Intermediate	Y	Y	6/2/2010	12	4	8.941	7.196	5.196	-4.804	2	10
AOI 7	C-129D				220492.006	2681929.233	MW	Deep	Y	Y	6/25/2010	66	4	9.191	6.848	-44.15	-59.152	51	15
AOI 7	C-130				219981.051	2682139.561	MW	Shallow	Y	Y	6/2/2010	15	4	11.984	10.287	5.287	-4.713	5	10
AOI 7	C-131				218971.277	2682328.675	MW	Shallow	Y	Y	6/3/2010	14	4	10.14	8.279	4.279	-5.721	4	10
AOI 7	C-132				218271.326	2682247.68	MW	Shallow	Y	Y	6/21/2010	14	4	9.973	8.094	4.094	-5.906	4	10
AOI 7	C-133				218336.074	2681693.849	MW	Shallow	Y	Y	6/21/2010	14	4	7.725	8.183	4.183	-5.817	4	10
AOI 7	C-134D				218306.504	2681164.764	MW	Deep	Y	Y	6/18/2010	70	4	8.963	6.142	-48.145	-63.145	55	15
AOI 7	C-136				219217.045	2680990.761	MW	Shallow	Y	Y	5/28/2010	14	4	8.846	6.785	2.785	-7.215	4	10
AOI 7	C-137	Repaired	Converted to Flush Mount		219098.264	2680719.078	MW	Shallow	Y	Y	5/27/2010	14	4	3.91	4.715	0.715	-9.285	4	10
AOI 7	C-138				218657.809	2680452.928	MW	Shallow	Y	Y	5/27/2010	12	4	6.95	4.477	2.477	-7.523	2	10
AOI 7	C-139				219443.936	2680633.143	MW	Shallow	Y	Y	6/2/2010	12	4	7.315	5.469	3.469	-6.531	2	10
AOI 7	C-140				218857.817	2679799.125	MW	Shallow	Y	Y	5/26/2010	12	4	7.545	7.987	5.987	-4.013	2	10
AOI 7	C-142				220134.108	2680659.962	MW	Shallow/Intermediate	Y	Y	6/3/2010	14	4	11.352	9.622	5.622	-4.378	4	10
AOI 7	C-143				220232.931	2680321.403	MW	Shallow/Intermediate	Y	Y	6/3/2010	14	4	6.45	6.89	2.89	-7.11	4	10
AOI 7	C-144D				220107.599	2680336.839	MW	Deep	Y	Y	7/9/2010	78	4	12.77	9.33	-56.858	-71.858	63	15
AOI 7	C-145				220222.267	2681007.478	MW	Shallow	Y	Y	8/9/2010	15	4	6.922	7.357	-7.643	-17.643	15	10
AOI 7	C-146				220254.825	2680639.828	MW	Shallow	Y	Y	8/10/2010	15	4	6.739	7.198	-7.802	-17.802	15	10
AOI 7	C-147				220262.747	2680516.947	MW	Shallow	Y	Y	8/10/2010	15	4	6.874	7.312	-7.688	-17.688	15	10
AOI 7	C-148	Destroyed			220266.672	2680540.203	MW	Shallow	Y	Y	5/23/2011	18	4	9.341	6.891	-8.109	-23.109	15	15
AOI 7	C-149	Destroyed			220269.615	2680524.161	MW	Shallow	Y	Y	5/23/2011	11	4	9.325	7.491	-7.509	-14.509	15	7
AOI 7	C-150				220262.743	2680607.068	MW	Shallow						8.19	6.76				
AOI 7	C-151	Damaged			220255.074	2680490.079	MW	Shallow						7.91	7.21				
AOI 7	C-152				220265.627	2680476.565	MW	Shallow						9.38	7.36				
AOI 7	C-153				220219.944	2680514.198	MW	Shallow						8.27	6.56				
AOI 7	C-154				220189.491	2680516.314	MW	Shallow						7.89	6.51				
AOI 7	C-155				220082.15	2680524.532	MW	Shallow						9.17	7.29				
AOI 7	C-156				220254.474	2681408.164	MW	Shallow	Y	Y	8/30/2011	23.5	4	6.7196	7.09	3.4589	-16.41	4	20
AOI 7	C-157				220255.107	2681432.423	MW	Shallow	Y	Y	8/31								

Table 6

## Existing Well Summary

## AOI 7 Remedial Investigation Report

Philadelphia Refinery Operations, a Series of Evergreen Resources Group, LLC

AOI	Well ID	Former Well ID <sup>2</sup>	Well Status	Disposition of Well	Northing <sup>3</sup>	Easting <sup>3</sup>	Well Type <sup>4</sup>	Well Classification/Hydrostratigraphic Unit <sup>5</sup>	Soil Boring Log Available (Y/N)	Contruction Detail Available (Y/N)	Date of Well Completion	Well Construction Details <sup>1</sup>							
												Well Completion Depth (ft/bgs) <sup>6</sup>	Well Diameter (in) <sup>7</sup>	Top of Inner Casing Elevation (ft msl) (NAVD88) <sup>8</sup>	Ground Surface Elevation (ft msl) (NAVD88) <sup>8</sup>	Top of Screen Elev (ft msl) (NAVD88) <sup>8</sup>	Bottom of Screen Elevation (ft msl) (NAVD88) <sup>8</sup>	Depth to Screen (ft bgs) <sup>8</sup>	Screen Length (ft) <sup>9</sup>
AOI 7	C-170		Damaged				MW	Shallow	Y	Y	7/6/2016	11.5	4	-	-	-	-	1.5	10
AOI 7	C-171				219648.9	2679794.90	MW	Shallow	Y	Y	7/5/2016	13	4	10.36	7.9	7.36	0.36	3	10
AOI 7	C-172				218450.7	2680374.84	MW	Shallow	Y	Y	7/6/2016	13	4	5.91	3.8	2.91	-4.09	3	10
AOI 7	C-173		Reserved																
AOI 7	C-49				218494.96	2683022.45	MW	Shallow	Y	Y	2/22/1986	18	4	9.58	8.34	0.34	-9.66	8	10
AOI 7	C-50				219618.59	2682341.31	MW	Shallow	Y	Y	2/22/1986	15.5	4	12.77	9.33	3.83	-6.17	6	10
AOI 7	C-51				220073.27	2681621.38	MW	Shallow	Y	Y	2/25/1986	13	4	9.26			3	10	
AOI 7	C-52				220206.46	2681216.48	MW	Shallow	Y	Y	2/25/1986	13	4	7.63	6.68	3.68	-6.32	3	10
AOI 7	C-53		Destroyed				MW	Shallow	Y	Y	2/24/1986	15	4				5	10	
AOI 7	C-53A				219939.83	2681030.76	MW	Shallow	Y	Y	12/19/1991	14	4	9.47	7.12	5.12	-6.88	2	12
AOI 7	C-54				219458.97	2680975.3	MW	Shallow	Y	Y	12/19/1991	15	4	6.61	5.99	3.49	-8.51	3	12
AOI 7	C-55				218851.05	2680863.56	MW	Shallow	Y	Y	2/24/1986	15	4	9.41	6.49	1.49	-8.51	5	10
AOI 7	C-56				218775.795	2681367.141	MW	Shallow	Y	Y	2/24/1986	13	4	10.72			3	10	
AOI 7	C-57				219572.12	2681650.57	MW	Shallow	Y	Y	2/24/1986	14.5	4	8.5	8.45	3.95	-6.05	5	10
AOI 7	C-58				219017.2	2681692.06	MW	Shallow	Y	Y	2/28/1986	13	4	7.42	7.39	4.39	-5.61	3	10
AOI 7	C-59		Unable to Locate		218657.752	2681702.651	MW	Shallow	Y	Y		14	4				4	10	
AOI 7	C-60				218657.01	2680150.7	MW	Shallow	Y	Y	2/24/1986	13	4	7.44	6.02	3.02	-6.98	3	10
AOI 7	C-61				219306.24	2679819.48	MW	Shallow	Y	Y	2/25/1986	13	4	7.93	7.88	4.88	-5.12	3	10
AOI 7	C-62				219889.7	2679892.08	MW	Shallow	Y	Y	2/25/1986	13	4	11.4	8.35	5.35	-4.65	3	10
AOI 7	C-63				219610.62	2680379.05	MW	Shallow	Y	Y	2/24/1986	13	4	7.41	4.17	1.17	-8.83	3	10
AOI 7	C-64				220166.66	2680430.9	MW	Shallow	Y	Y	2/24/1986	13	4	8.14	6.17	3.17	-6.83	3	10
AOI 7	C-65				220116.4	2680266	MW	Shallow	Y	Y	2/25/1986	13	4	10.84	7.47	4.47	-5.53	3	10
AOI 7	C-65D		Destroyed		220116.05	2680259.79	MW	Deep	Y	Y	11/11/1986	75	4	9.62	7.6	-57.4	-67.4	65	10
AOI 7	C-96				219529.38	2681979.8	MW	Shallow	Y	Y	10/23/1986	17	4	12.88	9.82	2.82	-7.18	7	10
AOI 7	C-97				220229.81	2680615.97	MW	Shallow	Y	Y	10/23/1986	15	4	10.52	7.55	2.55	-7.45	5	10
AOI 7	C-98				219208.25	2680220.18	MW	Shallow	Y	Y	10/23/1986	16.5	4	10.55	10.84	4.34	-5.66	7	10
AOI 7	PH-35		Destroyed				MW												
AOI 7	PH-38		Destroyed				MW												
AOI 7	PH-40		Destroyed		219766.99	2681683.823	MW												
AOI 7	PH-41		Destroyed		219112.637	2681758.395	MW												
AOI 7	RW-801				220246.373	2680575.418	RW	Shallow	N	N		25	6	6.272	6.71	1.71	-18.29	5	20
AOI 7	RW-802				220231.545	2680523.528	RW	Shallow	N	N		25	6	5.702	7.1	2.1	-17.9	5	20
AOI 7	RW-803				220259.632	2680481.614	RW	Shallow	N	N		25	6	5.776	7.15	2.15	-17.85	5	20
AOI 7	RW-804	C-170			220256.715	2680431.902	RW	Shallow	N	N		25.5	6	5.782	7.03	2.03	-18.47	5	20.5
AOI 7	RW-805				220256.5	2680430.59	RW	Shallow	Y	Y		25	6	5.7474	7.03	4.937	-17.97	2	20
AOI 7	RW-806				220228.801	2680360.113	RW	Shallow	N	N		25	6	5.41	6.82	1.82	-18.18	5	20
AOI 7	RW-807				220237.02	2680336.5	RW	Shallow	N	N		25	6	6.84	6.78	1.78	-18.22	5	20
AOI 7	RW-808				220230.297	2680285.228	RW	Shallow	N	N		25	6	6.081	7.37	2.37	-17.63	5	20
AOI 7	RW-809				220222.165	2680226.857	RW	Shallow	N	N		25	6	6.551	7.89	2.89	-17.11	5	20
AOI 7	RW-810				220214.629	2680174.32	RW	Shallow	N	N		25	6	6.438	7.82	2.82	-17.18	5	20
AOI 7	WP13-1		Destroyed				Temporary Well Point		Y	Y	5/27/1993	10.5					1	10	
AOI 7	WP13-2		Destroyed				Temporary Well Point		Y	Y	5/27/1993	10.5					1	10	
AOI 7	WP13-3		Destroyed				Temporary Well												

Table 6

**Existing Well Summary**  
**AOI 7 Remedial Investigation Report**  
**Philadelphia Refinery Operations, a Series of Evergreen Resources Group, LLC**

