

U.S. ENVIRONMENTAL PROTECTION AGENCY (EPA) - REGION I
RCRA CORRECTIVE ACTION PROGRAM

STATEMENT OF BASIS
FOR A
CORRECTIVE ACTION COMPLETION DETERMINATION

FOR

BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MASSACHUSETTS
EPA ID NO. MAD001039767

August 6, 2015

Based upon investigation and remediation activities conducted at the Bostik, Inc. facility located at 211 Boston Street in Middleton, Massachusetts, EPA is announcing its Completion Determination remedy proposal that Corrective Action obligations under the Hazardous and Solid Waste Amendments of the Resource Conservation and Recovery Act are “Complete with Controls.”

INTRODUCTION

The U.S. Environmental Protection Agency - Region I (hereafter, “EPA”) is announcing its Completion Determination remedy proposal under the Hazardous and Solid Waste Amendments (HSWA) of the Resource Conservation and Recovery Act (RCRA).¹ This proposal states that Corrective Action obligations at the Bostik, Inc. facility, located at 211 Boston Street in Middleton, Massachusetts (hereafter, “Facility” or “Site”) are “Complete with Controls.” Investigation and remediation activities conducted at the Facility demonstrate that releases of hazardous wastes or hazardous constituents do not pose a threat to human health or the environment under current and future land use assumptions and that the final controls are protective of human health and the environment. EPA’s proposed Completion Determination is based on the results of investigation and reporting activities conducted by the Facility.

This document summarizes the regulatory status of the Facility, the results of investigation and remediation activities performed at the Facility, and the reasons for proposing that a Completion with Controls determination is appropriate. EPA is publishing this document to provide an opportunity for public review and comment on this proposal. EPA will consider public

¹ “Completion Determination” is a regulatory phrase that refers to a final disposition of a facility subject to Corrective Action obligations under RCRA. In this case, the Completion Determination proposed for the Facility is one that is “Complete with Controls.” More information on this category of Completion Determination can be found in the Federal Register notice entitled, Final Guidance on Completion of Corrective Action Activities at RCRA Facilities, 68 Fed. Reg. 8757 (Proposed Rule; Tuesday, February 25, 2003).

comments as part of its decision making process. This document refers the reader to the Administrative Record which contains more detailed information on site specific activities.

This Statement of Basis is intended to:

- Explain the opportunities for **public participation**, including how the public may comment on this proposed Completion Determination and where the public can find more detailed information;
- Provide a brief **description and history of the Facility**;
- Present the principal **findings of investigations and remediation activities** performed to date; and,
- Present **EPA's rationale** for proposing that Corrective Action obligations under the HSWA of RCRA are Complete with Controls for the proposed current and future land use of the Site.

THE PUBLIC'S ROLE IN EVALUATING THIS CORRECTIVE ACTION PROPOSAL/ RECOMMENDATION

The EPA is issuing this Statement of Basis as part of its public participation responsibilities under RCRA. The purpose of the Statement of Basis is to present the public a summary of the assessment and remediation activities in support of Site closure and to solicit input from the public. Public comment on this Statement of Basis and supporting information, is an important contribution to EPA's decision making process, therefore, all interested persons are invited to express their views and offer comments to EPA during the public comment period.

Public Comment Period

Written comments on this proposal will be accepted throughout the public comment period.

The public comment period will begin on August 17, 2015 and end on September 21, 2015.

A final decision regarding this proposed Completion Determination will not be made until the public comment period has closed and all comments received by EPA have been evaluated and addressed. EPA may modify this proposal based on any new information or substantive comments from the public.

If, after reviewing the information on the Facility, you would like to comment in writing on this proposal, or on any other issues related to this proposal, you should mail your written comments (postmarked no later than **September 21, 2015**) to:

Frank Battaglia
EPA New England, Region 1
5 Post Office Square, Suite 100
Mail Code: OSRR07-3
Boston, Massachusetts 02109-3912

Please be sure to clearly indicate that you are commenting on this proposal.

Questions may be directed to Frank Battaglia at (617) 918-1362, or battaglia.frank@epa.gov

EPA will review all comments received from the public as part of the process of reaching a final decision regarding the most appropriate action at the Facility. EPA will summarize and respond to all significant comments. A brief decision making document will be prepared by EPA to address all significant comments received during the public comment period. This document will be incorporated into the Administrative Record for the Bostik Site. If any comment results in significant changes to this proposal, EPA will seek additional public comments on a revised proposal.

If there are no comments that result in significant changes to this proposal, EPA's final decision will be issued in a brief letter to the Facility and interested parties of record.

Additional Public Information

This Statement of Basis provides only a summary description of the Facility investigation and other activities performed at the Facility. Therefore, the public is encouraged to consult the **Administrative Record**. As explained in more detail below, the Administrative Record is the collection of information (including data, reports, etc.) that EPA relied upon for its proposed remedy decision. In this case, the Administrative Record contains this Statement of Basis, the July 15, 2015 Risk Characterization review memorandum by MassDEP, and the various Site environmental reports which have been prepared for the Site over the past several years and which describe the investigation and remediation activities conducted at the Site.

These documents, a list of which appears at the end of this Statement of Basis in the References Section, can be found in the Administrative Record.

The Administrative Record is available for review at the following locations:

Flint Public Library
One South Main Street
Middleton, MA 01949
978-777-8932
Monday-Thursday: 10 am to 8 pm
Friday: 10 am to 5 pm
Saturday: Closed
Sunday: 1 pm to 5 pm

EPA Region 1 website
www.epa.gov/ne/cleanup/rcra/bostik

Facility Description and History

Bostik is an adhesive manufacturing facility, with about 25 buildings located on about 103 acres on the northwest side of Boston Street, in Middleton (Fig. 1). Features on the Site include manufacturing buildings, paved roads, two surface water bodies (Upper Pond and Lower Pond), a small stream that runs from Lower Pond into a cove of the Ipswich River, and a portion of the Ipswich River. There is also a small wooded area between the Bostik Facility and the Ipswich River, located west of the manufacturing area, outside the Facility fence.

