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

Facility Name:	Knoll International
Facility Address:	1235 Water Street, East Greenville PA 18041
Facility EPA ID #:	PAD053306015

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 Controls" 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		
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)		X		
Surface Water		X		
Sediment		X		
Subsurface Soil (e.g., >2 ft)		X		
Air (outdoors)		X		

X If no (for all media) – skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient support 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):

See following page for response to Question #2 (Rationale and Reference(s))

[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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Response to Question #2 - "Rationale and References"

Groundwater: Groundwater has been investigated for a limited breadth of organic constituents via installation and sampling of seven monitoring wells between 1989 and 1995. Three separate investigations of underground storage tank (UST) removals (2000-gallon unleaded gasoline UST, 20,000-gallon fuel oil UST, and 3000-gallon hazardous waste UST) resulted in no detections of analyzed constituents and no further action determinations from PADEP in March 1993, August 1995, and January 1996, respectively. While groundwater was not specifically analyzed during earlier investigations of other UST removals and solid waste management units (SWMU), the monitoring well network would likely have identified any contamination from these areas since the network offers adequate coverage in these areas, especially in the downgradient direction.

Air: Soil and groundwater data from UST removals were screened against USEPA-PA default non-residential volatilization to indoor air screening values. Only one exceedance was noted, for ethylbenzene; however, taking into consideration the size of the nearby building (approximately 260,000 square feet located approximately 50 feet from sample location), the date of the sampling event (1991; concentrations of samples taken today would likely be much lower due to dispersion, degradation, and/or volatilization), and the depth of the exceedance (10 to 12 feet bgs), it is unlikely that indoor air would be impacted. Knoll holds a Title V Operating Permit for air releases from the facility. Although violations have periodically been issued for minor infractions, no significant violations have been recorded at the facility.

Soil: Facility soils have been investigated for a limited breadth of organic constituents and metals via sample collection undertaken as part of UST closure activities conducted from 1988 to 1996. Earlier UST removals included the removal of contaminated soil and post-excavation soil sampling; however, sampling results could not be located. Act 2 non-residential Statewide Health Standards (SHS) were met in soil samples collected from the 2000-gallon and 20,000-gallon UST removals, while three of 18 samples from the 3000-gallon UST removal slightly exceeded the soil-to-groundwater SHS for methylene chloride only. It is unlikely that these slight exceedances were representative of facility conditions, as methylene chloride (a common laboratory contaminant) was also detected in the method blank. Therefore, PADEP determined that no further action was necessary to remediate soils at all three UST removals as mentioned under "Groundwater" above.

Surface Water: Knoll holds a NPDES permit for stormwater and wastewater treatment plant discharges into Perkiomen Creek, which roughly parallels the western property boundary. Review of available information pertaining to this permit indicates no significant violations. No signs of stained soil, oily sheens, or stressed vegetation were observed at the facility or near the creek during site visits in September 2007 and June 2012.

Sediment: Although it does not appear that sediment samples have ever been collected near the facility, there is no reason to suspect sediments have been affected by facility operations as there have been no documented releases to surface water bodies except for the permitted surface water discharges mentioned above.

Reference: Environmental Indicator Inspection Report, URS, February 2008.

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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)

"Contaminated Media"	**Residents**	**Workers**	**Daycare**	**Construction**	**Trespassers**	**Recreation**	**Food**[3]
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. Strikeout 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):

No rationale warranted.

[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"** (i.e., potentially[4] " unacceptable" levels) 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):

No rationale warranted.

[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 a "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 a "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):

No rationale warranted.

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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):

X YE – Yes, "Current Human Exposures Under Control" has been verified.

____ NO – "Current Human Exposures" are NOT "Under Control."

____ IN – More information is needed to make a determination.

Completed by: (signature) /Griff Miller/ Date 7/24/2012

(print) Griff Miller

(title) Remedial Project Manager

Supervisor: (signature) /Paul Gotthold/ Date 7/31/2012

(print) Paul Gotthold

(title) Associate Director

(EPA Region or State) EPA Region 3

Locations where References may be found:

USEPA Region 3, Philadelphia PA

PADEP Southeast Regional Office, Norristown PA

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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.