AOI	Well ID	Former Well ID <sup>2</sup>	Well Status	Disposition of Well	Northing <sup>3</sup>	Easting <sup>3</sup>	Well Type <sup>4</sup>	Well Classification/Hydrostratigraphic Unit <sup>5</sup>	Soil Boring Log Available (Y/N)	Construction Detail Available (Y/N)	Date of Well Completion	Well Construction Details <sup>1</sup>						
												Well Completion Depth (ft/bgs) <sup>6</sup>	Well Diameter (in) <sup>7</sup>	Top of Inner Casing Elevation (ft msl) (NAVD88) <sup>8</sup>	Ground Surface Elevation (ft msl) (NAVD88) <sup>8</sup>	Top of Screen Elev (ft msl) (NAVD88) <sup>8</sup>	Bottom of Screen Elevation (ft msl) (NAVD88) <sup>8</sup>	Depth to Screen (ft bgs) <sup>8</sup>
AOI 7	WP15-2		Destroyed				Temporary Well Point		Y	Y	5/27/1993	10.5					1	10
AOI 7	WP15-3		Destroyed				Temporary Well Point		Y	Y	5/27/1993	10.5					1	10

## Notes:

1. Well construction details were obtained from well boring logs provided by historic reports.
2. Former Well IDs were derived from handwritten notes on boring logs or as referenced in historic reports.
3. Coordinate pairs are projected in the Pennsylvania State Plane Coordinate System (feet), referenced to the North American Datum of 1983 (NAD83).
4. MW = monitoring well; RW = recovery well
5. The hydrostratigraphic unit denotes the aquifer and/or mappable water-bearing stratum in which the well is interpreted to be screened by Stantec. Historic wells without lithologic logs, wells without as-built information, and/or destroyed wells were not assigned hydrostratigraphic units.
6. ft bgs = feet below ground surface
7. in = inches
8. NAVD88 = North American Vertical Datum of 1988
9. ft = feet

## General Note:

Stantec presently maintains an electronic database from which these well records were extracted. Many of the well records in that database were translated from historic paper records, or from electronic tables received from other consultants. Maintenance of the electronic well database, including revisions to anomalous or missing information, is ongoing and as such this table may be subject to future revision.

Table 13

**Indoor Air Sampling Summary  
AOI 7 Remedial Investigation Report  
Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location										AOI7-AA-16-001	AOI7-AI-16-001	AOI7-AI-16-002	AOI7-AI-16-003	AOI7-AI-16-004	
Sample Date									Ambient, Near WTP Fence	595 Canteen Building	450 Elect Building, Computer Room	450 Building Elect Warehouse, Back Addition on Shelf	450 Building Elect Warehouse, North Side		
Sample ID									29-Mar-16	29-Mar-16	29-Mar-16	29-Mar-16	29-Mar-16		
Sampling Company									IA-AOI7-OUTDOOR	IA-AOI7-595	IA-AOI7-450-1	IA-AOI7-450-2	IA-AOI7-450-3		
Laboratory									GHD	GHD	GHD	GHD	GHD		
Laboratory Work Order									ESC	ESC	ESC	ESC	ESC		
Laboratory Sample ID	PADEP SHS VI	1/10th PADEP SHS VI	OSHA PEL note 1	USEPA RSL note 2	USEPA RSL note 3	ACGIH TLV f	NIOSH REL g	Cal/ OSHA PEL h	MH Air Tox i	EPA Res IA j	L827327	L827327	L827327	L827327	
Sample Type	Screening Value <b>a</b>	Screening Value <b>b</b>	<b>c</b>	<b>d</b>	<b>e</b>					<b>L827327-15</b>	<b>L827327-07</b>	<b>L827327-08</b>	<b>L827327-09</b>	<b>L827327-10</b>	
<b>Volatile Organic Compounds</b>															
BENZENE	16	1.6	3190	1.6	1.6	1600	319.47	319.47	2.59	29	1.32	<b>4.63<sup>bdei</sup></b>	1.00	0.860	0.973
1,2-DIBROMOETHANE (EDB)	0.2	0.02	2E+05	0.02	0.02	-	345.79	-	n/v	n/v	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)
1,2-DICHLOROETHANE (EDC)	4.7	0.47	2E+05	0.47	0.47	40500	4000	4000	0.16	0.2	ND (0.810)	ND (0.810)	ND (0.810)	ND (0.810)	ND (0.810)
ETHYLBENZENE	49	4.9	4E+05	4.9	4.9	86800	435000	435000	0.68	17	ND (0.867)	ND (0.867)	<b>1.12<sup>i</sup></b>	ND (0.867)	ND (0.867)
ISOPROPYLBENZENE (CUMENE)	1800	180	2E+05	1800	180	246000	245000	245000	11.2	n/v	ND (0.983)	ND (0.983)	ND (0.983)	ND (0.983)	ND (0.983)
METHYL TERTIARY BUTYL ETHER	470	47	-	47	47	180000	-	144000	n/v	72	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)
NAPHTHALENE	3.6	0.36	50000	0.36	0.36	52000	50000	50000	n/v	4.8*	ND (3.30)	ND (3.30)	ND (3.30)	ND (3.30)	ND (3.30)
TOLUENE	22000	2200	8E+05	22000	2200	75400	375000	37500	4.52	144	4.05	<b>5.51<sup>i</sup></b>	<b>10.5<sup>i</sup></b>	3.15	4.12
1,2,4-TRIMETHYLBENZENE	31	3.1	-	260	26	123000	125000	125000	0.38	6.5	ND (0.982)	<b>1.09<sup>i</sup></b>	<b>1.05<sup>i</sup></b>	ND (0.982)	ND (0.982)
1,3,5-TRIMETHYLBENZENE	31	3.1	-	260	26	123000	125000	125000	1.12	19	ND (0.982)	ND (0.982)	ND (0.982)	ND (0.982)	ND (0.982)
XYLENES, TOTAL	440	44	4E+05	440	44	434000	435000	435000	3.14	63.5	1.99	<b>3.371<sup>i</sup></b>	<b>6.25<sup>i</sup></b>	2.09	ND (1.73)

Notes:

VI-PAA<sup>A</sup> PADEP Indoor Air Statewide Health Standard Vapor Intrusion Screening Values , Non-Residential (January 2017)<sup>A</sup> Indoor Air Statewide Health Standard Vapor Intrusion Screening Values, Non-Residential<sup>B</sup> One-tenth of PADEP Indoor Air Statewide Health Standard Vapor Intrusion Screening Values, Non-ResidentialOSHA<sup>C</sup> Occupational Safety and Health Administration - Permissible Exposure Limits<sup>C</sup> Permissible Exposure Limits

USEPA RSL United States Environmental Protection Agency (June, 2017)

<sup>D</sup> Regional Screening Level for Non-residential indoor air Hazard Index of 1.<sup>E</sup> Regional Screening Level for Non-residential indoor air Hazard Index of 0.1.

ACGIH TLV American Conference of Governmental Industrial Hygienists

<sup>F</sup> Threshold Limit Value

NIOSH National Institute for Occupational Safety and Health

<sup>G</sup> Recommended Exposure LimitsCal / OSHA<sup>H</sup> California Division of Occupational Safety and Health - Permissible Exposure Limits for chemical contaminantsMH Air Tox<sup>I</sup> Marcus Hook Air Toxics Monitor 2015, maximum value of PADEP data accessed February 5, 2016.USEPA Res IA<sup>J</sup> USEPA Background Residential Indoor Air 2011, 95th percentile.

\* 95th percentile value not provided, value is 90th percentile.

**4.63<sup>B</sup>** Concentration exceeds the indicated standard.

1.32 Measured concentration did not exceed the indicated standard.

ND (2.4) (1.2) Analyte was not detected at a concentration greater than the laboratory reporting limit. The first value in parenthesis is the reporting limit. The method detection limit is shown in the second set of parenthesis.

n/v No standard/guideline value.

J Indicates an estimated value.

Table 13

**Indoor Air Sampling Summary  
AOI 7 Remedial Investigation Report  
Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location										AOI7-AI-16-005 450 Building Elect Warehouse, Walled area Middle Bldg, Elect Testina 29-Mar-16 IA-AOI7-450-4 GHD ESC L827327 L827327-11	AOI7-AI-16-006 450 Building Elect Warehouse Table East Side Near Open Offices 29-Mar-16 IA-AOI7-450-5 GHD ESC L827327 L827327-12	AOI7-AI-16-007 442 Building Firehouse Office Table Office 29-Mar-16 IA-AOI7-442 GHD ESC L827327 L827327-13	AOI7-AI-16-008 711 Building, WTP 29-Mar-16 IA-AOI7-711 GHD ESC L827327 L827327-14	AOI7-AI-16-009 6622 Building, Control Room, Rear Table Center of Room 29-Mar-16 IA-AOI7-6622 GHD ESC L827327 L827327-16	
Sample Date															
Sample ID															
Sampling Company															
Laboratory															
Laboratory Work Order															
Laboratory Sample ID															
Sample Type	PADEP SHS VI	1/10th PADEP SHS VI	OSHA PEL note 1	USEPA RSL note 2	USEPA RSL note 3	ACGIH TLV	NIOSH REL	Cal/ OSHA PEL h	MH Air Tox i	EPA Res IA j					
<b>Volatile Organic Compounds</b>															
BENZENE	16	1.6	3190	1.6	1.6	1600	319.47	319.47	2.59	29	1.54	<u>1.99<sup>bde</sup></u>	<u>1.68<sup>bde</sup></u>	<u>2.22<sup>bde</sup></u>	<u>3.52<sup>bdei</sup></u>
1,2-DIBROMOETHANE (EDB)	0.2	0.02	2E+05	0.02	0.02	-	345.79	-	n/v	n/v	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)	ND (1.54)
1,2-DICHLOROETHANE (EDC)	4.7	0.47	2E+05	0.47	0.47	40500	4000	4000	0.16	0.2	ND (0.810)	ND (0.810)	ND (0.810)	ND (0.810)	ND (0.810)
ETHYLBENZENE	49	4.9	4E+05	4.9	4.9	86800	435000	435000	0.68	17	<u>1.19<sup>i</sup></u>	<u>2.58<sup>i</sup></u>	<u>1.38<sup>i</sup></u>	ND (0.867)	4.94 <sup>bdei</sup>
ISOPROPYLBENZENE (CUMENE)	1800	180	2E+05	1800	180	246000	245000	245000	11.2	n/v	ND (0.983)	ND (0.983)	ND (0.983)	ND (0.983)	1.27
METHYL TERTIARY BUTYL ETHER	470	47	-	47	47	180000	-	144000	n/v	72	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)	ND (0.721)
NAPHTHALENE	3.6	0.36	50000	0.36	0.36	52000	50000	50000	n/v	4.8*	ND (3.30)	ND (3.30)	ND (3.30)	ND (3.30)	ND (3.30)
TOLUENE	22000	2200	8E+05	22000	2200	75400	375000	37500	4.52	144	<u>8.91<sup>i</sup></u>	<u>49.8<sup>i</sup></u>	<u>19.1<sup>i</sup></u>	3.93	7.29 <sup>i</sup>
1,2,4-TRIMETHYLBENZENE	31	3.1	-	260	26	123000	125000	125000	0.38	6.5	<u>1.23<sup>i</sup></u>	<u>2.13<sup>i</sup></u>	<u>1.22<sup>i</sup></u>	2.94 <sup>i</sup>	21.6 <sup>bij</sup>
1,3,5-TRIMETHYLBENZENE	31	3.1	-	260	26	123000	125000	125000	1.12	19	ND (0.982)	ND (0.982)	ND (0.982)	0.984	6.81 <sup>bi</sup>
XYLENES, TOTAL	440	44	4E+05	440	44	434000	435000	435000	3.14	63.5	<u>4.46<sup>i</sup></u>	<u>10.76<sup>i</sup></u>	<u>4.99<sup>i</sup></u>	3.5 <sup>i</sup>	24.69 <sup>i</sup>

Notes:

VI-PA<sup>A</sup> PADEP Indoor Air Statewide Health Standard Vapor Intrusion Screening Values , Non-Residential (January 2017)<sup>A</sup> Indoor Air Statewide Health Standard Vapor Intrusion Screening Values, Non-Residential<sup>B</sup> One-tenth of PADEP Indoor Air Statewide Health Standard Vapor Intrusion Screening Values, Non-ResidentialOSHA<sup>C</sup> Occupational Safety and Health Administration - Permissible Exposure Limits<sup>C</sup> Permissible Exposure Limits

USEPA RSL United States Environmental Protection Agency (June, 2017)

<sup>D</sup> Regional Screening Level for Non-residential indoor air Hazard Index of 1.<sup>E</sup> Regional Screening Level for Non-residential indoor air Hazard Index of 0.1.

