

RCRA RECORDS CENTER
FACILITY Bostik Findley
I.D. NO. MAD001039767
FILE NO. R-13
OTHER #106615



RDMS DocID 106615

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater 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 the groundwater media, 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 #8 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 "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "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 "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

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).

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 2

2. Is **groundwater** known or reasonably suspected to be “contaminated”¹ above appropriately protective “levels” (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

- If yes - continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.
- If no - skip to #8 and enter “YE” status code, after citing appropriate “levels,” and referencing supporting documentation to demonstrate that groundwater is not “contaminated.”
- If unknown - skip to #8 and enter “IN” status code.

Rationale and
Reference(s):

Refer to Figure 1 for references to site areas.

Groundwater from one site well located in the Building 9 area (Area 6) contains concentrations of C5-C8 aliphatics above the DEP MCP Method 1 human health risk-based standard GW-3, which applies to groundwater that is considered a potential source of discharge to surface water (Ref. 1). Concentrations of contaminants in groundwater in the Former Waste Disposal Area (Area 5) have not been found to exceed GW-3 standards since remediation of Area 5 in 2003 (Ref. 2, 3).

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. PCB Cleanup Completion Report, Bostik Findley, Inc., January 2004, by GEI.
4. Phase II Comprehensive Site Assessment Addendum (CSA) Report, Bostik, Inc., November 1995, 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 appropriate “levels” (appropriate for the protection of the groundwater resource and its beneficial uses).

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 3

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within “existing area of contaminated groundwater”² as defined by the monitoring locations designated at the time of this determination)?

- If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the “existing area of groundwater contamination”².
- If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”²) - skip to #8 and enter “NO” status code, after providing an explanation.
- If unknown - skip to #8 and enter “IN” status code.

Rationale and

Reference(s):

The primary contaminants in Area 6 groundwater are volatile organic compounds and volatile petroleum hydrocarbons. A soil vapor extraction/air sparging (SVE/AS) system has been operating in Area 6 since 2000. Groundwater samples are collected from wells downgradient from Area 6 on a quarterly basis to evaluate whether contamination from Area 6 is migrating. Except for very low concentrations of C5-C8 aliphatics (well below the GW-3 standard) detected in one well downgradient from Area 6, contaminants have not been detected above laboratory reporting limits in the wells sampled downgradient from Area 6.

² “existing area of contaminated groundwater” is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of “contamination” that can and will be sampled/tested in the future to physically verify that all “contaminated” groundwater remains within this area, and that the further migration of “contaminated” groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 4

4. Does "contaminated" groundwater discharge into surface water bodies?

If yes - continue after identifying potentially affected surface water bodies.

If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

If unknown - skip to #8 and enter "IN" status code.

Rationale and

Reference(s):

The Bostik site is bounded to the north by the Ipswich River. Site groundwater flow is to the north/northeast toward the Ipswich River. The Ipswich River is the point of general groundwater discharge from the site (Ref. 4).

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 5

5. Is the discharge of “contaminated” groundwater into surface water likely to be “insignificant” (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater “level,” and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

If yes - skip to #7 (and enter “YE” status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

If no - (the discharge of “contaminated” groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater “levels,” the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

If unknown - enter “IN” status code in #8.

Rationale and
Reference(s):

The maximum concentration of C5-C8 aliphatics detected in monitoring wells located just upgradient from the Ipswich River and downgradient from the contaminant source areas since June 2004 is 367 ug/l, which is less than 10 times the GW-3 standard for C5-C8 aliphatics of 4,000 ug/l (Ref. 1). Key contaminants have not been detected above laboratory limits in surface water samples collected since shutdown of the groundwater extraction and treatment system in 2002 (Ref. 1).

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

**Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 6

6. Can the discharge of “contaminated” groundwater into surface water be shown to be “currently acceptable” (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?

- _____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site’s surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
- 2) providing or referencing an interim-assessment,⁵ appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment “levels,” as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.
- _____ If no - (the discharge of “contaminated” groundwater can not be shown to be “currently acceptable”) - skip to #8 and enter “NO” status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.
- _____ If unknown - skip to 8 and enter “IN” status code.

Rationale and Reference(s):

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 7

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the “existing area of contaminated groundwater?”

If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the “existing area of groundwater contamination.”

If no - enter “NO” status code in #8.

If unknown - enter “IN” status code in #8.

Rationale and
Reference(s):

The Bostik site is currently in Massachusetts Contingency Plan (MCP, 310 CMR 40.0000) Phase V and is operating under Remedy Operation Status (ROS) (310 CMR 40.0893). Future groundwater and surface water sampling to verify that groundwater contamination is not migrating horizontally is planned as part of Phase V Inspection and Monitoring activities. Future groundwater sampling includes quarterly sampling of monitoring wells within the Old Tank Farm Area (Area 2) and Area 6, including WP2, WP3, WP4, WP6, WP35, WP37, WP39, MW503, GW3, GW4, MW110R, MW206, MW608, and MW610 (Figure 2). Quarterly sampling of surface water from locations upstream, adjacent to and downstream of Area 2 will also continue (Ref. 1).

