

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: Cabot Performance Materials Corporation
Facility Address: County Line Road, Boyertown, PA 19512-1608
Facility EPA ID #: PAD 00 233 5545

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).

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

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			Al, Ca, Mg, Mn, TCE, above levels of concern
Soil Vapor/Air (indoors)		x		
Surface Soil (e.g., <2 ft)	x			Ni, Ta, Pb, Se, Zn in Southeast part of facility
Surface Water		x		
Sediment		x		
Subsurf. Soil (e.g., >2 ft)	x			Ni, Ta, Pb, Se, Zn in the Southeast part of facility
Air (outdoors)		x		

_____ 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): 1) EPA, Region III Environmental Response Team (ERT) Removal Assessment Report dated November 2000. According to Report, page 163: “The air release is not determined to pose a threat to human health or the environment.” Some fluoride releases in the air are reported from the facility. The September 27, 2000 ambient air sampling for fluorides indicated gaseous fluorides concentrations were 7.3 µg/m³, 7.5µg/m³, and 24 µg/m³ in the three (3) from nine (9) gaseous sampling locations. PADEP standard for gaseous fluorides concentrations is 5 µg/m³ (?). The facility’s air emissions are regulated by the PADEP. Additional air sampling, monitoring, and modeling are recommended by the EPA’s Environmental Response Team’s Report; 2) the Water Sampling Program Report dated August 17, 2000 prepared by Environmental Standards Inc, Cabot’s contractor, on the PADEP request in June- July of 2000. There is a release of hazardous substances from the Cabot to the groundwater. The plume is migrating to the facility’s boundary at Swamp Creek. A residential locations are not affected by the Cabot’s contaminants, potential concern for human health is due to natural sources; 3) According to PADEP comparison of the groundwater historical data it was suggested that groundwater quality at the plant has improved over the past 10 years, it’s indicated that natural attenuative processes are occurring in the facility’s aquifer. PADEP hydrologist Mr. Robert Yong., in his letter dated Sept.15, 2000 recommended “natural attenuation as the method of remediation for the remaining [VOC (TCE)] contamination, due to their initial findings that natural attenuation processes are going on at the site...” For the time being the groundwater will continue annual monitoring for the natural attenuation indicators. In the area of two impoundments, according to the PADEP letter “no further work is needed with respect to the groundwater and the soils.” The groundwater monitoring will continue and the Swamp Creek stream monitoring points will be

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.

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

Page 3

maintained as annual monitoring points. The annual monitoring for the natural attenuation indicators are proposed to be going over 5 years period under the PADEP supervision.

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

Page 4

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_	_Na_	_na_			_no_
Air (indoors) via	_no_	_no_	_na_				
Soil (surface, e.g., <2 ft)	_no_	_no_	_na_	_na_	_no_	_no_	_no_
Surface Water	_no_	_no_			_no_	_no_	_no_
Sediment	_no_	_no_			_no_	_no_	_no_
Soil (subsurface e.g., >2 ft)				_na_			_no_
Air (outdoors)	_Y_	_Y_	_Y_	_Y_	_Y_		

Instructions for Summary Exposure Pathway Evaluation Table: (na = not applicable, not contaminated)

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.

_____ 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): 1) Contaminated groundwater plume is shown to be only on the Cabot site according to EPA, Region III Environmental Response Team (ERT) Removal Assessment Report dated November 2000 and the Water Sampling Program Report dated August 17, 2000; 2) Air (outdoors) is contaminated with hydrofluoric acid (HF) and fluoride according to EPA, Region III Removal Assessment Report dated November 2000.

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 5

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): 1) EPA, Region III Environmental Response Team (ERT) Removal Assessment Report dated November 2000; 2) the Water Sampling Program Report dated August 17, 2000 prepared by Environmental Standards Inc, Cabot’s contractor, on the PADEP request in June- July of 2000.

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 6

5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

 X 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): 1) EPA, Region III Environmental Response Team (ERT) Removal Assessment Report dated November 2000; 2) the Water Sampling Program Report dated August 17, 2000 prepared by Environmental Standards Inc, Cabot’s contractor, on the PADEP request in June- July of 2000.

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

Page 7

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 - 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 **Cabot Performance Materials Corporation** facility, **EPA ID # PAD 00 233 5545**, located at **County Line Road, Boyertown, PA 19512-1608** 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 05-9-01
 (print) Victoria IOff
 (title) Remedial Project Manager

Supervisor (signature) _____ Date 08-09-01
 (print) Paul Gotthold
 (title) PA Operations Branch Chief
 (EPA Region or State) EPA, Region 3

Locations where References may be found:
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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.