ACGIH TLV American Conference of Governmental Industrial Hygienists

<sup>F</sup> Threshold Limit Value

NIOSH National Institute for Occupational Safety and Health

<sup>G</sup> Recommended Exposure LimitsCal / OSHA<sup>H</sup> California Division of Occupational Safety and Health - Permissible Exposure Limits for chemical contaminantsMH Air Tox<sup>I</sup> Marcus Hook Air Toxics Monitor 2015, maximum value of PADEP data accessed February 5, 2016.USEPA Res IA<sup>J</sup> USEPA Background Residential Indoor Air 2011, 95th percentile.

\* 95th percentile value not provided, value is 90th percentile.

4.63<sup>B</sup> Concentration exceeds the indicated standard.

1.32 Measured concentration did not exceed the indicated standard.

ND (2.4) (1.2) Analyte was not detected at a concentration greater than the laboratory reporting limit. The first value in parenthesis is the reporting limit. The method detection limit is shown in the second set of parenthesis.

n/v No standard/guideline value.

J Indicates an estimated value.

Table 13

**Indoor Air Sampling Summary  
AOI 7 Remedial Investigation Report  
Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC**

Sample Location									AOI7-AI-16-010	AOI7-AI-16-011	AOI7-AI-17-01	AOI7-AI-17-02	AOI7-AI-17-03	AOI7-AI-17-04	AOI7-AI-17-05	AOI7-AI-17-06	
Sample Date								6626 Building, Control Room, MF Unit	6625 Building, Control Room, MF Unit	7-Mar-17	7-Mar-17	7-Mar-17	7-Mar-17	7-Mar-17	7-Mar-17		
Sample ID								29-Mar-16	29-Mar-16	AOI7-AI-17-01	AOI7-AI-17-02	AOI7-AI-17-03	AOI7-AI-17-04	AOI7-AI-17-05	AOI7-AI-17-06		
Sampling Company								IA-AOI7-6626	GHD	GHD	GHD	GHD	GHD	GHD	GHD		
Laboratory								ESC	ESC	PACE	PACE	PACE	PACE	PACE	PACE		
Laboratory Work Order		1/10th PADEP SHS VI	OSHA PEL note 1	USEPA RSL note 2	USEPA RSL note 3	ACGIH TLV	NIOSH REL	Cal/ OSHA PEL	MH Air Tox i	EPA Res IA	L827327	10381628	10381628	10381628	10381628		
Laboratory Sample ID								L827327-17	L827327-18	10381628018	10381628017	10381628016	10381628010	10381628001	10381628002		
Sample Type																	
<b>Volatile Organic Compounds</b>																	
BENZENE	16	1.6	3190	1.6	1.6	1600	319.47	319.47	2.59	29	<u>3.36</u> <sup>bdei</sup>	<u>1.63</u> <sup>bde</sup>	<u>4.9 (0.19)</u> <sup>bdei</sup>	<u>8.7 (0.16)</u> <sup>bdei</sup>	<u>3.5 (0.16)</u> <sup>bdei</sup>	<u>4.8 (0.19)</u> <sup>bdei</sup>	
1,2-DIBROMOETHANE (EDB)	0.2	0.02	2E+05	0.02	0.02	-	345.79	-	n/v	n/v	ND (1.54)	ND (1.54)	ND (2.4) (1.2)	ND (2.1) (1.0)	ND (2.1) (1.0)	ND (2.4) (1.2)	
1,2-DICHLOROETHANE (EDC)	4.7	0.47	2E+05	0.47	0.47	40500	4000	4000	0.16	0.2	ND (0.810)	ND (0.810)	ND (1.3) (0.32)	ND (1.1) (0.27)	ND (1.3) (0.32)	ND (1.1) (0.27)	
ETHYLBENZENE	49	4.9	4E+05	4.9	4.9	86800	435000	435000	0.68	17	<u>1.60</u> <sup>i</sup>	<u>4.22</u> <sup>i</sup>	<u>3.8 (0.66)</u> <sup>i</sup>	<u>ND (0.983)</u>	<u>ND (3.9) (0.21)</u>	<u>ND (3.0) (0.57)</u>	
ISOPROPYLBENZENE (CUMENE)	1800	180	2E+05	1800	180	246000	245000	245000	11.2	n/v	2.09	ND (0.721)	ND (0.721)	ND (3.4) (0.18)	ND (3.4) (0.18)	ND (3.9) (0.21)	ND (3.4) (0.18)
METHYL TERTIARY BUTYL ETHER	470	47	-	47	47	180000	-	144000	n/v	72	ND (0.721)	ND (0.721)	ND (5.7) (0.47)	ND (4.9) (0.41)	ND (4.9) (0.41)	ND (5.7) (0.47)	
NAPHTHALENE	3.6	0.36	50000	0.36	0.36	52000	50000	50000	n/v	4.8*	ND (3.30)	ND (3.30)	<u>5.7 (0.47)</u> <sup>abdej</sup>	<u>4.1 (0.41)</u> <sup>abde</sup>	<u>7.5 (0.41)</u> <sup>abdej</sup>	<u>4.6 (0.47)</u> <sup>abde</sup>	
TOLUENE	22000	2200	8E+05	22000	2200	75400	375000	37500	4.52	144	3.06	<u>71.4</u> <sup>i</sup>	<u>4.8 (0.24)</u> <sup>i</sup>	<u>3.4 (0.21)</u>	<u>3.5 (0.21)</u>	<u>5.7 (0.24)</u> <sup>i</sup>	<u>5.6 (0.24)</u> <sup>i</sup>
1,2,4-TRIMETHYLBENZENE	31	3.1	-	260	26	123000	125000	125000	0.38	6.5	<u>3.81</u> <sup>bi</sup>	<u>6.40</u> <sup>bi</sup>	<u>5.3 (0.19)</u> <sup>bi</sup>	<u>ND (3.3) (0.17)</u>	<u>5.7 (0.17)</u> <sup>bi</sup>	<u>ND (3.9) (0.19)</u>	
1,3,5-TRIMETHYLBENZENE	31	3.1	-	260	26	123000	125000	125000	1.12	19	<u>1.19</u> <sup>i</sup>	<u>1.78</u> <sup>i</sup>	<u>ND (3.9) (0.28)</u>	<u>ND (3.3) (0.25)</u>	<u>ND (3.3) (0.25)</u>	<u>ND (3.9) (0.28)</u>	
XYLENES, TOTAL	440	44	4E+05	440	44	434000	435000	435000	3.14	63.5	<u>7.19</u> <sup>i</sup>	<u>17.05</u> <sup>i</sup>	<u>14.3 (1.8)</u> <sup>i</sup>	<u>8.8 (1.5)</u> <sup>i</sup>	<u>8.4 (1.5)</u> <sup>i</sup>	<u>7.1 (1.8)</u> <sup>i</sup>	

Notes:

VI-PA<sup>A</sup> PADEP Indoor Air Statewide Health Standard Vapor Intrusion Screening Values , Non-Residential (January 2017)<sup>A</sup> Indoor Air Statewide Health Standard Vapor Intrusion Screening Values, Non-Residential<sup>B</sup> One-tenth of PADEP Indoor Air Statewide Health Standard Vapor Intrusion Screening Values, Non-ResidentialOSHA<sup>C</sup> Occupational Safety and Health Administration - Permissible Exposure Limits<sup>C</sup> Permissible Exposure Limits

USEPA RSL United States Environmental Protection Agency (June, 2017)

<sup>D</sup> Regional Screening Level for Non-residential indoor air Hazard Index of 1.<sup>E</sup> Regional Screening Level for Non-residential indoor air Hazard Index of 0.1.

ACGIH TLV American Conference of Governmental Industrial Hygienists

<sup>F</sup> Threshold Limit Value

NIOSH National Institute for Occupational Safety and Health

<sup>G</sup> Recommended Exposure LimitsCal / OSHA<sup>H</sup> California Division of Occupational Safety and Health - Permissible Exposure Limits for chemical contaminantsMH Air Tox<sup>I</sup> Marcus Hook Air Toxics Monitor 2015, maximum value of PADEP data accessed February 5, 2016.USEPA Res IA<sup>J</sup> USEPA Background Residential Indoor Air 2011, 95th percentile.

\* 95th percentile value not provided, value is 90th percentile.

4.63<sup>B</sup> Concentration exceeds the indicated standard.

1.32 Measured concentration did not exceed the indicated standard.

ND (2.4) (1.2) Analyte was not detected at a concentration greater than the laboratory reporting limit. The first value in parenthesis is the reporting limit. The method detection limit is shown in the second set of parenthesis.

n/v No standard/guideline value.

J Indicates an estimated value.

Attachment D  
Field Data Sheets

**Indoor Air Sampling Field Data Sheet**  
**(Form SP-28)**

**A) General Information**

Sample Identification Number: AOI7-AI-17-01

Site Address: 3144 Passyunk Ave Philadelphia PA

Sample Canister Location: AOI 7 - unit 137 Control Building 6000  
6002

Sample Date: 03/07/17 Sampler: Alissa Cannon

Sample Time: Start: 0848 Stop: 1648

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify): \_\_\_\_\_

Canister Serial No.: 0070

Flow Controller Serial No.: 01160

Were "Instructions to Occupants Building" followed?

Yes       No

**B) Sampling Information**

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46.9</u>	<u>69.2</u>	<u>66</u>	<u>78.3</u>

Barometric Pressure	Start	Stop
	<u>30.5</u>	<u>30.28</u>

Canister Pressure Gauge Reading:	Start	Stop
	<u>20+</u>	<u>8+</u>

Time:	Start	Stop
	<u>0848</u>	<u>1648</u>

PID Reading:	Start	Stop
	<u>734</u>	<u>578</u>

Basement Depth (ft below grade):	Start	Stop
	<u>—</u>	

Window Marked:	Yes/No
	<u>—</u>

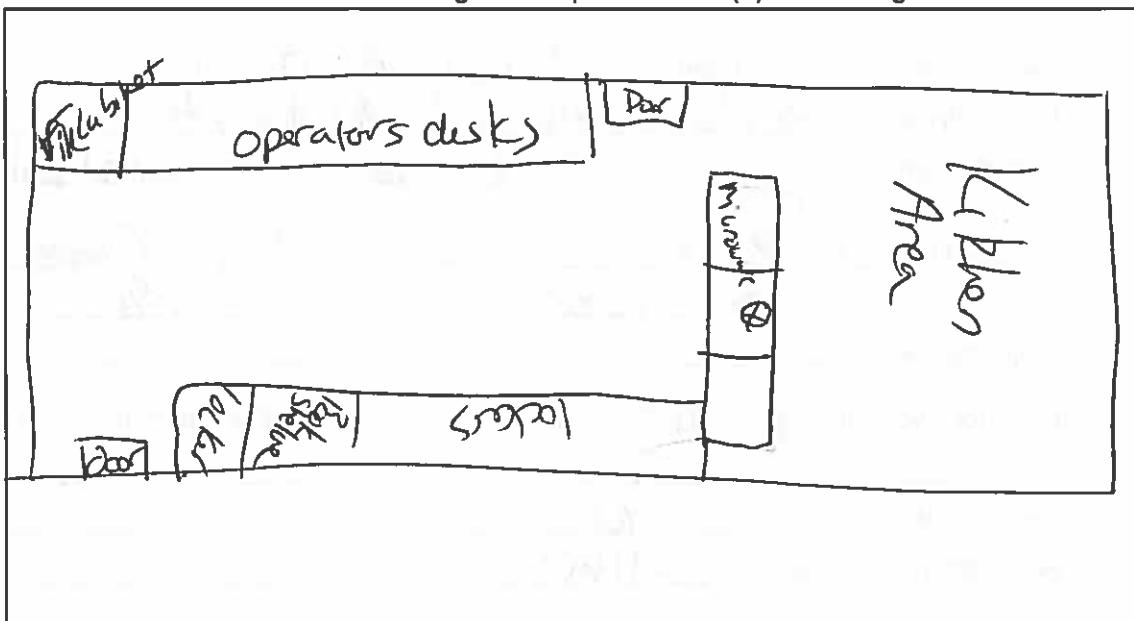
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

