



pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Environmental Cleanup & Brownfields

Philadelphia Refinery: DEP's Role and the Land Recycling Program

February 18, 2021

Outline

- DEP's Land Recycling Program
- Key public concerns
- Next steps

Scope

- DEP's mission is to protect human health and the environment
 - DEP does not control land use
- “Cleanup” here refers to contamination in soil, groundwater, and surface water
- The cleanup addresses the primary risk drivers but not every contaminant present at the site

Land Recycling Program

DEP's Land Recycling Program (Act 2 of 1995)

- Encourage cleanup of properties to return them to productive use (i.e., brownfields)
 - Reduce development of open space
- Remediator chooses cleanup standard based on property use (e.g., nonresidential)
- Risk-based cleanup standards

Land Recycling Program

Cleanup Standards

- Statewide health standard
 - DEP defines cleanup standards for soil and water
 - Example: groundwater standards for ingestion
- Site-specific standard
 - Remediator demonstrates acceptable risks, and/or
 - Eliminates exposures to contamination
 - Examples: cap over soil, vapor controls

Land Recycling Program

Act 2 Reporting Sequence

- Notice of intent to remediate
- Remedial investigation report(s)
 - Characterization of the contamination
- Risk assessment report
- Cleanup plan
 - Remedies to eliminate exposures
- Final report



Land Recycling Program

Public Involvement

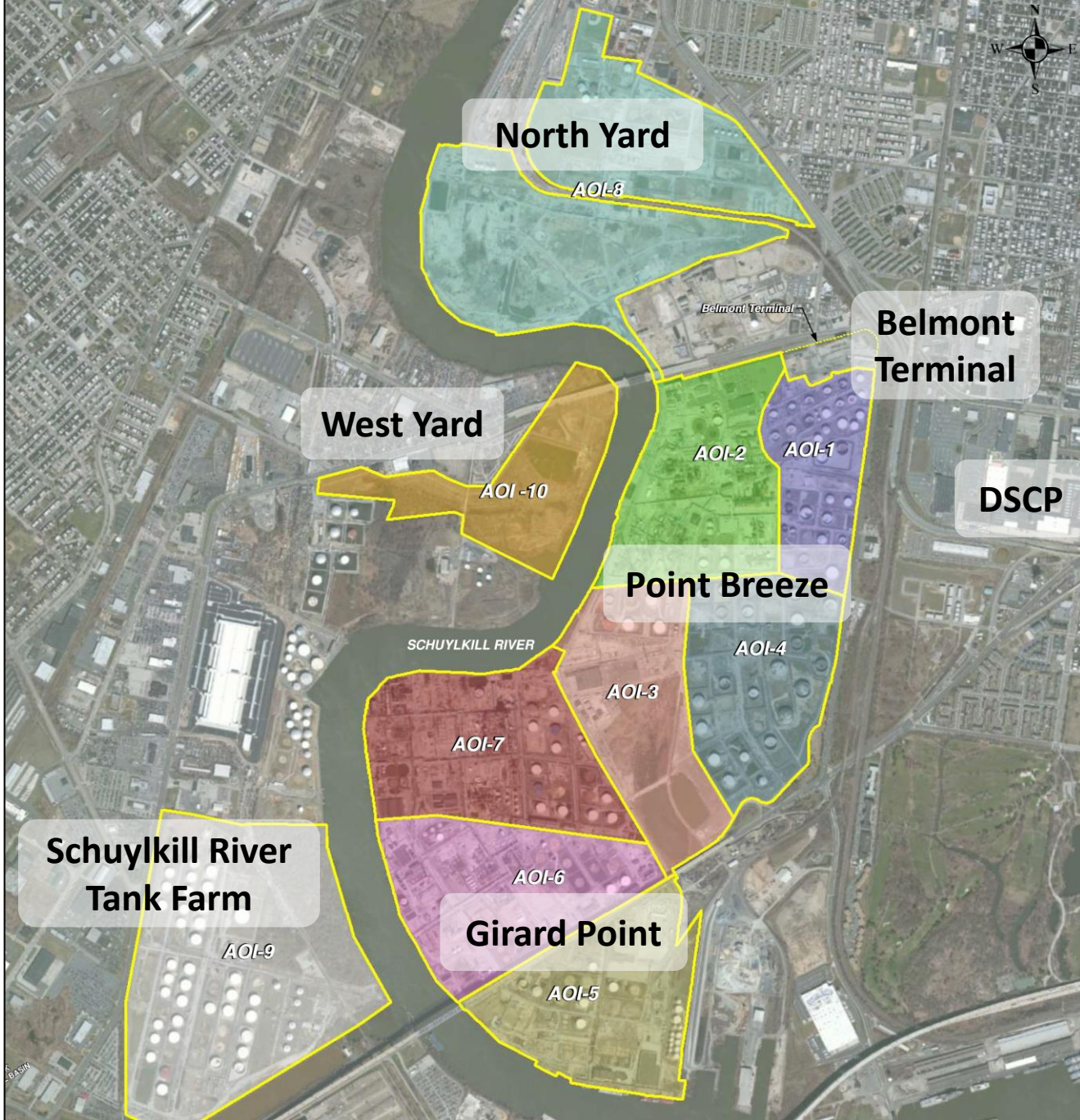
- Proactively inform the public
 - Documents, meetings, plain-language summaries
- Solicit public comments on all reports throughout the Act 2 process
- Remediator must respond to comments
- DEP must account for comments in reviews
- Environmental justice

