

MEMO

TO Ragesh R. Patel
Regional Manager
Environmental Cleanup and Brownfields

FROM Lisa Strobridge, P.G. 
Professional Geologist

THROUGH C. David Brown, P.G.
Professional Geologist Manager

DATE June 29, 2021

RE ECB – Land Recycling Program
Act 2 Technical Memo Summary
Public Involvement Remedial Investigation Report
eFACTS PF No. 780190
PESRM - Evergreen
3144 Passyunk Avenue
City of Philadelphia
Philadelphia County

Property Owner:

Hilco Redevelopment Partners
99 Summer Street, Suite 1110, Boston, MA 02110

Remediator:

Evergreen Resource Management Operations
2 Righter Parkway, Suite 120
Wilmington, DE 19083

Site Address:

3144 Passyunk Ave
Philadelphia, PA 19145

Act 2 Standard(s) Sought: site-specific standard for soil and groundwater

Property Size: ~1300 acres

Project Site History: Petroleum refining began at the Philadelphia Refinery circa 1870. The facility consisted of two refineries, Point Breeze operated by Atlantic Petroleum Corporation (formerly ARCO) and Girard Point by Chevron (formerly Gulf). Sunoco purchased these two refineries in 1988 and 1994 and consolidated them into a single facility. In 2012 Sunoco sold the

refinery to the Carlyle Group and entered a joint venture to operate it as Philadelphia Energy Solutions (PES). Sunoco, Inc. is now a subsidiary of Energy Transfer Partners, L.P., and Evergreen is a Sunoco affiliate that is responsible for legacy environmental remediation. In 2020 PES was acquired by Hilco Redevelopment Partners (HRP).

The Philadelphia Refinery processed up to 330,000 barrels a day of crude oil. It produced gasoline, diesel, jet fuel, kerosene, home heating oil, and other petroleum liquids. The facility consisted of multiple process units, above-ground storage tanks, pipelines, as well as truck, railcar, and barge transfer equipment. The facility has been divided into eleven areas of interest (AOI 1–11) for purposes of characterizing contamination. The first ten are geographical areas of the facility, and AOI 11 represents the deep groundwater aquifer.

Site Cleanup History: An initial NIR was submitted October 16, 2006; it was revised with updated information on November 17, 2014 and December 14, 2016. The facility entered into a consent order and agreement with DEP’s Clean Water Program in December 1993; the agreement was succeeded by another in December 2003 which terminated in December 2013. The facility is currently subject to a DEP buyer–seller agreement which became effective September 8, 2012 and was amended June 26, 2020. The site entered into the One Cleanup Program with DEP and EPA on November 8, 2011.

The City of Philadelphia requested a public involvement plan in a letter dated November 3, 2006. Sunoco held an initial public meeting on September 19, 2007. Sunoco began submitting Act 2 remedial investigation reports in 2011; multiple Act 2 reports were submitted by Sunoco and Evergreen through 2017. In 2018 DEP determined that Evergreen had not fulfilled the public participation requirements of Act 2 for the reports that had been submitted and reviewed. In a meeting on November 27, 2018 with Evergreen, the City, and EPA, and in subsequent communications and meetings, DEP directed Evergreen to rectify the lack of public involvement for the 2011–2017 reports and ensure that public involvement requirements were satisfied for all future reporting.

Since 2019 Evergreen has reinvigorated the public participation program for the project. Public outreach has included: a website posting all Act 2 reports and related documents, plain language summaries of reports, an informational mailer sent to surrounding addresses by U.S. Mail, placing documents in two neighborhood libraries, creating an email distribution list, soliciting comments and questions on the website and through other means, meeting with community groups, and hosting public information and question-and-answer sessions. Evergreen held a public meeting on August 27, 2020 which initiated a public comment period for the 2011–2017 reports. The period lasted over 120 days and closed with another public meeting on January 14, 2021. The comment/response remedial investigation report reviewed here is the compilation of the questions and comments received during (and before) that period.

The comment/response RIR encompasses the corrective public participation for all of the following previously submitted Act 2 reports.

