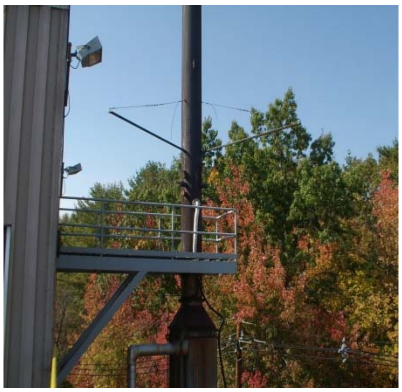
Prepared for:
Bostik, Inc. [U.S. EPA ID# MAD 001 039 767]
211 Boston Street
Middleton, MA 01949

Bostik



Part B Permit Application – Revision 4
Volume I of III

AECOM, Inc.
February 4, 2010
Document No.: 00963-044-100

ENSR | AECOM

Prepared for:
Bostik, Inc. [U.S. EPA ID# MAD 001 039 767]
211 Boston Street
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Part B Permit Application – Revision 4
Volume I of III

Prepared By: Douglas R. Roeck, ENSR

Reviewed By: Daniel F. Welch, Bostik

AECOM, Inc.

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Acronyms / Definitions

AFFF Aqueous Film-Forming Foams

ASME American Society of Mechanical Engineers

ASTM American Society of Testing and Materials

AWFCO Automatic Waste Feed Cutoff (System)

BIF Boiler and Industrial Furnace

BDAT Best Demonstrated Available Technology

CEMS Continuous Emission Monitoring System

CGA Cylinder Gas Audit

CO Carbon Monoxide

CO_2 Carbon Dioxide

CP Contingency Plan

CVAAS Cold Vapor Atomic Absorption Spectroscopy

DEP Department of Environmental Protection (Massachusetts)

DOT Department of Transportation (U.S.)

EPA Environmental Protection Agency (U.S.)

ERT Environmental Response Team

FEMA Federal Emergency Management Agency

HAPs Hazardous Air Pollutants

HOC Halogenated Organic Compounds

HRA Hourly Rolling Average

IC Incident Commander

ICP Integrated Contingency Plan

ICP-MS Inductively Coupled Plasma – Mass Spectroscopy

ICS Incident Command System

LDR Land Disposal Restrictions

MCP Massachusetts Contingency Plan

MSDS Material Safety Data Sheet

NESHAPs National Emission Standards for Hazardous Air Pollutants

NHESP Natural Heritage & Endangered Species Program

NIIMS National Interagency Incident Management System

NPDES National Pollutant Discharge Elimination System

OSHA Occupational Safety and Health Administration

PCBs Polychlorinated Biphenyls

P&ID Process and Instrumentation Diagram

PID Photoionization Detector

PLC Programmable Logic Controller

PPE Personal Protective Equipment

RATA Relative Accuracy Test Audit

RCRA Resource Conservation and Recovery Act

RMS Response Management System

RQ Reportable Quantity

SCBA Self-Contained Breathing Apparatus

SPCC Spill Prevention Control & Countermeasures

SWMU Solid Waste Management Unit

TOC Total Organic Carbon

VOA Volatile Organic Analysis

Section A - Part A General Information Requirements

The original Part A application for the Bostik facility was submitted in July 1995. This section includes an updated and revised Part A submittal which represents several changes to facility operations as well as an estimated quantity of generated hazardous waste based on levels from 2005. Brief summaries of pertinent information as delineated in the Federal RCRA Permit Checklist are also presented below.

A.1 RCRA Activities Conducted [40 CFR 270.13(a),(m)]

Bostik, Inc. stores hazardous waste in tanks and burns the waste onsite in a polyester burner unit that is subject to the BIF regulations.

A.2 Facility Location [40 CFR 270.13(b)(1)]

The facility is located in Middleton, Massachusetts (Essex County).

A.3 Industrial Classification [40 CFR 270.13(c)]

The facility produces adhesives and resins and falls under the North American Industry Classification System code of 325520.

A.4 Ownership Status [40 CFR 270.13(d),(e)]

The facility is privately owned by Bostik, Inc. based in Wauwatosa, Wisconsin.

A.5 Facility Status [40 CFR 270.13(f),(g)]

The Bostik manufacturing plant is an existing facility that has been in existence since July 1, 1981. Under RCRA, the facility is currently operating as an interim status facility.

A.6 Hazardous Waste Processes [40 CFR 270.13(i)]

The facility stores waste in one 10,000-gallon tank (T-9), one 950-gallon tank (DT-1) and two, 8,000-gallon tanks (T-1 and T-2) that are the subject of this permit application. The waste generated onsite is burned in an industrial furnace rated at 8.8 x 10^6 Btu/hr heat input.

A.7 Hazardous Waste Specifications [40 CFR 270.13(j)]

The primary designation for the waste material is D001 (hazardous due to ignitability).

A.8 Listing of Other Permits [40 CFR 270.13(k)]

Other environmental permits are listed on page 1A of 6 of the permit information form.

8. Process Codes and Design Capacities (*Continued*)

EXAMPLE FOR COMPLETING Item 8 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

Line Number	A. Process Code (From list above)	B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure (Enter code)	C. Process Total Number of Units
X 1	S 0 2	5 3 3 . 7 8 8	G	0 0 1
1	SO2	8,000	GALLONS	002
2	SO2	10,000	GALLONS	001
3	SO2	950	GALLONS	001
4	T93	8.8	MILLION BTU PER HOUR	001
5			SHORT TONS PER HOUR	
6			SHORT TONS PER HOUR	
7			SHORT TONS PER HOUR	
8			SHORT TONS PER HOUR	
9			SHORT TONS PER HOUR	
10			SHORT TONS PER HOUR	
11			SHORT TONS PER HOUR	
12			SHORT TONS PER HOUR	
13			SHORT TONS PER HOUR	

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 9.

9. Other Processes (*See instructions on page 37 and follow instructions from Item 8 for D99, S99, T04 and X99 process codes*)

Line Number (Enter #s in sequence with Item 8)	A. Process Code (From list above)	B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure (Enter code)	C. Process Total Number of Units	D. Description of Process
X 1	T 0 4	.			In-situ Vitrification
1			SHORT TONS PER HOUR		
2			SHORT TONS PER HOUR		
3			SHORT TONS PER HOUR		
4			SHORT TONS PER HOUR		

EPA ID No.

10. Type of Regulated Waste Activity (Mark 'X' in the appropriate boxes. See instructions on pages 28 to 32)

A. Hazardous Waste Activities

1. Generator of Hazardous Waste
(choose only one of the following three categories)

- (●) a. LQG: Greater than 1,000 kg/mo (2,200 lbs./mo.) of non-acute hazardous waste; or
- ( ) b. SQG: 100 to 1,000 kg/mo (220 - 2,200 lbs./mo.) of non-acute hazardous waste; or
- ( ) c. CESQG: Less than 100 kg/mo (220 lbs./mo.) of non-acute hazardous waste

In addition, indicate other generator activities (check all that apply)

- ☐ d. United States Importer of Hazardous Waste
- ☐ e. Mixed Waste (hazardous and radioactive) Generator

For Items 2 through 6, check all that apply:

- ☐ **2. Transporter of Hazardous Waste**
- ☒ **3. Treater, Storer, or Disposer of Hazardous Waste (at your site)** Note: A hazardous waste permit is required for this activity.
- ☐ **4. Recycler of Hazardous Waste (at your site)** Note: A hazardous waste permit may be required for this activity.
- **5. Exempt Boiler and/or Industrial Furnace**
  - ☐ a. Small Quantity On-site Burner Exemption
  - ☐ b. Smelting, Melting, and Refining Furnace Exemption
- ☐ **6. Underground Injection Control**

B. Universal Waste Activities

1. Large Quantity Handler of Universal Waste (accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste generated and/or accumulated at your site. (check all boxes that apply):

	Generated	Accumulated
a. Batteries	☐	☐
b. Pesticides	☐	☐
c. Thermostats	☐	☐
d. Lamps	☐	☐
e. Other (specify)	☐	☐
f. Other (specify)	☐	☐
g. Other (specify)	☐	☐

☐ **2. Destination Facility for Universal Waste**
Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities

1. Used Oil Transporter - Indicate Type(s) of Activity(ies)
- ☐ a. Transporter
- ☐ b. Transfer Facility

2. Used Oil Processor and/or Re-refiner - Indicate Type(s) of Activity(ies)
- ☐ a. Processor
- ☐ b. Re-refiner

☐ **3. Off-Specification Used Oil Burner**

4. Used Oil Fuel Marketer - Indicate Type(s) of Activity(ies)
- ☐ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
- ☐ b. Marketer Who First Claims the Used Oil Meets the Specifications

11. Description of Hazardous Wastes (See instructions on page 33)

A. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

D001	D018	D035	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--
--	--	--	--	--	--	--

						EPA ID No:
B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes. Please list the waste codes of the State-regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed for waste codes.						

12. Comments (See instructions on page 33)

13. Certification. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (See instructions on page 33)

Signature of owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)
Mark J. Hufzig	Mark J. Hufziger, Transportation Division General Manager	08/15/2007

United States Environmental Protection Agency

HAZARDOUS WASTE PERMIT INFORMATION FORM

1. Facility Permit Contact (See instructions on page 35)	First Name: Daniel	MI: F.	Last Name: Welch
	Phone Number: (978) 750-7402		Phone Number Extension: NA
2. Facility Permit Contact Mailing Address (See instructions on page 35)	Street or P.O. Box: 211 Boston Street		
	City, Town, or Village: Middleton		
	State: Massachusetts		
	Country U.S.		Zip Code: 01949-2128
3. Legal Owner Mailing Address and Telephone Number (See instructions on page 36) O Same as Facility Addr.	Street or P.O. Box: 11320 Watertown Plank Road		
	City, Town, or Village: Wauwatosa		
	State: Wisconsin		
	Country: U.S.	Zip Code: 53226-3434	Phone Number: (414) 774-2250
4. Operator Mailing Address and Telephone Number (See instructions on page 36) O Same as Facility Addr. O Same as Owner Addr.	Street or P.O. Box: 211 Boston Street		
	City, Town, or Village: Middleton		
	State: Massachusetts		
	Country: U.S.	Zip Code: 01949-2128	Phone Number: (978) 750-7402
5. Facility Existence Date (See instructions on page 36)	Facility Existence Date (mm/dd/yyyy): 07/01/1981		

6. Other Environmental Permits (See instructions on page 36)

A. Permit Type *(Enter code)*	B. Permit Number	C. Description
--		
--		See Attached Listing of Permits - pg 1A of 6
--		
--		
--		
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7. Nature of Business (Provide a brief description; see instructions on page 37)

Manufactures industrial grade adhesives: polyester & polyamide resins, polyurethanes, solvent -based liquid adhesives & web adhesive.

6. Other Environmental Permits (See instructions on page 36)

A. Permit Type (Enter code)	B. Permit Number	C. Description
R	MAD 001 039 767	Large Quantity Generator
R	MAD 001 039 767	Interim Status for the BIF Unit and Storage Tanks
E	81-COM-010	Air Quality - Struthers Wells Inductrial Boiler
E	83-COM-024	Air Quality - Main Boilers
E	89-IND-042	Air Quality - Polyester Reactor Train
E	89-IND-150	Air Quality - Heat Cleaning Oven
E	97-IND-055	Air Quality - Enclosed Flare for Control of Odor
E	98-COM-013	Air Quality - Boilers
E	98-IND-008	Air Quality - Polyester Reactor Train
E	41026	Water Quality - SESD Sewer Discharge Permit
E	MAR05C637	Water Quality - Multi-sector General Stormwater Permit

8. Process Codes and Design Capacities (See instructions on page 37)

A. PROCESS CODE - *Enter the code from the list of process codes below that best describes each process to be used at the facility. Thirteen lines are provided for entering codes. If more lines are needed, attach a separate sheet of paper with the additional information. For "other" processes (i.e., D99, S99, T04 and X99), describe the process (including its design capacity) in the space provided in Item 9.*

B. PROCESS DESIGN CAPACITY- *For each code entered in column A, enter the capacity of the process.*

1. AMOUNT - *Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process.*

2. UNIT OF MEASURE - *For each amount entered in column B(1), enter the code in column B(2) from the list of unit of measure codes below that describes the unit of measure used. Select only from the units of measure in this list.*

C. PROCESS TOTAL NUMBER OF UNITS - *Enter the total number of units for each corresponding process code.*

PROCESS CODE	PROCESS	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
	Disposal:	
☐ D79	Underground Injection Well Disposal	Gallons; Liters; Gallons Per Day; or Liters Per Day
☐ D80	Landfill	Acre-feet; Hectare-meter; Acres; Cubic Meters; Hectares; Cubic Yards
☐ D81	Land Treatment	Acres or Hectares
☐ D82	Ocean Disposal	Gallons Per Day or Liters Per Day
☐ D83	Surface Impoundment Disposal	Gallons; Liters; Cubic Meters; or Cubic Yards
☐ D99	Other Disposal	Any Unit of Measure Listed Below
	Storage:	
☐ S01	Container	Gallons; Liters; Cubic Meters; or Cubic Yards
☐ S02	Tank Storage	Gallons; Liters; Cubic Meters; or Cubic Yards
☐ S03	Waste Pile	Cubic Yards or Cubic Meters
☐ S04	Surface Impoundment Storage	Gallons; Liters; Cubic Meters; or Cubic Yards
☐ S05	Drip Pad	Gallons; Liters; Acres; Cubic Meters; Hectares; or Cubic Yards
☐ S06	Containment Building Storage	Cubic Yards or Cubic Meters
☐ S99	Other Storage	Any Unit of Measure Listed Below
	Treatment:	
☐ T01	Tank Treatment	Gallons Per Day; Liters Per Day; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; or Metric Tons Per Hour
☐ T02	Surface Impoundment Treatment	Gallons Per Day; Liters Per Day; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Pounds Per Hour; Short Tons per Day; Kilograms Per Hour; Metric Tons Per Day; or Metric Tons Per Hour
☐ T03	Incinerator	Short Tons Per Hour; Metric Tons Per Hour; Gallons Per Hour; Liters Per Hour; Btu Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million Btu Per Hour
☐ T04	Other Treatment	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; Gallons Per Day; Liters Per Hour; or Million Btu Per Hour
☐ T80	Boiler	Gallons; Liters; Gallons Per Hour; Liters Per Hour; Btu Per Hour; or Million Btu Per Hour
☐ T81	Cement Kiln	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; Liters Per Hour; Kilograms Per Hour; or Million Btu Per Hour
☐ T82	Lime Kiln	
☐ T83	Aggregate Kiln	
☐ T84	Phosphate Kiln	
☐ T85	Coke Oven	
☐ T86	Blast Furnace	
☐ T87	Smelting, Melting, or Refining Furnace	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; Gallons Per Hour; Liters Per Hour; or Million Btu Per Hour
☐ T88	Titanium Dioxide Chloride Oxidation Reactor	
☐ T89	Methane Reforming Furnace	
☐ T90	Pulping Liquor Recovery Furnace	
☐ T91	Combustion Device Used In The Recovery Of Sulfur Values From Spent Sulfuric Acid	
☐ T92	Halogen Acid Furnaces	
☐ T93	Other Industrial Furnaces Listed In 40 CFR §260.10	
☐ T94	Containment Building - Treatment	Cubic Yards; Cubic Meters; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Btu Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million Btu Per Hour
	Miscellaneous (Subpart X):	
☐ X01	Open Burning/Open Detonation	Any Unit of Measure Listed Below
☐ X02	Mechanical Processing	Short Tons Per Hour; Metric Tons Per Hour; Short Tons Per Day; Metric Tons Per Day; Pounds Per Hour; Kilograms Per Hour; Gallons Per Hour; Liters Per Hour; or Gallons Per Day
☐ X03	Thermal Unit	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; or Million Btu Per Hour
☐ X04	Geologic Repository	Cubic Yards; Cubic Meters; Acre-feet; Hectare-meter; Gallons; or Liters
☐ X99	Other Subpart X	Any Unit of Measure Listed Below

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
Gallons	G	Short Tons Per Hour	D	Cubic Yards	Y
Gallons Per Hour	E	Metric Tons Per Hour	W	Cubic Meters	C
Gallons Per Day	U	Short Tons Per Day	N	Acres	B
Liters	L	Metric Tons Per Day	S	Acre-feet	A
Liters Per Hour	H	Pounds Per Hour	J	Hectares	Q
Liters Per Day	V	Kilograms Per Hour	R	Hectare-meter	F
		Million Btu Per Hour	X	Btu Per Hour	I

8. Process Codes and Design Capacities (Continued)

EXAMPLE FOR COMPLETING Item 8 (shown in line number X-1 below): A facility has a storage tank, which can hold 533.788 gallons.

Line Number	A. Process Code (From list above)	B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure (Enter code)	C. Process Total Number of Units	
X 1	S 0 2	5 3 3 .7 8 8	G	0 0 1	
1	SO2	8,800	GALLONS	002	
2	SO2	10,000	GALLONS	001	
3	SO2	950	GALLONS	001	
4	T93	7,500,000	BTU PER HOUR	001	
5			SHORT TONS PER HOUR		
6			SHORT TONS PER HOUR		
7			SHORT TONS PER HOUR		
8			SHORT TONS PER HOUR		
9			SHORT TONS PER HOUR		
10			SHORT TONS PER HOUR		
11			SHORT TONS PER HOUR		
12			SHORT TONS PER HOUR		
13			SHORT TONS PER HOUR		

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in Item 9.

9. Other Processes (*See instructions on page 37 and follow instructions from Item 8 for D99, S99, T04 and X99 process codes*)

Line Number (Enter #s in sequence with Item 8)	A. Process Code (From list above)	B. PROCESS DESIGN CAPACITY (1) Amount (Specify)	B. PROCESS DESIGN CAPACITY (2) Unit of Measure (Enter code)	C. Process Total Number of Units	D. Description of Process
X 1	T 0 4				In-situ Vitrification
1			SHORT TONS PER HOUR		
2			SHORT TONS PER HOUR		
3			SHORT TONS PER HOUR		
4			SHORT TONS PER HOUR		

10. Description of Hazardous Wastes (See instructions on page 37)

A. **EPA HAZARDOUS WASTE NUMBER** - *Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR Part 261, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.*

B. **ESTIMATED ANNUAL QUANTITY** *For each listed waste entered in column A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.*

C. **UNIT OF MEASURE** - *For each quantity entered in column B, enter the unit of measure code. Units of measure which must be used and the appropriate codes are:*

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure, taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. **PROCESS CODES:**

For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Items 8A and 9A on page 3 to indicate the waste will be stored, treated, and/or disposed at the facility.

