CLEAN Sunoco Refinery Remediation: Primer for Action Background

In 2015, with no public input, Evergreen proposed a site-specific standard for lead contamination in soil at a level twice the direct contact numeric value (part of Pennsylvania's statewide health standards). The Pennsylvania Department of Environmental Protection (DEP) approved it. DEP has approved investigation reports for environmental contamination for 8 out of the 11 areas of interest at the site. However, DEP and the City of Philadelphia worked with Evergreen Resources to reopen the reports for public comment. Therefore, there is now an opportunity to comment on all of these reports.

Provide Input on PES Site Cleanup

After the massive June 2019 explosion led to the closing of the Philadelphia Energy Solutions refinery, Hilco Redevelopment Partners purchased the site to use for large warehouses, which will end refinery operations.

However, the 1,400-acre site remains highly contaminated. Evergreen, Sunoco's subsidiary responsible for cleaning up the site, is now accepting public comments about its proposed site-specific cleanup standard for lead (a toxic metal) in soil, as well as other reports related to soil and groundwater contamination. It is critical for nearby residents and other stakeholders to submit comments to Evergreen to ensure it cleans up the site to the strictest possible public health standards. The comment period ends on January 14, 2021 with a virtual public meeting (www.phillyrefinerycleanup.info).

To submit comments, please use Clean Air Council's online form at cleanair.org/phillyrefinery or contact Russell Zerbo with Clean Air Council at rzerbo@cleanair.org or 215-567-4004 (ext. 130) for support in putting together and submitting your comments.

You can also mail your comments to:

Philadelphia Refinery Operations (a Series of Evergreen Resources Group, LLC) P.O. Box 7275, Wilmington, DE 19803



Soil remediation. Source: MGI Corp. via Flickr

What is Remediation?

Remediation means cleaning up a contaminated site to meet certain environmental standards for soil and groundwater.

In the context of the former Sunoco refinery this could mean:

- Removal of contaminated soil (e.g. lead)
- Pumping of contaminated groundwater
- Using a biofilter system and monitoring the sewer system
- Covering contaminated areas with tarp and asphalt



Workers testing soil contaminants for remediation. Source: US EPA

Remedial Investigation Report (RIR)

There are 8 RIRs that DEP has approved, but reports for all 11 areas of interest are open for public comment. RIRs are completed to identify the nature and extent of contaminants in soils, and transport of contaminants in groundwater. The current comment period provides an opportunity for the public to comment until January 14, 2021 on the initial investigation.

Evergreen selected the number and location of soil and groundwater samples, and submitted 11 reports to DEP for review.



Sunoco Remediation Areas of Interest. Source: Evergreen Resources Group, LLC

Required Cleanup Reports and Plans

Under an amendment of a consent order in 2020, Sunoco is required to attain cleanup standards in all areas by December 2030. For purposes of remediation, Evergreen divided up the site into 11 areas of interest (AOI).

- Notice of Intent to Remediate 11 submitted
- Remedial Investigation Report 11 submitted/8 approved
- Risk Assessment Report 1 submitted and approved (site-specific standard for lead in soil)
- Cleanup Plan to be submitted
- Final Report to be submitted

Lead exposure

Although often without obvious symptoms, lead exposure can affect nearly every part of the human body. No safe level of lead in the bloodstream has been determined by the federal Centers for Disease Control and Prevention.



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Adults

 Brain Memory loss, lack of concentration, headaches, irritability, depression

Cardiovascular High blood pressure

Kidneys Abnormal function and damage

Digestive system Constipation, nausea and poor appetite

Reproductive system Men: Decreased sex drive and sperm count, sperm abnormalities Women: Spontaneous miscarriage

Body Fatigue, joint and muscle pain

Nervous system
Damage including
numbness and pain in the
extremities

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Pollutants of Concern

- Lead heavy metal that can bio-accumlate in body
- Benzene hydrocarbon that is a human carcinogen
- Methyl tert-butyl ether (MTBE) gasolline additive
 - Light non-aqueous phase liquids (LNAPL) - hydrocarbon-based groundwater contaminants that settle at the top of the water table
 - e.g. gasoline, benzene, toluene
 - Dense non-aqueous phase liquids (DNAPL) - hydrocarbon-based groundwater contaminants that settle below the water table at bedrock
 - e.g. extra heavy crude oil, coal tar, PCBs, creosote
- Per- and polyfluoroalkyl substances (PFAS)
 - a group of toxic man-made chemicals that accumulate in the environment and in the human body
 - found in firefighting foams and some consumer goods
 - accumalates in air, water, soil and food

Potential Issues: Cleanup and Analysis

Lead is a highly toxic chemical known to impair brain function. Evergreen has proposed a site-specific standard that is more than twice the direct contact numeric value for lead in soil (part of Pennsylvania's statewide health standards). Using this inappropriate value, regulatory agencies would require Evergreen to address contamination on a much smaller fraction of the site than would be required with the correct value.

Evergreen did not consider the impacts of climate change on soil and groundwater contamination at the site. It failed to consider sea-level rise, storm surges, and the increased frequency and severity of events like superstorms. In addition, Evergreen prepared the reports over three years ago and it is not clear whether the data in the reports are still reliable.

Evergreen should include chemicals in the PFAS group in its environmental assessments. PFAS are near impossible to break down in the environment and can accumulate in the human body through exposure to contaminated air, water, soil, and food. US EPA indicates that exposure to PFAS can lead to adverse health outcomes in humans, including cancer and hormone disruption.

Evergreen has not sufficiently responded to the DEP's comment regarding the potential for migration of contamination to an aquifer that is a source of drinking water in New Jersey. In general, Evergreen has not sufficiently described conditions of the deep aquifer and the unconfined aquifer (water table).

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