The Site is bounded by the north bank of the Ipswich River; Boston Street (with residences across the street) to the south and east; and open space on the Lynnfield-Middleton town line to the west. The Peabody Water Department draws water from the Ipswich River approximately 8,000 feet to the east and downstream of the Bostik Facility. Groundwater flow is to the north toward the Ipswich River, depth to groundwater is approximately 4-10 feet across the site. Based on historic groundwater and surface water elevation data, the Ipswich River is a point of general groundwater discharge in the vicinity of the Site.

The Site has been developed for industrial use since 1874, when the Boston Blacking Company, a shoe polish manufacturer, began operations. Boston Blacking became BB Chemical in 1950 and Bostik in 1972. Various parent companies (Emhart Industries, Black and Decker, Total) have continued to manufacture adhesives at the Site under the Bostik name.

The Site is underlain by glacial and post-glacial deposits. The overburden consists of both stratified and unstratified till with cobbles and boulders, overlain by kame terrace deposits of sand and gravel. Bedrock beneath the Site is primarily diorite and granodiorite and is present 10 to 35 feet (ft) deep.

Landscaping and filling activities have altered the topography and geology of the Site. A formerly undefined wetland area, and its corresponding swamp deposits that once occupied more than three acres of the southwest portion of the Site, was reconfigured in 1967 to form two surface water bodies, Upper Pond and Lower Pond. The fill is comprised mainly of fine sand and gravel.

Current Conditions

Manufacturing

The Bostik Facility is a large quantity generator of hazardous waste. Industrial grade adhesives manufactured at the Facility include polyester and polyurethane polymers, as well as hot melt web, solvent based liquid, and coated film adhesives.

Bostik manufactures liquid adhesives in a process that combines organic solvents with polyester and rubber based polymers. The solvent and a polymer are mixed, and when the polymer dissolves, a liquid adhesive is formed. This liquids-manufacturing process occurs in the Churn Room, and Polyurethane Departments (Buildings 24, and 37, respectively). Some of these adhesive liquids are then used to coat paper and other substrates in the Film Coating Line (Building 23).

Bostik manufactures resins in polymerization reactions, which occur when diacids react with glycols (polyesters) or isocyanates react with polyols (polyurethanes). The polymerization

reactions occur in the Polyester Department (Buildings 36 and 39) and Polyurethane Department (Building 37).

A small administration and laboratory area is located separately from the plant in Building 29. This area includes the main Quality Assurance (QA) Labs. Small in-process QC Labs are also located in the Polyester Department (Building 36) and in the Polyurethane Department (Building 37).

Waste Management

90-Day Hazardous Waste Storage Area

Bostik operates a 90-day hazardous waste central storage area at Building 13. Drums of hazardous waste are stored at the 90-day storage area before they are sent offsite for disposal. Building 13 is a completely enclosed concrete block structure.

RCRA Hazardous Waste Aboveground Storage Tanks (ASTs)

Polyester distillate is a waste by-product of the polymerization reaction in the Polyester Department. Polyester distillate is a characteristic hazardous waste due to its ignitability. The distillate from the reactors located in the Polyester Department is transferred to one of seven receivers prior to being pumped to one of two 8,000-gallon polyester distillate storage tanks adjacent to Building 39. The distillate is transported off-site via tanker truck by a third party.

Materials Shipping/Receiving Area

Shipping and receiving operate from several locations throughout the Facility, and truck traffic is present at those areas. Buildings 26, 40 and 41 contain the main shipping and receiving docks. All drummed hazardous goods are received at Building 26. Trucks unload drummed materials at the loading dock on the north side of the building.

Solvent Tank Farm

All bulk flammable solvents are received at the off-loading station located directly off Boston Street, adjacent to the Solvent Tank Farm. Solvents are pumped directly from the offloading tanker into 13 underground storage tanks (USTs) located in the tank farm.

Building 42 Off-loading Area

Building 42 is a fully enclosed structure housing seven, 9,950-gallon ASTs. The ASTs are all constructed of stainless steel, except for the AST used to store blender rinse water, which is constructed of carbon steel. The raw material tanks are filled from the fully contained off-loading station which is located on the outside of the building under a permanent roof structure.

Oil Storage

Bostik stores carboy quantities of heat transfer, lubrication, and hydraulic oils in an enclosed oil storage room in Building 35. Drums of waste oil are stored in Buildings 30, 35, 36, and 37. The heat transfer oils are used to convert heat generated in on-site boilers (including the Struthers-Wells Industrial Boiler [BIF]) to the product through heater coils. These oils are contained in a

closed loop that carries the oil from the boiler to the reactor vessels. Heat transfer oils are used in the Polyester Department (Buildings 36 and 39), Web Department (Building 41), and the Pilot Plant (Building 30). There are no floor drains located within these buildings.

Historical Conditions and Response Actions

RCRA Facility Assessment (RFA)

In 1989, as part of a U.S. EPA-contracted program, CDM Federal Programs (CDM) completed a RCRA Facility Assessment for Bostik. The purpose of the RFA was to identify specific waste storage and disposal areas (Solid Waste Management Units/SWMUs) that could be associated with releases of oil or hazardous materials (OHM), and to describe Areas of Concern (AOCs) where release of OHM may have occurred. The RFA identified nine SWMUs and seven AOCs at the Site, and provided recommendations on the need for further evaluation at each location.

Since 1989 the Site has undergone extensive investigation and remediation which encompass the SWMUs and AOCs originally listed in the RFA.

MassDEP Investigations

The 1989 RFA occurred as Bostik was undertaking hazardous waste release response actions, conducted in accordance with the Massachusetts Department of Quality Engineering (DEQE), now the Massachusetts Department of Environmental Protection (MassDEP). Since 1989, the Site has undergone extensive investigation and remediation which encompasses the SWMUs and AOCs originally listed in the RFA.

A Phase I Limited Site Investigation was completed at the Site in August 1988 and a Phase II Comprehensive Site Assessment (CSA) in 1989. The Site was listed as a Confirmed Disposal Site and assigned Release Tracking Number (RTN) 3-1494 on January 15, 1990 by MassDEP. In 1993, the Site was listed as a transition Disposal Site under the provisions of the revised Massachusetts Contingency Plan (MCP; 310 CMR 40.0000).