For non-listed hazardous waste: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Items 8A and 9A on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. *Enter the first two as described above.*
2. *Enter "000" in the extreme right box of Item 10.D(1).*
3. *Use additional sheet, enter line number from previous sheet, and enter additional code(s) in Item 10.E.*

2. **PROCESS DESCRIPTION:** *If a code is not listed for a process that will be used, describe the process in Item 10.D(2) or in Item 10.E(2).*

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER - Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. *Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.*
2. *In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.*
3. *Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.*

EXAMPLE FOR COMPLETING Item 10 (shown in line numbers X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operations. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		A. EPA Hazardous Waste No. (Enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)									(2) PROCESS DESCRIPTION (If a code is not entered in D(1))
X	1	K	0	5	4	900	P	T	0	3	D	8	0				
X	2	D	0	0	2	400	P	T	0	3	D	8	0				
X	3	D	0	0	1	100	P	T	0	3	D	8	0				
X	4	D	0	0	2												Included With Above

10. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*							
				D. PROCESSES			
Line Number	***A. EPA Hazardous Waste No. (Enter Code)***	***B. Estimated Annual Quantity of Waste***	***C. Unit of Measure (Enter code)***	***(1) PROCESS CODES***			***(2) PROCESS DESCRIPTION (if a code is not entered in D(1)***
1	D 001	3,452,760	POUNDS	SO_2	T80		
2	D 018			SO_2	T80		Quantity included in Line 1
3	D 035			SO_2	T80		Quantity included in Line 1
4	--						
5	--						
6	--						
7	--						
8	--						
9	--						
10	--						
11	--						
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31	--						
32	--						
33	--						

11. Map (See instructions on page 38)	See Section B of the Part B Permit Application.
Attach to this application a topographic map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in this map area. See instructions for precise requirements.	
12. Facility Drawing (See instructions on page 39)	See Sections B and D of the Part B Permit Application.
All existing facilities must include a scale drawing of the facility (see instructions for more detail).	
13. Photographs (See instructions on page 39)	See Section B of the Permit Application.
All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).	
14. Comments (See instructions on page 39)	

Section B - Facility Description

B.1 General Description [40 CFR 270.14(b)(1)]

Bostik Inc. (Bostik) is located at 211 Boston Street in Middleton, Massachusetts. Bostik is a manufacturer of industrial grade adhesives and sealants. Bostik employs approximately 200 people at this 103 acre site including divisional headquarters administration, research and development, and the manufacturing activities. The operating hours for the facility are 24 hours per day, 7 days per week, 365 days per year, excluding holidays.

The Bostik site is bordered by dense woods to the south and west, the Ipswich River to the north, and Boston Street to the east. The site was originally developed in 1674 by John Phelps and operated as a sawmill. Several other owners operated the sawmill, a fulling mill (for cleaning and finishing wool), and a grist mill into the early 1800s. During the 1800s, the site was used for a paper mill and linseed oil business. For a few years in the early 1900s, the site was used as a leather finishing factory; and in the 1920s, the site became a dyeing establishment. Since 1928, the site has been owned successively by Boston Blacking Co., The B-B Chemical Co., and currently Bostik, Inc.

In the process of manufacturing adhesives, Bostik utilizes many organic chemicals at the facility. Natural gas is fired in one of several boilers for steam generation. Numerous organic solvents are utilized in the production of solvent based liquid adhesives. The larger use solvents are stored in bulk tanks located in an underground vault whereas solvents used in smaller quantities are stored in drums. These solvents are combined with rubber and polyester based polymers in mixing vessels to dissolve the polymer and form a liquid adhesive. This type of manufacturing generally takes place in the Churn Room, Direct Solvation, and Polyurethane departments (Building No's. 24, 9, and 37 respectively).

Another aspect of Bostik's business is the polymerization reactions which occur in the following departments: Polyester (Building No's. 36 and 39), Polyamide (Building No. 1), Polyurethane (Building No. 37), and Direct Solvation (Building No. 9). These processes create solid non-hazardous resins from the polymerization of two relatively non-hazardous raw materials. In the Polyester and Direct Solvation departments, the raw materials that are reacted are diacids and glycols, whereas fatty acids and amines are reacted in Polyamide and isocyanates and amines are reacted in Polyurethane. The majority of these raw materials are powders; however, a few of these materials are room temperature liquids stored in aboveground tanks adjacent to the respective department. All of these tanks are diked to protect against overfilling or leakage.

The polyester polymerization reactions that take place in the Polyester (Building No's. 36 and 39) and Direct Solvation (Building No. 9) departments generate a byproduct known as polyester distillate. This distillate, although primarily water and methanol, is a hazardous waste in terms of ignitability (D001) and the potential for residual concentrations of benzene and methyl ethyl ketone (MEK) that would require listing waste codes D018 and D035. The distillate generated by the polyester department is collected in the Day Tank (DT-1), a 950-gallon tank located under the vacuum pump room in

Building 39. When the Day Tank's level reaches a predetermined point, the pump and bottom outlet valve are turned on and the tank's contents are pumped to either T-1 or T-2. The distillate generated in Buildings 36 and 39 is accumulated in two (2) 8,000 aboveground storage tanks adjacent to Building 39. These tanks are identified as T-1 and T-2. The distillate generated in the Direct Solvation department is accumulated in a 10,000 gallon aboveground storage tank adjacent to Building 9. This tank is identified as T-9. The distillate in T-9 is then periodically pumped to T-1 and T-2. The distillate from T-1 and T-2 is then pumped to the Struthers-Wells Industrial Boiler adjacent to Building 36 where it is subsequently co- fired with natural gas. All of these storage tanks and the industrial boiler are the subject of this RCRA Part B permit application.

Process vapors from the various tanks and batch process reactors are collected in a 6-inch vapor header and routed to the polyester burner. The process vapor stream is fed into the combustion chamber directly above the liquid waste burner. These process vapors are also capable of being sent to a thermal oxidizer (enclosed flare) in case the BIF unit goes down for an extended period of time. A process flow diagram depicting the major pieces of equipment pertaining to the overall system including the process vapor collection system is provided later in Section D. Major equipment associated with the process vapor system includes: a pneumatic pump, a liquid / vapor separator tank (knock-out pot), a Vortex flow meter, two flame arrestors, a variable frequency drive air blower, and several valves and connecting lines. Other than the addition of the equipment noted above, no changes were made to the hazardous waste treatment process to incorporate the process vapor control system.

B.2 Topographic Map [40 CFR 270.14]

Figure B-1 shows a topographic map including the Bostik facility boundaries and a distance of about 11,000 feet around the facility at a scale of 1 inch equal to about 2,500 feet. **Figure B-2** is a topographic / satellite view (dated April 2001) which depicts the surrounding land use in the vicinity of the facility. **Figure B-3** shows a detailed site drainage plan indicating surface water flow in the vicinity of and from each operational unit (i.e., the Direct Solvation Tank (Building 9); Tanks T-1 and T-2 (Building 27); and the Industrial Boiler (Building 36)). The site plan indicates the location of perimeter fencing, security gates, buildings, structures, surface water, withdrawal wells, sewers (storm catch basins, NPDES outfalls, and drain manholes), fire hydrants, and hazardous waste management units. See Section J of this Part B permit application for a description of Solid Waste Management Units (SWMUs) and an investigation site plan. **Figure B-4** provides a detailed site plan showing all distillate storage locations. **Figure B-5** shows the wind rose for the area representative of the Bostik facility.

B.3 Facility Location Information [40 CFR 270.14(b)(11); 264.18]

The Bostik facility is located in the Town of Middleton, Essex County, Massachusetts. This district is not listed in 40 CFR 264 Appendix VI; therefore, the requirements of this section pertaining to seismic considerations are not applicable.

Figure B-6 shows the FEMA Flood Insurance Rate Map including the Bostik facility. The flood map indicates that the hazardous waste management units are within Zone C (i.e., outside the 100-year flood area with minimum flood hazard). This map was last updated in June 2004.

B.4 Traffic Patterns [40 CFR 270.14(b)(10)]

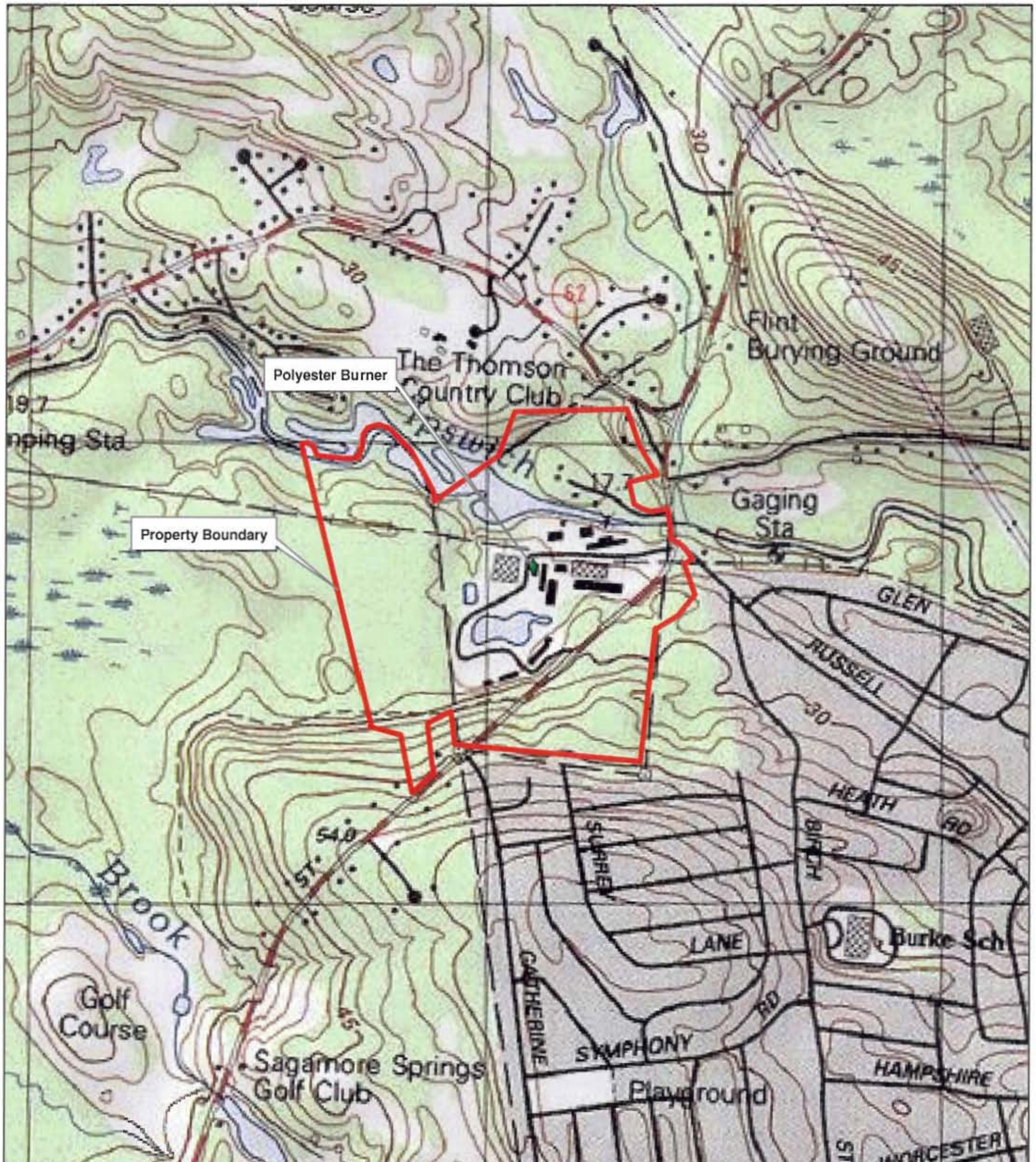
Employee Vehicles generally enter and exit the Bostik facility through the plant entrance by Building No. 3 (boiler room). All truck traffic enters through the trucking corral entrance between Buildings 3 and 26 and exits via the plant entrance by Building 3. Any on-site hazardous waste traffic will be conducted on asphalt paved roadways or parking lots with adequate load-bearing capacities. Speed limit signs are posted throughout the facility at 15 mph and "STOP" signs are posted at roadway intersections. Speed bumps are also located throughout the facility to reduce traffic speed in pedestrian crossing areas.

When trucks and trailers are unattended, chock blocks will be placed behind the wheels to prevent movement. When trailers are being loaded/unloaded without the truck cab attached, stabilizing jacks will be put in place.

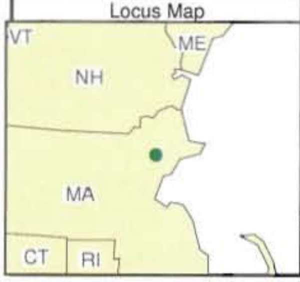
The primary hazardous waste traffic subject to this permit application will be limited as follows:

- Hazardous waste will be hard-piped from the 10,000 gallon Direct Solvation Tank (T-9) into the two (2) 8,000 Polyester Tanks (T-1 and T-2);
- Hazardous waste will be hard-piped from the 950 gallon Day Tank (DT-1) into the two (2) 8,000 Polyester Tanks (T-1 and T-2); and
- Hazardous waste from storage tanks T-1 and T-2 will then be hard-piped to the industrial boiler adjacent to Building 36.

Figure B-1 Site Topographic Map



Locus Map



Legend

- Polyester Burner
- Property Boundary

N
W E
S

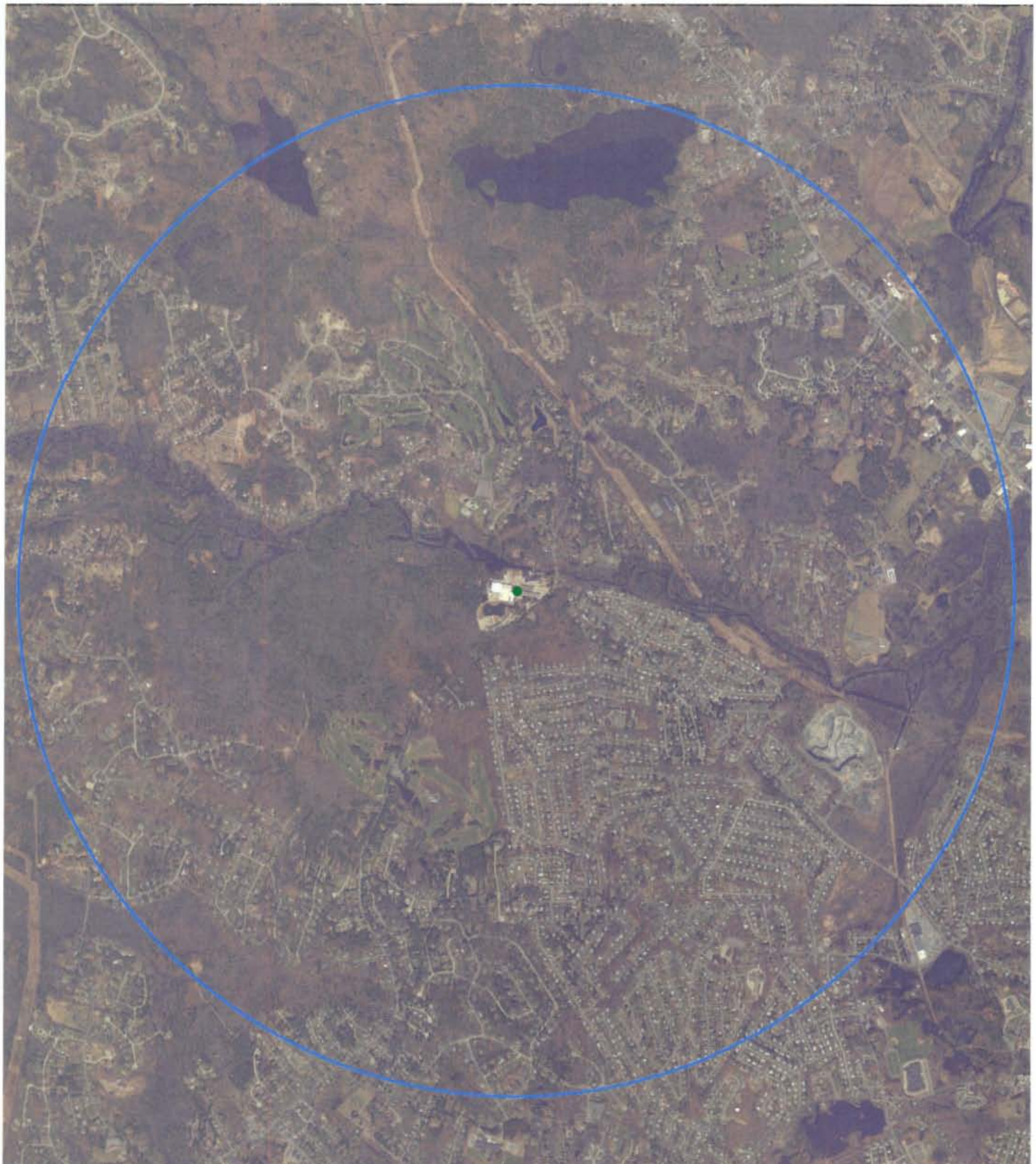
Figure B-1
Site Location, Property Line, and Boiler Location.
Bostik, Inc., Middleton, MA

Bostik
The Adhesive Company

ENSR | AECOM

Scale 0 0.1 0.2 0.4 0.6 0.8 1 Kilometers

Figure B-2 Surrounding Land Use Map



Locus Map

Legend

Site Location

3-KM Radius Around Site

Figure B-2
3-km Land Use Area
Around Bostik, Inc.
Middleton, MA

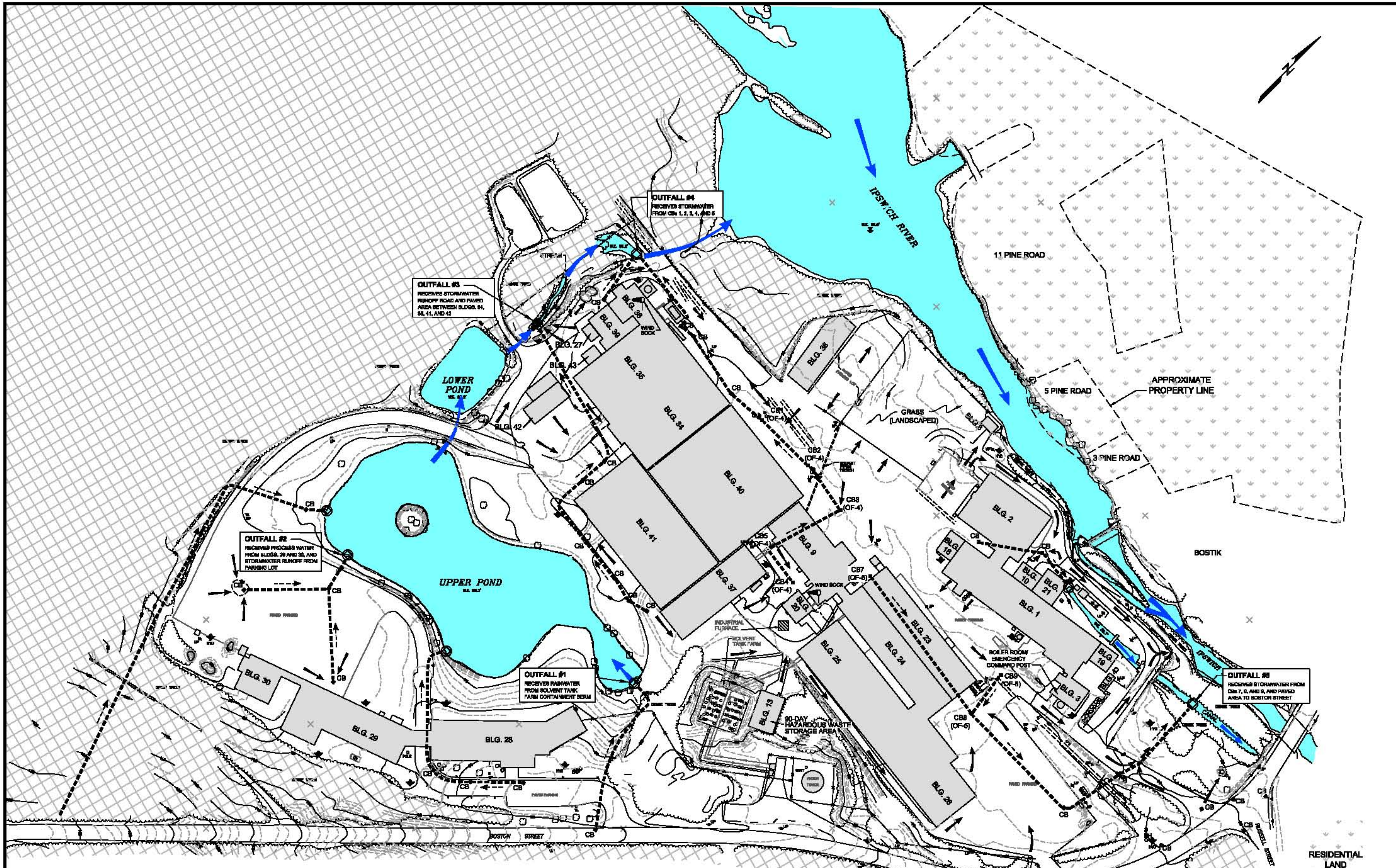
N
W E
S

Bostik
The Adhesive Company

ENSR | AECOM

Scale 0 0.25 0.5 1 1.5 2 2.5 3 Kilometers

Figure B-3 Site Drainage Plan



LEGEND

RESIDENTIAL LAND	CB APPROX. CATCH BASIN LOCATION	SURFACE WATER FLOW
DENSE WOODLANDS	NPDES OUTFALL	OVERLAND FLOW
HYDRANT LOCATION	WIND SOCK	STORM DRAIN LINE
	INDUSTRIAL FURNACE	STORM DRAIN LINE FLOW DIRECTION