Area	PF ID	Report Type	Report Date	Decision Letter	Status
Site-wide	780190	RAR	2/26/2015	5/6/2015	approved
AOI 1	778374	RIR	8/16/2016	11/1/2016	approved
AOI 2	778376	RIR	7/25/2017	10/18/2017	approved
AOI 3	778377	RIR	3/22/2017	6/14/2017	approved
AOI 4	770318	RIR	10/18/2013	1/15/2014	disapproved
		RIR	3/27/2017	6/21/2017	disapproved
AOI 5	748141	RIR	12/15/2011	3/15/2012	disapproved
		RIR	2/10/2017	5/2/2017	approved
AOI 6	769099	RIR	9/5/2013	11/27/2013	disapproved
		RIR	11/28/17	2/26/2018	approved
AOI 7	750870	RIR	3/1/2012	n/a	no decision
		RIR	9/20/2013	12/18/2013	disapproved
		RIR	6/12/2017	8/30/2017	approved
AOI 8	749898	RIR	2/6/2012	n/a	no decision
		RIR	12/27/2017	3/22/2018	approved
AOI 9	778379	RIR	12/31/2015	3/28/2016	disapproved
		RIR	2/8/2017	4/18/2017	disapproved
AOI 10	720775	RIR	8/10/2011	1/6/2012	approved
		RAR	8/19/2016	11/10/2016	approved
AOI 11	745291	RIR	9/12/2011	n/a	no decision
		FR	6/28/2013	9/26/2013	disapproved

PF ID: eFACTS primary facility identification number

AOI: area of interest

RIR: remedial investigation report

RAR: risk assessment report

FR: final report

Review Findings: This technical memo summarizes DEP's review of the March 31, 2021 Public Comment Remedial Investigation Report. Overall, the report captured the comments that were received as part of public review process including public meetings and online submittals, and it provides responses to each of the questions and comments. Evergreen separated their responses into two sections: one for comments related to past Act 2 reports and the other for additional comments not specific to Act 2 reports. Many of the questions and comments pertained to issues that will be addressed in future reports (groundwater fate and transport, risk assessments, cleanup plans), that relate to environmental issues outside of the Act 2 cleanup (such as air quality), or involve HRP's redevelopment plans. Many questions simply sought further information, and Evergreen provided appropriate responses. DEP examined the questions and comments from the

above categories that were not specific to Act 2 reports, but this Act 2 Technical Memo Summary focuses on questions and comments specific to Act 2 reports.

Response Deficiencies

Page Number	Public Comment	DEP Assessment
5, 28-31, 42-43, 76	Multiple inquiries are present regarding potential impacts to drinking water supplies, including a question about drinking water intake portals downstream from the site.	<p>Evergreen's response indicated that Pennsylvania Groundwater Information System (PaGWIS) and eMapPA were evaluated for identification of potable supply wells within a one-mile radius of the site. Inquiries with DEP's Safe Drinking Water Program and New Jersey Department of Environmental Protection (NJDEP) are also needed.</p> <p>On page 29, Evergreen states "The groundwater beneath the site is not allowed to be used for any potable (human consumption) or industrial use..." Evergreen should include reference to the source material to support this statement.</p> <p>The response on page 30-31 includes reference to two USGS reports without summarizing the findings, details on how these reports were used to develop the site conceptual model, or how they will be used in the fate and transport model.</p> <p>In addition, the response on page 31, 43, and 76 should be moved to Section 2 of the report, and "low probability for potable water supply wells in the area," "not expected to impact local drinking water supplies," and "concentrations found in the deep aquifer do not indicate a potential risk to communities in New Jersey..." should be qualified with documentation.</p> <p>Exposure pathway evaluation is a requirement of 25 Pa. Code Section 250.404.</p>
7-8	Adequacy of groundwater delineation	<p>Evergreen's response did not directly address the concern that groundwater contamination was not delineated. Although the commentators did not specify examples of inadequate delineation, Evergreen should provide a more in-depth narrative and figures documenting the completeness of the groundwater characterization. Contaminant delineation is required by 25 Pa. Code Sections 250.408(b)(2) and 250.408(e).</p>
10 and 15	Group of comments regarding lead delineation	<p>Given the level of interest and number of comments regarding lead, a more detailed response is warranted for the public. Evergreen did not present a sufficient narrative explaining how lead in soil has been adequately delineated at the site boundaries and summary figures showing where lead results meet the Statewide health standard medium specific concentrations (SHS MSC), as well as figures that show where</p>