Yes       No

Describe the general weather conditions: light rain

**Indoor Air Sampling Field Data Sheet  
(Form SP-28)**

Provide Drawing of Sample Location(s) in Building



C) Comments

st before opening valve, reading was 4  
Sample unit on top of label maker

**Indoor Air Sampling Field Data Sheet**

(Form SP-28)

**A) General Information**Sample Identification Number: AOI 7-AE-17-02Site Address: 3144 Passyunk Ave Philadelphia PASample Canister Location: AOI 7 Unit 433 Control Building 6625Sample Date: 03/07/17 Sampler: Alisa CannonSample Time: Start: 0823 Stop: 1623

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):  
\_\_\_\_\_Canister Serial No.: 3393Flow Controller Serial No.: 02080

Were "Instructions to Occupants Building" followed?

 Yes       No**B) Sampling Information**

	Start	Stop
Temperature	Ambient <u>46.9</u>	Interior <u>70.2</u>
	Ambient <u>66</u>	Interior <u>77.6</u>

Barometric Pressure	<u>30.49</u>	<u>30.28</u>
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Canister Pressure Gauge Reading:	Start <u>30+</u>	Stop <u>31</u>
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Time:	<u>0823</u>	<u>1623</u>
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PID Reading:	<u>820</u>	<u>316</u>
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Basement Depth (ft below grade):	<u>—</u>	
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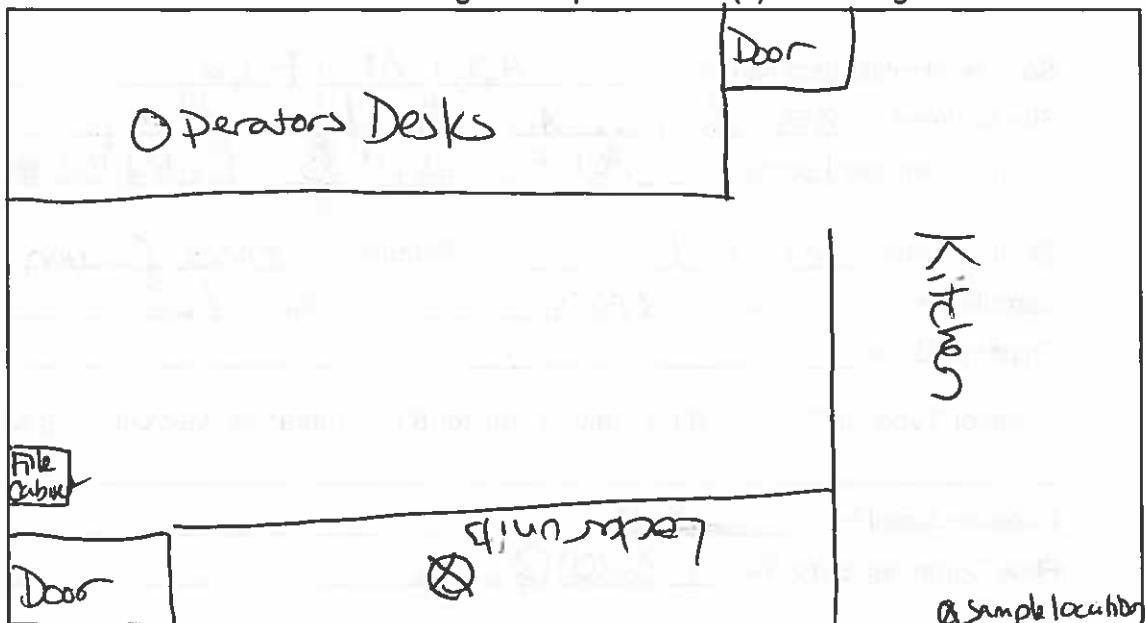
Window Marked:	<u>Yes/No</u>	
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Was there significant precipitation (e.g., &gt;1/2-inch rain) within 24 hours prior to (or during) the sampling event?

 Yes       NoDescribe the general weather conditions: light rain

**Indoor Air Sampling Field Data Sheet  
(Form SP-28)**

Provide Drawing of Sample Location(s) in Building



C) Comments

Sample location on top of approximately 3 foot high locker storage units along long side of unit building below dry panel units on wall

**Indoor Air Sampling Field Data Sheet**  
**(Form SP-28)**

**A) General Information**

Sample Identification Number: ADT-AI-17-03

Site Address: 3144 Passyunk Ave, Philadelphia, PA

Sample Canister Location: ADT 6626

Sample Date: 03/07/17 Sampler: Alissa Cannon

Sample Time: Start: 0831 Stop: 1631

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):  
\_\_\_\_\_

Canister Serial No.: 0850

Flow Controller Serial No.: 4529

Were "Instructions to Occupants Building" followed?

Yes       No

**B) Sampling Information**

Temperature	Start		Stop	
	Ambient	Interior	Ambient	Interior
	<u>46.9</u>	<u>69.4</u>	<u>66</u>	<u>78.1</u>

Barometric Pressure 30.5 30.28

Canister Pressure Gauge Reading: 30+ 6+  
Time: 0831 1631

PID Reading: 323 320

Basement Depth (ft below grade): —

Window Marked: Yes/No

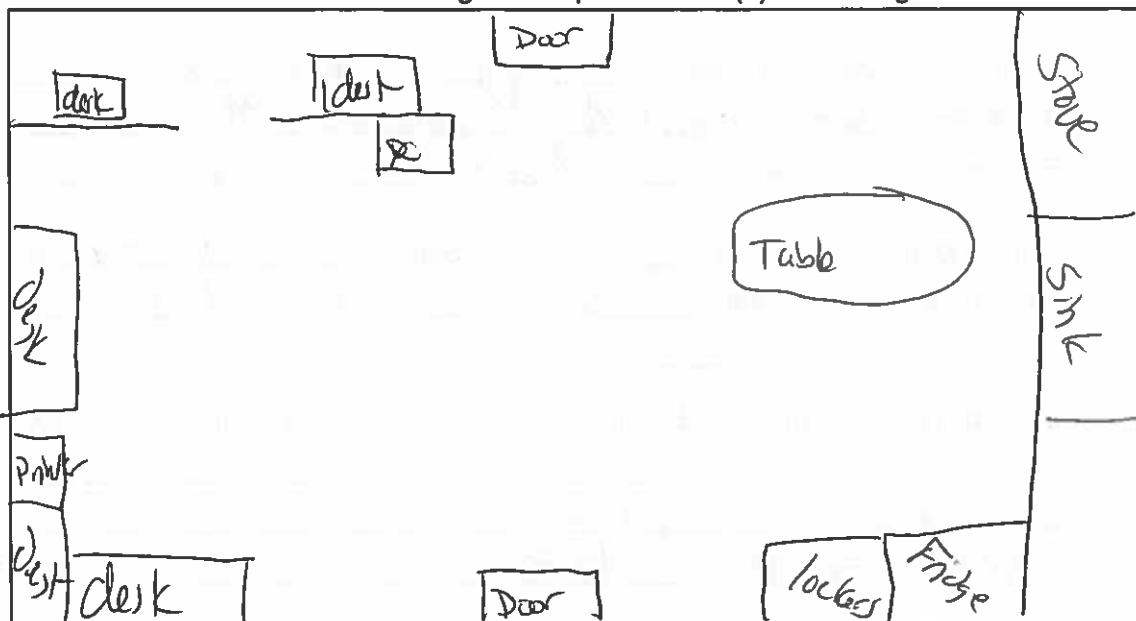
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

Yes       No

Describe the general weather conditions: light rain

**Indoor Air Sampling Field Data Sheet  
(Form SP-28)**

Provide Drawing of Sample Location(s) in Building



C) Comments

Sample on table by desk

**Indoor Air Sampling Field Data Sheet**  
**(Form SP-28)**

**A) General Information**

Sample Identification Number: AOI7-AI-17-04

Site Address: 3144 Passyunk Ave Philadelphia PA

Sample Canister Location: AOI 7 - WTP

Sample Date: 03/07/17 Sampler: Alisa Cannon

Sample Time: Start: 0905 Stop: 1714

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Canister Serial No.: 2799

Flow Controller Serial No.: 137293 FC 1038

Were "Instructions to Occupants Building" followed?

Yes       No

**B) Sampling Information**

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46.9</u>	<u>67.9</u>	<u>66</u>	<u>76.8</u>

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Barometric Pressure	<u>30.49</u>		<u>30.27</u>	

Canister Pressure Gauge Reading:	Start		Stop	
	30+		3+	
Time:	<u>0905</u>		<u>1714</u>	

PID Reading:	Start		Stop	
	288		232	
Basement Depth (ft below grade):	<u>—</u>			

Window Marked:	Start		Stop	
	Yes/No		Yes/No	
Window Marked:	<u>—</u>		<u>—</u>	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

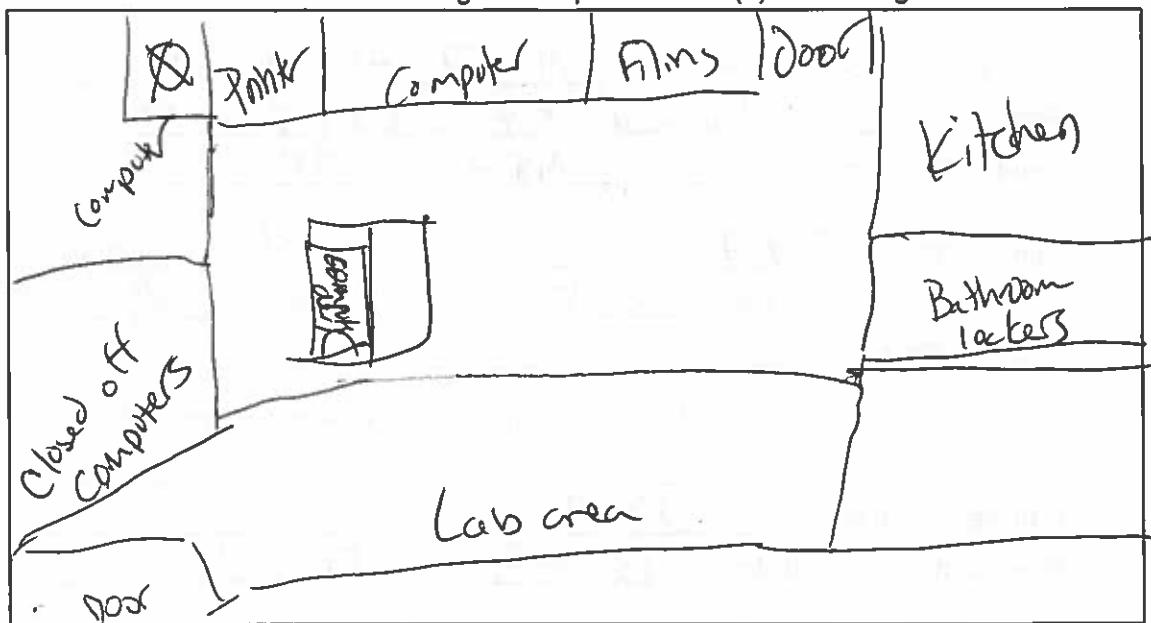
Yes       No

Describe the general weather conditions: light rain

## Indoor Air Sampling Field Data Sheet

(Form SP-28)

Provide Drawing of Sample Location(s) in Building



C) Comments

Sample collected onto printer paper, no odors

**Indoor Air Sampling Field Data Sheet**  
**(Form SP-28)**

**A) General Information**

Sample Identification Number: AST-7-AI-17-05

Site Address: B1-13 450 440 NW

Sample Canister Location: 2nd Floor across from Rm 221 (locked)

Sample Date: 3/17/17 Sampler: KC

Sample Time: Start: 907 Stop: 1519 1719 NW

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Restek To - Can

Canister Serial No.: 2715

Flow Controller Serial No.: FLO120

Were "Instructions to Occupants Building" followed?

