



March 26, 2024

Chelsea Fazzino, PG  
Licensed Professional Geologist  
Department of Environmental Protection  
Southeast Region Office  
2 East Main Street  
Norristown, PA 19401

sent via email to [cfazzino@pa.gov](mailto:cfazzino@pa.gov)

**Subject: Tank Group 05 Subsurface Investigation Report  
Former Philadelphia Energy Solutions Refinery  
3144 West Passyunk Avenue, Philadelphia, PA**

Dear Ms. Fazzino:

Terraphase Engineering Inc. (Terraphase) has prepared this *Tank Group 05 Subsurface Investigation Report* (Report), on behalf of Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), in response to a request from the Pennsylvania Department of Environmental Protection (PADEP) for additional information regarding subsurface soil conditions associated with Incident No. 57203 (and other historical release areas) in the vicinity of former aboveground storage tank (AST) PB 253.

PB 253 is located within Tank Group 05 (the "Site") which, as detailed in Terraphase's (2021) *Aboveground Storage Tank Closure Work Plan*, has been subject to Site Assessment and Site Characterization sampling in support of efforts to close ASTs in Tank Group 05 in accordance with the Storage Tank and Spill Prevention Act (Act 32) and Title 25 Pennsylvania Code (25 Pa. Code) Chapter 245 (Subchapter D). The Site is located within the Former Philadelphia Energy Solutions refinery facility (the "Facility"). The Facility, which is undergoing closure activities in preparation for redevelopment, is located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania. Remediation activities are being conducted at the Facility under the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2) by both PESRM and Evergreen Resources Group, LLC (Evergreen)<sup>1</sup> in accordance with the Consent Order and Agreement (CO&A) among Pennsylvania Department of Environmental Protection (PADEP), Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC, and PESRM dated August 14, 2012 and the 2020 First Amendment to that Agreement (2020 Amendment). Pursuant to this agreement, although PESRM purchased the Facility in 2020, PESRM acquired the environmental liability dating back to 2012.

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<sup>1</sup> Evergreen Resources Management Operations, a series of Evergreen Resources Group, LLC, is managing the legacy remedial work for Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC ("Evergreen") and Sunoco (R&M), LLC. For clarity, Sunoco, Inc. n/k/a ETC Sunoco Holdings LLC, Sunoco, Inc. (R&M) f/k/a Sunoco (R&M), LLC n/k/a Energy Transfer (R&M), LLC effective 4/19/2021 and Evergreen shall be referred to collectively as "Evergreen" in this Report.

In December 2021, while PESRM was conducting Site Assessment sampling activities in Tank Group 05, benzene and naphthalene were identified in soil at concentrations greater than the Non-Residential (Non-Res) Medium Specific Concentrations (MSC) in samples collected east of PB 253, which was previously used to store distillate. While there was no obvious evidence of a release to the environment from the tank, since the nature and extent of these constituents in soil had not yet been defined, a potential release from PB 253 was reported to the PADEP. In response, PADEP assigned the potential release to Incident No. 57203.

Subsequent Site Characterization sampling performed by PESRM under Act 32 in 2022 and 2023, data evaluation, and a review of historical documentation led to the determination that the presence of these constituents in soil was not the result of a release from the PB 253 system. Rather, the contamination was associated with impacts from a release discovered by Facility personnel in 2016, which had encroached on the area of PB 253. More specifically, in July and August 2016, personnel observed product-soaked soil at the ground surface, just outside of the PB 253 emergency containment berm, near product conveyance lines. A limited soil excavation was reportedly conducted by Facility personnel.

PESRM initially submitted a *Site Characterization Report – Tank Group 05* (Terraphase 2022), which presented the Site Assessment and Site Characterization soil and groundwater analytical results. PESRM subsequently submitted a *Tank Group 05 Closure Report Addendum* (Terraphase 2023), which presented soil analytical results from additional soil samples specifically requested by PADEP to further demonstrate that the contamination identified in the area of PB 253 was not associated with a release from PB 253. This additional sampling, along with previous Site Assessment/Site Characterization results, showed that the soil contamination identified in the area east of PB 253 was, in fact, not related to the tank but to the 2016 prior release based on the distribution and depth of benzene and naphthalene concentrations greater than the applicable MSCs.