A Phase II CSA Addendum, including a Method 3 Risk Characterization, was submitted to MassDEP in 1995. A Phase III Remedial Action Plan (RAP) was submitted to MassDEP in December 2000 and a Phase IV Remedy Implementation Plan (RIP) on April 30, 2001. A Phase IV Final Inspection Report (FIR) and a Remedy Operation Status (ROS) Submittal was submitted to MassDEP on April 15, 2004, and a ROS Termination and Phase V Completion Statement was submitted to MassDEP on December 21, 2009.

Using information obtained during the investigations, the Site was divided into 11 areas, each having a distinct release history and contaminant conditions. Each investigation area is briefly described below and identified on Fig. 1. Specific contaminants of concern were associated with each area and response actions were developed to address the conditions encountered in each area.

Area 1 – Pilot Plant Area

The Pilot Plant Area is Building 30, located on the southwest portion of the Facility. This area was historically used for research and product development. Products that contained chlorinated volatile organic compounds (VOCs) as well as heat-transfer oil that contained polychlorinated biphenyls (PCBs) were used in Building 30.

Area 2 – Old Tank Farm Area

The Old Tank Farm Area (OTFA) is located on the northern portion of the Facility, adjacent to the Ipswich River. In 1986, approximately 28 USTs were removed from the OTFA. The former USTs stored solvents used to manufacture adhesives. VOCs (toluene, xylene) were the primary contaminants detected in soil and groundwater at Area 2, associated with historic releases from the USTs.

Area 3 – Building 36

Building 36 is located in the northwest portion of the Facility. A concrete slab on the northern side of Building 36 supported a Struthers-Wells industrial boiler that burned a mixture of No. 2 fuel oil and polyester distillate (primarily xylene). In 1984, a 2,500-gallon polyester distillate spill occurred at Building 36.

Area 4 – Surface Water and Sediments

Area 4 consists of the Upper and Lower Ponds on the Facility, the stream that runs from the Lower Pond into Inner Cove, and a portion of the Ipswich River. PCBs, VOCs, and total petroleum hydrocarbons (TPHs) were detected in sediment in the water bodies, and VOCs were detected in the Ipswich River adjacent to Area 2. PCBs detected in the sediments may have been derived from several distinct sources at the Site, including the Former Waste Disposal Area (FWDA) and Old Dump Site Area (ODSA) (Areas 5 and 11), and Building 36 (Area 3).

Area 5 – Former Waste Disposal Area

From the late 1940s until the mid-1960s, a waste disposal area was located adjacent to what is now Upper Pond. Disposal in this area consisted of open burning of waste materials generated at the Facility. Partially buried refuse such as glass, metal scraps, 55-gallon drums, and burned and unburned adhesive waste have previously been observed in the FWDA. The primary contaminants of concern in soil and groundwater in Area 5 included PCBs, VOCs, and polycyclic aromatic hydrocarbons (PAHs).

Area 6 – Building 9 Area

Building 9 is located on the northern portion of the Facility, south of and upgradient from Area 2. Underground solvent piping originated at Building 9 and connected to USTs formerly located in Area 2. The USTs in the OTFA were removed in 1986. The primary contaminants in soil and groundwater in Area 6 are VOCs associated with historic releases from the underground solvent piping.

Area 7 – Churn Pit

Area 7 is located down gradient of the Churn Room, a chemical mixing pit in Building 23. In 1990, as part of the original Phase II CSA, VOCs were detected in a soil sample collected beneath the floor under the pit. As a result, soil and groundwater samples were collected downgradient of Building 23 as part of the Phase II CSA Addendum investigation.

Area 8 – Building 1

Area 8 is located on the northeastern portion of the Facility, south of Building 1 and west of Building 3. Fuel oil USTs were removed from the southern side of Building 1 between 1996 and 1998. To avoid potentially compromising the structural integrity of the adjacent building foundations, petroleum contaminated soil was left in place along Building 1 and Building 3. In October 2000, oil was observed in a monitoring well installed in one of the former UST excavations.

Area 9 – Building 4

Area 9 includes the portion of the Bostik Facility east of Buildings 3 and 4. The area is partially paved and includes a lawn and wooded areas along the Ipswich River. In 1982, 500 to 700 gallons of No. 6 fuel oil was spilled in the vicinity of Building 4.

Area 10 – Building 29 UST

A subsurface investigation was initiated in Area 10 in 1993 after the replacement of a fuel oil fill pipe for the Building 29 fuel oil UST. TPH concentrations were detected in five soil samples collected from the sidewalls of the fill pipe excavation. The UST was removed on December 16, 1998, and jar headspace results for two soil samples collected from the sidewalls of the excavation exceeded 100 parts per million by volume (ppmv).

Area 11 – Old Dump Site

The existence of an old dump site near the southwest corner of Upper Pond was identified during work conducted in support of GEI's Phase II CSA Addendum in 1993. A construction drawing from 1965 identified waste content in the area as rubbish and metal debris. The primary contaminants in soil in Area 11 included PCBs, VOCs, and semi-volatile organic compounds (SVOCs).

The results of the Phase II CSA and Phase II Addendum led to the identification of contaminant conditions which required remediation and conditions which did not. Remediation measures were identified and implemented in subsequent reports, including the Phase III RAP, Phase IV RIP, as well as specific Release Abatement Measures (RAMs).

Areas with No Remedial Actions Required

Contamination in these areas was of limited extent, low concentrations, or had already been substantially addressed by 1995, when the Phase II CSA was prepared, and therefore did not require additional MCP remedial actions.

Area 1 – Pilot Plant Area

In 1990, a contractor retained by Bostik excavated PCB-contaminated soil at Building 30 and shipped it to a hazardous waste landfill in Model City, New York. Because the former source of PCB contamination has been removed and the remedial measures removed the most heavily contaminated and accessible material, Area 1 did not require additional remedial actions to achieve or maintain a condition of No Significant Risk for the Site.

Area 3 – Building 36

In 1984, approximately 1,000 gallons of spilled polyester distillate were collected from the ground surface with a vacuum truck, and contaminated soil was excavated and removed. In 1992 oily soil and oil on the groundwater surface were removed during a drainpipe excavation off the northwest corner of Building 36.

