

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action

Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: **Penn Engineering**
Facility Address: **5190 Old Easton Road, Danboro, PA 18916**
Facility EPA ID #: **PAD002371987**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

If yes – check here and continue with #2 below.

If no – re-evaluate existing data, or

If data are not available skip to #6 and enter “IN” (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of “Current Human Exposures Under Control” EI

A positive “Current Human Exposures Under Control” EI determination (“YE” status code) indicates that there are no “unacceptable” human exposures to “contamination” (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all “contamination” subject to RCRA corrective action at or from the identified facility [i.e., site-wide]).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The “Current Human Exposures Under Control” EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program’s overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **“contaminated”**¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale/Key Contaminants</u>
Groundwater	<u>X</u>			Chlorinated VOCs, 1,4-dioxane
Air (indoors) ²			<u>X</u>	VOCs present in groundwater and soil. Vapor intrusion pathway into existing buildings and nearby residential structures cannot be adequately evaluated.
Surface Soil (e.g., <2 ft)		<u>X</u>		VOCs detected in soils samples are below current PADEP non-residential MSCs.
Surface Water		<u>X</u>		The facility does not have any industrial discharges. Release into surface water was remediated. No contaminant detections in surface water sampling.
Sediment		<u>X</u>		The facility does not have any industrial discharges. Release into surface water was remediated. No contaminant detections in surface water sampling.
Subsurf. Soil (e.g., >2 ft)	<u>X</u>			1,1,1-TCA was stored in UST 005. All contaminated soil was not excavated due to presence of underground utilities and groundwater, and excavation was backfilled with PADEP’s approval.
Air (outdoors)		<u>X</u>		There have been no reported air emissions releases from the facility. Facility appears to be exempt from air permitting requirements.

_____ If no (for all media) - skip to #6, and enter “YE,” status code after providing or citing appropriate “levels,” and referencing sufficient supporting documentation demonstrating that these “levels” are not exceeded.

_____ If yes (for any media) - continue after identifying key contaminants in each “contaminated” medium, citing appropriate “levels” (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

X If unknown (for any media) - skip to #6 and enter “IN” status code.

¹ “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

² Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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Rationale and Reference(s):

Groundwater: Based on the September 2019 sampling of monitoring wells at the facility (below), groundwater beneath the facility is contaminated based on exceedances of Pennsylvania’s residential used aquifer Medium Specific Concentrations (MSCs).

Parameter	MSC*	MW-1	MW-2	EPA-MW-1	OW-17A	NPD	VVMHP-11
Carbon tetrachloride	5	ND	ND	ND	ND	10.9	ND
1,1,1-TCA	200	36.7	893	142	ND	3.58	18.2
1,1-DCA	31	19.3	26.7	24.6	11.1	96.7	155
1,1-DCE	7	42.7	198	70.3	2.15	20.1	150
cis-1,2-DCE	70	361	0.327	ND	ND	0.313	ND
TCE	5	952	21.6	0.422	ND	3.58	1.02
VC	2	58	ND	ND	ND	ND	0.302
1,4-dioxane	6.4	18.6	70.8	63.3	9.72	5.85	84.0

All results in ug/L; **bold** results exceed the MSC

* MSCs listed are identical to EPA’s Maximum Contaminant Levels (MCLs) except for 1,1-DCA and 1,4-dioxane, for which no MCL exists.

Air: The facility appears to be exempt from air permitting requirements. Based on soil and groundwater contamination information collected to date, the vapor intrusion pathway into the existing facility buildings, as well as nearby residential structures (primarily the mobile home park south of the facility), cannot be adequately evaluated; further investigation is warranted. It is unknown whether controls are necessary at this time.

Soil: Surface and subsurface soil sampling conducted in 2013 and 2014 at suspected source areas suggests that soils are not contaminated above appropriately protective risk-based levels; however, all visibly-contaminated subsurface soil could not be removed from the area of former USTs 003 through 005 due to the presence of underground utilities. Therefore, some localized subsurface soil contamination remains at the facility.

Surface water/sediment: The facility does not have any industrial discharges and, thus, does not operate under a NPDES permit or a township pre-treatment permit. Other than a 1992 release due to broken underground piping of primarily mineral spirits to the North Branch of Neshaminy Creek via the facility’s stormwater management system (which was able to collect and treat a portion of the release prior to discharge to the creek), there have been no other noted releases to surface water bodies. No contaminants were detected in surface water sampling performed in April 2018; therefore, surface water and sediment are not reasonably suspected to be contaminated above appropriately protective risk-based levels.

References: Environmental Indicator Inspection Report for PennEngineering, prepared by Baker, December 2011.
One Cleanup Remedial Investigation Report for PennEngineering, prepared by Earth Data Northeast, March 2020.

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3. Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Contaminated Media	Potential Human Receptors (Under Current Conditions)						
	<u>Residents</u>	<u>Workers</u>	<u>Day-Care</u>	<u>Construction</u>	<u>Trespassers</u>	<u>Recreation</u>	<u>Food³</u>
Groundwater							
Air (indoors)							
Soil (surface, e.g., <2 ft.							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft.							
Air (outdoors)							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated” as identified in #2 above.
2. enter “yes” or “no” for potential “completeness” under each “Contaminated” Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“___”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code.

Rationale and Reference(s):

³ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.

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4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s):

5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be “unacceptable”) - continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

_____ If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and Reference(s):

⁴ If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

 YE – Yes, “Current Human Exposures Under Control” has been verified. Based on a review of the Information contained in this EI Determination, “Current Human Exposures” are expected to be “Under Control” at the **Penn Engineering and Manufacturing Corporation** facility, EPA ID # **PAD002371987** , located at **5190 Old Easton Road, Danboro, PA 18916** under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

 NO - “Current Human Exposures” are NOT “Under Control.”

 X IN - More information is needed to make a determination.

Completed by (signature) /Griff E. Miller/ Date 1/19/21
(print) Griff Miller
(title) Remedial Project Manager

Supervisor (signature) /Alizabeh Olhasso/ Date 1/19/21
(print) Alizabeh Olhasso
(title) Chief, RCRA Corrective Action Branch 2
(EPA Region or State) EPA Region 3

Locations where References may be found:

USEPA Region III	PADEP
Land, Chemicals and Redevelopment Division	South East Regional Office
1650 Arch Street	2 E Main Street
Philadelphia, PA 19103	Norristown, PA 19401

Contact telephone and e-mail numbers

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.