Land Recycling Program

DEP's Storage Tank Corrective Action Program

- Applies to releases from regulated tanks
- Reporting similar to Act 2
- Cleanup standards same as Act 2
- Wrapped into refinery Act 2 reporting





AOI: area of interest

Land Recycling Program

Act 2 Progress to Date

- DEP has received Act 2 remedial investigation reports for eleven areas of interest (AOIs)
 - Eight approved, three disapproved (2011–2017)
- Lead risk assessment report
 - Approved risk-based soil lead standard (2015)
- Now rectifying lack of public involvement
 - DEP has received comments, sent to Evergreen

Key Public Concerns

Lead Soil Cleanup Standard

- Concern: Evergreen's site-specific lead standard isn't safe
- DEP's old Statewide health standard (1990s)
 - Based on an old exposure model
- Evergreen's site-specific standard (2015)
 - Based on EPA's current lead model
- These are nonresidential cleanup standards

Key Public Concerns

Lead Soil Cleanup Standard

- DEP's proposed Statewide health standard
 - Based on EPA's current lead model and a lower blood lead level (5 $\mu\text{g}/\text{dL}$)
 - Anticipated publication later in 2021
- DEP old — **1000** mg/kg
- Evergreen (2015) — **2200** mg/kg
- DEP proposed — **1100** mg/kg

Key Public Concerns

Lead Soil Cleanup Standard

- Evergreen has agreed to update their lead standard using DEP's forthcoming regulations
- Evergreen must demonstrate that lead has been adequately investigated

Key Public Concerns

Per- and Polyfluoroalkyl Compounds (PFAS)

- Concern: PFAS chemicals in fire-fighting foam may have been released at the refinery and may have contaminated groundwater.
- DEP has requested that Evergreen sample the discharge from groundwater remediation systems
- Results will determine next steps

Key Public Concerns

Vapor Intrusion in Neighborhoods

- Concern: Groundwater contamination may have migrated from the refinery and could cause vapors to enter homes and buildings
- Historically vapors were found to travel through city sewers crossing the refinery
- Sunoco installed systems to collect vapors
- Evergreen continues to operate those systems

Key Public Concerns

Vapor Intrusion in Neighborhoods

- Evergreen's approved groundwater investigations did not find contamination in residential neighborhoods

Key Public Concerns

PA Constitution Article I Section 27

The people have a right to clean air, pure water, and to the preservation of the natural, scenic, historic and esthetic values of the environment.

Pennsylvania's public natural resources are the common property of all the people, including generations yet to come. As trustee of these resources, the Commonwealth shall conserve and maintain them for the benefit of all the people.

Next Steps

- DEP signed an amended Consent Order and Agreement with PES ([Hilco](#)) and [Evergreen](#)
 - It includes Act 2 report milestones
 - The parties have discussed the integration of Act 2 work with Hilco's redevelopment

Next Steps

- All Act 2 reports are open for public comment
 - Submit to Evergreen: phillyrefinerycleanup@ghd.com
- DEP has 90 days to review each report
 - DEP coordinates reviews with U.S. EPA
- Near-term remedial investigation reports:
 - Comment/response report — March 31, 2021
 - AOI 4 & AOI 9 — September 30, 2021
 - Fate-and-transport modeling for groundwater and Schuylkill River — December 31, 2021

Next Steps

- Long-term report deadlines:
 - Human health risk assessment(s)
 - Ecological risk assessment — June 30, 2022
 - Final report, sitewide groundwater — December 31, 2024
 - Cleanup Plans — phased, starting by 2025
 - Final Reports — phased, 2023 – 2030

Next Steps

- DEP approved Hilco's soil management plan
 - Further characterization of soil
 - Deciding where soil can be moved, relative to buildings, pavement, and proximity to river
 - Must comply with all other applicable requirements (e.g., dust control)
- Hilco will address certain PES-related areas of contamination using Act 2, corrective action



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