GEI conducted a subsurface investigation to evaluate the extent of residual contamination. The average concentrations of PCBs and TPH in soil and groundwater were below MCP Method 1 risk standards. Area 3 therefore did not require additional remedial action to achieve or maintain a condition of No Significant Risk for the Site.

Area 4 – Surface Water and Sediments

TPH was detected in sediment samples collected in 1993 from the Upper Pond, Lower Pond, the stream and Inner Cove, and the Ipswich River. The concentrations were low and consistent with TPH concentrations detected in sediment samples collected upstream from the Facility.

During the Phase II investigation in 1994, PCBs were detected in sediment samples collected from the Ipswich River. Surface water samples collected in 1994 and 2000 did not contain PCBs or TPH at concentrations greater than laboratory detection limits.

VOCs were detected in surface water in the Ipswich River prior to the startup of the groundwater extraction and treatment system (GWE/TS) in Area 2 (see below). The GWE/TS was installed to, among other things, prevent VOC-contaminated groundwater from discharging into the river. The GWE/TS was shut down in 2002 because contaminant concentrations in groundwater in Area 2 had approached background conditions. Through these efforts, VOCs were no longer detected at concentrations above ambient water quality criteria or drinking water standards in surface water in the Ipswich River.

The Method 3 Risk Characterization prepared in 1995 and the Method 3 Risk Characterization Addendum prepared in 2000 indicated that the contaminant concentrations and potential exposure pathways in Area 4 did not pose an unacceptable risk to potential human receptors. The Stage II Ecological Risk Characterization prepared in 2000 concluded that contaminant concentrations and potential exposure pathways in Area 4 did not pose an unacceptable risk to potential ecological receptors.

In 2010 Inter-Fluve, Inc. prepared a Technical Memorandum presenting laboratory analytical results for sediment samples collected from the Ipswich River in the vicinity of the South Middleton Dam. Inter-Fluve collected ten sediment samples, some of which were within the Site portion of the Ipswich River. The 2010 sediment samples were analyzed for PCBs, TPH, VOCs and metals. We compared the analytical results for the 1993 and 2010 sediment samples to evaluate whether the conclusions of the 2000 Stage II Ecological Risk Characterization remained valid. The PCB and TPH concentrations were similar to those collected in 1993 and the VOCs and metals concentrations were typically well below the applicable screening criteria for human health and ecological effects.

The conclusion of the 2000 Stage II Ecological Risk Characterization that Area 4 does not require remedial action to achieve or maintain a condition of No Significant Risk continues to be valid. Area 4 did not require additional remedial actions to achieve or maintain a condition of No Significant Risk.

Area 7 – Churn Pit

Area 7 does not have a separate source of VOC or VPH contamination, but was affected by migration of VOCs in groundwater from Area 6. Area 7 did not require additional remedial actions to achieve or maintain a condition of NSR.

Area 9 – Building 4

In 1982, No. 6 fuel oil was spilled in the vicinity of Building 4 and migrated toward the Ipswich River. Oil-contaminated soil was excavated and transported to a disposal facility in New York. Floating oil was collected from the Ipswich River using oil booms and a vacuum truck. In 1990, two groundwater samples were collected from a monitoring well. The samples contained TPH, as well as low levels of benzene, toluene, and xylene.

In 1993, GEI evaluated potential contamination in Area 9 associated with both the historic spill and potential releases from fuel pumps formerly in Building 4. TPH was detected in soil samples; the samples were described as containing asphalt-like material. In 1995, during excavations in the vicinity of Building 4, several layers of asphalt were documented at similar depths as the samples collected in 1993 and as a result, the TPH concentrations previously measured in soil were attributed to asphalt. In June 2000, GEI personnel collected groundwater samples from wells in Area 9 and a surface water sample from the canal just north of Building 4. The samples were tested for extractable petroleum hydrocarbons (EPH) and volatile petroleum hydrocarbons (VPH). Neither the groundwater samples nor the surface water sample from the canal contained EPH or VPH at concentrations greater than the laboratory detection limits.

The most heavily contaminated soil was removed during the remedial measures implemented in 1982. The most recent groundwater data from Area 9 indicate that groundwater is not affected. Area 9 does not require additional remedial actions to achieve or maintain a condition of No Significant Risk.

Area 10 – Building 29 UST Area

In 1993, a fuel oil fill pipe was replaced for the Building 29 fuel-oil UST. TPH was detected in five soil samples collected from the sidewalls of the fill pipe excavation. In 1998, the UST was removed and petroleum-affected soil was excavated and transported off-site. EPH concentrations in confirmation soil samples collected from the sidewalls and bottom of the excavation were less than MCP Method 1 standards. EPH and VPH compounds were not detected in a groundwater sample collected downgradient of the former UST excavation.

GEI submitted a Class A-1 RAO to MassDEP in April 1999. Because Area 10 was addressed as a separate release by MassDEP, additional remediation under RTN 3-1494 was not required. Area 10 did not require additional remedial actions to achieve or maintain a condition of No Significant Risk.

Area 11 – Old Dump Site Area

During remedial actions associated with the FWDA in Area 5, excavation was performed in the ODSA to evaluate the presence of buried drums. Some buried drums were discovered, removed, and taken off-site for disposal. One soil sample was collected from beneath the former buried drums. Contaminants were not detected above Method 1 standards.

PCBs were detected in a groundwater sample during the Phase II investigation in 1993. However, PCBs were not detected above the laboratory detection limit in the groundwater sample collected in August 2000. The former sources of contamination in Area 11 (buried drums) were removed during the remedial measures associated with the FWDA in Area 5. Area 11 did not require additional remedial actions to achieve or maintain a condition of No Significant Risk.

Areas which required Remedial Actions

Area 2 – Old Tank Farm Area

Several remedial systems have been implemented in Area 2 to control the discharge of contaminants to the Ipswich River and to reduce the concentrations of contaminants in soil and groundwater. The systems have been successful in reducing contaminant concentrations in groundwater in Area 2 to levels that approach background conditions:

-Groundwater Extraction and Treatment System

In 1991, a GWE/TS was designed to intercept contaminated groundwater prior to discharge to the Ipswich River. The GWE/TS operated for 11 years. The GWE/TS was shut down in September 2002 because contaminant concentrations in groundwater in Area 2 had approached background conditions.

