

July 25, 2012

Mr. Ayman Ghobrial  
Environmental Cleanup  
Pennsylvania Department of Environmental Protection  
2 East Main Street  
Norristown, Pennsylvania 19401

**RE: Response Agency Comments  
AOI 5 Site Characterization/Remedial Investigation Report/  
Cleanup Plan  
Sunoco, Inc. (R&M)  
Philadelphia Refinery  
Philadelphia, Pennsylvania**

Dear Mr. Ghobrial:

The purpose of this letter is to provide responses to the Pennsylvania Department of Environmental Protection's (PADEP's) March 15, 2012 comment letter regarding the Site Characterization Report/Remedial Investigation Report (SCR/RIR)/Cleanup Plan for AOI 5, dated December 13, 2011, prepared by Langan Engineering and Environmental Services, Inc. (Langan) on behalf of Sunoco Inc. (R&M) (Sunoco). Sunoco will submit an addendum to the AOI 5 SCR/RIR/Cleanup Plan following the completion of the activities summarized in this letter. The addendum will address any additional comments received by the PADEP in response to this letter.

Each comment provided by PADEP in its comment letter is noted below along with a response by Sunoco.

**PADEP Comments/Conditions**

***Regarding the mobility and stability of LNAPL at AOI-5: DEP accepts Sunoco's conclusion that the material appears to be immobile and stable, subject to the following condition: The LNAPL in wells WP-B, WP-A, A-21, SW-4, and SW-1 is located immediately adjacent to the Schuylkill River, and may be prevented from discharging to the river only by virtue of the structural integrity of the sheet pile bulkhead. If new evidence should appear to indicate, or to suggest, that LNAPL has discharged or may be discharging to the Schuylkill River from these areas,***

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***Sunoco will be responsible to investigate the circumstances, and to remediate any environmental contamination that may have occurred due to the release of LNAPL from this area.***

**Response**

Sunoco acknowledges its responsibility to investigate the circumstances and to remediate any environmental contamination that may have occurred due to any new or future releases of LNAPL in or around monitoring wells SP-B, WP-A, A-21, SW-4, and SW-1.

**PADEP Comments/Conditions**

***The sheet pile bulkhead should be recognized as an engineering control; therefore a Post Remediation Care Plan must be developed for the sheet pile bulkhead that will include periodic inspection for the structural integrity of the bulkhead. The UECA for AOI-5 will ultimately require compliance with the PRCP for the bulkhead and other areas with engineering controls.***

**Response**

Sunoco agrees that the sheet pile wall/bulkhead along AOI 5 is an engineering control. Sunoco will include monitoring requirements for the sheet pile wall/bulkhead as part of the Post Remedial Care Plan (PRCP) to be included in the AOI 5 Cleanup Plan. The UECA to be prepared for the Site will include the PRCP monitoring requirements.

**PADEP Comments/Conditions**

***The LNAPL thickness at the newly installed monitoring wells (A-155 & A-14) is 1.15ft and 1.6ft respectively. Further delineation in the vicinity of the locations of the aforementioned wells is required to determine the extent of the LNAPL. Results of the LNAPL delineation and proposed recovery must be documented in the RIR/Cleanup Plan.***

**Response**

Sunoco intends to further delineate the LNAPL occurrence in the vicinity of monitoring wells A-155 and A-14. Sunoco proposes to install three monitoring wells in the vicinity of A-155 and two monitoring wells in the vicinity of A-14, as shown on the attached

Figure 1 and summarized in the attached Table 1. Additional wells may be installed, as necessary, to delineate the extent of LNAPL in this area. Results from the monitoring well installation and LNAPL delineation activities, as well as any proposed LNAPL recovery measures (if necessary), will be presented in the AOI 5 RIR/Cleanup Plan Addendum.