Yes       No

**B) Sampling Information**

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46°F</u>	<u>69.8°F</u>	<u>57°F</u>	<u>74.4°F</u>

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Barometric Pressure	<u>30.43 in Hg</u>	<u>30.26 in Hg</u>	<u>-4.0 in Hg</u>	<u>1519 1719 NW</u>

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Canister Pressure Gauge Reading:	<u>-30.0 in Hg</u>	<u>-4.0 in Hg</u>	<u>907</u>	<u>1519 1719 NW</u>

Time: \_\_\_\_\_

PID Reading: 299 ppb Stop: 122 ppb

Basement Depth (ft below grade): —

Window Marked: Yes/No

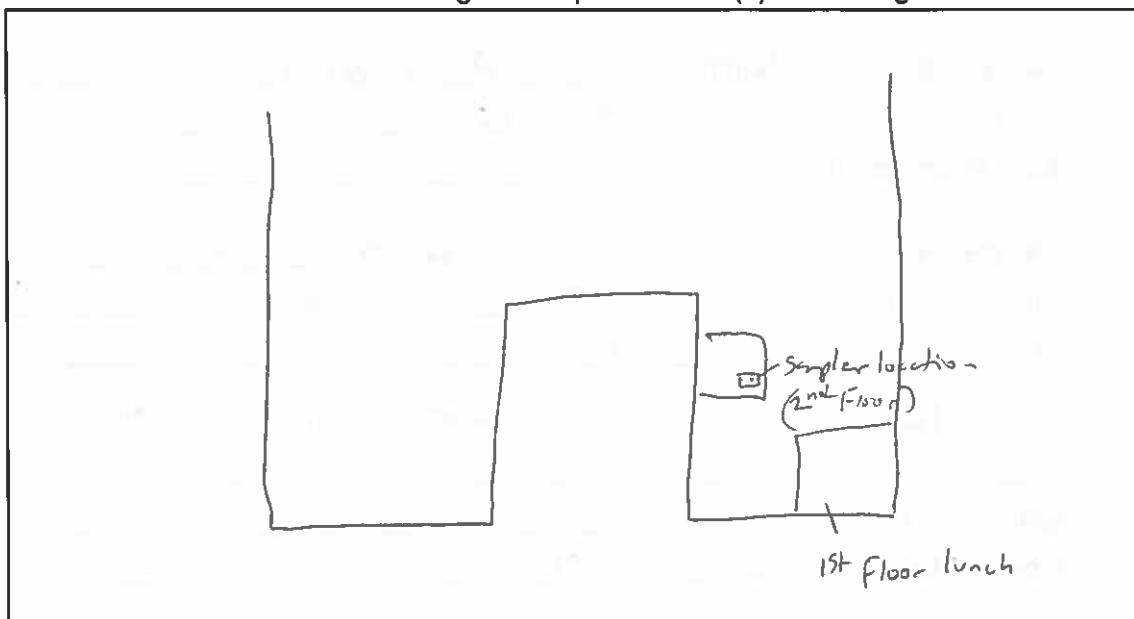
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

Yes       No

Describe the general weather conditions: Cloudy, light rain (occasional)

**Indoor Air Sampling Field Data Sheet****(Form SP-28)**

Provide Drawing of Sample Location(s) in Building

**C) Comments**

End cap threads are cross-threaded, cannot tighten cap past hand-tight. Air sampler was placed on a table in the office across the hall from Rm 221 (locked.)

# Indoor Air Sampling Field Data Sheet

(Form SP-28)

## A) General Information

Sample Identification Number: AQI7-AI-17-06

Site Address: Bldg 440 2nd Floor Meeting Room

Sample Canister Location: 2nd Floor Meeting Room

Sample Date: 9/17/17 Sampler: VCL

Sample Time: Start: 924 Stop: 1529 1729 NKC

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Entech Silonik

Canister Serial No.: 16701 - quick connect

Flow Controller Serial No.: CS1200ES SN: 02062

Were "Instructions to Occupants Building" followed?

Yes       No

## B) Sampling Information

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46.0°F</u>	<u>74.4°F</u>	<u>57°F</u>	<u>77.5°F</u>

Barometric Pressure	<u>30.13 in Hg</u>	<u>30.26 in Hg</u>
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	Start		Stop	
	Ambient	Interior	Ambient	Interior
Canister Pressure Gauge Reading:	<u>-30.0 ± 1 in Hg</u>		<u>-4.0 in Hg</u>	

Time: 924 1529 1729 NKC

PID Reading: 257 ppb 161 ppb

Basement Depth (ft below grade): —

Window Marked: Yes/No

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

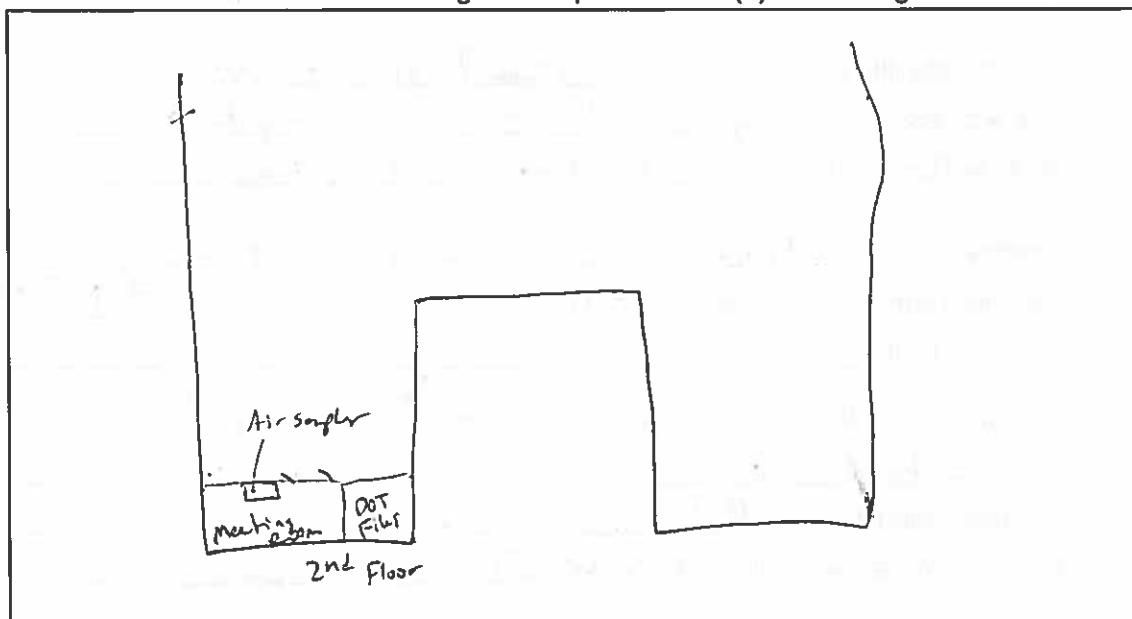
Yes       No

Describe the general weather conditions: Cloudy, light rain (occasional)

## Indoor Air Sampling Field Data Sheet

(Form SP-28)

Provide Drawing of Sample Location(s) in Building



C) Comments

Air sampler was placed on a table along interior wall in 2nd floor meeting room.

**Indoor Air Sampling Field Data Sheet**  
**(Form SP-28)**

**A) General Information**

Sample Identification Number: A017-AI-17-07

Site Address: Bldg 450 440 NCC

Sample Canister Location: 1st floor lunch

Sample Date: 3/7/12 Sampler: KL

Sample Time: Start: 9:01 Stop: 17:15

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Restek To - Can

Canister Serial No.: 0121

Flow Controller Serial No.: FC0112

Were "Instructions to Occupants Building" followed?

Yes       No

**B) Sampling Information**

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46°F</u>	<u>69.5°F</u>	<u>57°F</u>	<u>73.5°F</u>

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Barometric Pressure	<u>30.45 in Hg</u>	<u>30.28 in Hg</u>	<u>—</u>	<u>—</u>

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Canister Pressure Gauge Reading:	<u>-29.5 in Hg</u>	<u>—</u>	<u>-13.0 in Hg</u>	<u>—</u>

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Time:	<u>9:01</u>	<u>—</u>	<u>17:15</u>	<u>—</u>

	Start		Stop	
	Ambient	Interior	Ambient	Interior
PID Reading:	<u>445 ppb</u>	<u>—</u>	<u>121 ppb</u>	<u>—</u>

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Basement Depth (ft below grade):	<u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Window Marked:	<u>Yes/No</u>	<u>—</u>	<u>—</u>	<u>—</u>

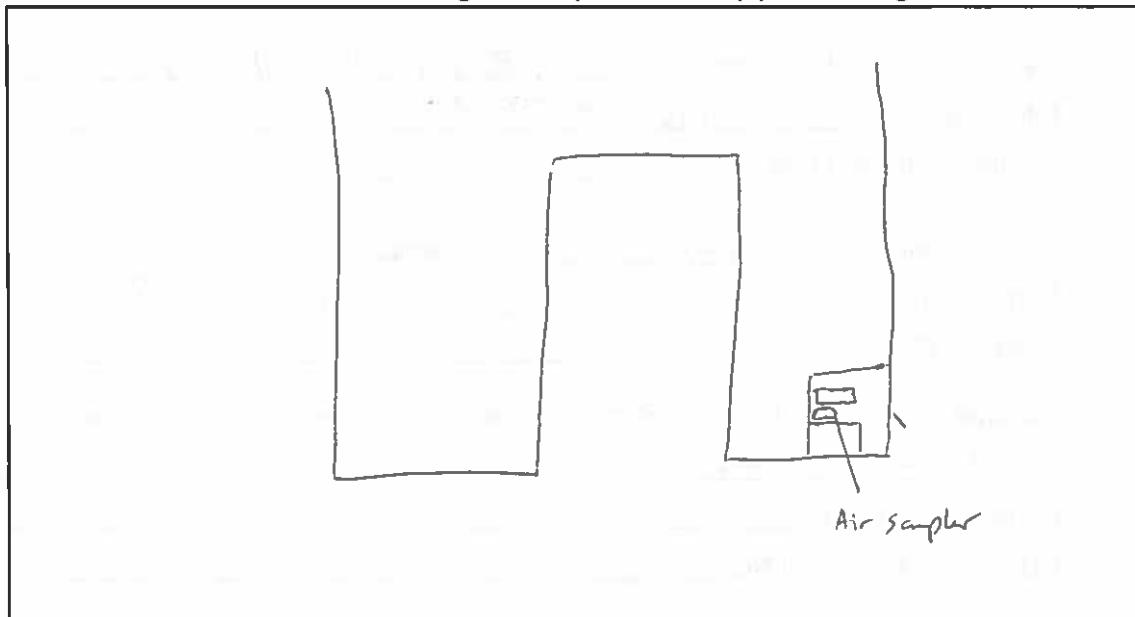
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

Yes       No

Describe the general weather conditions: Cloudy, light rain (occasional)

**Indoor Air Sampling Field Data Sheet  
(Form SP-28)**

Provide Drawing of Sample Location(s) in Building



C) Comments

Air Sampler was placed on a side table near lunch table in the 1st floor lunch room. Spoke with Leo Osterheldt about work permit - he did not require one for placement of air canisters.



