pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION	**REPORT COMMENTS** C. David Brown 16 Jun 2017	**Commonwealth of Pennsylvania** **Department of Environmental Protection** **Southeast Regional Office** **Environmental Cleanup and Brownfields**

Site: **Philadelphia Refinery AOI 3** 3144 West Passyunk Avenue Philadelphia, PA 19145		eFACTS Facility ID: 778377	Tank Facility ID: 51-19781
		Incident ID: *multiple*	NIR Date: 14 Dec 2016
Municipality: Philadelphia	County: Philadelphia		Location: 39.9078°N, 75.2020°W

PA DEP comments on AOI 3 "Remedial Investigation Report" dated 20 Mar 2017, prepared by Langan Engineering and Environmental, Inc. on behalf of Evergreen Resources Group, LLC, for the former Sunoco Philadelphia Refinery, currently the Philadelphia Energy Solutions Refining and Marketing, LLC facility.

Soil

1. The RIR should provide information on which substances exceed soil-to-groundwater MSCs and where those exceedences occur. [§250.408(d)]

Groundwater

2. Some of the most impacted monitoring wells are located in the northwest of AOI 3, near the Schuylkill River (S-280, S-382, and S-414). Shallow groundwater flow in this area was inferred to the southeast (Jun 2015) and to the east and southeast (Dec 2015). There are no monitoring points between these impacted wells and the river. Groundwater elevations were ~0–1′. The average stage of the river is ~0.5′ (Appendix I). Evergreen should better determine groundwater flow in this area to determine if contamination is reaching the river. This will require further monitoring, and it may also involve the placement of additional monitoring wells closer to the river, piezometers near the river bank, a tidal study, and/or other actions.

3. Certain wells appear to reflect increasing trends of benzene and MTBE, as described in Appendix I. DEP recommends more frequent sampling of those wells to better evaluate the trends.

4. Langan concluded that LNAPL in AOI 3 is "stable and immobile." However, compared to some other recent reports submitted by Evergreen, there is little discussion and supporting information for this statement. For instance, there has been no evaluation of LNAPL transmissivity, use of the API model, or a lines-of-evidence assessment. DEP requests further evaluation and discussion of the LNAPL stability conclusions.

5. When was the RW-2 total fluids recovery system installed?

Inhalation Pathway

6. Please document conditions at the time of air sampling, including indoor and outdoor temperatures, weather conditions (e.g., wind, precipitation, barometric pressure changes), and building characteristics (HVAC operation, ventilation, etc.).

7. Aerial images show dozens of trailers south and northeast of the central warehouse building. Only two trailers were chosen for indoor air sampling. Explain how those two structures were selected. We request that Evergreen provide a listing of all trailers and other enclosed structures intended for human occupancy currently in AOI 3. Evergreen should document whether each structure is a potential VI receptor. (For instance, do the trailers have skirts which will cause an accumulation of vapors under the floors? Are they regularly occupied?) 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 multiple trailers if the exposure pathway for occupants may be complete. [§250.404(a), 408(a)]

8. As noted in the report, some reporting levels in the indoor air sample analyses exceeded applicable screening values. If Evergreen will be using risk-based screening values rather than occupational criteria (PELs), then those exceedences will need to be addressed.

9. DEP recommends that GHD and Evergreen obtain the full analytical data packages for the indoor air sampling and report the MDLs and the PQLs pursuant to §250.4(c)(2). Both 1,2-dibromoethane and naphthalene were nondetect in all samples, and the lab's LOQs (which may equal the PQLs) exceeded DEP's screening values. However, to attain a standard, concentrations for screening are not required to be less than PQLs (§250.701(c)).

10. The results of the outdoor air testing were presented in Section 5.9 and Table 9. However, there was no discussion of those results. They were not compared to occupational criteria in the table. Evergreen should interpret the results and discuss if they will be screened, used in a risk assessment, or addressed through compliance with occupational criteria.

11. For future outdoor air sampling, DEP recommends the collection of a sample at an upwind location for context.

Exposure Pathways

12. In the Jul 2015 PNDI review, DCNR identified one endangered species and one special concern species. Further ecological evaluation is required for these two plant species. [§250.402(d)]

13. The Pennsylvania Fish and Boat Commission identified the eastern redbelly turtle and the Atlantic sturgeon as species of concern in the vicinity of AOI 3. AECOM's Oct 2015 report indicated that interior areas of AOI 3 are unlikely habitat for the eastern redbelly turtle, but the Schuylkill River and its bank is viable habitat for the turtle. The river is also presumably habitat for the Atlantic sturgeon. Because there is a potentially complete exposure pathway for threatened/endangered species, further ecological assessment is required. [§250.402(d)]

14. Evergreen must document whether or not there are any exceptional value wetlands in AOI 3. [§250.402(c), §250.311(a)]

Tables, Figures, and Appendices

15. In Table 8, 26 μg/m^3 is presented as the "RSL" for trimethylbenzenes. However, this is not EPA's published RSL, but rather a calculated value using the Sep 2016 IRIS RfC value. EPA will presumably post a new RSL in the near future. Exceedences of vapor intrusion screening values should generally be addressed through a risk assessment.

16. Several screening values in Table 8 are incorrect. For example, the benzene screening value based on EPA's RSLs is 13 μg/m^3, not 16 μg/m^3. Screening values must be the lower of the cancer and non-cancer values. (See DEP's vapor intrusion training materials and FAQs.)

17. Groundwater elevation contours (Figure 7–12) are truncated at the AOI boundaries. I recommend that contouring include data in adjacent areas and that the maps show those contours for better context.

18. Please provide separate figures of the shallow and deep groundwater analytical data (Figure 14).

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