NOTES:

1. CATCH BASIN, STORM DRAIN LINES, AND OUTFALL LOCATIONS ARE APPROXIMATE.

REFERENCE:

GEI CONSULTANTS, INC.
SITE DRAINAGE PLAN, Fig. A1-4
DATED: October 2002

0 80 160
SCALE, FEET

FILENAME: 00963-035-03.DWG

NO.:	DESCRIPTION:	DATE:	BY:
REVISIONS			

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

ENSR | AECOM
ENSR CORPORATION
2 TECHNOLOGY PARK DRIVE
WESTFORD, MASSACHUSETTS 01886
PHONE: (978) 589-3000
FAX: (978) 589-3100
WEB: HTTP://WWW.ENSR.AECOM.COM

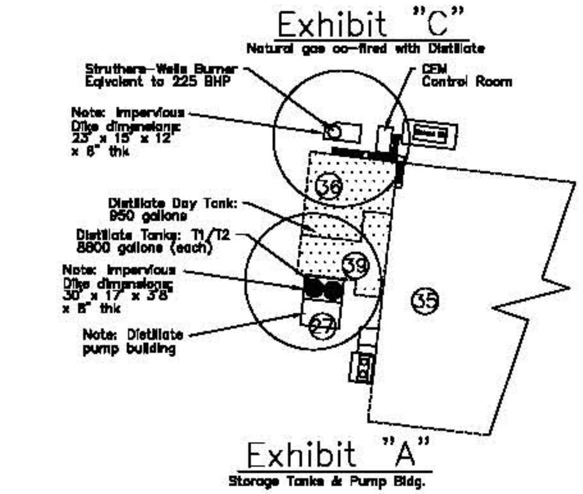
SITE DRAINAGE PLAN
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MASSACHUSETTS

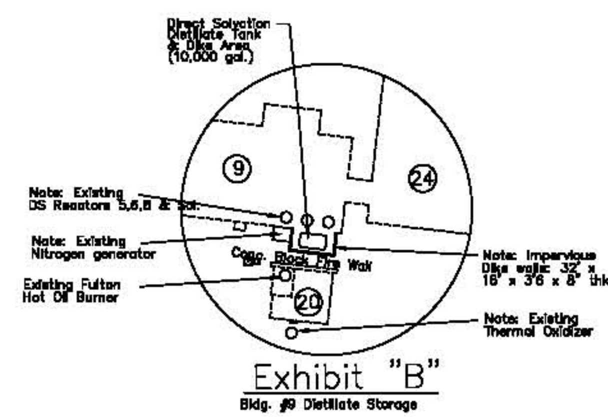
SCALE:	DATE:	PROJECT NUMBER:
1"=160'	11/06	00963-035

FIGURE NUMBER:
B-3

SHEET NUMBER:
X

Figure B-4 Site Plan – Distillate Storage





LEGEND

- BUILDING NUMBERS
- CHAIN LINK FENCE
- WETLANDS
- STONE WALL
- RAILROAD
- CONTOUR
- BUILDING
- TREE LINE
- WALL

NOTE

1. PLAN TAKEN FROM COL-EAST: BOSTIK SITE PLAN DATED JANUARY, 1991, WETLAND CONSERVATION MAP OF NORTH READING, TOPOGRAPHIC MAPS OF LYNNFIELD, MA NUMBERS 4, 8 AND 9 DATED APRIL 1988 AND USGS 7.5X15 MINUTE MAP OF READING, MA DATED 1987.

2. THE REMAINDER OF THE HOMES ON BIRCH AND RUSSELL STREETS WERE TOO DENSE TO BE DEPICTED.

REFERENCE:

BOSTIK, INC.
SITE PLAN – DISTILLATE STORAGE, DWG. NO. 10062006
DATED: 10/02/2006

0 200 400
SCALE, FEET

REVISIONS			
NO.:	DESCRIPTION:	DATE:	BY:

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

ENSR | AECOM

ENSR CORPORATION
2 TECHNOLOGY PARK DRIVE
WESTFORD, MASSACHUSETTS 01886
PHONE: (978) 589-3000
FAX: (978) 589-3100
WEB: HTTP://WWW.ENSR.AECOM.COM

SITE PLAN – DISTILLATE STORAGE
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MASSACHUSETTS

SCALE:	DATE:	PROJECT NUMBER:
1"=400'	11/06	00963-035

FIGURE NUMBER:
B-4

SHEET NUMBER:
X

FILENAME: 00963-035-040.DWG

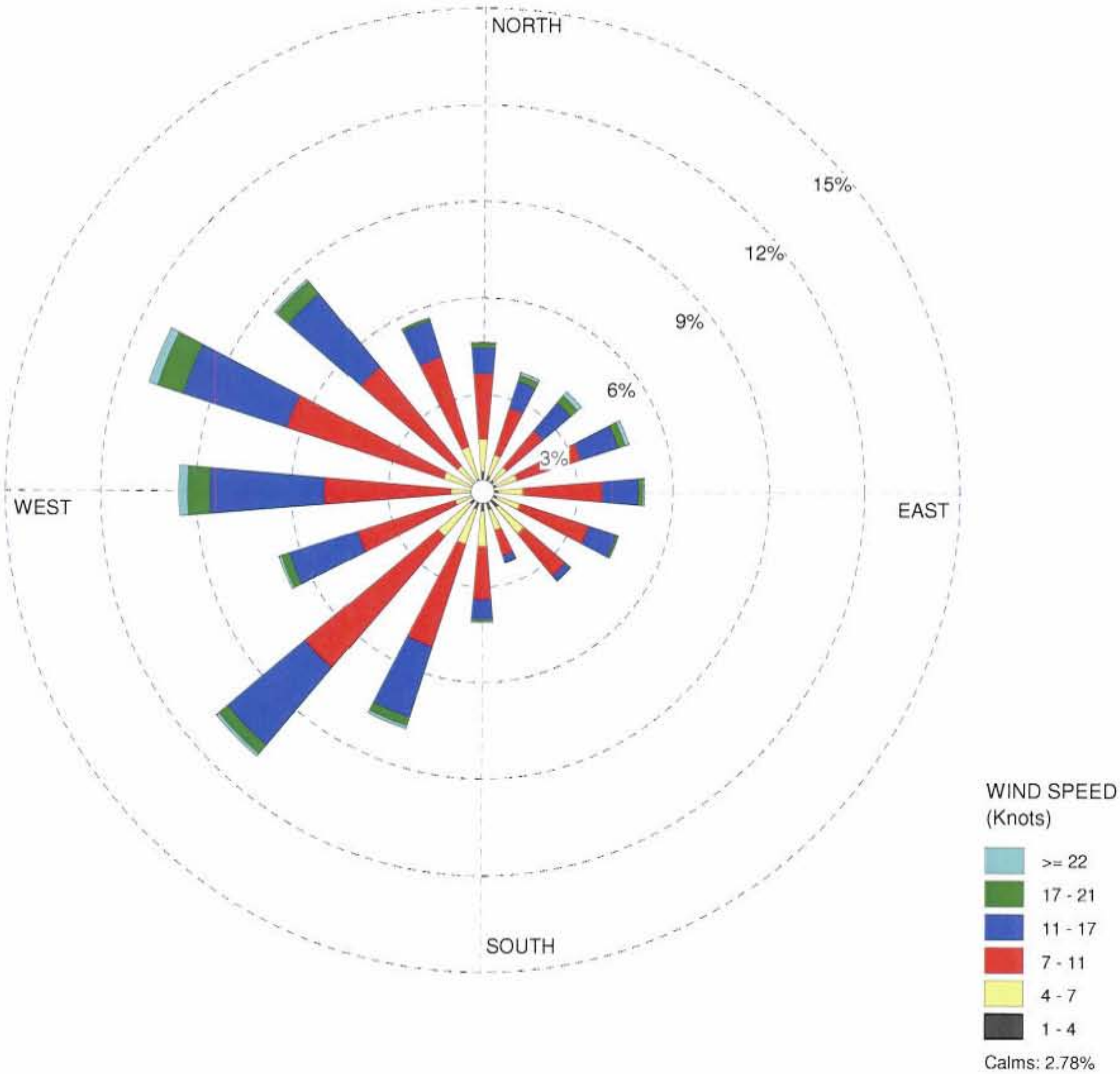
Figure B-5 Wind Rose

WIND ROSE PLOT:

Figure B-5: Wind Rose for Study Area, Bostik, Inc.
Logan International Airport Meteorological Data (2000-2004)

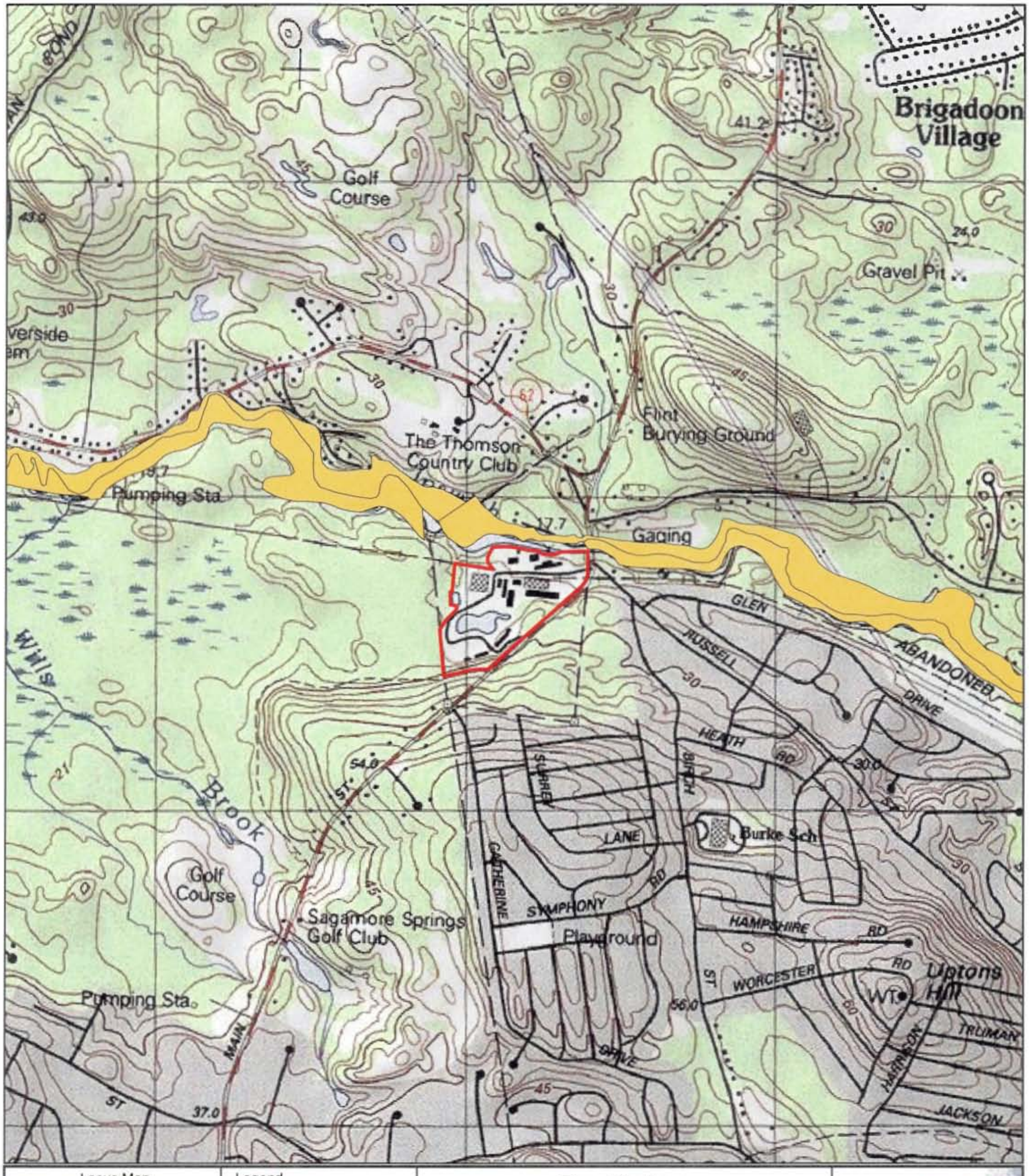
DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	2000 2001 2002 2003 2004 **Jan 1 - Dec 31** **00:00 - 23:00**	**ENSR**	
	CALM WINDS: **2.78%**	TOTAL COUNT: **43848 hrs.**	Bostik The Adhesive Company
	AVG. WIND SPEED: **9.76 Knots**	DATE: **10/25/2006**	PROJECT NO.: **00963-035-600**

Figure B-6 100-Year Floodplain Map



Locus Map

Legend

100-yr Flood

Fence Line

Bostik, Inc.

Figure B-6
100-Year Floodplain Map

Source: FEMA Q3 Flood Data

Bostik
The Adhesive Company

ENSR | AECOM

Scale 0 0.2 0.4 0.8 1.2 1.6 Kilometers

Section C - Waste Characteristics

C.1 Chemical and Physical Analyses [40 CFR 270.14(b)(2); 264.13(a)]

C.1.1 Containerized Waste

Bostik's Middleton facility does not store containerized wastes for 90 days or greater, and therefore this section is not applicable.

C.1.2 Waste in Tank Systems

Bostik's Middleton facility stores process waste designated as EPA Codes D001, D018 and D035 in four tanks prior to treatment in a boiler. These tanks are the Direct Solvation tank (T-9), the day tank in Polyester (DT-1), and tanks T-1 and T-2.

One waste stream is fed to the tanks, an organic mixture consisting primarily of methanol and water. (Although the waste is generated in two separate departments, it is very similar in composition and is ultimately stored in the same tanks (T-1 and T-2) prior to treatment in the Struthers-Wells combustion unit). The waste tanks (T-1, T-2, T-9, and DT-1) are constructed of carbon steel operating at ambient temperature and pressure. These conditions are not expected to adversely affect the integrity of the tank by contact with the waste. It should be noted that the tanks have been in waste storage operation since the late 1980s, and routine inspections of these tanks and ancillary equipment has revealed no adverse impact of the waste on this equipment.

C.1.3 Waste in Piles

Bostik does not treat, store, or dispose of hazardous waste in piles at the Middleton facility and therefore this section is not applicable.

C.1.4 Landfilled Wastes

Bostik does not treat, store, or dispose of hazardous waste in landfills at the Middleton facility and therefore this section is not applicable.

C.1.5 Wastes Incinerated and Wastes Used in Performance Tests

Bostik does not treat, store, or dispose of hazardous waste in incineration units at the Middleton facility and therefore this section is not applicable.

C.1.6 Wastes to be Land Treated

Bostik does not treat, store, or dispose of hazardous waste in land treatment units at the Middleton facility and therefore this section is not applicable.

C.1.7 Wastes in Miscellaneous Treatment Units

Bostik does not treat, store, or dispose of hazardous waste in miscellaneous treatment units at the Middleton facility and therefore this section is not applicable.

C.1.8 Wastes in Boilers and Industrial Furnaces (BIFs)

Since the initial promulgation of the BIF rule in 1991, Bostik has monitored concentrations of the 10 BIF metals in its waste feeds on a periodic basis. Results reported to date have shown primarily non-detectable concentrations or extremely low concentrations of these metals. This is not surprising since no metals are used in the process generating the waste stream. A compilation of representative data, along with other physical and chemical characteristics of the waste and process vent gas stream, is provided in **Tables C-1, C-2 and C-3**.

Waste generation flow schematics (provided subsequently in Section D of this permit application) show that the sole waste stream fed to the boiler is the result of the production process and no other wastes are combined with this material. In addition, no blending occurs prior to firing and all measurements are provided on an "as-fired" basis.

C.1.9 Wastes on Drip Pads

Bostik does not treat, store, or dispose of hazardous waste on drip pads at the Middleton facility and therefore this section is not applicable.

C.2 Waste Analysis Plan [40 CFR 270.14(b)(3); 264.13(b),(c)]

A stand-alone waste analysis plan (WAP) is provided in **Attachment C-1**. This document has been prepared to meet the requirements of 40 CFR 270.14(b)(3) and 264.13(b), (c) pursuant to a RCRA waste analysis plan (WAP) as well as the requirements of 63.1209(c)(2) relative to a MACT-required feed stream analysis plan (FSAP).

C.3 Waste Analysis Requirements Pertaining to Land Disposal Restrictions [40 CFR 270.14(b)(3); 264.13; 264.73 and Part 268]

C.3.1 Waste Analysis

As mentioned, the sole hazardous waste stored and treated at Bostik's Middleton facility is the hazardous waste fuel, classified as a characteristic waste D001 (ignitable) with potential for listing as D018 and/or D035. As there are no scrubbers and the waste contains little ash, no process residuals have been generated to date from treatment in the boiler. There may, however, be a small amount of ash produced occasionally resulting from the cleaning of the boiler. As no such stream has been produced in the past, no analytical data is available.

C.3.1.1 Spent Solvent and Dioxin Wastes

Bostik does not treat, store, or dispose of F001-F005 spent solvent wastes or F020-F023 or F026-F028 dioxin-containing waste at the Middleton facility.

