

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
Current Human Exposures Under Control

Facility Name: Ametek
Facility Address: 900 Clymer Ave., Sellersville, PA 18960
Facility EPA ID #: PAD 002 342 236

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 #8 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	x			Elevated VOCs detected in groundwater.
Air (indoors) ²		x		Compliance with OSHA indoor standards for workers. Offsite vapor intrusion is not a concern.
Surface Soil (e.g., <2 ft)		x		Detected levels are below EPA regulatory limits.
Surface Water		x		Detected levels are below EPA regulatory limits.
Sediment		x		Detected levels are below EPA regulatory limits.
Subsurf. Soil (e.g., >2 ft)	x			Elevated TCE and PCE detected in isolated areas.
Air (outdoors)		x		Air emissions controls are in place. No current issues.

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.

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

Rationale and Reference(s):

Groundwater:

As part of the RCRA Facility Investigation (RFI) Ametek installed approximately 40 wells throughout the facility’s property and sampled several offsite residential and municipal wells to delineate the groundwater plume. Elevated volatile organic compounds (VOCs) above EPA’s Maximum Contaminant Levels (MCLs) were detected in several of the wells. The highest levels of VOCs were detected near the former wet and dry lagoons. Constituents of concern and their range of concentrations are listed below: (Ametek RFI Report 2007)

Constituents	Concentrations (ug/L)	MCLs (ug/L)
Trichloroethylene	3 - 48,000	5
Tetrachloroethene	2 - 6,200	5
1,1 - Dichloroethene (DCE)	ND - 1,600	7
cis - 1,2 -DCE	ND - 23,000	70
Vinyl chloride	ND - 26	2

ND: non-detect

Surface Water:

Ametek collected several surface water samples from the East Branch/Perkiomen Creek, which is located approximately 1/4 mile north of the facility and in the direction of the groundwater flow. The surface water results indicated low levels for the constituents of concern. (Ametek RFI Report 2007)

Constituents	Max. Conc. (ug/L)	EPA Fresh Water Stds. (ug/L)
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Trichloroethylene	220	350
Tetrachloroethene	0.9	84
1,1 - Dichloroethene	71	303
cis - 1,2 -DCE	93	2000
Vinyl chloride	0.7	--

Sediment:

Ametek collected several sediment samples from the East Branch/Perkiomen Creek. The sediment results indicated low levels of VOCs. (Ametek RFI Report 2007)

Constituents of Concern	Max. Conc. (ug/kg)
Trichloroethylene	4
1,1-Dichloroethane	110
1,1,1 - Trichloroethane	23
Vinyl chloride	5

Surface Soil:

Ametek collected several surface soil samples and placed numerous pore-sorber capsules throughout the facility to determine the degree of VOCs in surface soil. The surface soil concentrations are below EPA Region III Risk Based Concentrations (RBCs) for industrial use. (Ametek RFI Report 2007)

Constituents of Concern	Max. Conc. (mg/kg)	EPA RBCs (mg/kg)
Trichloroethylene	1.3	14
Tetrachloroethene	0.5	110
1,2-Dichloroethene	1.0	18,000
1,1-Dichloroethane	0.2	200,000
1,1,1-Trichloroethane	0.3	570,000
Chlorobenzene	1.0	41,000
Toluene	3.4	410,000
Xylene (total)	1.2	4,100,000

Subsurface Soil:

As part of the closure of the two former lagoons, Ametek excavated contaminated soil and disposed it offsite. In addition, Ametek drilled and analyzed several soil borings throughout the facility for VOCs, semi-volatiles and inorganic compounds. Inorganic compound results were within literature background concentrations for the region. Semi-volatile organic concentrations are in the range of 0.05-3.6 mg/kg. Trichloroethylene and tetrachloroethene levels in subsurface soil are slightly above the Pennsylvania Department of Environmental Protection (PADEP) Soil to Groundwater standards. Levels above the aforementioned standards were detected predominantly in the former wet and dry lagoons areas. Listed below are maximum concentrations for VOCs of concern in subsurface soil (Ametek RFI Report 2007).

Constituents of Concern	Max. Conc. (mg/kg)	PADEP Soil to Groundwater (mg/kg)
Trichloroethylene	18	0.5
Tetrachloroethene	60	0.5
1,2-Dichloroethene	2.1	7
1,1-Dichloroethane	0.32	2.7
1,1,1-Trichloroethane	4.5	20
Ethylbenzene	14	46
Toluene	37	100
Xylene (total)	86	1,000

Air (indoors):

The TCE levels detected in groundwater beneath the manufacturing buildings are in the range of 20 ppb to 500 ppb. Given the VOCs levels in groundwater beneath the manufacturing buildings, the depth to groundwater, and Ametek's compliance to the Occupational Safety and Health Administration (OSHA) levels for indoor air, vapor intrusion exposures to workers at the facility while it was operational were not a concern. Presently, the facility is closed and is no longer operational.

A small portion of the groundwater plume has migrated offsite and is present beneath several residential dwellings. However, the low levels of VOCs (10-30 ppb) detected in the nearby offsite monitoring wells confirm that groundwater plume beneath these residences does not pose an adverse vapor intrusion exposure risks.

The highest levels of TCE and VOCs in groundwater were detected in the source areas of the former wet and dry lagoons located in an open field. Since there are no buildings above these areas, vapor intrusion is not a concern. (Ametek RFI Report 2007)

Air (outdoors):

Ametek operated under the PADEP Title V Operating Permit, which monitor air quality and emissions. The facility was in compliance with the requirements of the permit during its operational year. Presently, the facility is closed and is no longer operational. (PADEP Annual Air Quality Reports)

Footnotes:

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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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

Potential **Human Receptors** (Under Current Conditions)

<u>“Contaminated” Media</u>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	No	No	No	No			No
Air (indoors)	_____	_____	_____				
Soil (surface, e.g., <2 ft)	_____	_____	_____	_____	_____	_____	_____
Surface Water	_____	_____			_____	_____	_____
Sediment	_____	_____			_____	_____	_____
Soil (subsurface e.g., >2 ft)				No			No
Air (outdoors)	_____	_____	_____	_____	_____		

Instructions for Summary Exposure Pathway Evaluation Table:

- Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated” as identified in #2 above.
- 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.

- X 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):

Groundwater:

The Facility conducted a groundwater well survey within a mile radius of the plant. Residential and municipal wells within the survey area were sampled for the constituents of concern. Wells that were impacted by the groundwater contamination from Ametek were either connected to public water or an onsite system was installed to treat the groundwater. By addressing all possible residential and municipal wells within the area, human exposures to contaminated groundwater is eliminated. (Ametek RFI Report 2007)

Subsurface soil:

Isolated locations where contaminated subsurface soils exist are beneath manufacturing buildings or paved areas. Essentially, these buildings and paved areas act as a protective cap and therefore, direct human exposures to contaminated subsurface soil are eliminated. (Ametek RFI Report 2/1997)

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):

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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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):

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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 (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 **Ametek** facility, EPA ID **PAD 002 342 236**, located at **900 Clymer Ave., Sellersville, PA 18960** 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."

IN - More information is needed to make a determination.

Completed by (signature) _____ -s- _____ Date: 4/18/11
 (print) Khai M. Dao
 (title) EPA Project Manager

Supervisor (signature) _____ -s- _____ Date: 4/18/11
 (print) Paul Gotthold
 (title) Assoc. Director, RCRA Corrective Action, PA Operations
 (EPA Region or State) EPA Region 3

Locations where References may be found:

US EPA Region III
Waste & Chemicals Management Division
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