**Indoor Air Sampling Field Data Sheet**  
**(Form SP-28)**

**A) General Information**

Sample Identification Number: AOI7-AI-17-08  
 Site Address: B1J, 440 1<sup>st</sup> Floor Lunch Room (below Conf. Rm)  
 Sample Canister Location: 1<sup>st</sup> Floor Lunch Room (below Conf. Rm)  
 Sample Date: 9/7/17 AC 03/07/17 Sampler: LCL  
 Sample Time: Start: 19<sup>45</sup> 9/8 Stop: 17<sup>25</sup>  
 Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Endeavor Silenite  
 Canister Serial No.: 16654 - quick connect  
 Flow Controller Serial No.: CS 1200-5 SW 01028

Were "Instructions to Occupants Building" followed?

Yes       No

**B) Sampling Information**

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46°F</u>	<u>73.3°F</u>	<u>57°F</u>	<u>76.6°F</u>
Barometric Pressure	<u>30.44 in Hg</u>		<u>30.28 in Hg</u>	
Canister Pressure Gauge Reading:	<u>-30.0</u>	<u>+1 in Hg</u>	<u>-4.0</u>	<u>+1 in Hg</u>
Time:	<u>9 18</u>		<u>17<sup>25</sup></u>	
PID Reading:	<u>262</u>		<u>105 ppb</u>	
Basement Depth (ft below grade):	<u>—</u>			
Window Marked:	<u>Yes/No</u>			

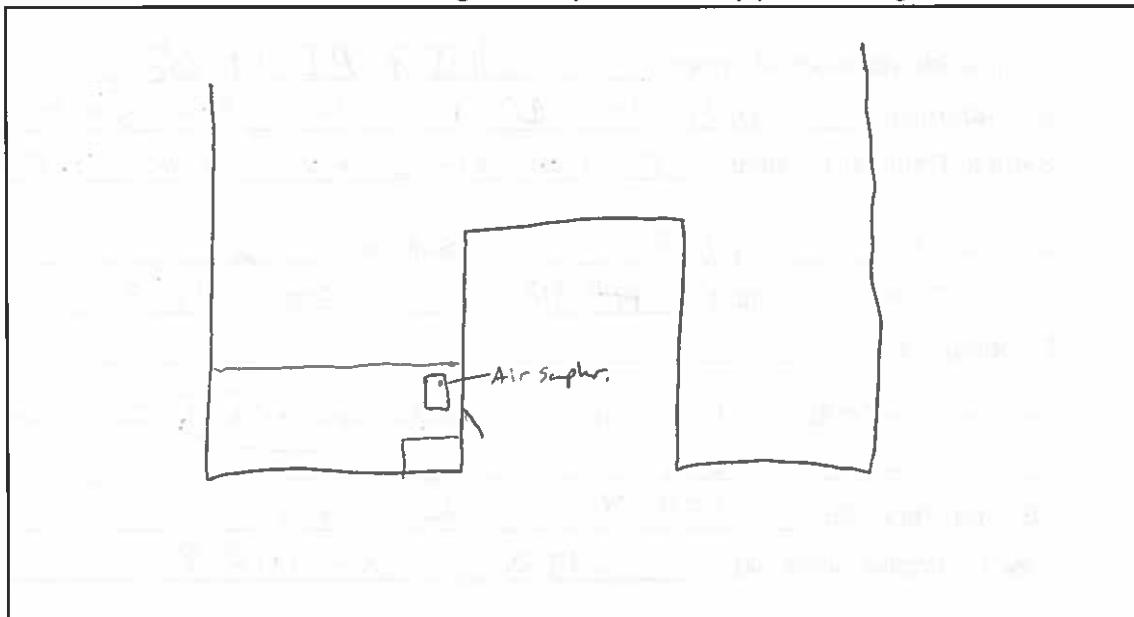
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

Yes       No

Describe the general weather conditions: Cloudy, light rain (occasional)

**Indoor Air Sampling Field Data Sheet****(Form SP-28)**

Provide Drawing of Sample Location(s) in Building

**C) Comments**

Air sampler was placed on table in the 1st floor lunch area.

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**Indoor Air Sampling Field Data Sheet**  
**(Form SP-28)**

**A) General Information**

Sample Identification Number: AOI7-AI-17-09

Site Address: Bldg 440 NK

Sample Canister Location: Computer Room

Sample Date: 3/7/17 Sampler: KC

Sample Time: Start: 8:22 Stop: 16:28

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Restek To-Can

Canister Serial No.: 2379

Flow Controller Serial No.: FC1015 "8"

Were "Instructions to Occupants Building" followed?

Yes       No

**B) Sampling Information**

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46°</u>	<u>72.9°F</u> <u>71.3</u>	<u>57°F</u>	<u>74.5°F</u>
Barometric Pressure	<u>30.46 in Hg</u>		<u>30.28 in Hg</u>	

	Start		Stop	
Canister Pressure Gauge Reading:	<u>-30.5 in Hg</u>		<u>-5.0 in Hg</u>	
Time:	<u>8:22</u>		<u>16:28</u>	
PID Reading:	<u>180 ppb</u>		<u>187 ppb</u>	
Basement Depth (ft below grade):	<u>—</u>			
Window Marked:	<u>Yes/No</u>			

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

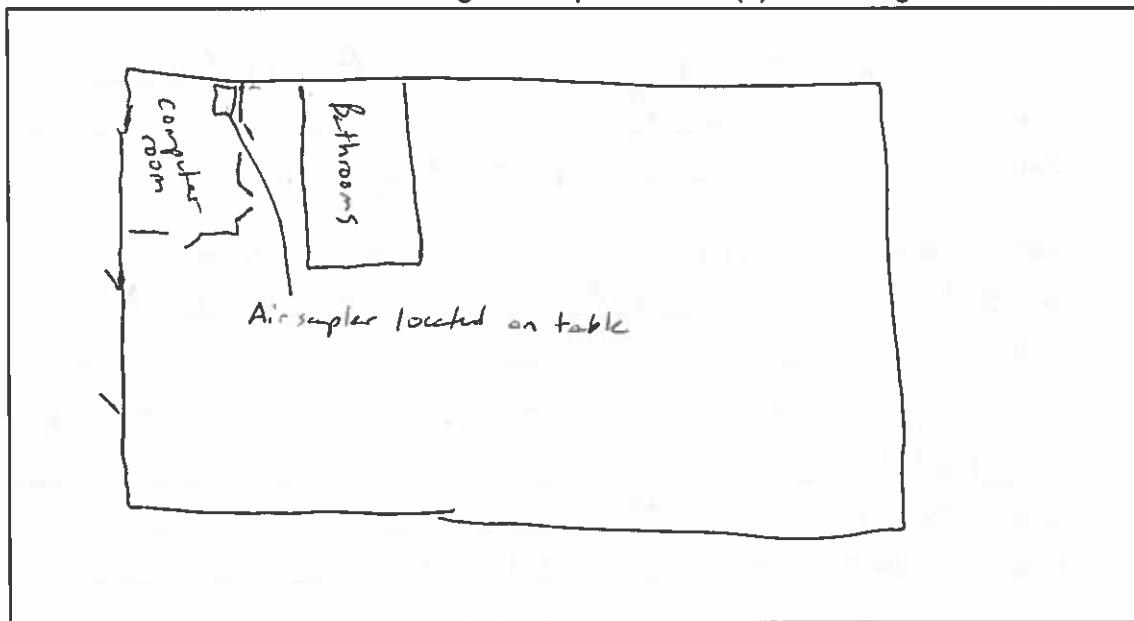
Yes       No

Describe the general weather conditions: Cloudy, light rain (occasional)

## Indoor Air Sampling Field Data Sheet

(Form SP-28)

Provide Drawing of Sample Location(s) in Building



C) Comments

Air sampler located in back area of computer room,  
on a table to the right of the Kitchen area. Room  
is air-conditioned. Confirmed with John Wilson upon entering  
the building that we did not require a work permit to place  
air samplers in the building.

**Indoor Air Sampling Field Data Sheet**  
**(Form SP-28)**

**A) General Information**

Sample Identification Number: AOT7-AI-17-10

Site Address: Bldg 4450 NLC

Sample Canister Location: "Back Addition on Shelf"

Sample Date: 3/7/17 Sampler: KC

Sample Time: Start: 8:30 Stop: 16:32

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Restek To-Can

Canister Serial No.: 0521

Flow Controller Serial No.: F-C0028 "8"

Were "Instructions to Occupants Building" followed?

Yes       No

**B) Sampling Information**

Temperature	Start		Stop	
	Ambient	Interior	Ambient	Interior
	<u>46°</u>	<u>72.9°F</u>	<u>57°F</u>	<u>76.4°F</u>

Barometric Pressure	<u>30.146</u>	<u>30.28 in Hg</u>
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Canister Pressure Gauge Reading:	Start	Stop
	<u>-30.0 in Hg</u>	<u>-5.0 in Hg</u>
Time:	<u>8:30</u>	<u>16:32</u>
PID Reading:	<u>172 ppb</u>	<u>106 ppb</u>
Basement Depth (ft below grade):	<u>—</u>	
Window Marked:	<u>Yes/No</u>	

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

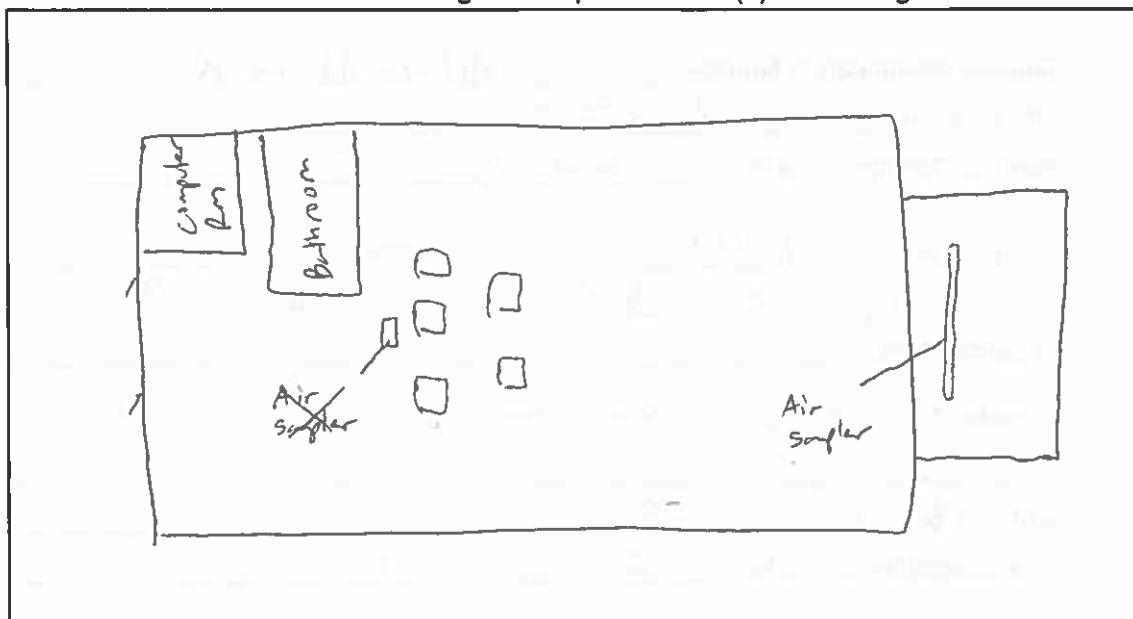
Yes       No

Describe the general weather conditions: Cloudy, light rain (occasional)

## Indoor Air Sampling Field Data Sheet

(Form SP-28)

Provide Drawing of Sample Location(s) in Building



C) Comments

Air sampler was located on a table in the center meeting/break/lunch area.