C.3.1.2 California List Wastes

Bostik facility does not treat, store, or dispose of hazardous waste containing any of the following constituents at the described levels at the Middleton facility:

- Liquid hazardous wastes containing PCBs at concentrations greater than or equal to 50 ppm;
- Liquid characteristic wastes containing over 134 mg/l nickel and/or 130 mg/l thallium; or
- Characteristic wastes containing Halogenated Organic Compounds (HOCs) at concentrations greater than or equal to 1000 mg/l (liquids) or mg/kg (solids), where the HOCs are not derived from listed hazardous wastes (i.e., F-, K-, P- or U-listed wastes)

C.3.1.3 Listed Wastes

The waste treated in the boiler at the Middleton facility does not carry any F-listed waste codes, for which universal treatment standards are defined at 40 CFR Part 268.40. Wastes are treated on-site in a boiler, and, as there are no scrubbers and the waste contains little ash, no process residuals have been generated to date from treatment in the boiler. There may, however, be a small amount of ash produced at some times resulting from the cleaning of the boiler. This ash must meet the land disposal restrictions for treatment standards for the waste code treated (D018 and D035). If a residue results from the cleaning of the boiler, an analysis will be conducted on the residue for the parameters listed in Part 268.40, and which potentially could be present in the waste feed to the boiler, to confirm the treatment standards were met. The parameters for analysis and the acceptable land disposal restriction (LDR) treatment standards are:

- Benzene – 10 mg/kg
- MEK – 36 mg/kg
- Methanol – NA

C.3.1.4 Characteristic Wastes

As mentioned, Bostik's Middleton facility stores and treats characteristic waste D001 (ignitable) in the boiler. Again, as there are no scrubbers and the waste contains little ash, no process residuals have been generated to date from treatment in the boiler. There may, however, be a small amount of ash produced at some times resulting from the cleaning of the boiler and this ash must also meet the land disposal restrictions for treatment standards for the waste code treated (D001).

The waste fuel fits the description of a high TOC ignitable characteristic liquid based on 40 CFR 261.21[a][1] (greater than or equal to 10% total organic carbon) for which the treatment standards prior to land disposal is recovery of organics (RORGS) or combustion (CMBST). [Treatment standards as described in 40 CFR Part 268.40 as amended at FR 47982 Vol. 59 No. 180, Land Disposal Restriction Phase II Universal Treatment Standards for Organic Toxicity Wastes and Newly Listed Wastes, 19 September 1994). The definition of CMBST, as stated in Part 268.42 Table 1, is:

"combustion in incinerators, boilers, or industrial furnaces operated in accordance with the applicable requirements of 40 CFR part 264 subpart O, and part 266, subpart H." Therefore the treatment of this waste in Bostik's Middleton facility's boiler constitutes proper treatment of the D001 waste prior to land disposal.

C.3.1.5 Radioactive Mixed Waste

Bostik does not treat, store, or dispose of radioactive mixed wastes at the Middleton facility.

C.3.1.6 Leachates

Bostik does not treat, store, or dispose of single-source or multi-source leachate generated from liquids percolating through hazardous waste at the Middleton facility.

C.3.1.7 Lab Packs

Bostik does not treat, store, or dispose of lab packs within the BIF process at the Middleton facility.

C.3.1.8 Contaminated Debris

Bostik does not treat, store, or dispose of contaminated debris within the BIF process at the Middleton facility.

C.3.1.9 Waste Mixtures and Wastes with Overlapping Requirements

The waste treated in the boiler carries the EPA Waste Code D001. As discussed above, combustion is defined as best demonstrated available technology (BDAT) for the D001 code (40 CFR Part 268.40).

C.3.1.10 Dilution and Aggregation of Wastes

Bostik does not perform dilution or aggregation of hazardous wastes at the Middleton facility.

C.3.2 Notification, Certification and Recordkeeping Requirements

If a treatment residue subject to the above land disposal restriction is generated from the treatment of waste in the boiler and sent off site for disposal, it will be accompanied by a land disposal restriction document providing the proper information for treatment and disposal.

C.3.2.1 Retention of Generator Notices and Certifications

If a treatment residue subject to the above land disposal restriction is generated from the treatment of waste in the boiler and sent off site for disposal, the following notices and certifications submitted by the initial generator of the waste will be re-reviewed and maintained:

Notices of restricted wastes not meeting treatment standards: Notices of restricted wastes meeting applicable treatment standards and prohibition levels, including the information in 268.7(a)(2). Such records will be maintained by the Environmental Health and Safety Department.

C.3.2.2 Notification and Certification Requirements for Treatment Facilities

If a treatment residue subject to the above land disposal restriction is generated from the treatment of waste in the boiler and sent off site for disposal, Bostik will submit a notice and certification to the land disposal facility with each shipment of treatment residue of a restricted waste. The notice will include the information listed in 268.7(b)(4) and 268.7(b)(5).

C.3.2.3 Notification and Certification Requirements for Land Disposal Facilities

Bostik does not operate a hazardous waste land disposal facility at the Middleton facility.

C.3.2.4 Wastes Shipped to Subtitle C Facilities

If a treatment residue subject to the above land disposal restriction is generated from the treatment of waste in the boiler and sent to a Subtitle C land disposal facility for disposal, Bostik will submit notifications and certifications in compliance with the notice and certification requirements applicable to generators under 268.7(a).

C.3.2.5 Wastes Shipped to Subtitle D Facilities

If a treatment residue subject to the above land disposal restriction is generated from the treatment of waste in the boiler and sent to a Subtitle D land disposal facility for disposal, Bostik will submit a one-time notification and certification for the characteristic wastes that have been treated to remove the hazardous characteristic and are no longer considered hazardous. Bostik will place a certification (and all treatment records) in the facility's files and send a notification and certification to the EPA Regional Administrator describing the waste and applicable treatment standards and identifying the solid waste management disposal facility receiving the waste. The notification and certification will be updated and refiled if the process or operation generating the waste and/or if the Subtitle D facility receiving the waste changes.

C.3.2.6 Recyclable Materials

Bostik does not use wastes that are recyclable materials in a manner constituting disposal, in accordance with 266.20(b) at the Middleton facility.

C.3.2.7 Recordkeeping

Bostik's Middleton facility will:

- Determine if the waste is restricted from land disposal and keep documentation of that determination; and

- Maintain documentation to indicate where restricted wastes were treated, stored, and/or disposed.

All waste analysis data will be retained onsite in the facility's files.

C.3.3 Requirement Pertaining to the Storage of Restricted Wastes

The Bostik Middleton facility does not store restricted wastes for > 90 days.

C.3.3.1 Restricted Wastes Stored in Containers

Bostik's Middleton facility does not store restricted wastes in containers for > 90 days.

C.3.3.2 Restricted Wastes Stored in Tanks

Bostik's Middleton facility maintains data in the facility operating record on the description of the contents of tanks, the quantity of hazardous waste introduced into the tanks, and the flow of hazardous waste into each tank.

C.3.3.3 Storage of Liquid PCB Wastes

Bostik's Middleton facility does not store liquid hazardous wastes containing concentrations of PCBs greater than or equal to 50 ppm.

C.3.4 Exemptions, Extensions and Variances to Land Disposal Restrictions

C.3.4.1 Case-by-Case Extensions to an Effective Date

Bostik's Middleton facility is not requesting an extension to the effective date of any restriction in Subpart C of Part 268.

C.3.4.2 Exemption from Prohibition

Bostik's Middleton facility is not requesting an exemption from a prohibition for the disposal of a restricted waste in a particular unit or units.

C.3.4.3 Variance from a Treatment Standard

Bostik's Middleton facility is not petitioning the Regional Administrator for a site-specific variance from a specific treatment standard if a waste cannot be treated to the specified level or if the treatment technology is not appropriate to the waste.

C.3.4.4 Requirements for Surface Impoundments Exempted from Land Disposal Restrictions

Bostik does not operate a hazardous waste surface impoundment at the Middleton facility.

Table C-1 Representative Analytical Data for Polyester Distillate Waste Stream

Analytical Parameters	Units	Expected Range
METALS --		
Antimony	mg/kg	2 - 10
Arsenic	mg/kg	0 - 0.1
Barium	mg/kg	0 - 0.2
Beryllium	mg/kg	0 - 0.06
Cadmium	mg/kg	0 - 0.03
Chromium	mg/kg	0 - 1.5
Lead	mg/kg	0 - 0.1
Mercury	mg/kg	0 - 0.04
Silver	mg/kg	0 - 0.03
Thallium	mg/kg	0 - 0.4
PHYSICAL PARAMETERS --		
Chlorine	mg/kg	200 - 400
Ash Content	% (wt)	0.1 - 0.6
Heat Content	Btu/lb	5,300 - 7,500
Density	g/cc	0.90 - 1.00

C:\PROJECTS\BOSTIK\CY 2006\Part B Renewal\[Feed Stream Data.xls]Organics

Note: Data from January 2003 compliance recertification and November 2006 analyses. It is also noted that detailed waste analysis data from the previous three compliance recertifications (January 2003, February 2000 and January 1997) was submitted to EPA under separate cover on June 12, 2007

Table C-2 Major Constituents Typically Expected in Polyester Distillate

Component	Polyester Distillate (%)	RCRA Part 261 App VIII?	NESHAPs Sect. 112(b) HAP?
Methanol	10 - 40	No	**Yes**
Water	30 - 50	No	No
Xylene	0 - 5	No	**Yes**
Butanediol	4 - 10	No	No
Diethylene Glycol	1 - 3	No	No
Tetrahydrofuran	5 - 15	No	No
Ethylene Glycol	0 - 20	No	**Yes**
Dimethyl terephthalate	0 - 2	No	No
Hexanediol	1 - 3	No	No
Ethyl Acetate	0 - 5	No	No
Methyl Ethyl Ketone	0 - 5	**Yes**	No
Toluene	0 - 5	**Yes**	**Yes**

Table C-3 Expected Composition of Vent Gas Stream

Target Analyte	Overall Test Results, ppm(v/v)		
	Average	Minimum	Maximum
Methyl Ethyl Ketone	321	110	1,432
Tetrahydrofuran	9,712	5,599	38,160
Cyclohexane	8.3	< 5.0	50
Methyl Cyclohexane	< 5.0	< 5.0	< 5.0
Toluene	11	< 5.0	23
m- & p-Xylene	66	47	93
Methanol	10,970	7,141	22,131
o-Xylene	16	7.0	22
Ethyl Acetate	< 5.0	< 5.0	< 5.0
Hexane	< 5.0	< 5.0	< 5.0
Unknowns (as Hexane)	7.5	5.4	14

C:\PROJECTS\BOSTIK\CY 2006\Part B Renewal\[Feed Stream Data.xls]Vent Gas

Note: Data from testing conducted on April 11, 2006

For additional information, please refer to the copy of the vapor header test report appended at the end of the waste analysis plan in Attachment C-1.

ATTACHMENT C-1

RCRA WASTE ANALYSIS PLAN AND MACT FEEDSTREAM ANALYSIS PLAN

C.2 Waste Analysis Plan / Feed Stream Analysis Plan

This document has been prepared to meet the requirements of 40 CFR 270.14(b)(3) and 264.13(b), (c) pursuant to a RCRA waste analysis plan (WAP) as well as the requirements of 63.1209(c)(2) relative to a MACT-required feed stream analysis plan (FSAP).

The MACT Rule and RCRA regulations have many of the same requirements, although there are several important differences between these two overlapping regulations. One fundamental difference is that the MACT Rule requires that the FSAP address Hazardous Air Pollutants (HAPs), while RCRA regulates hazardous organic compounds (HOCs) listed in 40 CFR 261, Appendix VIII. The MACT Rule specifies that any HAP analyses performed need only be done on the hazardous waste feed streams. Additionally, sources are not required to monitor for metals and chlorine in natural gas, process air and vapor recovery feed streams.

This document outlines the sampling, analysis, and procedural steps necessary to maintain compliance with 40 CFR 264.13(b) as referenced by 40 CFR 266.103(a)(4). In addition, this document provides all necessary information for compliance with the MACT rule as outlined under 40 CFR 63.1209. This plan provides detailed information on the following waste analysis issues:

- Analytical parameters of interest and rationale for selection;
- Test methods used;
- Sampling method used to obtain a representative sample;
- Frequency of analysis;
- Additional requirements for ignitable, reactive or incompatible wastes and requirements pertaining to BIF facilities;
- Whether analytical results will be by direct measurement or by other means; and
- How the analytical results will be used to document compliance.

Background

Bostik, Inc. operates a chemical manufacturing facility, located in Middleton, Massachusetts (U.S. EPA ID# MAD 001 039 767). A pumpable-liquid hazardous waste is generated from the plant's polyester and direct solvation resin manufacturing departments. The waste distillate generated by the polyester department is collected in the "Day Tank" (DT-1), a 950-gallon tank located under the vacuum pump room in Building 39. The waste distillate generated by the direct solvation department is collected in Tank T-9, a 10,000 gallon stainless steel tank located outside Building 9. These two streams are identical in nature and are then sent to the main storage tanks, T-1 and T-2, each of which are 8,800 gallons in capacity. Tanks T-1 and T-2 discharge to the onsite hazardous waste combustion (HWC) unit.

The liquid hazardous waste is currently burned in a vertically-fired process heater, referred to as the polyester burner unit. This HWC unit also burns process vapors from the resin batch reactors and uses natural gas as a supplemental fuel.

The majority of the vapor-phase material discharged to the vent gas stream fed to the HWC unit is nitrogen, as all process vessels are nitrogen-blanketed. The process vapor stream would also contain the same organic constituents as found in the waste distillate stream, albeit at much lower mass loading levels. Discrete sampling of the process vapor stream is not deemed necessary for ensuring compliance with regulated parameter limits. For similar reasons, no sampling or analysis of the natural gas stream has been conducted. Given the source and normal composition of natural gas, Bostik believes that the natural gas supplied to the process heater does not contain detectable levels of metals, chlorine, or ash. Efforts to obtain more definitive information from the natural gas supplier have been unsuccessful to date.

In order to comply with the regulations, the liquid waste stream is required to be analyzed on a periodic basis for various parameters so that the waste can be effectively treated and so that routine compliance can be easily demonstrated. The waste distillate is categorized as a characteristic hazardous waste by ignitability because it exhibits a flash point of less than 140°F (D001). The waste may also contain residual levels of benzene and MEK which result in classifications as D018 and D035. The following sections outline the necessary information along with the applicable regulatory citations.

C.2.1 Analytical Parameters and Rationale for Selection [264.13(b)(1) and 63.1209(c)(2)(i)]

One stream, the combined polyester distillate from the polyester and direct solvation resin manufacturing departments, will be analyzed at least annually for the following parameters:

- Primary organic constituents [i.e., methanol, ethyl acetate, ethylene glycol, diethylene glycol, methyl ethyl ketone (MEK), tetrahydrofuran, toluene and xylene]
- Primary metal constituents (arsenic, antimony, barium, beryllium, cadmium, chromium, lead, mercury, silver and thallium)
- Other chemical/physical properties (ash content, density, viscosity, heat content, water content and total chlorides content)

These periodic analyses will also serve to fulfill the requirement to maintain compliance with 40 CFR 266.103(a)(6) entitled “Restrictions on Burning Hazardous Waste that is Not a Fuel”.

Rationale for the selection of these parameters corresponds to the current and future requirements for compliance determinations based on fuel properties. This information is summarized below.

1) Organics – The organic constituents listed above include both of the only two HOCs present in the waste stream (MEK and toluene) and all 5 of the HAPs that are present (ethylene glycol, MEK, methanol, toluene and xylene). Analyses will also include two other primary constituents that are not regulated (diethylene glycol and tetrahydrofuran). Information on organics present is not really necessary for ongoing compliance purposes, but is useful for general knowledge about the waste stream.

2) Metals – The metals listed for analysis include all 10 BIF-regulated metals and knowledge of their concentration in the waste is needed to enable demonstration of compliance with the adjusted Tier 1 feed rate limits under interim status [40 CFR 266.106(e)]. Once the MACT rule takes effect (October 14, 2008), Bostik will only need to monitor cadmium, chromium, lead and mercury to demonstrate compliance with the MACT-required feed rate limits.

3) Total Chlorine – Knowledge of the total chlorine concentration in the waste is required both for current RCRA regulatory purposes as well as future MACT purposes. The concentration in the waste is needed to enable demonstration of compliance with the adjusted Tier 1 feed rate limits under interim status [40 CFR 266.107(e)]. Under MACT, a similar limit will be in force and will need to be demonstrated.

4) Ash – Information regarding the ash content is not currently used for compliance purposes but provides general knowledge of the waste characteristics. Under MACT, however, an ash feed rate limit will be in effect and this parameter will need to be measured to allow calculation of the ash feed rate.

5) Other Physical Properties – Information pertaining to other properties including density, viscosity, heat content and water content are useful in describing the waste characteristics and in some cases making necessary calculations for compliance demonstration. The heat content, for example, is needed to calculate the heat input rate for the burner to comply with a maximum production rate for the unit. The density is needed to convert volumetric measurements to mass-based calculations in certain cases.

C.2.2 Test Methods Used [264.13(b)(2) and 63.1209(c)(2)(iv)]

Test methods to be used for these periodic waste analyses are as follows:

- Analysis for the majority of the metals, specifically antimony, arsenic, barium, beryllium, cadmium, chromium, lead, silver, and thallium will be conducted using Inductively Coupled Plasma – Mass Spectrometry (ICP-MS), EPA Method 6020, in order to obtain the lowest possible detection limits.

- Analysis for the remaining metal (mercury) will be conducted using Cold-Vapor Atomic Absorption Spectroscopy (CVAAS), EPA Method 7470A/7471A.

- Analysis for the volatile constituents will be done by EPA Methods 8015B and/or 8260B

- Analysis for density will be performed by ASTM D 1298

- Analysis for viscosity will be performed by ASTM D 445
- Analysis for moisture (water content) will be by ASTM D 1744 or E 203 (Karl Fisher titration)
- Analysis for total chlorine will be conducted using ASTM D 808 / EPA Method 9056 or STL Knoxville SOP WC-0016
- Analysis for ash will be conducted using ASTM D 482 or EPA Method 160.4
- Analysis for heat content of the waste will be by ASTM D 240

Documentation on the quality assurance/quality control program and proper sample chain of custody will be obtained from the laboratory in all cases.

C.2.3 Sampling Method Used to Obtain a Representative Sample [264.13(b)(3) and 63.1209(c)(2)(v)]

Sampling procedures to be followed for collection of a representative sample of the polyester waste distillate material are described in the attached Bostik Work Instruction BIF-002, entitled “Waste Sampling and Analysis Methods”.

C.2.4 Frequency of Analysis [264.13(b)(4) and 63.1209(c)(2)(vi)]

The following is the breakdown of the frequency with which the parameters listed above will be analyzed barring any change in the manufacturing process, raw materials, or analysis procedures at which time the sampling plan would be reassessed.

All parameters will be analyzed at least <u>once per calendar year</u> for the one hazardous waste stream identified in this permit application. Should any process changes be implemented that would introduce different raw materials or new constituents, additional analyses will be performed.

