

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Bedford Materials Company, Inc.
Facility Address: US Routes 30 & 31, Bedford, PA 15522
Facility EPA ID #: PAD 05 763 1889

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?

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	---	<u>x</u>	---	See rationale below.
Air (indoors) ²	---	<u>x</u>	---	No record of releases/contamination
Surface Soil (e.g., <2 ft)	---	<u>x</u>	---	No record of releases/contamination
Surface Water	---	<u>x</u>	---	NPDES violations were addressed. Heavy metals were also detected upgradient from the site. Metals detected in marsh area are from natural causes.
Sediment	---	<u>x</u>	---	No record of releases/contamination
Subsurf. Soil (e.g., >2 ft)	---	<u>x</u>	---	No record of releases/contamination
Air (outdoors)	---	<u>x</u>	---	No record of releases/contamination

 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.

 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:

Groundwater beneath the facility flows in a southeastward direction, toward the Raystown Branch of the Juniata River. Four residential wells located approximately 1000 ft. south of the site and 2 onsite production wells were sampled for organic and inorganic constituents. No contaminants of concern were detected in any of the four residential wells. However, lead was detected at concentrations of 20.9 ug/L and 40.5 ug/L from the two onsite production wells. EPA Action Level for lead in water is 15 ug/L. The facility does not utilize lead at the site. In all likelihood the source of lead in groundwater in the production wells either came from the production well casing or the connected pipe lines. The facility no longer uses the production wells for potable water consumption. The production well water is used only for non-contact cooling water and sanitary purposes. Bottled water is provided for consumption. Because the four residential wells downgradient from the facility are not impacted and there are no exposure for lead, human exposure is considered under control. (EI Inspection Report 7/2000, NUS Site Inspection Report 3/1989)

Surface Water:

There have been four reported notices of violation (NOVs) of the plant’s National pollution Discharge Elimination System (NPDES) permit to the unnamed tributary that discharges to the Juniata River from 1990-1994. Three of the NOVs were for phosphorous exceedences. The most recent NOV (1994) cited phosphorus, total suspended solids, and fecal coliform exceedences. Since the 1994 cited violations, the facility has modified the wastewater treatment system to eliminate future NOVs.

Samples along the unnamed tributary detected notable levels of Al (4,500-5,300 ug/L), Fe (4,400-5,100 ug/L), Pb (8.5-12.7 ug/L) above the Ambient Water Quality Criteria (AWQC). The AWQC levels for these constituents are Al (150 ug/L), Fe (1,000 ug/L), and Pb (3.2 ug/L). Similar concentrations were also detected upstream of the facility. The notable levels of inorganics most likely came from the upstream and surrounding farmland run-offs and not from the facility.

Surface water samples collected from the man-made onsite marsh area (~1/4 acre) detected notable levels of Al (34,000 ug/L), Cr (67.5 ug/L), Cu (66.7 ug/L), Fe (51,200 ug/L), Pb (110 ug/L) and Zn (1,910 ug/L) above the AWQC. The AWQC levels for these constituents are Al (150 ug/L), Cr (11 ug/L), Cu (12 ug/L), Fe (1,000 ug/L), Pb (3.2 ug/L) and Zn (110 ug/L). Background soil samples surrounding and near the marsh revealed much metal higher concentrations but lower than the regulatory screen levels. The soil sample concentration ranges are Al (15,000-44,000 mg/kg), Cr (16-35 mg/kg), Cu (3-38 mg/kg), Fe (20,000-48,000 mg/kg), Pb (4-31 mg/kg) and Zn (21-113 mg/kg). The notable concentrations in the marsh are mostly like caused by precipitation runoffs from the soil. The occurrence is considered a natural phenomenon and does not constitute correction action. Since the marsh area is separate from the main facility, not used and minimal in size (~1/4 acre) human exposure to the marsh is inconsequential or non-existence. (EI Inspection Report 7/2000, NUS Site Inspection Report 3/1989)

All other media:

There are no records of suspected releases that are above protective risk-based “levels” by the facility. (EI Inspection Report 7/2000, NUS Site Inspection Report 3/1989)

Footnotes:

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)

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	---	---	---	---			---
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. 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).

----- 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): _____

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”**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)?

----- 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 “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): _____

**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):

__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 **Bedford Materials Company, Inc.** facility, EPA ID # : **PAD 05 763 1889** , located at **US Routes 30 & 31, Bedford, PA 15522** 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 08-09-00
(print) Khai M. Dao _____
(title) Remedial Project Manager _____

Supervisor (signature) _____ Date 08-14-00
(print) Paul Gotthold _____
(title) PA. Operations Branch Chief _____
(EPA Region or State) EPA, Region 3 _____

Locations where References may be found:

US EPA
Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

Contact telephone number and email:

(name) Khai M. Dao
(phone #) (215) 814-5467
(e-mail) dao.khai@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.