-In-Situ Biodegradation Using Oxygen Release Compound

Oxygen release compound (ORC) filter socks were installed August 1998. The ORC socks were installed to help stimulate in-situ biodegradation of residual VOCs in groundwater and soil within the saturated capillary fringe where soil vapor extraction (SVE) was not effective. GEI removed the ORC socks at the end of their 6-month effective life span.

-SVE/Air Sparging (AS) System

In 1996, an SVE system was installed in Area 2. Groundwater sampling indicated that contaminant concentrations in representative monitoring wells in Area 2 were approaching background conditions, except in one location. In June 2000, GEI proposed performing air sparging to address residual VOCs in groundwater.

GEI stopped SVE/AS in Area 2 on October 2002, because contaminant concentrations in the SVE influent from Area 2 were very low. However, to address residual contamination, the SVE/AS system was restarted in one area in November 2003. GEI stopped operating that system in October 2006 because contaminant concentrations in the influent were approaching background. Soil samples were collected in 2008 to evaluate the residual concentrations in Area 2. VOC concentrations in soil were well below the applicable MCP Method 1 Standards.

The remedial objectives in Area 2 have been achieved, and residual groundwater contamination has been reduced to levels that approach background conditions. Area 2 does not require additional remedial actions to achieve or maintain a condition of No Significant Risk.

Area 5 –Building 41 and FWDA

-Building 41 Area

In 1997 hazardous materials were excavated in the eastern portion of Area 5 prior to the construction of Building 41 and a new access road. Fifty-six drums were excavated and transported off-site as hazardous waste. The drums contained rubber, latex, adhesive solids, organic gelatinous materials, soil, and water. Other debris was separated from the soil and included with the drums for off-site disposal.

The soil was stockpiled and sampled for VOCs and PCBs. VOC concentrations in the stockpiled soil were less than the applicable MCP Method 1 standards and PCB concentrations were less than 4 mg/kg. VOC and PCB concentrations in sidewall and bottom samples collected from the limits of the drum excavation and the building foundation excavation were mostly below laboratory detection limits, and all concentrations were below the MCP standards. As a contingency, a vapor barrier was installed below the foundation of Building 41 to limit the potential for vapors attributed to subsurface contamination to migrate through the building foundation and accumulate in Building 41.

-Former Waste Disposal Area

In 2003, remediation was performed in the FWDA to remove and dispose of waste material and soil containing concentrations of PCBs greater than 25 ppm. The work was conducted in accordance with the Self-Implementing On-Site Cleanup and Disposal Plan (Cleanup Plan) submitted to the U.S. Environmental Protection Agency (EPA) in March 2003 and EPA's PCB Disposal Approval letter dated April 24, 2003.

GEI developed a risk-based remedial goal for PCBs in soil in the FWDA using cumulative exposure scenarios that were developed for the Site-wide Method 3 Risk Characterization Addendum submitted in April 2000. Although a target cleanup level of 26 ppm resulted from the risk characterization conducted under the MCP, the Toxic Substances Control Act of 1976 (TSCA) regulations (40 CFR 761) cleanup level of 25 ppm was used to maintain TSCA compliance.

The remedial activities performed generally consisted of the following:

- Installing sheet piling walls to protect the upper pond embankment.
- Dewatering the excavation and the treating dewatering effluent.
- Excavating soil suitable for on-site reuse.
- Excavating soil containing greater than 25 ppm PCBs for off-site disposal.
- Collecting and testing excavation bottom confirmation samples.
- Backfilling the excavation with excavated soil suitable for on-site reuse and with imported fill.

In accordance with TSCA requirements, Bostik recorded a deed restriction for the portion of the FWDA where PCBs remained in soil at concentrations less than 25 ppm, but greater than 1 ppm. The deed restriction was recorded at the Essex County Registry of Deeds on March 12, 2004. A PCB Cleanup Completion Report was submitted to EPA in January 2004 and a copy was provided to MassDEP.

Groundwater was not significantly impacted in Area 5. In May 2005, groundwater samples were collected in Area 5. PCBs were not detected above the laboratory reporting limits. VOCs were not detected above applicable MCP Method 1 Standards. The FWDA did not require additional remedial action to achieve or maintain a condition of NSR for the Site.

Area 5 does not require additional remedial actions to achieve or maintain a condition of No Significant Risk.

Area 6 – Building 9

GEI conducted a RAM for Area 6 from 1999 to 2007. The scope of work included: (1) subsurface investigation to better define the extent and quantity of light non- aqueous phase liquid (LNAPL), (2) evaluation of the extent of soil and groundwater requiring remediation, and (3) design and implementation of an SVE/AS system.

LNAPL was only recoverable in small quantities during the remedial investigation. Because the volume of LNAPL was minimal, SVE and AS were considered appropriate remedies, GEI operated the SVE/AS systems in Area 6 from 2000 to 2007 and stopped due to the overall decrease in groundwater contaminant and the decrease in system influent concentrations.

The residual soil concentrations in Area 6 are approximately 1 to 2 orders of magnitude lower than they were before the SVE/AS systems were started. Subsequent groundwater sampling

through June 2009 indicated that the groundwater contaminant concentrations were generally stable or decreasing. In addition, soil vapor monitoring performed through December 2008 indicated that soil vapor concentrations remained low following shut down of the system. Area 6 does not require additional remedial actions to achieve or maintain a condition of No Significant Risk.

Area 8 – Building 1 Area

In 1998, petroleum-contaminated soil and oil were encountered during removal of two fuel oil USTs on the southern side of Building 1 near Building 3. The two USTs and oil contaminated soil were removed from the area and soil samples were collected. Petroleum-contaminated soil was left in-place adjacent to the foundation of Building 1 and Building 3 to protect the structural stability of the buildings.

In October 2000, oil was observed in a monitoring well located in the northeast corner of the former UST excavations, but was not detected in a monitoring well installed inside Building 1, or in other downgradient monitoring wells. GEI installed oil recovery wells at Area 8 and used a combination of bailing and active oil removal using a belt skimmer to remove LNAPL. GEI shut the belt skimmer off in February 2008, because oil was no longer being recovered. The skimmer was disassembled in November 2008.