The rationale for this schedule is as follows:

1. ***There is little potential for cross-contamination of the waste distillate stream.*** The waste stream is hard-piped from the point to generation to the different storage tanks and then to the polyester burner. No potential exists for other wastes being included in the stream and being fed to the industrial boiler. No metal bearing wastes are produced at the facility, so no potential for accidental mixing of metal bearing wastes with these wastes exists. Chlorinated organic solvents are not used in the manufacturing processes, so no potential for accidental mixing of chlorinated organic solvent wastes with these wastes exists.

2. ***There is only small variability of the waste composition.*** The waste distillate is derived from consistent production processes. There is little variation in the composition of the waste, considering the repetitive nature of these processes. Information on the processes generating the wastes is reviewed annually and the waste is sampled and analyzed, if necessary, to ensure compliance with waste

properties specified in Section D and the Trial Burn Plan of the Part B application. Additional information regarding waste fuel composition is provided in Section D of the Part B application.

3. ***Chemical/Physical stability of the waste.*** The waste distillate stream is chemically and physically stable based on the historical analytical data for the waste and the known properties of the individual constituents. No reactions have been observed during routine storage and handling of this material.

4. ***Prior history of the facility.*** The waste fuel is derived from onsite processes that are known to be reliable based on their production of chemical products within identified specifications. Historically, Bostik has not experienced significant changes in the composition of the waste distillate derived from these processes. If waste properties are found to be outside the allowable limits specified in the RCRA permit for the boiler, Bostik will arrange for offsite disposal of these materials at an appropriate offsite permitted facility. Any determination that the fuel properties are outside the allowable limits specified in the RCRA or Title V Permit would be identified in the periodic testing specified in this section. Examples of criteria that the testing program would evaluate to ensure that they are within allowable limits could be heat value, chlorine content, or metals concentrations. As stated above, this waste stream does not vary much over time since the products manufactured contain the same basic raw materials. Bostik does employ various management of change (MOC) practices to prevent any process modifications from occurring without prior knowledge and agreement from the plant. All new product formulations must go through a Production Trial Request (PTR) process where Research, Production, and HSEQ all meet to discuss and sign-off on the new product. Any new chemical being introduced to the plant for the first time must go through a New Chemical Review process where the chemist supplies key information and an MSDS and HSEQ either approves or denies the new raw material. Changes to existing product formulas must pass through a Change Request system that again requires the sign-off from Research, Production, and HSEQ departments. From an equipment standpoint, any major changes to the Polyester resin process must go through an MOC process where all parties agree on the technical merits of the change and understand the safety and environmental impacts of the change.

C.2.5 Additional Requirements for Wastes Generated Off Site [270.14(b)(3); 264.13(b)(5), (c); and 264.73(b)]

Bostik does not manage wastes generated off-site at the Middleton facility and therefore this section is not applicable.

C.2.6 Additional Requirements for Ignitable, Reactive or Incompatible Wastes [270.14(b)(3); 264.13(b)(6); and 264.17]

Controls to minimize ignition of the ignitable waste in the burn tanks include spill and containment controls, explosion proof electrical protection, flame arrestors, and daily inspection requirements. Fire protection and emergency equipment are immediately available onsite as described in **Section F, Procedures to Prevent Hazards**. All hazardous waste fuel has EPA Waste Codes D001, D018 and/or D035. Preventative maintenance systems for the tank (e.g., thickness tests) include periodic inspections to ensure corrosion is not taking place.

Reactive or incompatible wastes are not stored, treated, or disposed at the facility.

C.2.7 Additional Requirements Pertaining to BIF Facilities [270.22; 266.102(e)(6)(ii)(C), (e)(6)(iii)]

Sampling and analysis parameters, methods and frequencies of determination for each constituent are addressed in the above sections. Mass flow rates for individual constituents are determined using the raw analytical data and the continuously monitored data from the polyester distillate and natural gas flow sensors described in Section 4.0 of the Trial Burn Plan attached as Volume II of this Part B Application. These sensors continuously monitor hazardous waste and natural gas fed to the boiler. Feed rates for metals and total chlorine are, in effect, continuously monitored by knowing the concentration of each constituent in each feed stream and continuously monitoring the flow rate of each feed stream.

C.2.8 Means for Providing Analytical Results [63.1209(c)(2)(ii)]

The analytical results that will be developed and tracked on an annual basis to support the required compliance determinations and historical database for the waste distillate stream will be obtained through direct sampling performed at the facility and analysis at offsite analytical laboratories. No analytical information is being used from other similar facilities or from other published sources of information.

C.2.9 Use of Data for Compliance Documentation [63.1209(c)(2)(iii)]

This section describes the procedures by which Bostik will perform the necessary calculations to ensure continuous compliance with the MACT regulations. Although not required in the written FSAP, in order to comply with the applicable feed rate limits of the MACT Rule, the facility will monitor and record feed rates in accordance with 40 CFR 63.1209(c)(4), as follows:

(i) Determine and record the value of the parameter for each feed stream by sampling and analysis or other method;

(ii) Determine and record the mass or volume flowrate of each feed stream by a CMS. If determining the flowrate of a feed stream by volume, the facility will determine and record the density of the feed stream by sampling and analysis (unless reporting the constituent concentration in units of weight per unit volume (e.g., mg/L)); and

(iii) Calculate and record the mass feed rate of the parameter per unit time.

The Bostik computer system will store the most recent analytical results for the parameters of interest for the purposes of computing an actual constituent feed rate or, more likely, for ensuring that a specified feed rate limit is not exceeded. The concentration for a particular constituent will dictate what the maximum feed rate of waste distillate can be in order to comply with the established or calculated feed rate limit. Under MACT, feed rate limits will be specified for mercury, ash, semivolatile metals (cadmium and lead combined), low volatile metals (chromium only) and total chlorine. The feed rate limit combined with the maximum value for the waste distillate feed rate will dictate what the maximum concentration for the constituent can be.

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Work Instruction

Title:	Waste Sampling & Analysis Methods	Work Instruction BIF-002 Revision: 2
Department: Manufacturing Area: Middleton	*Approved & Released Work Instruction*	Implementation Date: 03/13/2008
Document Type: HSE Management System Work Instruction		Review Period - 365 Days

1.0 Purpose:

To ensure that samples associated with the Struther-Wells Industrial Boiler are collected and analyzed in a uniform manner and using the appropriate methods.

2.0 Scope:

The procedure applies to the Bostik, Inc. facility located in Middleton, MA.

3.0 Responsibilities:

HSEQ: Ensures that monthly leak detection sampling is conducted according to Method 21, that the detector instrument is properly calibrated, and that maintenance is promptly notified of leaking equipment.
Maintenance: Repair leaking equipment in accordance to the leak repair guidelines identified in Section N of the RCRA Part B Permit Application.
Plant Management: Ensure that the proper priority and funding is given to equipment requiring service.
Equipment Supplier: Calibrate the monitoring instrument according to EPA Method 21.

4.0 Definitions:

EPA: United States Environmental Protection Agency.

BIF: EPA's Boiler & Industrial Furnace Regulation. Also, the Bostik common name for the Struthers-Wells Industrial Boiler and associated equipment.
CEM: Continuous Emission Monitoring System used to measure carbon monoxide and oxygen emission from the exhaust stack.
Subpart BB: Regulations for air emission controls from equipment associated with hazardous waste (40 CFR 264.1050)
Subpart CC: Regulations for air emission controls from tanks storing hazardous waste (40 CFR 264.1080)

5.0 Work Instruction Steps:

5.1 Hazardous Waste: Liquid Distillate going to Struthers-Wells boiler

5.1.1 Donn the appropriate personal protective equipment to collect the waste sample.
5.1.2 Prepare the sample bottles for filling.
  i. (3) 40 ml VOA vials for volatile organics, BTU, and ash testing
  ii. (1) 125ml sample bottle for Karl Fischer Water content.
5.1.3 Place a 5 gallon bucket under the sample port (BB# 007) and remove the quick connect pipe endcap.
5.1.4 Open the ball valve and allow a few seconds of flow (less than 1 gallon) into the bucket until the material stabilizes.
5.1.5 Using a plastic tri-pour or large beaker, collect an oversized samples of polyester distillate
5.1.6 Close the ball valve and replace the quick connect end cap.
5.1.7 Fill each of the sample bottles from the contents of the large beaker and tightly cap each sample container.
5.1.8 Deposit the unused distillate sample in the five gallon bucket and empty the bucket in the appropriate satellite waste accumulation area.
5.1.9 Label each bottle with the following information:
  i. sample date/time
  ii. sample identification
  iii. sampler initials
5.1.10 Place the samples in a cooler awaiting pick-up for testing at an approved laboratory.
5.1.11 Prior to the laboratory taking custody of the samples, complete the chain of custody paperwork.

5.2 Hazardous Waste: Residual Waste Sent for Off-Site Disposal

5.2.1 Donn the appropriate personal protective equipment to collect the waste sample.
5.2.2 Prepare the sample bottles for filling.
5.2.3 Collect a sample of each wastestream in a sample bottle and tightly cap each sample container. Samples may include:
  i. filter housing residue
  ii. tank sludge
5.2.4 Label each bottle with the following information:
  i. sample date/time
  ii. sample identification
  iii. sampler initials

5.2.5 Place the samples in a cooler awaiting pick-up for testing by a waste broker or TSDF.
5.2.6 Prior to the waste disposal broker taking custody of the samples, complete the chain of custody paperwork.
5.2.7 Waste broker returns results of waste analysis
5.2.8 Bostik and Waste Broker establish a Waste Profile for each specific waste stream.
5.2.9 Once the TSDF has accepted the waste profile and the waste broker and Bostik have agreed on the disposal cost, the waste is prepared for shipment.

5.3 Closure Activities

5.3.1 Donn the appropriate personal protective equipment to collect the waste sample.
5.3.2 Collect a sample of each wastestream in a sample bottle using the procedures identified in the stand alone Closure Plan and tightly cap each sample container. Samples may include:

i. tank rinseate
ii. tank/piping wipe samples
iii. containment structure chip samples
iv. soil boring samples

5.3.3 Label each bottle with the following information:

i. sample date/time
ii. sample identification
iii. sampler initials

5.3.4 Place the samples in a cooler awaiting pick-up for testing at an approved laboratory.
5.3.5 Prior to the laboratory disposal broker taking custody of the samples, complete the chain of custody paperwork.
5.3.6 Samples will be tested according to the methods identified in the stand alone Closure Plan.
5.3.7 Sample results will then be used to determine waste disposal methods as well as to determine if decontamination steps were sufficient.
5.3.8 If contamination remains present in samples, repeat decontamination and testing until clean.
5.3.9 If no further contamination found, establish a Waste Profile for each specific waste stream using the analytical data.

5.4 Containment Dike Water Sampling

5.4.1 Where containment structures are not covered with roof's, rain water will accumulate and will have to be periodically tested and the containment structures emptied.
5.4.2 Collect a representative sample of rainwater from each containment structure and tightly cap each sample container.
5.4.3 Carry the sample to our on-site analytical laboratory for Gas Chromatograph analysis.
5.4.4 The Analytical Lab technician will analyze the water sample for the presence of any of the components of Polyester Distillate (Methanol, Ethylene glycol, Tetrahydrofuran, etc.) and report the findings to the HSEQ department or the Polyester Department Area Supervisor.
5.4.5 If no contamination is detected, the rainwater can be pumped to an outfall to a storm drain identified under Bostik's Multi-Sector General Stormwater Discharge permit.
5.4.6 If contamination of the rainwater is present, resample to verify, then make arrangements with a TSDF to dispose of the contaminated rainwater at an off-site TSDF.
5.4.7 Immediately investigate and eliminate the source of the contamination to the containment

structure.

5.5 Subpart BB Monitoring

5.5.1 Each valve, tee, union, filter basket, flange, and pump throughout the BIF system that is associated with the liquid wastestream is labelled as a sampling point with a Subpart BB identifier (ex. BB-001). Each sample point is identified on the Subpart BB Leak Detection Monitoring Log.

5.5.2 Each Supart BB sample point shall be tested monthly for leaks according to EPA Method 21. This sampling frequency may be extended according to the requirements outlined in Section N of the RCRA Part B Permit Application.

5.5.3 When testing for leaks, move the probe along the interface periphery while observing the instrument readout. If an increased reading is observed, slowly sample the interface where the maximum reading is observed for approximately two times the instrument response time.

i. *Valves:* Sample the circumference of the stem at the interface where the stem exits the packing gland, at the interface of the packing gland take-up flange seat, and around the circumference of valve housings with multipart assemblies.
ii. *Flanges and Other Connections:* Sample the circumference of the outer edge of the flange-gasket interface.
iii. *Pumps:* Sample a circumferential traverse at the outer surface of the pump and all other joints on the pump where leakage could occur.
iv. *Pressure Relief Devices:* Sample at approximately the center of the exhaust area to the atmosphere.
v. *Open-ended Lines or Valves:* sample at the approximate center of the opening to the atmosphere.

5.5.4 A leak in a liquid line is detected either visually or when the instrument reading indicates 10,000 ppm or greater. Note: Any leak detected requires an immediate corrective action response as specified in the Section N of the RCRA Part B Permit Application.

5.5.5 Log the instrument readout in the Subpart BB Leak Detection Log next to the appropriate equipment ID #.

5.6 Subpart CC Monitoring

5.6.1 Each valve, tee, union, filter basket, flange, and pump throughout the BIF system that is associated with the gas/vapor system (closed vent system) is labelled as a sampling point with a Subpart CC identifier (ex. CC-001). Each sample point is identified on the Subpart CC Leak Detection Monitoring Log.

5.6.2 Each Supart CC sample point shall be tested at least annually for leaks according to EPA Method 21.

5.6.3 When testing for leaks, move the probe along the interface periphery while observing the instrument readout. If an increased reading is observed, slowly sample the interface where the maximum reading is observed for approximately two times the instrument response time.

i. *Valves:* Sample the circumference of the stem at the interface where the stem exits the packing gland, at the interface of the packing gland take-up flange seat, and around the circumference of valve housings with multipart assemblies.
ii. *Flanges and Other Connections:* Sample the circumference of the outer edge of the flange-gasket interface.

iii. *Pressure Relief Devices:* Sample at approximately the center of the exhaust area to the atmosphere.

5.6.4 A leak in a gas/vapor line is detected either visually or when the instrument reading indicates 500 ppmv or greater above background. This is calculated as the arithmetic difference between the maximum concentration indicated by the instrument and the background level. Note: Any leak detected requires an immediate corrective action response as specified in the Section O of the RCRA Part B Permit Application.

5.6.5 Log the instrument readout in the Subpart CC Leak Detection Log next to the appropriate equipment ID #.

5.7 Monitoring Equipment

5.7.1 Bostik's MiniRAE 2000 meets all requirements of EPA Method 21, which can be summarized as follows:

i. The detector is able to respond to the compounds being processed.
ii. The instrument is capable of measuring the leak definition concentration specified in the regulation (10,000 ppm).
iii. The scale of the instrument is readable to +/- 2.5 percent of the specified leak detection concentration.
iv. The instrument has an electrically driven pump with a nominal flow rate, measured at the sample probe tip, of 0.4 to 0.6 L/min.
v. The instrument is equipped with a probe that has a 3/16" outside diameter.
vi. The instrument is intrinsically safe for operation in explosive atmospheres.

5.7.2 Calibration of the MiniRAE 2000 is conducted on a quarterly basis by our equipment supplier, Safety, Inc.

5.7.3 Calibration is conducted using the following gas mixtures:

i. Zero Gas: Air less than 10 ppm by volume VOC.
ii. Calibration Gas: 100 ppm isobuytlene
iii. Cylinder gases must be analyzed and certified by the manufacturer with 2% accuracy and a shelf life must be specified.

6.0 Safety & Environmental Information:

PPE to be worn for sampling hazardous waste:

Safety Glasses and Splash Shield (w/ hard hat)
Tyvek Apron
Butyl gloves

7.0 Associated Documents:

8.0 Document Revision History:

Revision: 2	**Date Created:** 02/12/2008 **Date of Last Revision:** 03/13/2008	**Last Approval Date:** 03/13/2008

Document Author:	

Dan Welch	

9.0 Reason for Change:

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Initial Issue of Document	
2	5.5, 5.6, 5.7	Supart BB and CC procedures and Monitoring Equipment specs seperated.	3/13/08

10.0 Notification List:

11.0 Approvals:

First Approver's Signature

Name: Scott Cullen
Title: QSI HPP Approver

Mar 13, 2008 04:12:43 PM EDT - Approved by: Scott Cullen/AFI_TOSA/AFI_NAM/AFI

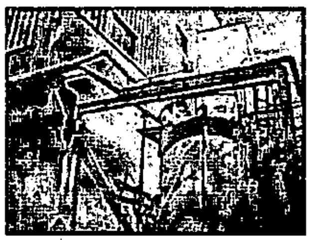
Second Approver's Signature

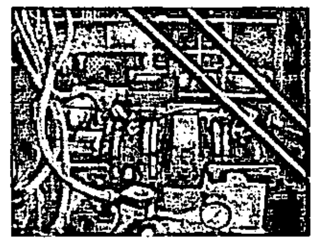
Name: Jim Bacon
Title: Approver

Mar 13, 2008 04:14:56 PM EDT - Approved by: Jim Bacon/AFI_TOSA/AFI_NAM/AFI

Document History Section

Prepared for:
Bostik, Inc.
Middleton, MA



Process Vapor Vent Header Test Results Final Report

ENSR Corporation
June 28, 2006
Document No.: 00963-037-300

ENSR | AECOM

Prepared for:
Bostik, Inc.
Middleton, MA

Process Vapor Vent Header Test Results
Final Report

Prepared By

Reviewed By

ENSR Corporation
June 28, 2006
Document No.: 00963-037-300

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No figures provided in this document.

1.0 Introduction

1.1 Facility Description

The Bostik High Performance Polymers Division manufactures polyester resins in two manufacturing units at the facility; the Polyester and Direct Solvation departments. The product produced in these units is polyester resins for adhesive applications. A waste byproduct, known as Polyester or Direct Solvation Distillate, is produced during the manufacture of these resins. This waste byproduct is piped to the distillate storage tanks designated as T-1 and T-2.

Waste material from the distillate storage tank is burned in a vertically fired cold chamber heater (boiler) designated as the Struthers-Wells Burner Unit. This burner has been upgraded to a thermal rating of 7.5×10^6 Btu/hr output; the energy recovered from the boiler is used to heat transfer oil, which is then used to heat the production process. Exhaust gases from the unit pass through two economizers and then out to atmosphere through a 24-inch ID stack.

In addition to the waste liquids that are generated, the various process operations throughout the facility generate vapors which are collected in a single header that runs the length of the main process building. At present, an enclosed flare serves as the primary incineration point for these vapors.

1.2 Project Background

ENSR was retained by Bostik to design a system to introduce the collected vapors to the process heater in the proper fashion and to provide regulatory support throughout the project. This project is currently underway and a design basis specification will soon be submitted to equipment vendors.

The test program described herein was conducted to determine the specific concentrations of the primary constituents present in the vapor header. This information is considered vital to the proper design of the overall system for handling the vapors and routing them to the Struthers-Wells Burner Unit. Knowledge of the expected range of gas composition will allow for proper design and planning with regard to the safety of the process, primarily during periods when the boiler is down and the vapors begin to accumulate in the header.

