

RCRA RECORDS CENTER
FACILITY Bostik Findley
ID. NO. MAD001039767
FILE NO. R-13
OTHER # 706614



RDMS DocID

106614

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: Bostik Findley, Inc.
Facility Address: 211 Boston Street, Middleton, MA 01949
Facility EPA ID #: MAD001039767

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).

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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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	✓	—	—	Note A. Ref(s) 1,2.
Air (indoors) ²	✓	—	—	Note B. Ref(s) 1,2.
Surface Soil (e.g., <2 ft)	✓	—	—	Note C. Ref(s) 3,4,5.
Surface Water	—	✓	—	Note D. Ref 1.
Sediment	✓	—	—	Note E. Ref 3.
Subsurf. Soil (e.g., >2 ft)	✓	—	—	Note F. Ref(s) 3,6,7.
Air (outdoors)	✓	—	—	Note G. Ref 5.

_____ 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):

Notes:

Refer to Figure 1 for references to site areas.

- A. Groundwater from site wells located in the Building 9 area (Area 6) and Former Waste Disposal Area (Area 5) contain concentrations of C5-C8 aliphatics above the DEP MCP Method 1 human health risk-based standard GW-2. Groundwater from one well in Area 6 contains concentrations of C5-C8 aliphatics above GW-3.
- B. Indoor air is reasonably expected to contain C5-C8 aliphatics due to it's presence in groundwater at concentrations above the DEP MCP Method 1 human health risk-based standard GW-2.
- C. Exposure point concentrations calculated using soil data from 0 to 3 feet indicate that the compound C11-C22 aromatics is present in surface soil in one area of the Site (Area 11) at a concentration exceeding the DEP MCP Method 1 human health risk-based standard S1/GW3. PCBs were detected in one surface soil sample from Area 5 exceeding S1, S2, and S3 standards.
- D. Contaminants have not been detected in surface water above DEP risk-based standards since shut down of the groundwater extraction and treatment system in September 2002.
- E. Sediment samples contain concentrations of polychlorinated biphenyls (PCBs) ranging from 0.032 to 5.1 mg/kg.
- F. Subsurface soil contains concentrations of PCBs, extractable petroleum hydrocarbons (EPH), and polycyclic aromatic hydrocarbons (PAHs) above DEP MCP Method 1 human health risk based standards (S1, S2, S3).
- G. Contaminants may reasonably be suspected in outdoor air due to the presence of contaminants in groundwater.

References:

1. Phase V Inspection and Monitoring Report No. 8, Bostik Findley, Inc., April 28, 2005 by GEI Consultants, Inc. (GEI).
2. Technical Report for GEI Consultants, Inc., Bostik 01003, Accutest Job Number: M47062, May 19, 2005 by Accutest Laboratories (Accutest).
3. Phase II Comprehensive Site Assessment Addendum (CSA) Report, Bostik, Inc., November 1995, by GEI.
4. Self-Implementing On-site Cleanup and Disposal Plan, Bostik Findley, Inc., March 2003 by GEI.
5. Method 3 Risk Characterization Addendum, Bostik, Inc., April 27, 2000 by GEI.
6. Release Abatement Measure Completion Report, Building 1, Bostik, Inc., April 1997, by GEI.
7. PCB Cleanup Completion Report, Bostik Findley, Inc., January 2004, by GEI.
8. Phase III Remedial Action Plan, Bostik, Inc., December 29, 2000, by GEI.

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.

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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

<u>Contaminated Media</u>	<u>Potential Human Receptors</u> (Under Current Conditions)						
	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	<u>N</u>	<u>N</u>	<u>N</u>	<u>N</u>			<u>N</u>
Air (indoors)	<u>N</u>	<u>Y</u>	<u>N</u>				
Soil (surface, e.g., <2 ft)	<u>N</u>	<u>Y</u>	<u>N</u>	<u>Y</u>	<u>Y</u>	<u>N</u>	<u>N</u>
<hr/>							
Surface Water							
Sediment	<u>Y</u>	<u>N</u>			<u>Y</u>	<u>Y</u>	<u>Y</u>
Soil (subsurface e.g., >2 ft)				<u>Y</u>			<u>N</u>
Air (outdoors)	<u>N</u>	<u>Y</u>	<u>N</u>	<u>Y</u>	<u>Y</u>		

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):

According to the site-specific risk assessments prepared for Bostlik (Ref: 3, 5), potential human exposure pathways exist under current land and groundwater uses for all media except groundwater. Site groundwater is not a drinking water source and is not used for irrigation or process water. Construction workers are not expected to come into contact with site groundwater because construction excavations are typically dewatered preventing contact with groundwater. Contaminants are not detected above risk based levels in surface water, eliminating the pathway between contamination and human receptors for that media. The site is not currently used for residential, daycare, or agricultural purposes. Contaminated sediments are present in the Ipswich River, near residences. Depth to groundwater at the site is relatively shallow (ranging from approximately 4 to 10 feet) and contaminated groundwater is likely present beneath occupied site buildings, therefore providing a pathway to workers via indoor air.

