

 pennsylvania DEPARTMENT OF ENVIRONMENTAL PROTECTION	REPORT COMMENTS C. David Brown 31 Aug 2017	Commonwealth of Pennsylvania Department of Environmental Protection Southeast Regional Office Environmental Cleanup and Brownfields
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Site: Philadelphia Refinery AOI 7 3144 West Passyunk Avenue Philadelphia, PA 19145	eFACTS Facility ID: 750870	Tank Facility ID: 51-11554, 51-36558
	Incident ID: <i>multiple</i>	NIR Date: 14 Dec 2016
Municipality: Philadelphia	County: Philadelphia	Location: 39.9072°N, 75.2086°W

PA DEP comments on AOI 7 “Remedial Investigation Report” dated 9 Jun 2017, prepared by GHD Services, 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

- 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”?
- 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.

Groundwater & LNAPL

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

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

Exposure Pathways

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.
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)]
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.
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)]

Tables, Figures, and Appendices

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.
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.
13. The numbered footnotes are missing from Table 6. Please provide.
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.
15. Table 13 does not include applicable site-specific standard VI screening values.
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.

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).)
18. I could not find laboratory reports for the Mar 2016 indoor air sampling in Appendix D. Please provide these reports. [§250.408(c)]
19. The field data sheets for the 440 building were missing from Appendix K.
20. I recommend that the “indoor air sampling field data sheets” (Appendix K) include information on building characteristics (HVAC operation, ventilation, etc.).
21. In future reporting, please include tabs in the hardcopy at the beginning of each appendix.

C. David Brown P.G. Pennsylvania Registered Professional Geologist No. PG005002	Date
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