Migration of Contaminated Groundwater Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 8

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Bostik Findley, Inc. facility, EPA ID # MAD001039767, located at 211 Boston St., Middleton, MA. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

NO - Unacceptable migration of contaminated groundwater is observed or expected.

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. DaGLAND Date 9/9/05
(print) MATTHEW R. DaGLAND
(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

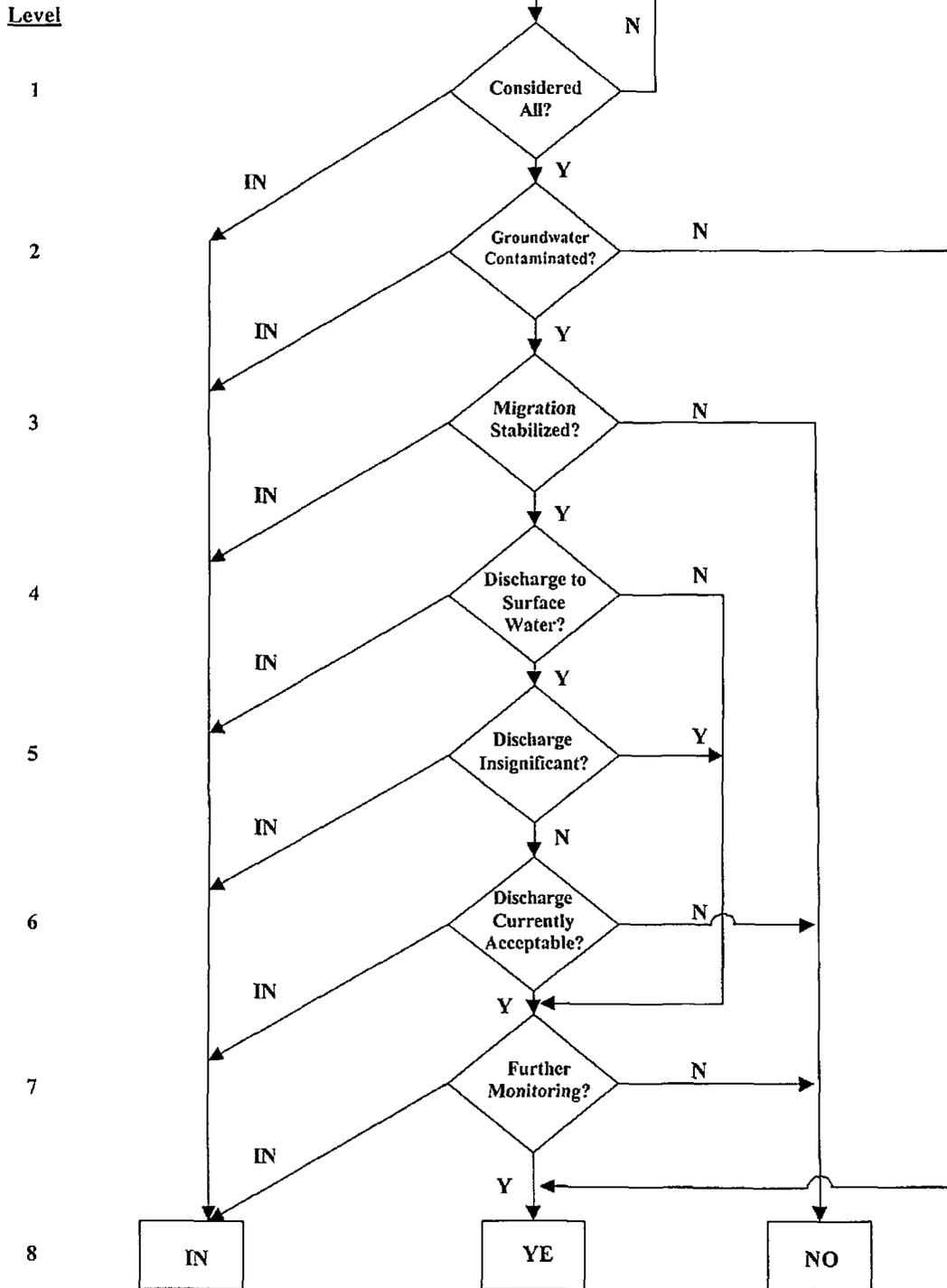
Ref #2 available at:
GEI Consultants, Inc.
1021 Main Street
Winchester, MA 01890