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”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):

Refer to Figure 1 for references to site areas.

Based on the Method 3 Risk Characterization Addendum Report (Ref. 5) and/or data collected since preparation of the Method 3 Risk Characterization Addendum Report (Ref. 1.2) prepared for the site, the following are NOT considered significant exposures:

- Indoor Air: Concentrations of C5-C8 aliphatics in groundwater were found to exceed the MCP GW-2 standard in one well in Area 5 and in several wells in Area 6. The well in Area 5 where the GW-2 standard for C5-C8 aliphatics is exceeded is located greater than 200 feet upgradient from the nearest occupied building. Also, concentrations of C5-C8 aliphatics in groundwater from wells in Area 5 located downgradient from the well where the GW-2 standard for C5-C8 aliphatics was exceeded and upgradient from occupied buildings are below the GW-2 standard. Therefore, the concentration of C5-C8 aliphatics in indoor air as a result of the presence of C5-C8 aliphatics in groundwater from Area 5 is not expected to result in a significant indoor air exposure to site workers.

The wells in Area 6 where concentrations of C5-C8 aliphatics in groundwater exceed the GW-2 standards are located downgradient from occupied buildings. There are no occupied buildings located downgradient from these wells. One well where the GW-2 standard for C5-C8 aliphatics is exceeded is located within 30 feet of an upgradient occupied building (Bldg. 9). However, a soil vapor extraction/air sparging trench is located between that well and Bldg. 9. Also, a well located between the SVE/AS trench and Bldg. 9 contains concentrations of C5-C8 aliphatics below the GW-2 standard. Therefore, concentrations of C5-C8 aliphatics in groundwater beneath the building are not expected to exceed GW-2 standards and are therefore not expected to result in a significant indoor air exposure to site workers.

In any event, as EPA Region 1 interprets recent EPA vapor intrusion guidance, for the purpose of the Environmental Indicator determinations, risk management of occupational exposures at industrial sites arising from the vapor intrusion pathway is deferred to the Occupational Health and Safety Administration (OSHA).

- Surface Soil: The site worker, site landscaper and site trespasser exposure to surface soil (0-3 feet) was considered in the Method 3 Risk Characterization and found to be insignificant.
- Sediment: The site construction worker, site trespasser, and resident exposure to sediments was considered in the Method 3 Risk Characterization and found to be insignificant.
- Subsurface Soil: The estimated Hazard Index for construction worker exposure to subsurface soil exceeded DEP’s target risk level based on available data collected prior to 2000 (Ref. 5). The primary driver was exposure to PCB contaminated soil in Area 5 of the Site. However, a risk-based remedial goal was developed for PCBs in soil in Area 5 and a target cleanup concentration was selected (Ref. 8). In 2003, Bostik excavated PCB contaminated soil from Area 5 reducing PCB concentrations in soil in Area 5 to concentrations well below the risk-based remedial goal (Ref. 7).
- Outdoor Air: The site worker, site landscaper, site utility worker, site construction worker, and site trespasser exposure to ambient air was considered in the Method 3 Risk Characterization and found to be insignificant.

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 “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):

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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):

- 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 Bostik Findley, Inc. facility, EPA ID # MAD001039767, located at 211 Boston St., Middleton, MA 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) Frank R Battaglia Date 8/25/05
(print) FRANK R BATTAGLIA
(title) ENVIRONMENTAL ENGINEER, EPA REGION I

Supervisor (signature) Matthew R Hoagland Date 9/26/05
(print) MATTHEW R HOAGLAND
(title) SECTION CHIEF, RCRA CORRECTIVE ACTION PROGRAM
(EPA Region or State) EPA REGION I

Locations where References may be found:

MADEP Northeast Region File Facility
35 Congress Street
Shetland Office Park
Salem, MA 01970
DEP RTN 3-1494

Ref #2 available at:
GEI Consultants, Inc.
1021 Main Street
Winchester, MA 01890

Ref #2 attached.

Contact telephone and e-mail numbers

(name) James R. Ash
(phone #) 781.721.4000
(e-mail) jash@geiconsultants.com

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.

Facility Name: Bostik Findley, Inc.
EPA ID#: MAD001039767
City/State: Middleton, MA

CURRENT HUMAN EXPOSURES UNDER CONTROL (CA 725)