1.3 Document Organization

Section 2.0 provides an overview of test program design and the approach followed. Emission test results and a summary of process operations during the one-day test are also summarized in Section 2.0. Appendices provide supplemental information including:

- Detailed Summaries of Test Results (Appendix A)
- Field Log (Appendix B)
- Process Flow Data (Appendix C)
- Field Portable Analytical: Final Test Report (Appendix D)

2.0 Test Program Results

2.1 Test Protocol

For this project, ENSR retained the services of Field Portable Analytical, Inc. of Orangeville, CA. FPA specializes in analysis of samples using state-of-the-art field portable instrumentation. Analytical procedures followed EPA Method 18 using field-portable GC instrumentation. The GC used for this program was an Agilent P200H Micro GC, which contained two modules. Each module consisted of a heated inlet, micro-machined injection valve, a column designed for volatile organic compounds (VOCs) and a thermal conductivity detector (TCD). Module A contained a thick film (2.0 µm), 14 meter OV-1 column. Module B contained a thin film (1.2 µm), 4 meter OV-1 column. The GC contained an internal sampling pump, which drew the sample through the individual sampling valves, thus allowing the GC to pull the necessary aliquots for analysis. The GC was controlled by a laptop computer, which also reduced and stored the data.

The method requires a minimum of 5 analyses performed in triplicate over each test run. Full, method-required QA/QC was implemented during all phases of the test program including calibration, sampling system verification and blank sample analysis. For this project, semi-continuous monitoring was performed over a one day period that encompassed a relatively normal production schedule. It is believed that the data gathered sufficiently represents the range of expected gas stream composition. FPA's full analytical report is provided in Appendix D.

The TCD is a universal detector which means that most compounds within the volatile range give a very similar response. The GC is calibrated to a mid-range compound such as hexane. Any compounds detected during sample analysis are quantitated against the response factor for that single compound. This provides a very accurate concentration (within ± 20%) for uncalibrated compounds. For example, a Method 18 calibration could not be provided for ethylene glycol, one of the desired analytes. Therefore, FPA analyzed an ethylene glycol standard to determine the retention time and then performed a three-point calibration for hexane. The response factor for hexane was then used to calculate the concentration for ethylene glycol.

The target analytes for the program were determined through a preliminary assessment of the most likely constituents present in the raw materials used in the process, including organics typically expected in the polyester distillate and direct salvation waste streams (see **Table 2-1**). This list was then pared down due to the fact that certain compounds boiled at too high a temperature to allow determination by GC-TCD. The final list of target compounds, along with various properties of interest to the overall vapor design project, is shown in **Table 2-2**.

2.2 Process Operations

The test program was completed on April 11, 2006. Testing began at 10:38 and ended at 16:30. A variety of products and reactor vessels, typical of normal operations, were in operation during the test. **Table 2-3** provides an overview of the different products produced and the stages of production for each batch on the day of the test.

The facility also provided flow data measured in the vent header for the duration of the test period and for several days following the test. Flow is recorded in units of cubic feet per hour (cfh) but labeled as ft/hr. These data are summarized in **Tables 2-4 and 2-5** in units of cfh and cfm. The maximum flow observed during the test period was 17,982 cfh (300 cfm) and the minimum flow during the test was 4,237 cfh (71 cfm). On the day following the test (April 12), the maximum flow observed was 20,594 cfh (343 cfm).

2.3 Emission Test Results

FPA initially set up for testing downstream of the blower feeding the air stream to the enclosed flare and tested at that location from 10:38 to 12:47. Since there was some concern that this location could possibly include dilution air through the conservation vent located 5-10 feet upstream, the sampling probe was relocated to the flame arrestor inlet, several feet upstream of the blower and conservation vent. Sampling at this location proceeded from 13:05 to 16:30. Results are summarized in **Table 2-6.** The full set of emission data are presented in Appendix A.

General observations regarding these results are as follows:

- Of all compounds evaluated, tetrahydrofuran (THF) was observed at the highest concentration (38,160 ppm). This level is almost two times the lower explosive limit (LEL) for the compound.
- The second-highest concentration was measured for methanol (22,131 ppm). This level is about one-third of the LEL for the compound.
- The maximum flowrate through the vapor header during the test period was 300 cfm and on the day following the test was about 350 cfm. It would therefore seem prudent that the new blower to be used for routing the vapors to the Struthers-Wells unit be sized for approximately 400 cfm.

Table 2-1 Typical Waste Analysis Data for 1994-1995

Component	Polyester Distillate	Direct Solvation
Methanol	37.2%	10.4%
Water	32.5%	33.7%
Xylene	3.0%	0.33%
Butanediol	10.3%	4.0%
Diethylene Glycol	1.7%	2.9%
Tetrahydrofuran	10.3%	15.3%
Ethylene Glycol	3.1%	1.7%
Dimethyl terephthalate	1.5%	0.2%
Hexanediol	2.4%	1.0%
Ethyl Acetate	0.0%	5.4%
Methyl Ethyl Ketone	0.0%	20.5%
Toluene	0.0%	4.6%

Table 2-2 Target Compounds and Relevant Properties

Target Analyte	Chemical and Physical Properties					
	M.W. g/g-mole	b.p. °F	Flash Pt. °F	V.P. mm Hg	LEL %	UEL %
Ethyl Acetate	88.1	171	24	73	2.0%	11.5%
Methanol	32.1	147	52	96	6.0%	36.0%
Methyl Ethyl Ketone	72.1	175	16	78	1.4%	11.4%
Tetrahydrofuran	72.1	151	6	132	2.0%	11.8%
Toluene	92.1	232	40	21	1.1%	7.1%
m-Xylene	106.2	282	82	9	1.1%	7.0%
o-Xylene	106.2	292	90	7	0.9%	6.7%
p-Xylene	106.2	281	81	9	1.1%	7.0%
Ethylene Glycol	62.1	388	232	0.06	3.2%	15.3%
Cyclohexane	84.2	177	0	78	1.3%	8.0%
Methyl Cyclohexane	98.2	214	25	37	1.2%	6.7%

Table 2-3 Batch Production Information

Product Number	Reactor Train	Start Date	Batch Number	Start Time	Transfer Date
2200	5	11-Apr-06		6:52 AM	11-Apr-06
1920	20	11-Apr-06		3:15 PM	11-Apr-06
2200	6	10-Apr-06		7:30 PM	11-Apr-06
3026	8	10-Apr-06		3:50 AM	10-Apr-06
3029	2	10-Apr-06	604050583	12:50 PM	11-Apr-06
2943	1	11-Apr-06	604060636	8:45 AM	11-Apr-06
3029	3	11-Apr-06	604050584	9:00 AM	11-Apr-06
2886	1314	10-Apr-06	604041231	2:30 PM	11-Apr-06
2943	4	10-Apr-06	604060635	1:20 PM	11-Apr-06
	10				dropping
SG9575	1000 gal	11-Apr-06	PUR	6:00 AM	
SG9712OP	500 gal	11-Apr-06	PUR	6:00 AM	
Product Number	**Reactor Train**	**Tranfer Time**	**Drop Date**	**Drop Time**	**Notes**
2200	5	6:37 PM	12-Apr-06	5:20 AM	1st stage
1920	20	3:40 PM	11-Apr-06	8:30 PM	charge
2200	6	5:20 AM	11-Apr-06	4:30 PM	vac and drop
3026	8	7:50 PM	11-Apr-06	9:30 PM	vac and drop
3029	2	8:15 AM	11-Apr-06	12:30 PM	vac and drop
2943	1	7:30 PM	12-Apr-06	3:30 AM	1st stage
3029	3	5:45 PM	11-Apr-06	10:00 PM	1st stage
2886	1314	8:00 AM	11-Apr-06	4:45 PM	vac and drop
2943	4	8:00 AM	11-Apr-06	3:45 PM	vac and drop
	10				dropping
SG9575	1000 gal			10AM	
SG9712OP	500 gal			2:45PM	

Table 2-4 Process Flow Data (CFH)

Date: 11-Apr-06 Hour Ending at:	Process Flow in cubic feet per hour (cfh) Max.	Min.	Avg.
10:00	4,240	4,237	4,237
11:00	4,237	4,237	4,237
12:00	9,178	**4,237**	6,087
13:00	9,079	8,309	8,729
14:00	10,176	4,567	8,864
15:00	10,293	8,732	9,038
16:00	9,562	4,237	8,859
17:00	**17,982**	4,237	8,256
18:00	10,305	8,698	9,121
AVG	**9,450**	**5,721**	**7,492**

Table 2-5 Process Flow Data (CFM)

Date: 11-Apr-06 Hour Ending at:	Process Flow in cubic feet per minute (cfm) Max.	Min.	Avg.
10:00	71	71	71
11:00	71	71	71
12:00	153	**71**	101
13:00	151	138	145
14:00	170	76	148
15:00	172	146	151
16:00	159	71	148
17:00	**300**	71	138
18:00	172	145	152
AVG	**158**	**95**	**125**

Table 2-6 Overall Summary of Emission Test Results

Target Analyte	Overall Test Results, ppm(v/v)		
	Average	Minimum	Maximum
Methyl Ethyl Ketone	321	110	1,432
Tetrahydrofuran	9,712	5,599	38,160
Cyclohexane	8.3	< 5.0	50
Methyl Cyclohexane	< 5.0	< 5.0	< 5.0
Toluene	11	< 5.0	23
m- & p-Xylene	66	47	93
Methanol	10,970	7,141	22,131
o-Xylene	16	7.0	22
Ethyl Acetate	< 5.0	< 5.0	< 5.0
Hexane	< 5.0	< 5.0	< 5.0
Unknowns (as Hexane)	7.5	5.4	14

ATTACHMENT C-2

EXAMPLE PAGES FROM FACILITY OPERATING RECORD

0840 Start Distillate
Burning @ 75gpH.

0900 CEM inspection

DAILY DATA SUMMARY

NAME: BOSTIK   LOCATION: Middleton, Ma.   STATION ID: 1

CHAN NAME	CO Lo	CO Hi	02	CO	C0c7%	CO Ra	WFR	NGFR
CHAN UNITS	PPM	PPM	%	PPM	PPM	PPM	G/Hr	CCFHR
FULL SCALE	200.0	3000.0	25.0	3000.0	3000.0	3000.0	164	86.5
ZERO OFFSET	0.0	0.0	0.0	0.0	0.0	0.0	0	0.0
START / CHANNEL	01	02	03	04	05	06	07	08
08/11/07 00:00	3.5	53.0B	8.4	3.3	3.3	3.3	0	25.7
08/11/07 01:00	4.4	65.6B	8.3	4.1	4.4	3.3	0	28.3
08/11/07 02:00	4.2	62.6B	8.6	3.8	3.9	4.1	0	27.8
08/11/07 03:00	3.9	58.7B	8.1	3.7	4.0	2.8	0	29.7
08/11/07 04:00	4.0<	467.0c	8.0<	10.8<	4.0<	3.7	0	27.9
08/11/07 05:00	3.6	54.0B	7.9	3.3	3.5	3.3	0	40.1
08/11/07 06:00	0.1	0.9B	6.7	0.0	0.0	0.4	0	65.1
08/11/07 07:00	0.2	2.7B	4.9	0.0	0.0	0.0	43	61.0
08/11/07 08:00	0.1	1.7B	5.3	0.0	0.0	0.0	75	36.1
08/11/07 09:00	0.1	2.0B	5.7	0.0	0.0	0.0	75	33.1
08/11/07 10:00	0.1	1.7B	6.0	0.0	0.0	0.0	75	31.5
08/11/07 11:00	0.1	1.6B	5.9	0.0	0.0	0.0	75	31.5
08/11/07 12:00	0.1	0.8B	5.8	0.0	0.0	0.0	75	31.3
08/11/07 13:00	0.0	-0.5B	4.4	0.0	0.0	0.0	75	39.5
08/11/07 14:00	0.1	1.7B	6.4	0.0	0.0	0.0	75	29.4
08/11/07 15:00	1.2	17.1B	6.9	0.8	0.7	0.0	75	23.3
08/11/07 16:00	3.0	44.3B	7.0	2.8	2.2	1.1	75	15.6
08/11/07 17:00	3.0	44.4B	7.0	2.8	2.1	0.8	75	16.7
08/11/07 18:00	3.5	52.6B	7.1	3.4	3.0	2.6	75	15.5
08/11/07 19:00	3.2	47.9B	7.1	3.0	2.5	1.8	75	16.4
08/11/07 20:00	3.7	55.2B	7.1	3.5	2.6	1.5	75	15.5
08/11/07 21:00	3.0	44.8B	7.3	2.8	2.4	1.5	75	16.9
08/11/07 22:00	2.7	39.8B	6.6	2.5	1.6	1.5	75	19.5
08/11/07 23:00	1.4	20.9B	6.5	1.1	0.5	0.1	75	23.6
	00:00		07:39	00:00	00:00	06:12	04:30	23:20
Daily Minimum	-0.3	Miss	2.5	0.0	0.0	0.0	0	15.2
1-minute Values								
Daily Maximum	20.8	Miss	10.6	162.0	19.5	4.5	78	84.2
	18:17		00:04	04:45	18:17	00:00	13:09	07:18
	13:00		13:00	06:00	06:00	07:00	04:00	20:00
Daily Minimum	0.0	Miss	4.4	0.0	0.0	0.0	0	15.5
1-hour Values								
Daily Maximum	4.4	Miss	8.6	10.8	4.4	4.1	75	65.1
	01:00		02:00	04:00	01:00	02:00	12:00	06:00
Daily Average	2.0	Miss	6.8	2.1	1.7	1.3	52	29.2
Daily Total	2873.5	Miss	9649.5	2925.0	2373.0	1899.0	74914	42061
Daily Recovery	98.82%	0.00%	98.82%	98.96%	98.82%	100.00%	100.00%	100.00%

DAILY DATA SUMMARY

NAME: BOSTIK LOCATION: Middleton, Ma. STATION ID: 1

CHAN NAME	C.TMP
CHAN UNITS	DEG F
FULL SCALE	1832.0
ZERO OFFSET	32.0
START / CHANNEL	09

08/11/07	00:00	1077.5
08/11/07	01:00	1069.5
08/11/07	02:00	1074.0
08/11/07	03:00	1080.6
08/11/07	04:00	1081.5
08/11/07	05:00	1129.7
08/11/07	06:00	1329.0
08/11/07	07:00	1437.9
08/11/07	08:00	1427.9
08/11/07	09:00	1409.6
08/11/07	10:00	1383.6
08/11/07	11:00	1381.1
08/11/07	12:00	1386.5
08/11/07	13:00	1447.6
08/11/07	14:00	1376.6
08/11/07	15:00	1328.7
08/11/07	16:00	1281.5
08/11/07	17:00	1282.5
08/11/07	18:00	1268.6
08/11/07	19:00	1275.2
08/11/07	20:00	1275.2
08/11/07	21:00	1286.5
08/11/07	22:00	1301.7
08/11/07	23:00	1326.5

	01:53
Daily Minimum	966.2
1-minute Values	
Daily Maximum	1523.3
	07:40
	01:00
Daily Minimum	1069.5
1-hour Values	
Daily Maximum	1447.6
	13:00
Daily Average	1280.0
Daily Total	1e+06
Daily Recovery	100.00%

CALIBRATION REPORT

NAME: BOSTIK   LOCATION: Middleton, Ma.   STATION ID: 1

CH	NAME	UNITS	DATE	ZERO/ SPAN	START TIME	END TIME	ACTUAL VALUE	EXPECTED VALUE	CAL DEV	CAL TYPE	CAL FLAG
01	CO Lo	PPM	08/11/07	Zero	04:30	04:35	0.5	0.0	0.3%	I	
				Span1	04:35	04:40	159.6	158.8	0.4%	I	
02	CO Hi	PPM	08/11/07	Zero	04:30	04:35	7.5	0.0	0.3%	I	
				Span1	04:40	04:45	2647.5	2572.0	2.5%	I	
03	02	%	08/11/07	Zero	04:30	04:35	0.1	0.0	0.1	I	
				Span1	04:35	04:40	18.6	18.3	0.3	I	

ALARM & EVENT REPORT

NAME: BOSTIK LOCATION: 1 Min Display Data STATION ID: 8

::

No alarms for 08/11/07

Bostik, Inc.
BIF Daily Inspection

Name: O'KEEFE R

Date: 8/11/07
Time: 0845

	T-1	T-2	(T-9) DS
Tank Level	40%	61%	56%
Last time tank was empty (< 90 days)	7/29/07	6/3/07	6/3/07

	T1/T2	Day Tank	CEM	DS
Has an Emergency Waste Feed Cut-off been tested in the last 7 days?	✓ DAY 4 →	✓	✓	✓

	PE	Bld 27	DS	Pipeline
Conduct a visual inspection of all tanks, including fixed roofs and closure devices, for leaks.	✓		✓	
Conduct a visual inspection of all pumps, piping, and valves for leaks.	✓	✓	✓	✓

Any tank leaks must be repaired as soon as possible, but no later than 45 days after detection (first attempt within 5 days).
Any leaks must be repaired as soon as possible, but no later than 15 days after detection (first attempt within 5 days).

	BIF	Enclosed Flare
Inspect readings from monitoring devices to check for proper operation	✓	✓

Any malfunctions must be corrected immediately.

	T1/T2	(T-9) DS	Day Tank	Struthers-Wells
Are all diked areas free of rain water and or waste?	2" RAIN WATER	✓	✓	✓

If there is water in a diked area a sample must be collect and brought to the Analytical Lab for testing.
Rainwater cannot be pumped from dikes without results from the Analytical Lab.

Comments:
DAY TANK WAS emptyed and Clean. the Day Before

Bostik, Inc.
CEM Daily Inspection

Name: O'KEEFE JR　　　　Date: 8/11/07
　　　　　　　　　　　　Time: 0900

Acceptable Yes	Acceptable No	Inspection Procedure	Comments
✓		Check room temperature in the CEM building. Is the air conditioner/heater operational?	
✓		Check the heated sample line temperature control. Verify line temperature is set to 100 +/- 5C and light is flashing on and off?	
✓		Check the Sample Flow roatmeter. Verify flow rated at 4 slpm +/- 0.5 slpm (equivilant to top of ball height of 6.8). Verify positive flow through the glass manifold from the magnehelic flow gauge.	6.8
✓		Check the temperature on both sides of the universal analyzer chiller. Verify temperature is 4C +/- 2C and proper operation of the peristaltic pump.	Temp - 4.1
✓		Check the CO Analyzer display and verify that there are no alarms listed.	
✓		Check the O_2 monitor sample flow rotameter. Verify that the sample flow is set at 750 cc/min (equivilant to top of ball height of 4.2).	4.2
	✓	Was a manual recalibration performed? Record the reason for calibration in the comment section.	
	✓	Was any maintenance/repair work conducted? If so, please explain in the BIF Log book.	
✓		Check the calibration gas bottles and record the information requested in the table below.	
✓		Check the daily calibration report for drift exceedences. The 40 CFR 266 limit is 3% for CO and 0.5% for O2.	