Air sampler was located on 1st shelf (center area) entering addition area.

**Indoor Air Sampling Field Data Sheet**  
**(Form SP-28)**

**A) General Information**

Sample Identification Number: AOT7-AI-17-11

Site Address: Bldg 440 450 NW

Sample Canister Location: "On shelf near middle-walled Area"

Sample Date: 3/7/17 Sampler: KC

Sample Time: Start: 835 Stop: 1637

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Restek To-Can

Canister Serial No.: 0164

Flow Controller Serial No.: FC 0261

Were "Instructions to Occupants Building" followed?

Yes       No

**B) Sampling Information**

Temperature	Start		Stop	
	Ambient	Interior	Ambient	Interior
	<u>46°F</u>	<u>73.0°F</u>	<u>57°F</u>	<u>76.3°F</u>

Barometric Pressure	<u>30.45 in Hg</u>	<u>30.28 in Hg</u>
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Canister Pressure Gauge Reading:	Start	Stop
	<u>-30.0 in Hg</u>	<u>-4.0 in Hg</u>
Time:	<u>835</u>	<u>1637</u>

PID Reading:	<u>1443 ppb</u>	<u>59 ppb</u>
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Basement Depth (ft below grade): —

Window Marked: Yes/No

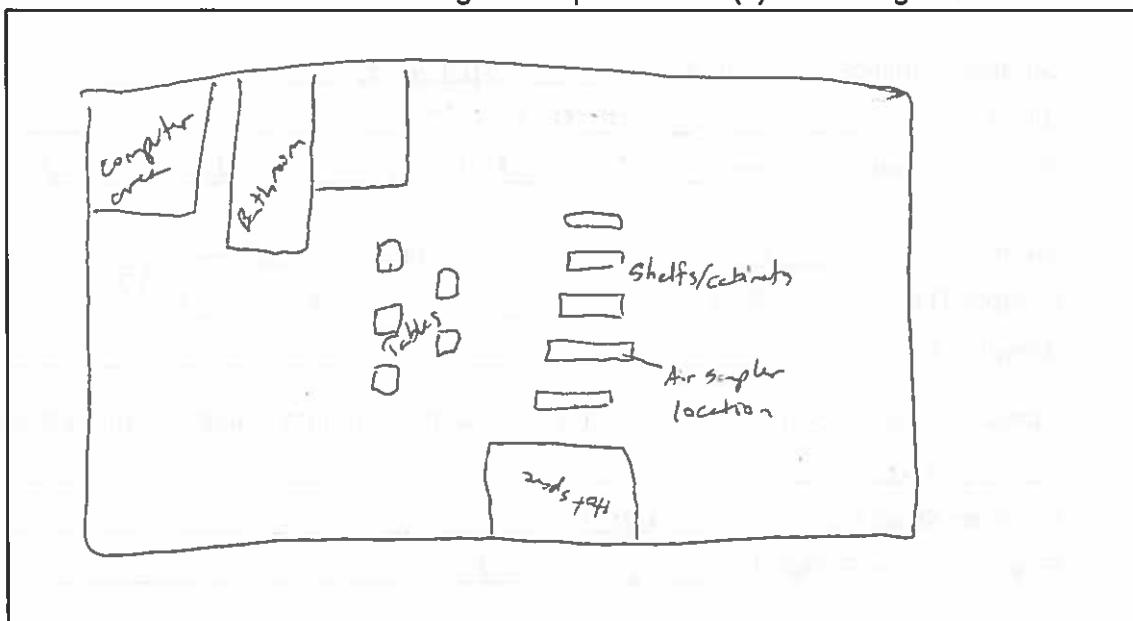
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

Yes       No

Describe the general weather conditions: cloudy, light rain (occasional)

**Indoor Air Sampling Field Data Sheet  
(Form SP-28)**

Provide Drawing of Sample Location(s) in Building



C) Comments

Air sampler was located on a filing cabinet near hot space room.

**Indoor Air Sampling Field Data Sheet**

(Form SP-28)

**A) General Information**Sample Identification Number: ADIT-AI-17-2Site Address: Bldg 4400 450 NCLSample Canister Location: "Hot span Room - West Area middle"Sample Date: 3/7/17 Sampler: KCSample Time: Start: 841 Stop: 1642

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Restek To-CanCanister Serial No.: 0204Flow Controller Serial No.: FC0015

Were "Instructions to Occupants Building" followed?

 Yes       No**B) Sampling Information**

Temperature	Start		Stop	
	Ambient	Interior	Ambient	Interior
	<u>46°F</u>	<u>71.7°F</u>	<u>57°F</u>	<u>71.7°F</u>

Barometric Pressure	<u>30.45 in Hg</u>	<u>30.28 in Hg</u>
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Canister Pressure Gauge Reading:	Start	Stop
	<u>-30.0 in Hg</u>	<u>-5.0 in Hg</u>
Time:	<u>841</u>	<u>1642</u>

PID Reading:	<u>568 ppb</u>	<u>421 ppb</u>
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Basement Depth (ft below grade): —Window Marked: Yes/No

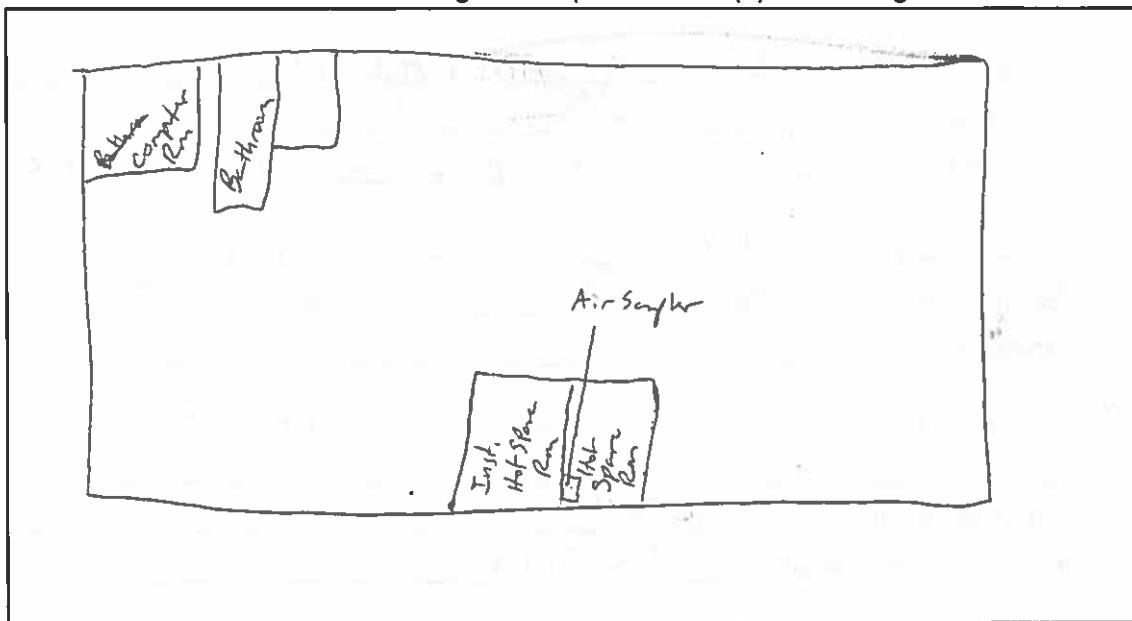
Was there significant precipitation (e.g., &gt;1/2-inch rain) within 24 hours prior to (or during) the sampling event?

 Yes       NoDescribe the general weather conditions: cloudy, light rain (occasional)

## Indoor Air Sampling Field Data Sheet

(Form SP-28)

Provide Drawing of Sample Location(s) in Building



C) Comments

Air sampler located on a table along the common wall towards the back of the enclosed room. Room is air-conditioned.

# Indoor Air Sampling Field Data Sheet

(Form SP-28)

## A) General Information

Sample Identification Number: A017-AI-17-B

Site Address: 121-440450 NCL

Sample Canister Location: "Table East Side Near open Office"

Sample Date: 3/7/12 Sampler: KC

Sample Time: Start: 848 Stop: 1652

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Restek To - Can

Canister Serial No.: 0264

Flow Controller Serial No.: FC 0280 "8"

Were "Instructions to Occupants Building" followed?

Yes       No

## B) Sampling Information

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46°F</u>	<u>72.5°F</u>	<u>57.0°F</u>	<u>75.5°F</u>

Barometric Pressure	<u>30.45 in Hg</u>	<u>30.28 in Hg</u>
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Canister Pressure Gauge Reading:	<u>\$-30.0 in Hg</u>	<u>1652</u>
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Time:	<u>848</u>	<u>1652</u>
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PID Reading:	<u>1438</u>	<u>70 ppb</u>
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Basement Depth (ft below grade):	<u>—</u>	
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Window Marked:	<u>Yes/No</u>	
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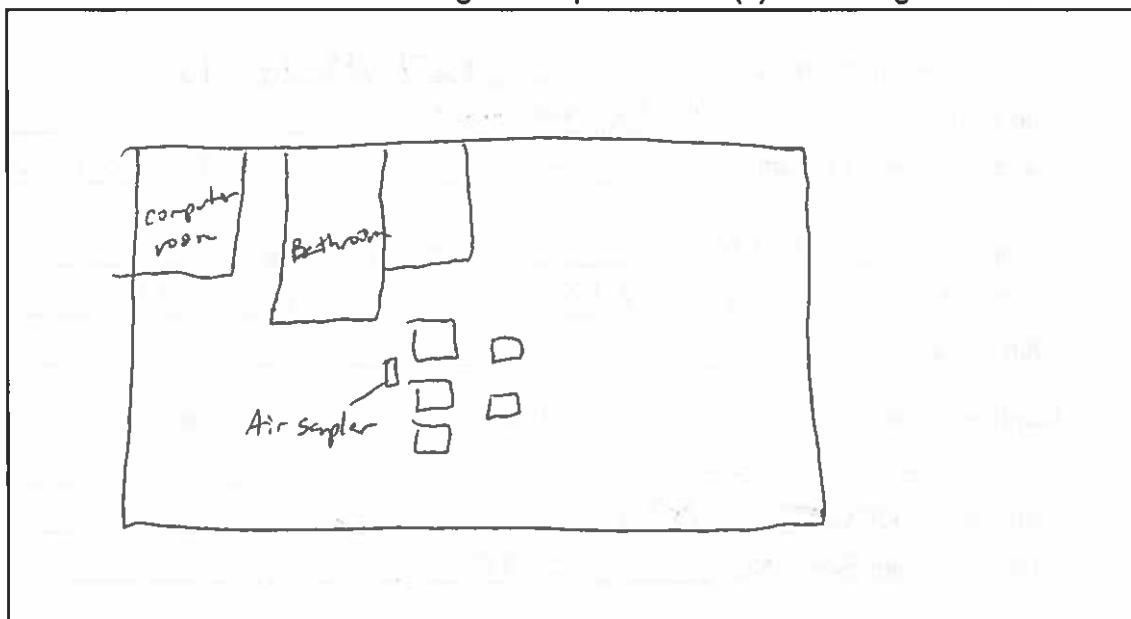
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?