GEI collected soil samples in February 2009 and submitted them for laboratory analysis of EPHs and VPHs to evaluate the residual petroleum concentrations in soil in Area 8. VPH concentrations were well below the applicable MCP Method 1 Standards, with the one exception in a soil sample collected at 12 to 14 ft deep. EPH concentrations were above MCP Method 1 Standards, but no individual contaminant concentration exceeded the MCP Upper Concentration Limits (UCLs).

GEI collected groundwater samples in April 2009. Groundwater contaminant concentrations were below MCP standards, and expected to continue to decrease via natural attenuation.

Conditions in Area 8 are stable. Residual oil in the formation is less than ½ inch and does not represent a UCL exceedance. There is no indication that the residual oil is migrating. In addition, the low concentrations of volatile constituents in soil and groundwater in Area 8 indicate that vapor intrusion is not a complete exposure pathway. Therefore, Area 8 does not require additional remedial actions to achieve or maintain a condition of No Significant Risk.

Activity and Use Limitation (AUL)

A Notice of AUL for a portion of the property was recorded on the deed at the Southern Essex District Registry of Deeds on December 15, 2011. The AUL includes a description of the activities and uses of the Portion of the Property that are inconsistent with the objectives of the AUL, and if implemented may result in a significant risk of harm to health, safety, public welfare, or the environment. Those activities and uses include:

- (i) Residential use where such facility in whole or in part provides overnight housing (including any hospital, health care facility, orphanage, nursing home, convalescent home, educational facility, or correctional facility);
- (ii) Agriculture activities where the soil is used for growing fruits or vegetables for human consumption; and

- (iii) Activities that are reasonably likely to result in direct contact with, and/or disturbance, excavation, relocation or removal of the contaminated soil, unless such activity is undertaken in conjunction with the implementation of a Soil Management Plan and a Health and Safety Plan, or as part of emergency excavation such as that required to repair underground utilities, or as part of landscaping activities.

The AUL includes obligations and conditions required to maintain a condition of No Significant Risk. Those obligations and conditions include:

- (i) A Soil Management Plan must be developed and implemented prior to the initiation of planned (i.e., non-emergency) excavation of soil except for excavation related to landscaping where soil is reused in the area of excavation. The Soil Management Plan must be prepared by a Licensed Site Professional (LSP) or another qualified environmental professional. The Soil Management Plan must describe relevant matters concerning soil excavation, handling, storage, transport, treating, recycling, reusing, disposing or discharging of remediation waste, as appropriate;
- (ii) A Health and Safety Plan must be prepared prior to the initiation of planned (i.e., non-emergency) excavation of soil except for excavation related to landscaping where the excavated soil is reused in the area of excavation. The Health and Safety Plan must be prepared by a Certified Industrial Hygienist or another qualified individual sufficiently trained in worker health and safety requirements. The Health and Safety Plan must describe the nature and location of contaminated soils and identify the types of personal protective equipment, monitoring devices and engineering controls necessary to protect workers from exposure to oil or hazardous materials;
- (iii) Redevelopment for a park, playground, or other outdoor recreational use must include a barrier to restrict access to soil, constructed in accordance with the Opinion of an LSP, or an LSP must render an opinion that a barrier to restrict access to soil is not required. Following construction of the barrier, the barrier must be maintained to restrict access to soil; and
- (iv) Prior to the construction of new buildings the vapor intrusion pathway will be evaluated, and an appropriate vapor intrusion remedy included in the building design if the pathway is considered complete in the opinion of the LSP.

The AUL is consistent with the existing TSCA deed restriction implemented at a portion of the Site. With the implementation of an AUL on the portion of the property, a condition of No Significant Risk will be maintained at the Site.

The AUL specifies the allowed uses for the Bostik property. Changes in property use are not anticipated; however, if property uses change in the future, the provisions of the AUL and the requirements of the MCP would mandate conducting appropriate remedial actions as needed to maintain a condition of No Significant Risk.

Site Closure

On December 21, 2011, GEI submitted a Site-wide Method 3 Risk Characterization and Class A-3 Response Action Outcome (RAO) to MassDEP, thereby closing the property-wide disposal site first identified in 1990 (3-1494). The Class A-3 RAO signifies a site which relies on a deed restriction (the AUL) to maintain a condition of No Significant Risk.

Method 3 Risk Characterization

On July 15, 2015, MassDEP submitted a memorandum to EPA that documents its review of the site-wide Method 3 Risk Characterization submitted on December 21, 2011. The Risk Characterization was submitted in support of a Class A-3 RAO for RTN 3-1494. This RTN addressed all Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) identified at the Facility. The Method 3 Risk Characterization evaluated the potential human health and environmental risks associated with the contamination remaining at the Site following the completion of several remedial response actions. As detailed earlier in this document, the response actions addressed discrete releases of hazardous wastes or hazardous constituents in eleven distinct areas of the Facility. The risk characterization concluded that the residual contamination poses “No Significant Risk” (the regulatory limit specified in the MCP) under both current and reasonably foreseeable future conditions consistent with the AUL. MassDEP stated that “it is the Department’s opinion that the Method 3 Risk Characterization appropriately identifies the receptors of concern at the site and quantifies the potential exposures and risks, consistent with the applicable regulations” and EPA concurs with this statement.

EPA/MassDEP Corrective Action Program Coordination and Implementation

EPA has authorized the MassDEP to implement the Corrective Action program in lieu of EPA at licensed hazardous waste Treatment, Storage and Disposal Facilities (TSDFs) in Massachusetts. EPA also approved the MCP regulations to be used in implementing the Corrective Action program at these facilities. All non-TSDFs, hazardous waste generators and any other facility that releases hazardous materials to the environment in Massachusetts also use the MCP to assess and remediate releases of hazardous materials. Therefore, the assessment and remedial actions conducted pursuant to the MCP may also be determined to address both State and Federal requirements for Corrective Action at the Bostik Facility.

Rational for EPA’s Proposed Completion Determination with Controls Decision

Although this is a formal Completion Determination and is intended to result in a final administrative disposition of Corrective Action requirements for the Bostik Site, this is not an “unrestricted use” or “walk-away” determination. Based on the above information, EPA is proposing a Completion with Controls Determination for the Facility.