	Bottle PSI	Reg PSI	Spares	Replaced
Zero Gas (NIC215A) Nitrogen	2100	10	1	0
Low Span (NI181E15A) ~160 ppm CO & 18% O2 Balance Nitrogen	1790	8	1	0
High Span (NI99E15A) ~2400 ppm CO Balance Nitrogen	450	8	1	0

Section D - Process Information

Bostik, Inc. operates a chemical manufacturing facility, located in Middleton, Massachusetts. A pumpable-liquid hazardous waste is generated from the plant's polyester and direct solvation resin manufacturing units. This waste byproduct is piped to the main distillate storage tanks designated as T-1 and T-2. The hazardous waste is currently burned in a vertically-fired process heater, referred to as the Polyester Burner unit or boiler / industrial furnace (BIF). This hazardous waste combustor (HWC) provides energy for the thermal requirements associated with the polyester resin manufacturing processes (i.e., to heat the reactor hot oil system). A detailed process flow diagram depicting distillate and vapor flow is shown in **Figure D-1**.

D.1 Containers [40 CFR 270.15; 264.170]

Bostik does not store waste associated with the BIF in containers at the Middleton facility and, therefore, this section is not applicable.

D.2 Tank systems [40 CFR 270.16; 264.191 – 194]

D.2.1 Tank Systems Descriptions

Three aboveground tanks are included in this permit application.

Tanks T-1 and T-2, the distillate storage tanks (P253358 and P253360), are two vertical 8,000-gallon mild carbon steel tanks located adjacent to Building 27, which contain polyester distillate for feed to the burner. Both tanks were fabricated and installed in 2008; T-2 was placed in service in May 2008 and T-1 was placed in service in October 2008. Both are designed in accordance with U.L. 142 Standard except that they have flat roofs. The tanks are rated for 2.5 psi. Both are fabricated from carbon steel with top, bottom, and walls at $^1/_4$ inch thick. Each has a double bottom which rests on a steel cradle 1-ft above the containment floor to protect against corrosion from contact with the containment area. Additional information on tank construction is shown in the 2008 tank certification report provided in **Attachment D-1**.

Tank T-9, the direct solvation tank (#09518) is a 10,000-gallon stainless steel tank located outside Building 9 which contains polyester distillate generated by the direct solvation department. The tank is constructed in accordance with ASME pressure vessel code, Section VIII, Division I. The tank is a horizontal tank with dished heads rated for atmospheric service. The tank is fabricated from 304 stainless steel with walls and heads both $^3/_{16}$ inch thick. Additional information on tank construction is provided in the tank certification report in Attachment D-1.

Tank DT-1, the polyester day tank (#12832) is a 950-gallon carbon steel tank located in Building 36 which temporarily contains polyester distillate generated by the polyester department. This tank is designed to continuously pump to T-1 or T-2 and then stop when the liquid level in the tank reaches 25% of capacity. The tank is constructed in accordance with ASME pressure vessel code, Section VIII, Division I. The tank is a horizontal tank with dished heads rated for atmospheric service. The tank is fabricated from carbon steel with the walls and heads both $^{1}/_{4}$ inch thick. Additional information on tank construction is provided on the day tank drawing provided in Attachment D-1.

D.2.1.1 Dimensions and Capacity of Each Tank

Tanks T-1 and T-2 are each 8,000 gallon tanks, with dimensions of 14-ft high x 10-ft O.D. and wall thickness of $^{1}/_{4}$ inches. Tank T-9 is a 10,000 gallon tank with dimensions of 18-ft long x 10-ft O.D. and wall thickness of $^{3}/_{16}$ inches. Tank DT-1 is a 950 gallon tank with dimensions of 7.4-ft long x 5-ft O.D. and wall thickness of $^{1}/_{4}$ inches.

D.2.1.2 Description of Feed Systems, Safety Cutoff, Bypass Systems and Pressure Controls

The distillate generated from the manufacture of polyesters is formed from two distinct processing operations. Both stages require heat to be added to the reaction vessel and a distillate is produced. The distillate generated by the polyester department is collected into the “Day Tank” (DT-1), a 950-gallon tank located under the vacuum pump room in Building 39. The Day Tank is designed to continuously pump material to either T-1 or T-2. Should a problem arise with the pumping system that allowed the level in the tank to reach 90% of capacity, the polyester burner system would be shut down until the situation was remedied. If the high level alarm in DT-1 was activated, it would be because there is a plug in the piping running from DT-1 to T-1 or T-2. The operator would work with maintenance to clean out the line in order to attempt to bring the system back up to normal operation. Further details on the alarms and protections associated with operation of the Day Tank are provided in Section D.2.5.

At the high level in the T-1 and T-2 distillate tanks (90%), valves supplying the tanks are closed, the day tank's transfer pump is disabled and alarms and flashing lights are displayed on the PE control system. The operator must take action at this point to get the system back up to normal operation. First, he would have to stop operations in order to not produce any more distillate. The next steps the operator would take in order to get the system back into normal operation could include transferring distillate from T-1 to T-2 or vice versa or even scheduling a pump out of polyester distillate through a certified hazardous waste hauler in order to get the level lower in the tanks. Once a high level alarm is set off for DT-1, T-1 or T-2, there is a leeway of around 2 hours before the system is back up in normal operating parameters where distillate is flowing through pipe again.

Distillate from T-9 is hard-piped directly to T-1 and T-2. The material is manually pumped through the pump system controlled by the polyester operators. An automatic distillate transfer pump cut-off is located in the direct solvation department should a problem develop during transfer.

All tanks are equipped with overflow indicators. Overflow of the tanks is prevented by a Magnetrol high level float switches mounted on the top of the tanks and interfaced with the control system. Should a high level condition occur, the float switch signals the control system and alarms occur. All pump operations stop until the condition is corrected.

D.2.1.3 Diagram of Piping, Instrumentation and Process Flow

A detailed process and instrumentation diagram (P&ID) for the Struthers-Wells burner is provided in **Figure D-2**. Additional piping details for the storage tanks are provided in **Figures D-3 through D-5**.

D.2.1.4 Ignitable, Reactive and Incompatible Wastes

Each tank contains ignitable wastes. Each tank is equipped with pressure relief valves to prevent overpressure of the tank and subsequent rupturing. The tanks are also equipped with flame arrestors to prevent back flash. No smoking is allowed in the tank areas. No incompatible wastes are stored in the tanks.

D.2.2 Existing Tank Systems

D.2.2.1 Assessment of Existing Tank System's Integrity

This information is provided in Attachment D-1.

D.2.3 New Tank System

The tanks described in this application are existing waste storage tanks which have previously been used as < 90-day waste storage tanks (no permit required). One goal of this updated application is to permit these tanks to allow storage for greater than 90 days prior to treatment in the burner. For this reason, this application is treating these tanks as "existing" tanks, and not "new" tank systems.

D.2.3.1 Assessment of New Tank System's Integrity

Not applicable.

D.2.3.2 Description of Tank System Installation and Testing Plans and Procedures

Not applicable.

D.2.4 Containment and Detection of Releases

D.2.4.1 Plans and Description of the Design, Construction and Operation of the Secondary Containment System

The distillate storage tanks (T-1 and T-2) are located within a diked area adjacent to Building 27 with a coated concrete floor. The secondary containment system for the tanks consists of a coated concrete dike which is 16 feet wide by 30 feet long by 45 inches high and 10 inches thick.

The direct solvation tank (T-9) is located adjacent to Building 9. Secondary containment consists of a coated reinforced concrete dike with inside dimensions of 15 feet by 30.2 feet by 42.5 inches with a coated reinforced concrete floor. The walls for this area are 10 inches thick and the floor is 4½ inches thick.

The polyester day tank (DT-1) is located within a diked area in Building 36 with a coated concrete floor. The secondary containment system for the tanks consists of a coated concrete dike which is 11.7 feet wide by 11.2 feet long by 19 inches high and 8.25 inches thick.

The coating for the secondary containment in each tank area is SikaGuard 2-part epoxy coating.

Tank Age Determination

Tanks T-1 and T-2 were originally fabricated and installed in 1992. Replacement tanks T-1 and T-2 were fabricated and installed in 2008. The direct solvation tank was fabricated in 1987 and installed in 1988. DT-1 was fabricated and installed in 2000.

Requirements for Secondary Containment and Leak Detection

As mentioned, the secondary containment areas for both tank areas are constructed of coated concrete diked areas with coated concrete floors.

Procedures in place for daily inspection of the tanks and secondary containment system and described in **Section F** of this application will be the primary means of detecting leaks from the tanks. Daily inspections are conducted of the secondary containment system. Additional procedures, also described more fully in **Section F** of this application, provide information on the procedures to be followed upon discovery of a leak or spill into the secondary containment area. All spilled material will be removed from the secondary containment system within 24 hours of discovery of the spill.

The secondary containment system is also periodically inspected for cracks. Cracks in the secondary containment are repaired as soon as practicable to prevent leakage to the environment.

Requirements for External Liner, Vault, Double-Walled Tank or Equivalent Device

Distillate Storage Area (Tanks T-1 and T-2)

The inside dimensions of the containment system are 30 feet by 16 feet by 45 inches high. The dike walls are 10-inches thick. The volume of the containment area is therefore:

30 ft x 16 ft x 3.75 ft = 1,800 cubic feet.

Tank displacement within the diked area (accounting for the steel cradles) equals:

(5 ft. radius)^2 x π x 2.75 ft. = 216 cubic feet.

Net containment volume (accounting for the concrete pad and the built out dike corners) equals 1,387 cubic feet, or (at 7.481 gallons per cubic foot) 10,376 gallons. The largest tank within this boundary is 8,000 gallons.

Failure of one 8,000 gallon tank would result in 1,069 cubic feet of liquid in the secondary containment area. This would yield 318 cubic feet (1,387-1,069) of net volume available to contain a major rainfall event at the same time. Data presented in the Northeast Regional Climate Center Publication No. RR93-5 (September 1993) indicates a 25-year storm to be 5.93 inches. The volume of such a rain event inside the secondary containment area would be 237.2 cubic feet. Therefore sufficient volume exists within the secondary containment area to contain both a simultaneous tank failure and a 25-year storm event.

Direct Solvation Tank (Tank T-9)

The secondary containment system for Tank T-9 is a coated concrete area with inner dimensions of 30.2 feet by 15 feet and 42.5 inches high. The dike walls are also 10-inches thick. The containment volume is therefore:

30.2 ft x 15 ft x 3.54 ft = 1,603 cubic feet.

Assuming 7.481 gallons per cubic foot, the volume of the containment area is approximately 11,990 gallons. Since Tank T-9 is a 10,000 gallon tank, the containment area is sufficient to contain spillage as a result of the total failure of T-9.

The T-9 containment area is covered by a roof to prevent the accumulation of precipitation in the secondary containment area.

Polyester Day Tank (Tank DT-1)

The secondary containment system for Tank DT-1 is a coated concrete area with inner dimensions of 11.7 feet by 11.2 feet and 19 inches high. The dike walls are 8.25-inches thick. The containment volume is therefore:

11.7 ft x 11.2 ft x 1.58 ft = 206 cubic feet.

Assuming 7.481 gallons per cubic foot, the volume of the containment area is approximately 1,543 gallons and, therefore, the containment area is sufficient to contain spillage as a result of the total failure of DT-1. The DT-1 containment area is also contained within a building to prevent the accumulation of precipitation in the secondary containment area.

<u>Secondary Containment and Leak Detection Requirements for Ancillary Equipment</u>

All piping for this system is above ground piping subject to daily inspections, as described in **Section F** of this application. All pumps associated with these tanks are located in Building 27, in a concrete diked area.

For the T-9 area, pumps and associated equipment is located within a bermed area adjacent to the tank containment area. Again, all piping is aboveground and inspected daily, as discussed in **Section F**.

<u>Containment Buildings Used as Secondary Containment for Tank Systems</u>

Not applicable.

D.2.4.2 Requirements for Tank Systems Until Secondary Containment is Implemented

Not applicable.

D.2.4.3 Variance from Secondary Containment Requirements

No variance is being sought.

D.2.5 Controls and Practices to Prevent Spills and Overflows

The distillate generated from the manufacture of polyesters is formed from two distinct processing operations. Both stages require heat to be added to the reaction vessel and a distillate is produced. The distillate generated by the polyester department is collected into the "Day Tank", a 950-gallon tank located under the vacuum pump room in Building 39. The Day Tank is designed to continuously pump material to either T-1 or T-2. If the pump fails and the tank level reaches 50% of capacity, an alarm light flashes once per minute in the operator control room. If the situation is not corrected and the tank level reaches 70% of capacity, the alarm light will stay on continuously. If the situation is still not corrected and the tank level reaches 90% of capacity, a high level float switch triggers the shutdown of the polyester burner unit. Once all problems have been resolved, the alarm light shuts off when the tank level reaches 25% of capacity.

At the high level in the T-1 and T-2 distillate tanks (90%), the day tank's transfer pump is disabled and an alarm is displayed in the control room. The operator must take action at this point to get the system back up to normal operation. First, production operations would be curtailed to prevent further generation of waste distillate. Additional steps the operator would take in order to get the system back to normal could include transferring distillate from T-1 to T-2 or vice versa or even scheduling a pump out of polyester distillate through a certified hazardous waste hauler in order to get the level down in the tanks. Once a high level alarm is set off for DT-1, T-1 or T-2, there is a period of around 2 hours before the system is fully back to normal operation and waste distillate is flowing through the system again.

Distillate from T-9 is hard-piped directly to T-1 and T-2. The material is manually pumped through the pump system controlled by the polyester operators. An automatic distillate transfer pump cut-off is located in the direct solvation department should a problem develop during transfer operations.

All tanks are equipped with overflow indicators. Overflow of the tanks is prevented by a Magnetrol high level float switches mounted on the top of the tanks and interfaced with the control system. Should a high level condition occur, the float switch signals the control system and alarms occur. All pump operations stop until the condition is corrected.

Detailed plans for the schedule and procedure for inspecting the overfill controls, aboveground portions of the tank system, construction materials and the area immediately surrounding the externally accessible portion of the entire tank system are provided in **Section F** of this application. It is noted that Bostik relies on the daily inspection process to detect any leaks that may have occurred within the past 24 hours to meet the requirements of 40 CFR 264.193(c)(3).

D.3 Waste Piles [40 CFR 270.18 and 264.250 – 259]

Bostik does not store waste in waste piles or containment buildings at the Middleton facility and, therefore, this section is not applicable.

D.4 Surface Impoundments [40 CFR 270.17(a)]

Bostik does not store or treat waste in surface impoundments at the Middleton facility and, therefore, this section is not applicable.

D.5 Incinerators [40 CFR 270.19; 264.340; and 264.351]

Bostik does not treat waste in an incinerator at the Middleton facility and, therefore, this section is not applicable.

D.6 Landfills [40 CFR 270.21 and 264.300 – 317]

Bostik does not dispose of waste in landfills at the Middleton facility and, therefore, this section is not applicable.

D.7 Land Treatment [40 CFR 270.20 and 264.270 – 283]

Bostik does not use land treatment at the Middleton facility and, therefore, this section is not applicable.

D.8 Miscellaneous Units [40 CFR 270.23 and 264.601]

Bostik does not treat, store or dispose of waste in miscellaneous treatment units at the Middleton facility and, therefore, this section is not applicable.

D.9 Boilers and Industrial Furnaces [40 CFR 270.22 and 266.100 – 112]

Bostik burns polyester distillate generated by the polyester and direct solvation departments in a vertically fired cold chamber heater (boiler) designated as the Struthers Wells industrial boiler. This boiler is rated at 8.8 x 10^6 Btu/hr heat input with the energy recovered used for the manufacturing process. Exhaust gasses from the unit pass through two economizers and then out to atmosphere through a 22.5-inch ID stack. A piping and instrumentation diagram for the burner system is provided in **Figure D-6**. Additional engineering details for this unit are provided in Section 4.0 of the Trial Burn Plan (Volume II of this permit application). An additional drawing depicting plan and elevation views of the burner area are shown in **Figure D-7**.

D.9.1 Waivers / Exemptions

D.9.1.1 Waiver of Destruction and Removal Efficiency (DRE) Trial Burn

Bostik is not applying for a waiver from the DRE Trial Burn for Boilers.

D.9.1.2 Low Risk Waste Exemption

Bostik is not applying for the low risk waste exemption.

D.9.1.3 Waiver of Particulate Matter Standard

Bostik is not applying for a waiver from the particulate matter standard.

D.9.1.4 Waiver of Trial Burn for Metals

Since the inception of the BIF rules, Bostik has complied with the interim status emission rate limits for metals by applying the Tier 1A (adjusted Tier 1) metals feed rate limits to the waste feed. Bostik intends to continue to comply with these rates under permitted status. Calculations of the maximum allowable metals feed rates are provided in **Section 2.0 of the Trial Burn Plan** (Volume II of this permit application).

The polyester Burner is the sole RCRA-regulated hazardous waste combustion unit at the site. There are not multiple stacks for this unit.

D.9.1.5 Waiver of Trial Burn for HCl / Cl_2

Since the inception of the BIF rules, Bostik has complied with the interim status emission rate limits for hydrogen chloride / chlorine by applying the Tier 1A (adjusted Tier 1) total chloride feed rate limits to the waste feed. Bostik intends to continue to comply with these rates under permitted status. Calculations of the maximum allowable total chloride feed rate are provided in **Section 2.0 of the Trial Burn Plan** (Volume II of this permit application).

The polyester Burner is the sole RCRA-regulated hazardous waste combustion unit at the site. There are not multiple stacks for this unit.

D.9.2 Pre-Trial Burn Requirements for New BIFs

The Bostik boiler is an existing interim status unit and not a new BIF and, therefore, this section is not applicable.

D.9.3 Trial Burn Requirements for All BIFs

A Trial Burn Plan is included as **Volume II** to this permit application.

D.9.4 Trial Burn Results

A Trial Burn report will be submitted within 90 days of completion of the trial burn, as described in Sections 5.8 and 6.10 of the Trial Burn Plan.

D.9.5 Post-Trial Burn Requirements for New BIFs

The Bostik boiler is an existing interim status unit and not a new BIF and, therefore, this section is not applicable.

D.9.6 Data-in-Lieu-of Trial Burn

Bostik is not submitting any data-in-lieu of a Trial Burn and, therefore, this section is not applicable.

D.9.7 Alternative Hydrocarbons Limit for Industrial Furnaces

The Bostik boiler is not an industrial furnace and, therefore, this section is not applicable.

D.9.8 Alternative Metals Implementation Approach

Bostik plans to continue to comply with the adjusted Tier 1 feed rate limits until the completion of the combined RCRA Trial Burn and MACT Comprehensive Performance Test (CPT) when the new emission standards are in effect. No alternative approach is being proposed.

D.9.9 Monitoring Requirements

To ensure compliance with the HWC MACT rule, Bostik will monitor the following parameters on a continuous basis:

- Combustion chamber temperature [40 CFR 63.1209(j)(1) and (k)(2)]
- Flue gas flow rate [40 CFR 63.1209(j)(2); (k)(3); (m)(2); (n)(5); (o)(2); and 63.1207(m)(i)]
- Hazardous waste feed rate [40 CFR 63.1209(j)(3) and (k)(4)]
- Carbon monoxide emissions corrected to 7% oxygen [40 CFR 63.1217(a)(5)(i)]
- Total ash feed rate [40 CFR 63.1209(m)(3)]
- Total feed rate of cadmium and lead [40 CFR 63.1209(n)(2)(v)(A)(3)]
- Total feed rate of chromium [40 CFR 63.1209(n)(2)(v)(B)(2)]
- Total feed rate of mercury [40 CFR 63.1209(l)(ii)(C)]
- Total feed rate of chlorine [40 CFR 63.1209(n)(4) and (o)(1)(ii)(B)]

D.9.10 Automatic Waste Feed Cutoff System

A description of the automatic waste feed cutoff system, including pre-alarm systems is included in **Section 4.13 of the Trial Burn Plan** (Volume II).