As discussed on a conference call with PADEP on February 9, 2024, PESRM informed the Department that it was withdrawing the release notification for PB 253, and that the contamination would be further investigated and managed by PESRM as a separate matter under Act 2; PESRM submitted to PADEP a Notice of Intent to Remediate (NIR) for this release on March 5, 2024. During the February 9, 2024 call, PADEP requested the following specific additional information:

- A figure identifying the contaminated area that will be addressed under Act 2 (see **Figure 1** attached); and
- Figures illustrating the vertical extent of soil contamination (i.e., cross-sections) in the area due to the prior release identified in 2016 which occurred outside of the emergency containment berm for the tank (see **Figures 2 and 3** attached).

## Closing

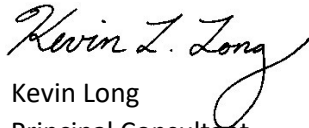
We trust that this *Subsurface Investigation Report*, in combination with the *Site Characterization Report – Tank Group 05* (Terraphase 2022), *Tank Group 05 Closure Report Addendum* (Terraphase 2023), and



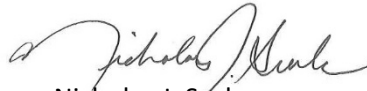
the NIR that PESRM submitted on March 5, 2024, provide the PADEP with the comprehensive information to close Incident No. 57203 and the ASTs in Tank Group 05 under Act 32.

Sincerely,

for Terraphase Engineering Inc.



Kevin Long  
Principal Consultant



Nicholas J. Scala  
Principal Geologist, PG, LSRP

KL/NS:cs

Attachments (3):

- Figure 1 Soil Analytical Results & Release Area East of PB 253
- Figure 2 Cross Section A-A'
- Figure 3 Cross Section B-B'

cc: Julianna Connolly, LSP, PESRM  
Amy Piccone, PESRM  
Richard Staron, PADEP

## Figures

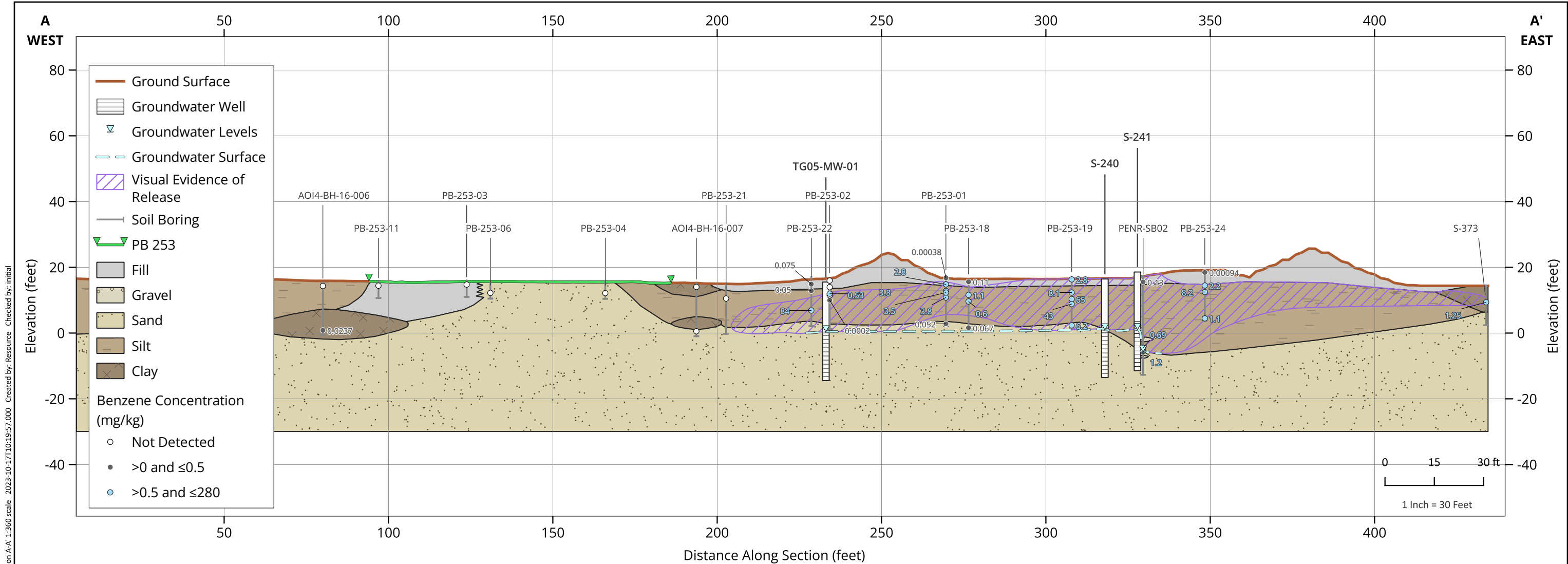
- 1 Figure 1 Soil Analytical Results & Release Area East of PB 253
- 2 Figure 2 Cross Section A-A'
- 3 Figure 3 Cross Section B-B'