EPA believes that a Corrective Action “Complete with Controls” Completion Determination is appropriate for the following reasons:

1. A full set of corrective measures has been defined, evaluated and implemented.

The Bostik Facility has undergone comprehensive investigations and an evaluation of the contamination associated with the SWMUs/AOCs identified, as well as with other waste disposal areas, and has completed a number of remedial measures to address the contamination. Based on the information provided by Bostik, EPA believes that human health and environmental risks associated with this site have been adequately addressed. With the consideration of the ongoing controls provided herein, including the AUL, EPA believes that a full set of corrective measures have been defined, evaluated, and implemented.

2. The Facility has completed construction and installation of all required remedial actions.

Numerous remedial response measures have been completed at the Bostik Site associated with the SWMUs and AOCs that were identified in the RFA. The response measures were conducted to reduce the amount of contaminated materials identified in source areas, particularly in areas where there existed a high potential for the contaminated materials to migrate. Remedial measures were implemented in a phased manner where initial remedial measures focused on addressing the primary contaminant sources. The initial clean-up measures were followed by completion of additional remedial response measures to address residual sources that had the potential to impact groundwater.

Bostik has installed and implemented all required remedial actions. Bostik will continue to comply with the conditions of the AUL and the TCSA deed restriction.

3. Site-specific media cleanup goals have been developed and met.

Bostik has met the cleanup objectives for the Site. For the areas where low level contamination remains, Bostik has instituted controls that EPA has determined are sufficiently protective of human health and the environment.

Notwithstanding this Completion Determination, EPA or an authorized State may conclude additional cleanup is needed if, subsequent to this Completion Determination, EPA or an authorized State discovers evidence of unreported or misrepresented releases.

Evaluation of Remedy with respect to Standards and Decision Factors

EPA believes that, in addition to the rationale presented above, evaluation of the Facility with respect to Remedy Selection Criteria set forth in available EPA guidance provides a framework for measuring the effectiveness of a proposed remedy. *See* Corrective Action for releases from Solid Waste Management Units at Hazardous Waste Management Facilities, 61 Fed. Reg. 19432, 19449 (proposed May 1, 1996). These Remedy Selection Criteria are presented below:

Threshold Criteria:

Overall Protection. This completion determination proposal provides protection of human health and the environment. Specifically, the site investigation and remedial work conducted by the Facility demonstrates protection of human health and the environment for current and future use consistent with the requirements of the MCP as these terms are defined in the MCP.

Attainment of Media Cleanup Standards. The Method 3 Risk Characterization demonstrates that a condition of No Significant Risk to human health and the environment exists at the Site as a result of remedial actions, and this condition will remain protective with the implementation of an AUL and TCSA deed restriction which restrict changes in the future use of the Site.

Controlling Sources of Releases. The available information demonstrates that the historical on-site releases of hazardous materials to soil and groundwater have been completely remediated in some source areas or controlled by engineering or institutional controls in others. These controls are appropriate for current and future land use scenarios.

Compliance with Waste Management Standards. The proposed remedy complies with all applicable requirements for the management of solid wastes.

Balancing Criteria:

Long-term Reliability and Effectiveness. This remedy is effective and reliable with respect to the long-term since all remediation activities have been completed and appropriate controls are in place that restrict changes in future use of the Site without first reevaluating the Site conditions. Residual soil contamination has been addressed with the implementation of an AUL and TCSA deed restriction at the Site. Therefore, this proposed Completion Determination provides for long-term reliability and effectiveness.

Reduction of Toxicity, Mobility, or Volume of Wastes. The toxicity, mobility and volume of waste impacting the environment as a result of Site operations has been reduced through active remediation to appropriate levels for the current and future use of the Site.

Short-term Effectiveness. The proposed remedy is effective in the short-term since no further remediation is required and there are no immediate risks to human health or the environment.

Implementability. This remedy is believed to be easily implemented since no further remediation operations are required to protect human health and the environment.

Cost. The Facility has spent significant time and money to investigate and remediate the Site over a period of 25+ years. It has also demonstrated compliance with the State's cleanup regulations (i.e., the MCP). A Completion with Controls completion determination is appropriate for the Facility.

Conclusion

Significant flexibility is accorded to EPA in making completion determinations. To this end, EPA has determined that this proposed Completion Determination with Controls demonstrates protection of human health and the environment based on currently available information. Specifically, the proposed final remedy is sufficiently effective in the short-term as there are no immediate risks to human health or the environment. In the long-term, EPA has determined that the historical on-site releases of hazardous substances to the soil and/or groundwater have been remediated to levels that are sufficiently protective and that sufficient protections for controlling any remaining future risks, including an AUL and TCSA deed restriction, have been incorporated herein.

Accordingly, EPA, using all available information, is announcing its Corrective Action "Completion with Controls" Determination proposal for the Bostik Site. EPA believes that a Completion with Controls Determination is reasonable and appropriate since the result of investigations and remediation performed at previously contaminated areas of the Facility have either attained the applicable State cleanup standards, or met a condition of No Significant Risk as determined by the risk assessment. In addition, protective controls, including an AUL and TCSA deed restriction, that provide sufficient protections for controlling any future risks, will remain on the property. These controls restrict the future use of the site to its current use as an industrial facility without first reevaluating the site conditions.

GLOSSARY

Activity and Use Limitation (AULs) – Easement granted to the Commissioner of the MassDEP by the property owner and is recorded and/or registered with the appropriate registry of deeds and/or land registration office. The purpose of an AUL is to minimize the risk of human exposure to pollutants and hazards to the environment by preventing specific uses or activities at a property. It is also used to provide notice of the existence of residual contamination to future holders of an interest in a piece of property. An AUL is a tool which permits the remedial goals for a property to be dependent on the exposure risk associated with its use.

Administrative Record – Collection of documents (reports, correspondence, etc.) that form the basis for the remedy selection.

Corrective Measures Study (CMS) – An evaluation of remedial alternatives to be used for site cleanup. It is the equivalent of a Phase III in the MCP.

MassDEP – Massachusetts Department of Environmental Protection.

Massachusetts Contingency Plan (MCP) – MassDEP regulations governing the requirements for remediation of contaminated sites.

