

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: Armstrong World Industries
Facility Address: Liberty and Charlotte Streets, Lancaster, PA
Facility EPA ID #: PAD 001 307 792

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 nonhuman (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).

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

Page 2

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		
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		No indication of contamination

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):

Refer to following page for response to 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.

**Response to Question #2 - Current Human Exposures Under Control
Rationale & Reference(s)**

Groundwater

Quarterly attainment monitoring began at the entire 67 acre site in September 2007 and concluded in April 2009. Laboratory analysis of groundwater samples demonstrates attainment for the entire 67 acre property of both the used and non-used Residential Statewide Health Standard for all suspected compounds. Lancaster City has a Non-Use Aquifer Determination from Pennsylvania Department of Environmental Protection (PADEP).

Indoor & Outdoor Air

There is no indication of indoor or outdoor air quality issues. There have been no odor complaints from surrounding residents or employees noted in the files. All air emission sources at the Armstrong facility are permitted and found to be in compliance with applicable permits. Soil vapor samples were collected throughout the site. The results indicate that vapor intrusion is not a concern at the site.

Surface and Subsurface Soil

Armstrong World Industries (AWI) operated a number of facilities on its property land for over 100 years. Operations included the manufacturing of various flooring materials. In 2004 AWI consolidated its operations to the western portion of the site known as the Roto Parcel (20 acres). The remaining 47 Acres were divided into two parcels, the College Parcel (27 acres) and the Lancaster General Hospital/Economic Development Company Parcel (20 acres). All of the buildings on these two parcels were demolished. Site soils received a PADEP Act 2 relief of liability in 2009.

Sediment & Surface Water

There is no sampling data to determine whether sediment and/or surface water are contaminated. Discharges from the facility are permitted. However, Armstrong recently identified non-stormwater sources that were tied into the NPDES permitted system. Sink drains in addition to an oil/water separator had been tied to this discharge. This was a violation of the NPDES permit but Armstrong believed that the amount of flow off-site was expected to be small. It is unknown whether these unpermitted discharges had an adverse effect on the on-site lagoon. This lagoon discharges to the sanitary sewer such that off-site impacts to surface water and sediment are not a concern.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 3

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

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.

_____ 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):

Refer to following page for response to Rationale and Reference(s)

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

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 4

4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be "significant" (i.e., potentially⁴ "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):

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.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 5

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): _____

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)**

Page 6

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):

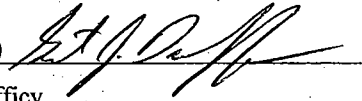
YE – Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be **X** "Under Control" at **Armstrong Reading Floor Plant** facility, EPA ID **PAD 001 307 792**, located at **Liberty and Charlotte Streets in Lancaster, PA** 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)



Grant Dufficy

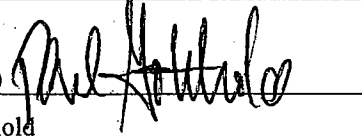
RCRA Project Manager

Date

7/31/2013

Supervisor:

(signature)



Paul Gotthold

Assoc. Dir., PA Remediation, LCD

EPA Region III

Date

7/31/13

Locations where References may be found

All reference documents are appended to the Environmental Indicator Final Report, which can be found at the PADEP South Central Office, 909 Elmerton Avenue, Harrisburg PA 17110 or USEPA Region III Office, Land and Chemicals Division, 1650 Arch Street, Philadelphia, PA 19103

Contact telephone and e-mail numbers:

(name) Grant Dufficy

(phone #) 215-814-3455

(e-mail) dufficy.grant@epa.gov

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.