- Legend**
- Transect
  - Associated Piping
  - Berm Boundary
  - Tank Group 04 Boundary
  - Tank Group 05 Boundary
  - Visual Evidence of Release

- Evergreen Monitoring Well
- PESRM Monitoring Well

Notes:  
1. Aerial imagery source: Nearmap (October 26, 2016).  
2. Soil borings shown in plan view are symbolized the same as in cross section view, with the highest concentration sample shown.  
3. Benzene MSCs:  
- S-GW = 0.5 mg/kg  
- DC = 280 mg/kg

Abbreviations:  
DC -- Direct Contact  
MSC -- Medium Specific Concentration  
S-GW -- Soil-to-Groundwater

**SAFETY FIRST**



CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

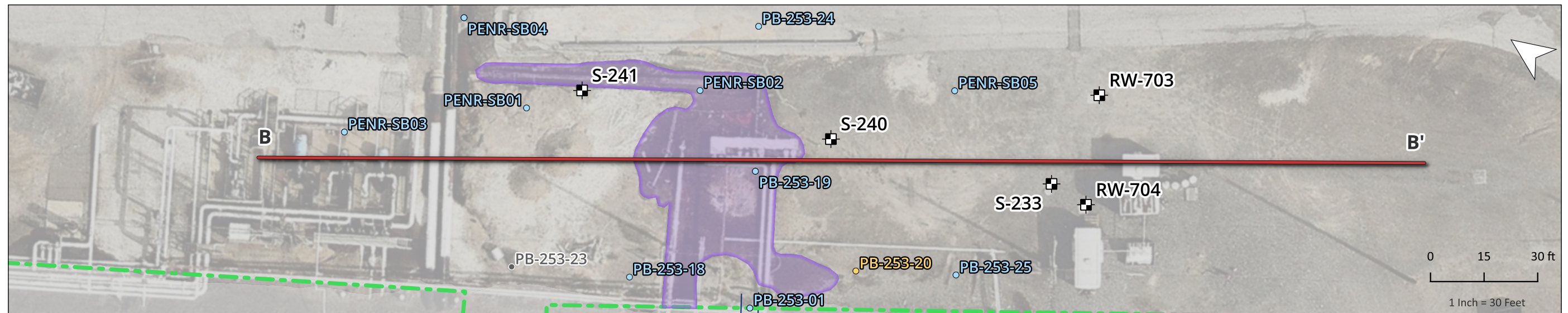
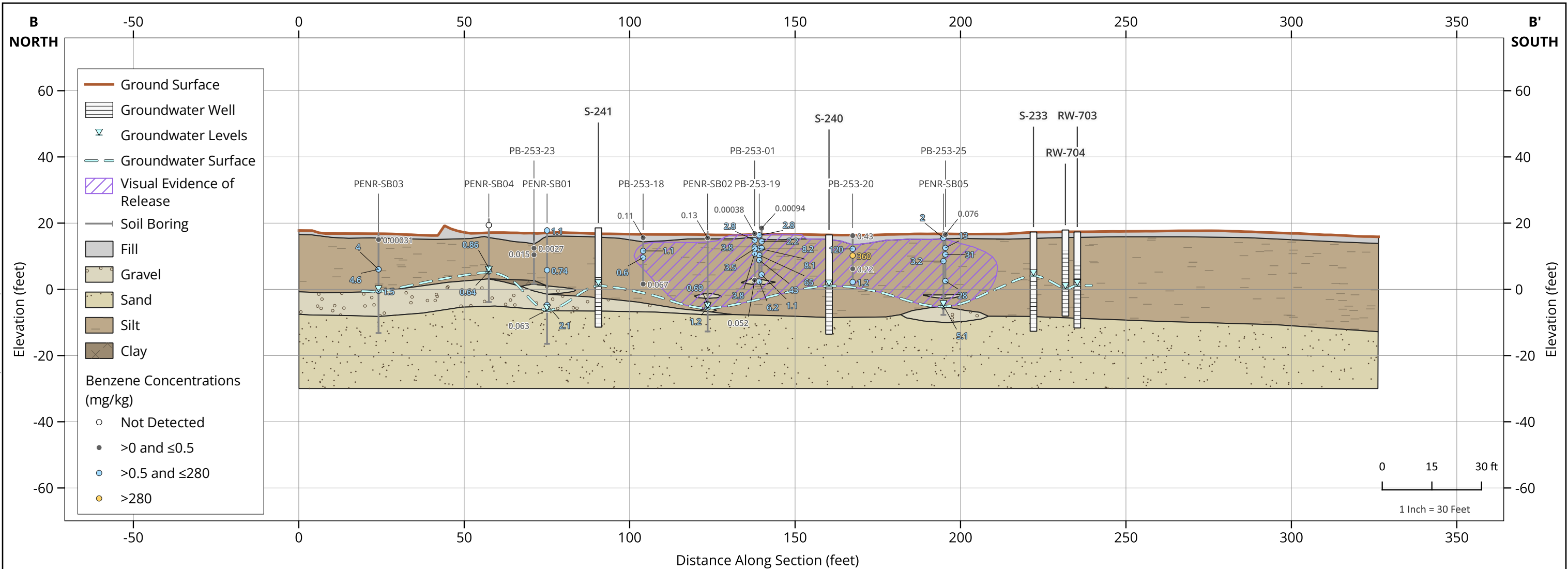
PROJECT: East of PB 253 Area

PROJECT NUMBER: P044.001.002

**Cross Section A-A'**

**FIGURE 2**

N:\GIS\Prj\0404.001\_PESRM-PES\OGIS\OGZ and GPKS\Branch\_AST\TGO5\20240226\OGZ328\_PESRM\_TGO5.ogz Cross Section B-B' 1:360 scale 2023-10-17 10:19:57.000 Created by: Resource Checked by: initial



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|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------|--------------------|
| <b>Legend</b> <ul style="list-style-type: none"><li>Transect</li><li>Associated Piping</li><li>Berm Boundary</li><li>Tank Group 04 Boundary</li><li>Tank Group 05 Boundary</li><li>Visual Evidence of Release</li><li>Evergreen Monitoring Well</li><li>PESRM Monitoring Well</li></ul> | <b>Notes:</b> <ol style="list-style-type: none"><li>Aerial imagery source: Nearmap (October 26, 2016).</li><li>Soil borings shown in plan view are symbolized the same as in cross section view, with the highest concentration sample shown.</li><li>Benzene MSCs:<ul style="list-style-type: none"><li>S-GW = 0.5 mg/kg</li><li>DC = 280 mg/kg</li></ul></li></ol> <b>Abbreviations:</b> <ul style="list-style-type: none"><li>DC -- Direct Contact</li><li>MSC -- Medium Specific Concentration</li><li>S-GW -- Soil-to-Groundwater</li></ul> |  | CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC | Cross Section B-B' |
|                                                                                                                                                                                                                                                                                         | <b>SAFETY FIRST</b><br>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  | PROJECT: East of PB 253 Area                                     |                    |
|                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | PROJECT NUMBER: P044.001.002                                     | FIGURE 3           |