		concentrations are present at or above the soil to groundwater SHS MSC, the direct contact SHS MSC, and the site-specific standard across the site. Contaminant delineation is required by 25 Pa. Code Sections 250.408(b)(2) and 250.408(d).
15-16	Group of comments regarding benzene concentrations near Verizon SDWC property and Maiden Lane and concern about potential offsite migration.	These questions were specific to the adequacy of the delineation of groundwater contamination in this area of the site. Evergreen's response did not adequately explain and document (with figures and tables) that the extent of the benzene plume was determined in the remedial investigation. Contaminant delineation is required by 25 Pa. Code Sections 250.408(b)(2) and 250.408(e).
27, 43	Comments regarding benzene near property boundary.	Comments were also received regarding benzene concentrations at the property boundary (pages 27 and 43). One commentator contended that benzene groundwater contamination beyond the fence line had not been mapped. Evergreen did not document in their response that the extent of benzene contamination in groundwater at and beyond the property boundary has been determined in the remedial investigations. This documentation should include an expanded narrative and maps. Contaminant delineation is required by 25 Pa. Code Sections 250.408(b)(2) and 250.408(e).
40 and 77	Questions about condition of land along the waterfront following ship fires.	Evergreen's response stated waterfront investigations are presented in remedial investigation reports for Areas of Interest (AOIs) 2, 3, 5, 6, 7, 8, 9, and 10. Evergreen did not provide a detailed summary with specific information to answer the question. Clarification regarding how the waterfront was or is planned to be evaluated is requested. This question and response should also be moved to Section 2. Soil characterization is required by 25 Pa. Code Sections 250.408(b)(2) and 250.408(d).

Review Comments

In addition to the above deficiencies, DEP is requesting the following responses to comments be re-evaluated to provide more clarity and transparency in future reporting:

Page Number	Public Comment	DEP Assessment
General	n/a	DEP requests that the future re-submittal include a numbering system for each comment.
General	Multiple	The responses generally lacked specificity. Including excerpts or citations from past reports, figures, and/or tables would result in additional transparency and clarity when responding to questions.
General	A public comment was received regarding Evergreen's use of sheet piling and a bulkhead to minimize contaminant migration to the Schuylkill River.	A response to this comment was not included in the report. We suggest that Evergreen provide a summary of the location of the sheet piling and bulkhead, a summary of groundwater flow in the area, a brief discussion of contaminant concentrations along the groundwater flow path in the vicinity of these structures, and the basis for these structures mitigating impact to the Schuylkill River. DEP recognizes that this information will be more fully described in a future cleanup plan.
1	n/a	It is incorrectly stated that Evergreen "successfully held a Public Information Session on Aug. 27, 2021". The meeting was Aug. 27, 2020.
9	Group of comments regarding sampling other metals in addition to lead.	Evergreen's response identifies the 1992 Resource Conservation and Recovery Act (RCRA) Facility Investigation as the basis for ongoing evaluation of lead as this was the only metal identified as a contaminant of concern (COC) following that investigation. The 1992 report evaluated metals in a portion of the refinery complex, and not across the property. The areas evaluated in 1992 include: Solid Waste Management Unit (SWMU)-1 West Yard (AOI-10), SWMU-2 North Yard (a portion of AOI-8), and SWMU-3 Stormwater Impoundment Basin/Guard Basin (portion of AOI-3 and AOI-4). We suggest providing additional details that explain inorganic sampling across other areas of the refinery.
15-16	Group of comments regarding benzene concentrations near Verizon SDWC property and Maiden Lane and concern about potential offsite migration.	The response would benefit from further explanation of the relationship between the Refinery and Verizon SDWC properties. The basis for the background standard selection for the Verizon property, groundwater flow patterns between the two sites, discussion of light non-aqueous phase liquid (LNAPL) and dissolved impacts between Verizon SDWC and the horizontal recovery well, and the observations following the installation of the horizontal well operation also should be summarized.

