

**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:** Owner - Koppers Industries, Inc., Co-Operators Koppers Industries, Inc./CSX  
Transportation, Inc. (See Note Below)  
**Facility Address:** Railroad Street – Green Spring, West Virginia 26722  
**Facility EPA ID #:** WVD003080959 (See Note Below)  
Note: For this Facility ID #, CSX Transportation, Inc. is co-operator for only the closed RCRA Surface Impoundments as indicated in the Post-Closure Care permit. CSX Transportation, Inc. is not a co-operator of the wood-treating plant

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).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “contaminated”<sup>1</sup> 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			See below / Benzene, PAHs
Air (indoors) <sup>2</sup>		X		See below/
Surface Soil (e.g., <2 ft)		X		See below/PAHs, Pentachlorophenol
Surface Water		X		See below/
Sediment		X		See below/
Subsurf. Soil (e.g., >2 ft)		X		See below / PAHs, Pentachlorophenol
Air (outdoors)		X		See below/

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.

Rationale and Reference(s):

Groundwater

April 1999 groundwater data (Ref 1) from well LF-03R in the land farm area indicates benzene was detected at 13 ug/l, which exceeds the Federal MCL and State standard of 5 ug/l. In addition naphthalene was detected at 1680 ug/l in LF-03R which exceeds the Federal RBC for tap water of 6.5 ug/l (Ref 1)

1995 groundwater data (Ref 5) from well MW-03 located downgradient from the main plant area indicates that several PAHs were detected; naphthalene was detected at an estimated 6.9J ug/l, which exceeds the Federal RBC for tap water of 6.5 ug/l. The remaining detected PAH concentrations ranged from an estimated 1.9J to 5.2J and all were less than their respective Federal RBC for tap water.

On August 17, 2000, during an inspection of the facility, WV DEP discovered a hydrocarbon sheen entering the North Branch of the Potomac River. A temporary dike was installed to prevent hydrocarbons from entering the river. A Sheen Investigation was conducted to identify the origin of the sheen and the extent of contamination. On April 19, 2002, CSX submitted a Pre-Design Report and Conceptual Design for the hydrocarbon sheen. Approval was granted for a Barrier Wall Containment System with recovery wells for extraction of contaminated groundwater to be pumped back to the facility for inclusion into the plant’s wastewater treatment system.

On August 20, 2004, the system was completed and began pumping the contaminated groundwater to the plant.

Air (indoors)

Environmental data for indoor air was collected in 1995 (Ref 4) for the facility. The results indicated that Indoor air is not known or reasonably suspected to be “contaminated” 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.

### Surface Soil (<2ft.)

PAHs have been detected in surface soil in the former Spray Irrigation Field Area and former Landfarm Area.

Surface soil data collected in 1983 (Ref 11) in the former Spray Irrigation Field Area indicates that PAHs were detected in the surface soil. The PAH concentrations were very low, did not exceed USEPA Industrial or Residential RBCs and have been attenuating for more than 15 years. Therefore, constituents in the surface soil in the former Spray Irrigation Area are not known or reasonably suspected to be “contaminated”<sup>1</sup> above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria).

Surface soil data collected in 1986 (Ref 9) in the former Landfarm Area indicates that PAHs and Pentachlorophenol were detected in the surface soil. None of these PAH or Pentachlorophenol concentrations exceeded USEPA Industrial or Residential RBCs. In addition, constituents in the sludge that was placed in the former Landfarm Area were stabilized with lime, tilled into the soil, covered with a vegetative cap and have been in place for more than 20 years. Therefore constituents in the surface soil in the former Spray Irrigation Area are not known or reasonably suspected to be “contaminated”<sup>1</sup> above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria).

### Surface Water

See Groundwater discussion above. Based on the site characterizations that have been completed and the successful installation of the groundwater recovery system, contaminants are no longer entering surface waters.

### Sediment

Sediments in the immediate vicinity of the temporary dike were visibly contaminated. During installation of the barrier wall and recovery wells all impacted soils were removed and managed with other excavated wastes. WV DEP personnel inspected the streambed and confirmed that no contaminated sediments were present.