Yes       No

Describe the general weather conditions: cloudy, light rain (occasional)

**Indoor Air Sampling Field Data Sheet****(Form SP-28)**

Provide Drawing of Sample Location(s) in Building



## C) Comments

Air Sampler was located on a table in the central meeting/ break/lunch area

## Indoor Air Sampling Field Data Sheet

(Form SP-28)

## A) General Information

Sample Identification Number: A0I7-AI-17-14Site Address: 3144 Passyunk Ave Philadelphia PASample Canister Location: A0I7 CanteenSample Date: 03/07/17 Sampler: Alissa CannonSample Time: Start: 0759 Stop: 1559

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):  
\_\_\_\_\_Canister Serial No.: 0077Flow Controller Serial No.: 02070

Were "Instructions to Occupants Building" followed?

 Yes       No

## B) Sampling Information

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46.9</u>	<u>67.5</u>	<u>66</u>	<u>78.1</u>
Barometric Pressure	<u>30.5</u>		<u>30.29</u>	

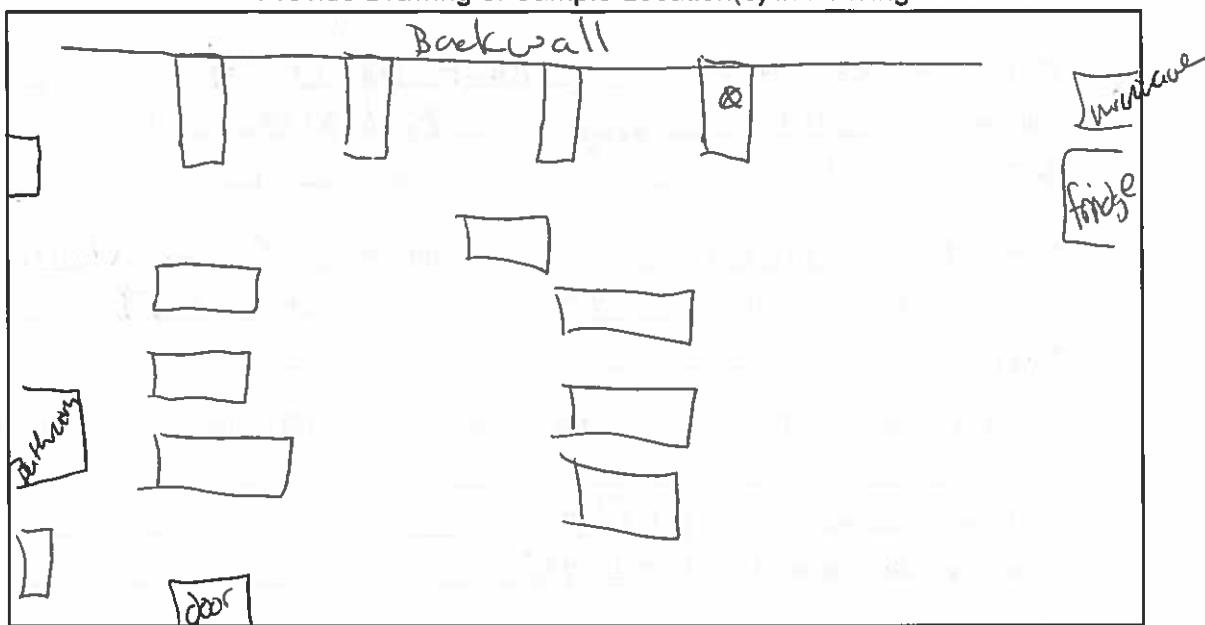
Canister Pressure Gauge Reading: Start 29 Stop 8.0Time: 0759 1559PID Reading: parts per billion 92 76Basement Depth (ft below grade): -Window Marked: Yes/No

Was there significant precipitation (e.g., &gt;1/2-inch rain) within 24 hours prior to (or during) the sampling event?

 Yes       NoDescribe the general weather conditions: light rain

## **Indoor Air Sampling Field Data Sheet (Form SP-28)**

**Provide Drawing of Sample Location(s) in Building**



**C) Comments**

canister set on back table, (6) card books in man

## Indoor Air Sampling Field Data Sheet

(Form SP-28)

## A) General Information

Sample Identification Number: A0I7-AI-17-15Site Address: 3144 Passyunk Ave Philadelphia, PASample Canister Location: A0I7 - Fire house office of George

attached  
to Firehouse

Sample Date: 03/07/17 Sampler: Alissa CannonSample Time: Start: 0934 Stop: 1743

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):  
\_\_\_\_\_Canister Serial No.: 2304Flow Controller Serial No.: 7236983

Were "Instructions to Occupants Building" followed?

 Yes       No

## B) Sampling Information

Temperature	Start		Stop	
	Ambient	Interior	Ambient	Interior
	<u>46.9</u>	<u>66.2</u>		<u>74.3</u>

Barometric Pressure	<u>30.47</u>	<u>30.27</u>
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Canister Pressure Gauge Reading:	<u>30+</u>	<u>4</u>
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Time:	<u>0934</u>	<u>1743</u>
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PID Reading:	<u>258</u>	<u>220</u>
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Basement Depth (ft below grade):	<u>—</u>
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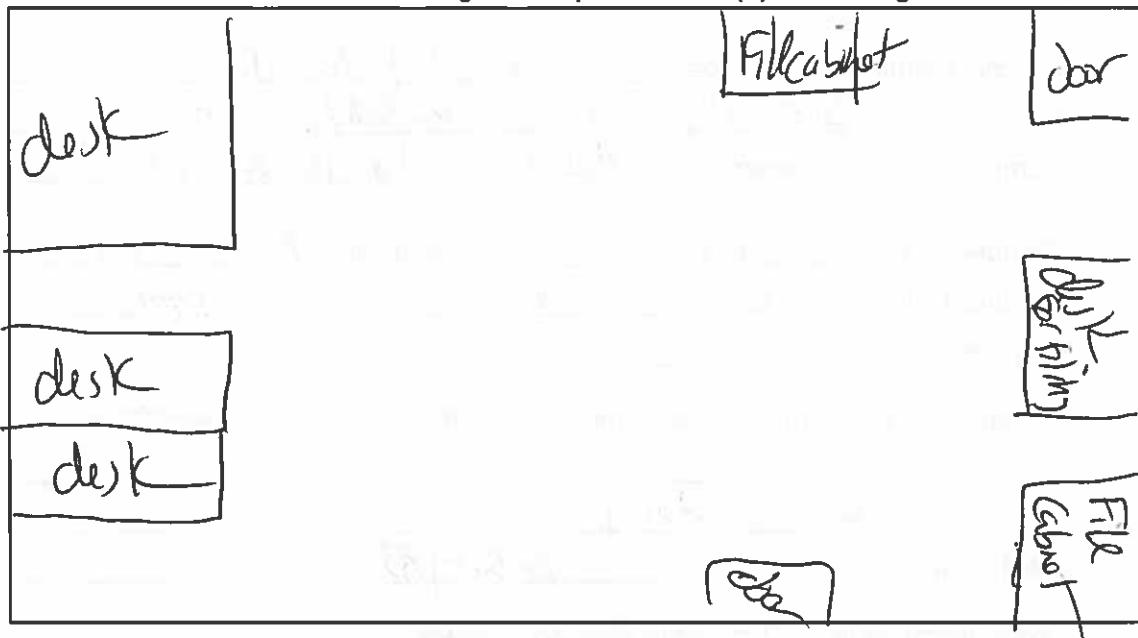
Window Marked:	<u>Yes/No</u>
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Was there significant precipitation (e.g., &gt;1/2-inch rain) within 24 hours prior to (or during) the sampling event?

 Yes       NoDescribe the general weather conditions: light rain

**Indoor Air Sampling Field Data Sheet  
(Form SP-28)**

Provide Drawing of Sample Location(s) in Building



C) Comments

sample canister on top of file cabinet near door  
to garage

## Indoor Air Sampling Field Data Sheet

(Form SP-28)

## A) General Information

Sample Identification Number: AOT7-AA-17-01Site Address: 3144 Passyunk Ave Philadelphia PASample Canister Location: AA-AOT7 WWTPSample Date: 03/07/17 Sampler: Alissa CannonSample Time: Start: 0917 Stop: 1717

Shipping Date: \_\_\_\_\_

Canister Type: 400 mL – 1.0 L Summa Canister/6 L Summa Canister/Other (specify):

Canister Serial No.: 2721Flow Controller Serial No.: FC0887 AOT941924

Were "Instructions to Occupants Building" followed?

 Yes       No

## B) Sampling Information

	Start		Stop	
	Ambient	Interior	Ambient	Interior
Temperature	<u>46.9</u>	<u>47.1</u>	<u>66</u>	_____
Barometric Pressure	<u>30.47</u>	_____	<u>30.27</u>	_____

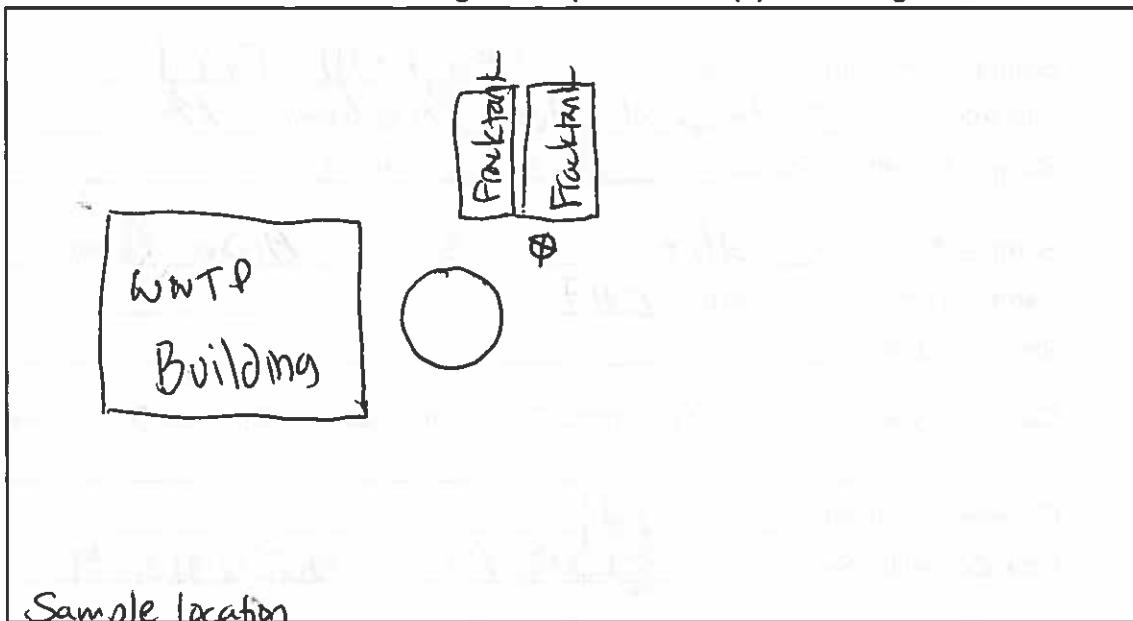
	Start		Stop	
	Canister Pressure Gauge Reading:	Time:	Canister Pressure Gauge Reading:	Time:
PID Reading:	<u>30+</u>	<u>0917</u>	<u>5+</u>	<u>07/7</u>
Basement Depth (ft below grade):	<u>200</u>	_____	<u>141</u>	_____
Window Marked:	_____	Yes/No	_____	_____

Was there significant precipitation (e.g., &gt;1/2-inch rain) within 24 hours prior to (or during) the sampling event?

 Yes       NoDescribe the general weather conditions: light rain

**Indoor Air Sampling Field Data Sheet  
(Form SP-28)**

Provide Drawing of Sample Location(s) in Building



C) Comments

Sample was collected on a tripod at a height of approximately 3feet. Location was north east of tank