23-24	Comments regarding the tide gate	Evergreen's response clarified that the tide gate was not installed to address tidal changes associated with climate change, but rather as an interim remedial measure to mitigate LNAPL in the sewer. The response should be expanded to address the specific questions asked, including the height that the tide gate is built to accommodate and reference to the historical report(s) that contain tide gate information.
30	Questions regarding vertical migration of contaminants	These are good examples of the lack of specificity with the response provided. Details regarding frequency of sampling, comments on and/or examples of plume expansion/shrinking based on analytical results, and references to specific cross sections would provide concrete support to ambiguous statements.
31	A comment identified the difference between a benzene graphic presented in the August 2020 meeting and a similar graphic presented historically.	Additional explanation with graphics presented side by side would be useful for clarity and transparency of explanation.
39	A request for historical reports referenced in the 2004 Current Conditions Report was made.	<p>The response indicated the 2004 Current Conditions Report is not an Act 2 report, nor are the documents referenced in that report, and that some of the reports are included on the website.</p> <p>Evergreen and DEP communicated with the commentor regarding this comment via email exchanges on 11/18/2020 and 12/8/2020. DEP would also like to let the public know that DEP files can be reviewed by submitting a file review request located at http://www.depgreenport.state.pa.us/InformalFileReviewRequest/</p>
44-45	Questions regarding PFAS sampling.	DEP has asked Evergreen to perform further investigation of PFAS. DEP recommends that the PFAS sampling results be posted on website for public review.
50	Question about public meetings.	The response can be updated to include all meetings completed.,
64-70	Multiple questions regarding remediation conducted to date and proposed remediation.	Consider creating a brief plain language summary of remediation conducted to date at each AOI for public consumption. This would help clarify the interim remedial actions completed to date that were summarized in the RIs, as well as serve as a precursor to future Cleanup Plan submittals.

67	Request to make water discharge permits public.	Response indicated that the PWD discharge permits would be posted to the website. A review of the website on 5/30/2021 did not locate the permits.
74	Question regarding selected standards for public park portion of the site.	Clarification is requested to include proposed future use of this portion of the site and selected standards consistent with Act 2.
75	Comment regarding classification as voluntary cleanup.	It is suggested that the response also acknowledge cleanup obligations under RCRA (not voluntary) that are being completed through the One Cleanup Program.
78-81	Soil lead site-specific standard risk assessment	Commentators noted concerns with Evergreen's site-specific standard for lead in soil in the 2015 risk assessment report approved by DEP. These comments pertain to an Act 2 report and should be included in Section 2.

DEP Responses

DEP previously provided responses for certain questions that were cited by Evergreen (e.g., pages 54–55, 59, 62, and 63). Some additional information is provided in response to certain questions and comments below.

Page Number	Public Comment	DEP Assessment
11	Fragmenting remedial investigation reports	The commentator is concerned with Evergreen breaking its remedial investigation reporting into multiple documents. This arrangement was agreed to by DEP and EPA, and it was formalized in the 2003, 2012, and 2020 consent order and agreements. Given the size and complexity of the site, the remediator and the regulatory agencies believed it was impractical to compile all site characterization work into a single RIR. The agencies would also be unable to satisfactorily review the information in the 90-day statutory period.
12-14	Age of site characterization data	Commentators noted that much of the soil and groundwater data was collected many years ago and should be updated. Given the size and complexity of the site, it is understandable that investigations would elapse over many years; the same is true of many large Act 2 sites. DEP's Technical Guidance Manual recognizes that older site characterization data is valid in many cases if the site conditions are understood and stable (Section II.A.4.b.). Evergreen is responsible for environmental conditions up to 2012, and DEP is satisfied that the age of the sampling prior to the time of PES's ownership are appropriate. Evergreen and HRP will both be performing a substantial amount of

		additional soil sampling as part of the process unit decommissioning, aboveground storage tank closures, and surface regrading. In addition, Evergreen will continue to periodically monitor groundwater, and they will be responsible for performing groundwater attainment sampling prior to submitting the final report.
78-81	Soil lead site-specific standard risk assessment	DEP's nonresidential Statewide health standard direct contact numerical value for lead in surface soil (0–2 feet deep), 1000 mg/kg, dates from the 1990s and was based on outdated science. In 2015, Evergreen proposed, and DEP approved, a site-specific value for lead, 2400 mg/kg, that was based on the current EPA methodology and currently accepted input values. In 2020, DEP proposed a revision to the published Statewide health standard value also based on the EPA methodology and similar input values. However, following public comment, DEP has reexamined those assumptions, in particular the target blood lead level of 10 µg/dL. DEP is planning a new rulemaking to revise the lead standard which will also be subject to public comment. Evergreen has stated that they will update their site-specific lead standard to be consistent with DEP's approach.

DEP Final Action Approval/Disapproval Letter: Issuance of a technical deficiency letter is recommended for the Public Comment Remedial Investigation Report based on the above. On 6/24/2021, DEP informed Evergreen that a technical deficiency was going to be issued for this report and explained that most of the deficiencies were related to incomplete/insufficient comment responses and additional information needed for lead delineation. It was decided that DEP would share the technical memo and following review of the decision letter and technical memo, Evergreen would determine if a meeting with DEP is warranted to review the deficiencies.

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