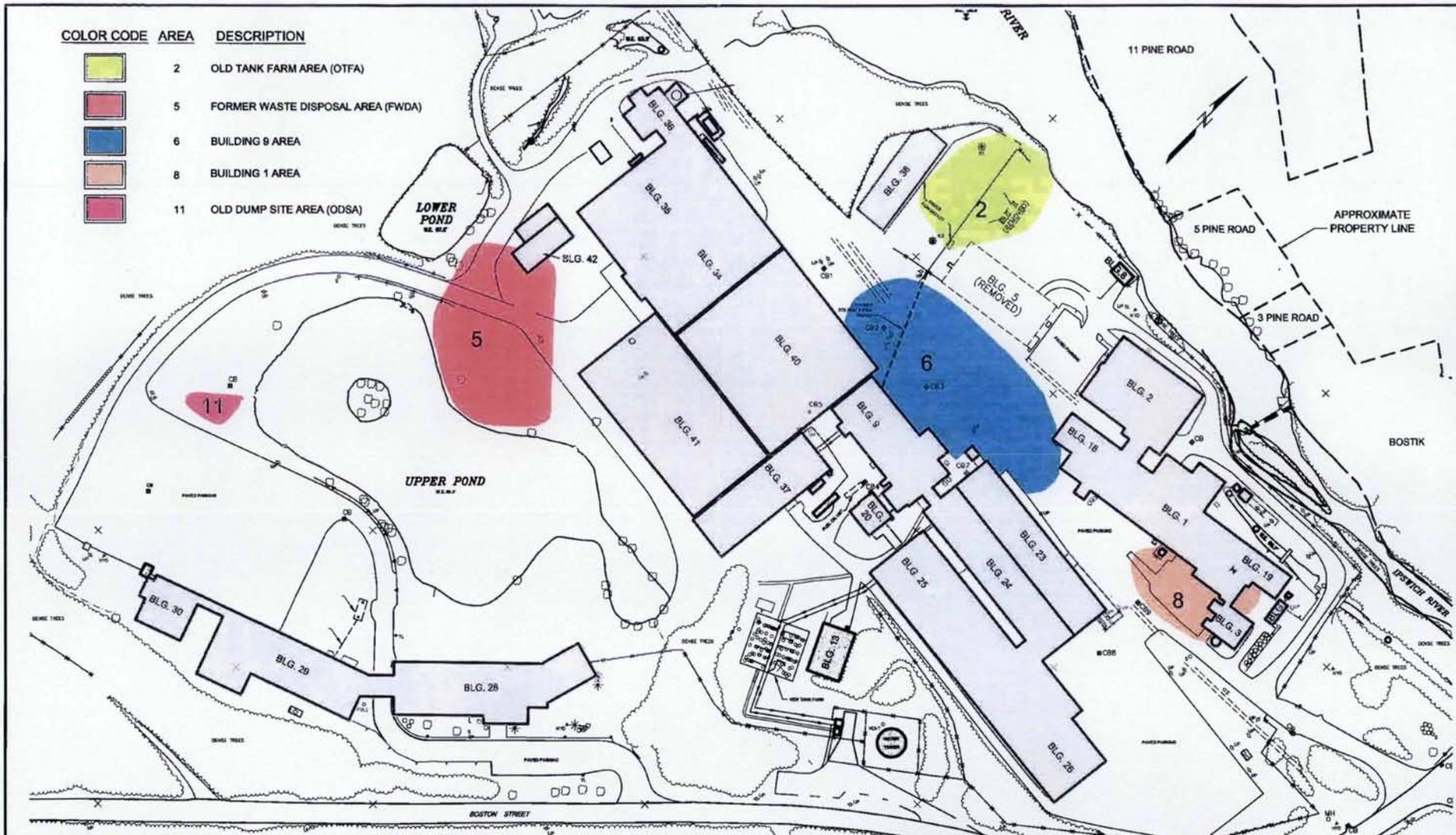
Contact telephone and e-mail numbers

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

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

**MIGRATION OF CONTAMINATED GROUNDWATER
 UNDER CONTROL (CA 750)**



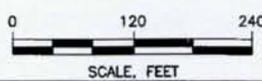


COLOR CODE AREA DESCRIPTION

	2	OLD TANK FARM AREA (OTFA)
	5	FORMER WASTE DISPOSAL AREA (FWDA)
	6	BUILDING 9 AREA
	8	BUILDING 1 AREA
	11	OLD DUMP SITE AREA (ODSA)

NOTES:
 1. THE COLORED AREAS SHOW APPROXIMATE LOCATIONS. THE BOUNDARIES OF THE COLORED AREAS ARE NOT AN INDICATION OF THE ESTIMATED EXTENT OF CONTAMINATION.

LEGEND:
 ○ CATCH BASIN LOCATION
 ● NPDES OUTFALL
 === FORMER RAILROAD TRACKS



Documentation of Environmental Indicator Determination
 Bostik Findley, Inc.
 Middleton, Massachusetts

GEI Consultants
 Project 01003

SITE MAP
 June 2005
 Fig. 1