RAO – Response Action Outcome is the classification applied to a disposal site at which there is No Significant Risk as further defined in the MCP at 310 CMR 40.0006.

RAM – Release Abatement Measure is any response actions undertaken in accordance with the MCP.

Resource Conservation and Recovery Act (RCRA) – This law regulates the management and disposal of hazardous wastes. RCRA, in Section 3008(h), also authorizes the federal government to respond directly to releases of hazardous waste which may be a threat, or potential threat, to public health or the environment.

RCRA Facility Investigation (RFI) – Investigation to determine the nature and extent of contamination at a facility. The scope of an RFI can vary widely from a small specific activity to a complex study. It is the equivalent of a Phase II under the MCP. If the evaluation of results indicate that remediation may be necessary, a Corrective Measures Study or a Phase III would be the next step.

Risk Assessment – Formal process to evaluate the hazards presented by environmental conditions at the Site.

RTN – Release Tracking Number is the file number assigned by the MassDEP to a reported release or threat of a release at a facility.

Statement of Basis (SB) – Document presenting the proposed remedy for a facility to the public. The Statement of Basis provides a brief summary of the facility conditions, potential risks, and alternatives studied in the detailed analysis phase of the CMS.

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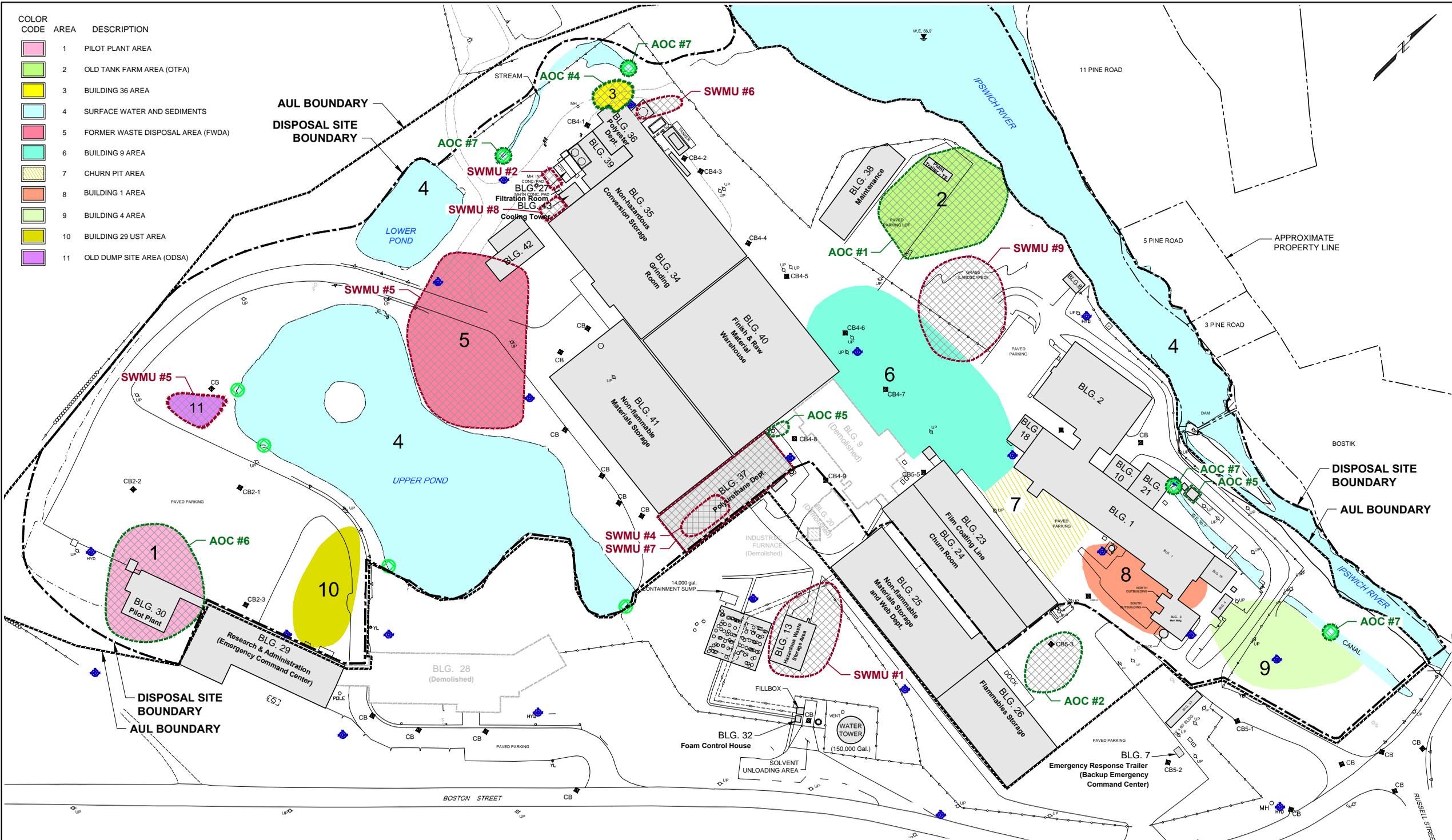
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FIGURES

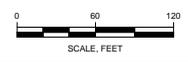
Figure 1 – Site Plan with AOCs and SWMUs

COLOR CODE	AREA	DESCRIPTION
	1	PILOT PLANT AREA
	2	OLD TANK FARM AREA (OTFA)
	3	BUILDING 36 AREA
	4	SURFACE WATER AND SEDIMENTS
	5	FORMER WASTE DISPOSAL AREA (FWDA)
	6	BUILDING 9 AREA
	7	CHURN PIT AREA
	8	BUILDING 1 AREA
	9	BUILDING 4 AREA
	10	BUILDING 29 UST AREA
	11	OLD DUMP SITE AREA (ODSA)



LEGEND

	AOC = RCRA AREA OF CONCERN
	SWMU = RCRA SOLID WASTE MANAGEMENT UNIT
	AUL = ACTIVITY AND USE LIMITATION BOUNDARY
	DISPOSAL SITE BOUNDARY



RFA Summary Memo Middleton, Massachusetts Bostik, Inc. Middleton, Massachusetts	 Project 133249-0 December 2014	SITE PLAN AOCs and SWMUs Fig. 1
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