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: **The Lawrence-McFadden Company, Inc.**
Facility Address: **7430 State Road, Philadelphia, Pennsylvania 19136**
Facility EPA ID #: **PAD002279008**

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?

   [X] 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)?

	Yes	No	?	Rationale/Key Contaminants
Groundwater	X			Toluene, ethylbenzene, xylenes, trans-1,3-dichloropropene
Air (indoors)[2]		X		See Rationale below.
Surface Soil (e.g., <2 ft)		X		Based on volatility of primary contaminants and apparent age of historical contamination, surface soil is no longer reasonably suspected to be contaminated above Industrial Regional Screening Levels for direct contact.
Surface Water		X		Facility has no direct discharge to surface water. Groundwater discharges to the Delaware River (2800 feet downgradient) were modeled at neighboring facility and shown to be insignificant.
Sediment		X		Facility has no direct discharge to surface water. Groundwater discharges to the Delaware River (2800 feet downgradient) were modeled at neighboring facility and shown to be insignificant.
Subsurf. Soil (e.g., >2 ft)	X			Toluene, ethylbenzene
Air (outdoors)		X		No record of contamination. Facility no longer operating.

____ 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.

X 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.

[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.

Rationale and Reference(s):
Groundwater on the northwest end of the facility beneath the loading dock and former aboveground storage tank farm is primarily contaminated with toluene, ethylbenzene, and xylenes at concentrations above ten percent of their respective solubilities, suggesting that light non-aqueous phase liquid (LNAPL) is present above the water table. Laboratory results from one temporary well also showed trans-1,3-dichloropropene well above its risk-based Tap Water Regional Screening Level (RSL); however, it is suspected that this single result is a sampling anomaly as it is unlikely that this agricultural pesticide has ever been used at this facility.

Indoor air within the office was shown to be contaminated with benzene, ethylbenzene, and naphthalene above their respective Industrial RSLs through sampling as part of a vapor intrusion study performed in 2015-16. Additionally, trimethylbenzenes, naphthalene, and xylenes combined exceeded the non-cancer hazard index within EPA's Vapor Intrusion Screening Level calculator. As a result, the facility installed a 2-port vapor mitigation system in September 2016 to mitigate the indoor air contamination in the office.

Subsurface soil is contaminated with ethylbenzene above Industrial RSLs, and toluene and xylene contamination above Industrial RSLs likely exists in localized areas of subsurface soil due to the likely presence of LNAPL containing these constituents floating on the water table approximately six feet below ground surface

References:
Environmental Indicator Inspection Report for the Lawrence-McFadden Company, prepared by Baker, July 2012.
Final Report – Vapor Intrusion Study of the Lawrence-McFadden Company, prepared by Environmental Decisions, March 2016.

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)						
Contaminated Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	No	No	No	Yes	No	No	No
~~Air (indoors)~~							
~~Soil (surface, e.g., <2 ft.~~							
~~Surface Water~~							
~~Sediment~~							
Soil (subsurface e.g., >2 ft.	No	No	No	Yes	No	No	No
~~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 insome 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).

__X__ 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):
Since groundwater is not used as a drinking water source in the vicinity of the facility, the only exposure route to contamination is via the subsurface. Construction workers may be exposed to groundwater and subsurface soil contamination through direct contact or incidental ingestion during intrusive operations.

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

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)?

X 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):
It is expected that construction workers engaging in intrusive activities would wear appropriate protective equipment and follow safe work practices to minimize exposure to impacted groundwater and subsurface soil.

Reference:
Environmental Indicator Inspection Report for the Lawrence-McFadden Company, prepared by Baker, July 2012.

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.

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):

X 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 **The Lawrence-McFadden Company, Inc.** facility, EPA ID # **PAD002279008**, located at **7430 State Road, Philadelphia, PA 19136** 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) _____ Date 9-22-16

(print) Griff Miller

(title) Remedial Project Manager

Supervisor (signature) _____ Date 5-22-17

(print) Paul Gotthold

(title) Associate Director

(EPA Region or State) EPA Region 3

Locations where References may be found:

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Philadelphia, PA 19103

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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.