### Subsurface Soil (>2 ft.)

In the summer of 1988 all K001 sludge and visibly contaminated soils were removed from the surface impoundments and were shipped off-site. PAHs and phenolic constituents were detected in the subsurface (Ref 6,7,8) at relatively low concentrations that did not exceed the USEPA Industrial RBCs. A sub grade evaluation of the surface impoundments was performed, which quantitatively assessed the current and future risks associated with subsurface soil constituents (Ref 8). Based on these results PAH and Phenolic constituents detected in the subsurface soils in the former Surface Impoundment Area are not known or reasonably suspected to be “contaminated” 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.

PAHs were not detected in the subsurface soils in the former Spray Irrigation Field Area (Ref 11) and therefore are not known or reasonably suspected to be “contaminated” 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.

PAHs and Pentachlorophenol were detected in the subsurface soils in the vicinity of the former Landfarm Area (Ref 9). None of these constituent concentrations exceeded the USEPA Industrial or Residential RBC. Constituents in the sludge that was placed in the landfarm area were stabilized with lime and tilled in the soil and have been in place for more than 20 years. Therefore, constituents detected in the subsurface in the vicinity of the former Landfarm Area are not known or reasonably suspected to be “contaminated” 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.

In 1986 surface and subsurface visibly contaminated soil in the vicinity of the Drip Track Area was removed and transported off-site for disposal. Based on this removal action, constituents potentially present in the subsurface in the vicinity of the Drip Track Area are not known or reasonably suspected to be “contaminated” 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.

Air (outdoors)

Environmental data for outdoor air was collected in 1995 (Ref 4) for the facility. Based on the results, outdoor air is not known or reasonably suspected to be “contaminated” 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.

<sup>1</sup> “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).

<sup>2</sup> 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.

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)

<b>“Contaminated” Media</b>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
							No
							--
Soil (surface, e.g., <2 ft)	--	--	--	--	--	--	--
					--	--	--
					--	--	--
							--
							--

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):

Groundwater

Groundwater is not used at the facility for potable supply, therefore there is no on-site worker exposure scenario. The groundwater monitoring data presented in EI Form CA750 indicates that the migration of constituents in the groundwater is under control and is limited to within the facility boundaries. Therefore, off-site residential or day-care exposure is not applicable. Area residents obtain their potable water supply from a mountain spring located more than a mile from the site in a hydraulically downgradient and down river direction (i.e., to the east) Food is not grown at the site and therefore does not represent an applicable pathway. The facility does not have any plans to undertake construction activities in areas, where groundwater may be affected. If construction activities were required in areas

where groundwater may be affected, engineering controls and personal protective gear would be used to eliminate the potential for unacceptable exposures.

#### Surface and Subsurface Soil

Surface and subsurface soil constituents were not determined to be known or reasonably suspected to be “contaminated”<sup>1</sup> above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria), the following pathway analysis is offered.

Unacceptable human exposure to constituents potentially present in the and subsurface soils in the former surface impoundment area is not an issue as access to this area is controlled with a chain-link fence and the area was covered with two-feet of clean soil during closure.

Unacceptable human exposure scenarios related to constituents potentially present in the surface and subsurface soils in the former spray irrigation and landfarm area are not an issue. This area was closed with a vegetative cover (i.e., perennial grasses) that is maintained by facility personnel. Residents are not permitted to access the site. Workers only enter this area to maintain the vegetation. The facility has no plans to disturb these areas. These areas are not used for recreation or food production and trespassers would be immediately escorted off of the site.

<sup>3</sup> 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”**<sup>4</sup> (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):

<sup>4</sup> 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.

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):

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 Koppers Industries, Inc. Wood Treating facility, EPA ID # WVD003080959, located at Green Spring, West Virginia 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	8/31/04
	(print)			
	(title)			

Supervisor	(signature)	/s/	Date	8/31/04
	(print)			
	(title)			
	(EPA Region or State)			

Locations where References may be found:
USEPA Region III files
WVDEP files
Koppers Industries, Inc files
CSXT files

Contact telephone and e-mail numbers

(name)	
(phone #)	
(e-mail)	

**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.**