### **PADEP Comments/Conditions**

***The depth to ground water at the AOI-5 is less than five feet below the ground surface. The RIR proposes to further evaluate the vapor intrusion into indoor building pathway for the current occupied buildings via soil gas sampling. Results of additional evaluation and/or mitigation measures if needed should have been documented in the RIR/Cleanup Plan.***

### **Response**

Sunoco intends to collect indoor air samples (TO-15) from inside four occupied buildings in AOI 5 (B&S Offices, South Tank Field Block House, Lube Oil Building, and the No. 2 Gate Guard House). Sunoco may also collect additional indoor air samples from buildings, if necessary, based on the results of additional site characterization activities described in this letter. Indoor air samples will be collected and evaluated in accordance with the Act 2 Vapor Intrusion and the Technical Guidance Manual. The results of the indoor air sampling activities, and any proposed mitigation or control measures to be implemented, will be presented in the AOI 5 SCR/RIR/Cleanup Plan Addendum.

### **PADEP Comments/Conditions**

***Contaminants of concern (COC) found in soil are benzene and lead. Based on the current and future intended non-residential use, site investigation was conducted for shallow soil only (0-2ft). Exposure assessment was also conducted for the COC that were above the non-residential direct contact MSCs found in shallow soil. The potential direct contact pathway for soil greater than two feet is described as incomplete based on Sunoco's existing permitting procedure (OSHA and personal protective equipment, PPE). The PRCP may need to incorporate this internal permit procedure. Please also note that a future termination of the existing Sunoco internal permit procedure may become a reopener of an Act 2 release. In order for site soil to be eligible for a release of liability under Act 2,***

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***additional soil investigation will be required for the 2-15 ft. interval (or soil to groundwater interface for the current scenario). Please follow the TGM on how to select a Cleanup Standard for soil medium for the non-residential scenario. Furthermore, the soil to groundwater pathway was not evaluated. The release of liability under Act 2 for soil will be granted only for those areas that has been investigated and remediated.***

**Response**

Sunoco intends to further investigate the 2 to 15 feet soil interval at the site. Soil samples will be collected within the 2 to 15 feet interval (at the soil/groundwater interface if groundwater is encountered within the upper 15 feet) as shown on the attached Figure 1 and summarized on the attached Table 1. Soil sampling activities and evaluation of the results will be completed in accordance with the Act 2 TGM. The results of these activities will be presented in the AOI 5 SCR/RIR/Cleanup Plan Addendum. The soil sampling field procedures for the additional site characterization activities are included as Attachment A to this document.

**PADEP Comments/Conditions**

***The RIR proposes additional soil investigation and delineation for Areas 1 &2 (SWMU-94) and Area 3 (SWMU-101). The proposed soil delineation should have been implemented and results should have been documented in the RIR.***

**Response**

Sunoco intends to collect additional soil samples in the vicinity of Areas 1 and 2 (SWMU-94) and Area 3 (SWMU-94) to further delineate the analytical detections above the non-residential soil MSCs, as shown on the attached Figure 2. Soil sampling activities and evaluation of the results will be completed in accordance with the Act 2 TGM, AOI 5 Work Plan, and the attached soil sampling procedures. The results and analysis of the addition soil sampling activities will be presented in the AOI 5 SCR/RIR/Cleanup Plan Addendum.

**PADEP Comments/Conditions**

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**Issues regarding investigation and closure of the three SWMUs, Nos. 93, 94 (leaded tank bottom disposal areas), and No. 101 (Bulkhead Seepage Area), must be coordinated with the USEPA.**

**Response**

Sunoco will coordinate investigation and closure of SWMUs 93, 94, and 101 following the completion of the additional soil sampling activities as described above.

We hope this letter adequately addresses PADEP's comments. Should you have any questions regarding this response letter, or have further comments, please contact us.

Sincerely,  
**Langan Engineering and Environmental Services,  
Inc.**

Dennis Webster  
Project Manager

Colleen Costello, P.G.  
Senior Principal

Attachments:

Figure 1 – Proposed Soil Boring and Monitoring Well Installation Plan  
Table 1 – Summary of Proposed Additional Site Characterization Activities  
Attachment A – Work Plan Procedures

cc: Stephan Sinding, PADEP  
Walter Payne, PADEP  
David Burke, PADEP  
Hon Lee, US EPA

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James Oppenheim, Sunoco, Inc

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