D.9.11 Direct Transfer Standards

Bostik does not directly feed hazardous waste from a transport vehicle to the BIF unit and, therefore, this section is not applicable.

D.9.12 Bevill Residues

Bostik is not claiming residues are excluded from regulation under the Bevill exclusion and, therefore, this section is not applicable.

D.9.10 Automatic Waste Feed Cutoff System

A description of the automatic waste feed cutoff system, including pre-alarm systems is included in **Section 4.13 of the Trial Burn Plan** (Volume II).

D.9.11 Direct Transfer Standards

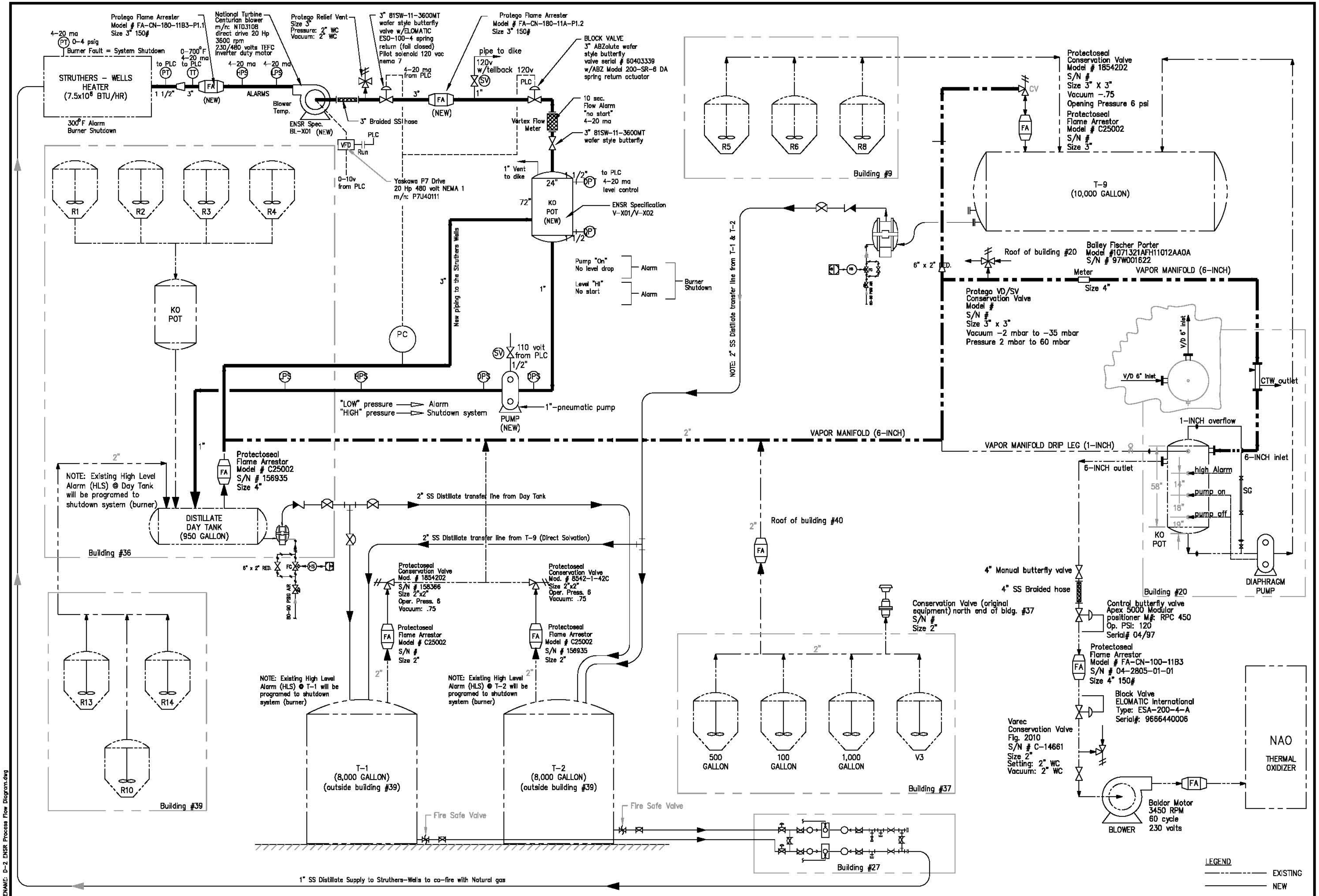
Bostik does not directly feed hazardous waste from a transport vehicle to the BIF unit and, therefore, this section is not applicable.

D.9.12 Bevill Residues

Bostik is not claiming residues are excluded from regulation under the Bevill exclusion and, therefore, this section is not applicable.

Figure D-1 Process Flow Diagram

New Figure D-1 attached



NO.	DESCRIPTION:	DATE:	BY:
1	Corrected vacuum design # from .75 to -.75	07/13/06	
2	Updated text & equipment @ both existing "TO & SW"	09/28/06	
3	Added dashed 2" SS distillate transfer line	08/10/06	
4	Added liquid lines in black, made vapor lines phantom line type, color blue	08/15/07	
5	Revised T1 & T2 Tank Capacity		

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

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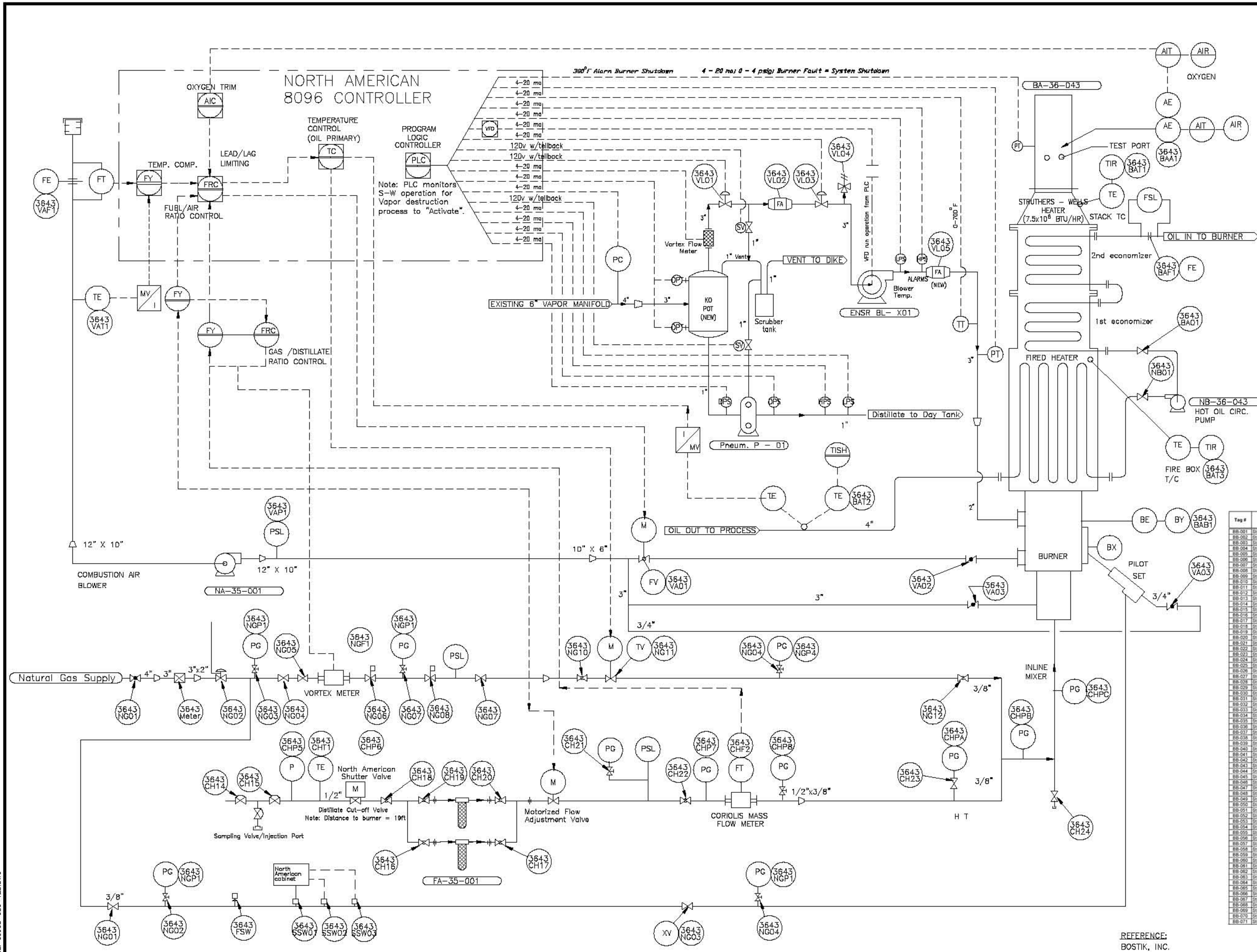
PROCESS FLOW DIAGRAM
BOSTIK, INC.
211 BOSTIK STREET
MIDDLETON, MA 01949

PROJECT NUMBER: 00963-051-400
DATE: 12/08
SCALE: NONE

FIGURE NUMBER: D-1
SHEET NUMBER: 1

Figure D-2 Struthers-Wells Detailed Process and Instrumentation Diagram



Tag #	Location	Equipment Description	Size
BB-001	Struthers Wells Boiler	Tee	1/2"
BB-002	Struthers Wells Boiler	Elbow	1/2"
BB-003	Struthers Wells Boiler	Pressure Gage (30 psi)	3/8"
BB-004	Struthers Wells Boiler	Static Mixing Tube	1/2"
BB-005	Struthers Wells Boiler	Tee	3/4"
BB-006	Struthers Wells Boiler	Ball Valve	1/2"
BB-007	Struthers Wells Boiler	Elbow	3/4"
BB-008	Struthers Wells Boiler	Union	3/4"
BB-009	Struthers Wells Boiler	Check Valve	3/4"
BB-010	Struthers Wells Boiler	Ball Valve	3/4"
BB-011	Struthers Wells Boiler	Tee	3/4"
BB-012	Struthers Wells Boiler	Ball Valve	3/4"
BB-013	Struthers Wells Boiler	Elbow	3/4"
BB-014	Struthers Wells Boiler	Elbow	3/4"
BB-015	Struthers Wells Boiler	Elbow	3/4"
BB-016	Struthers Wells Boiler	Flange on Flow Meter	1 1/4"
BB-017	Struthers Wells Boiler	Flange on Flow Meter	1 1/4"
BB-018	Struthers Wells Boiler	Elbow	3/4"
BB-019	Struthers Wells Boiler	Union	3/4"
BB-020	Struthers Wells Boiler	Ball Valve	3/4"
BB-021	Struthers Wells Boiler	Reducer	2" to 3/4"
BB-022	Struthers Wells Boiler	Ball Valve	3/4"
BB-023	Struthers Wells Boiler	Tee	3/4"
BB-024	Struthers Wells Boiler	Ball Valve	3/4"
BB-025	Struthers Wells Boiler	Elbow	3/4"
BB-026	Struthers Wells Boiler	Ball Valve	3/8"
BB-027	Struthers Wells Boiler	Elbow	3/8"
BB-028	Struthers Wells Boiler	Pressure Gage (60 psi)	3/8"
BB-029	Struthers Wells Boiler	Reducer	3/4" to 1/2"
BB-030	Struthers Wells Boiler	Motorized Flow Adjustment Valve	1/2"
BB-031	Struthers Wells Boiler	Tee	1/2"
BB-032	Struthers Wells Boiler	Ball Valve	3/8"
BB-033	Struthers Wells Boiler	Elbow	3/8"
BB-034	Struthers Wells Boiler	Pressure Gage (100 psi)	3/8"
BB-035	Struthers Wells Boiler	Tee	1/2"
BB-036	Struthers Wells Boiler	End Cap	1/2"
BB-037	Struthers Wells Boiler	Check Valve	1/2"
BB-038	Struthers Wells Boiler	Union	1/2"
BB-039	Struthers Wells Boiler	Tee	1/2"
BB-040	Struthers Wells Boiler	Ball Valve	1/2"
BB-041	Struthers Wells Boiler	Quick Disconnect Air Chuck	3/8"
BB-042	Struthers Wells Boiler	Tee	1/2"
BB-043	Struthers Wells Boiler	Elbow	3/8"
BB-044	Struthers Wells Boiler	Pressure Gage	3/8"
BB-045	Struthers Wells Boiler	Ball Valve	1/2"
BB-046	Struthers Wells Boiler	Motorized Valve	1/2"
BB-047	Struthers Wells Boiler	Tee	1/2"
BB-048	Struthers Wells Boiler	Tee	3/8"
BB-049	Struthers Wells Boiler	Pressure Switch	3/8"
BB-050	Struthers Wells Boiler	Elbow	1/2"
BB-051	Struthers Wells Boiler	Elbow	3/8"
BB-052	Struthers Wells Boiler	Globe Vavlve	3/8"
BB-053	Struthers Wells Boiler	Pressure Gage	3/8"
BB-054	Struthers Wells Boiler	Elbow	1/2"
BB-055	Struthers Wells Boiler	Union	1/2"
BB-056	Struthers Wells Boiler	Ball Valve	1/2"
BB-057	Struthers Wells Boiler	Elbow	1/2"
BB-058	Struthers Wells Boiler	Tee	1/2"
BB-059	Struthers Wells Boiler	Elbow	1/2"
BB-060	Struthers Wells Boiler	Ball Valve	1/2"
BB-061	Struthers Wells Boiler	Cam Lock End Cape	1"
BB-062	Struthers Wells Boiler	Elbow	1/2"
BB-063	Struthers Wells Boiler	Reducer	1" to 3/4"
BB-064	Struthers Wells Boiler	Union	1"
BB-065	Struthers Wells Boiler	Tee	1"
BB-066	Struthers Wells Boiler	Temperture Probe	3/4"
BB-067	Struthers Wells Boiler	Tee	1"
BB-068	Struthers Wells Boiler	Pressure Gage	3/8"
BB-069	Struthers Wells Boiler	Globe Valve (Sealed Stem)	1"
BB-070	Struthers Wells Boiler	Globe Valve (Sealed Stem)	1"
BB-071	Struthers Wells Boiler	Globe Valve (Sealed Stem)	1"

REFERENCE:
BOSTIK, INC.
DATED: 10/04/06 REV. 1 BURNER SYSTEM, DWG. NO. F-36-043

FILENAME: 00963-035-12D.DWG

REVISIONS			
NO.:	DESCRIPTION:	DATE:	BY:
REV. 1	Distillate line control update & leak detection schedule	1/21/2007	JCC

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

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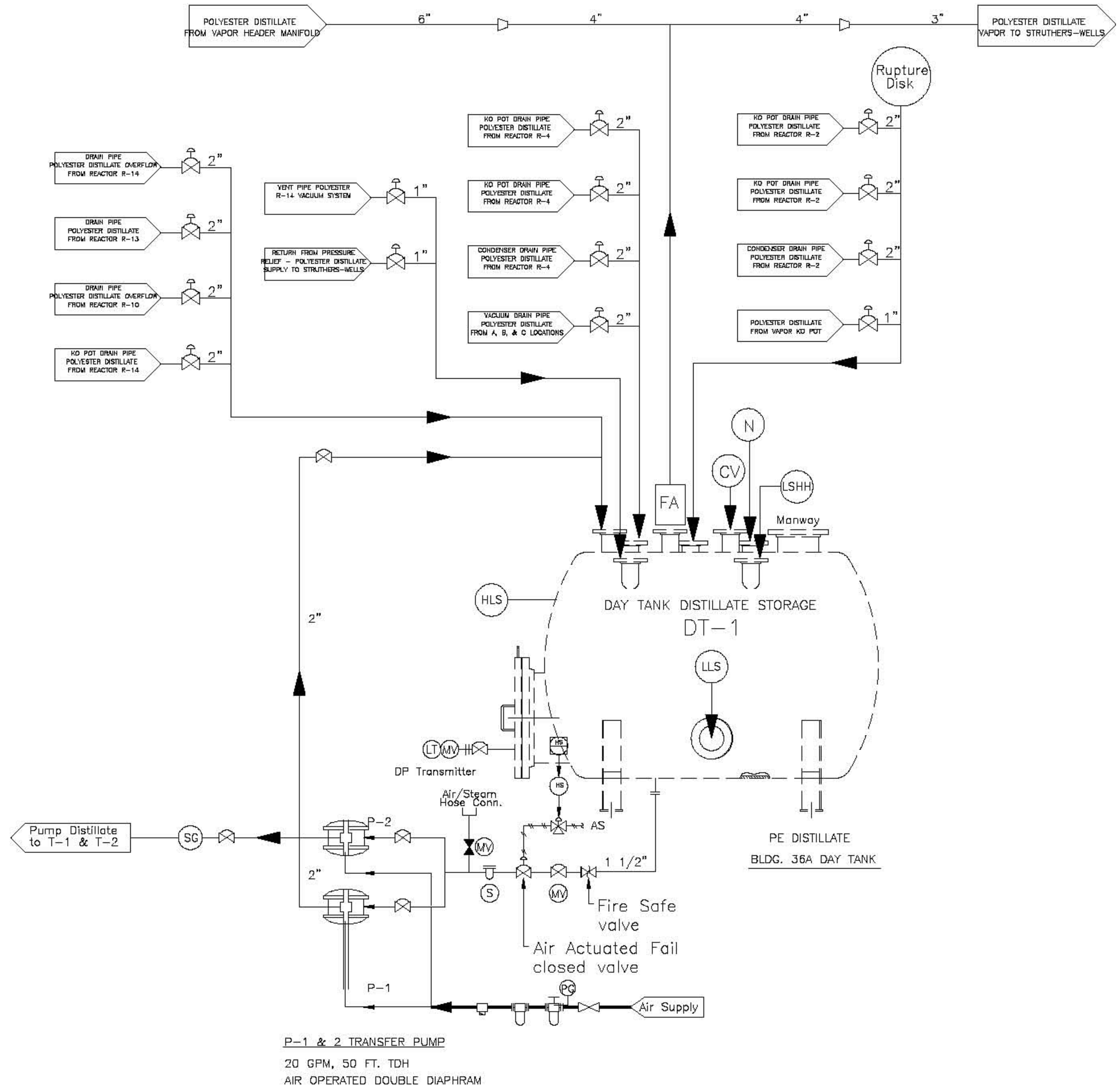
STRUTHERS-WELLS DETAILED P&ID
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MASSACHUSETTS

PROJECT NUMBER: 00963-035
DATE: 11/06
SCALE: NONE

FIGURE NUMBER:
D-2

SHEET NUMBER:
X

Figure D-3 Day Tank (DT-1) Distillate Storage and Transfer Process Flow Diagram



REFERENCE:
BOSTIK, INC.
DISTILLATE STORAGE & TRANSFER, DWG. NO. F-27-045
DATED: 06/14/95

REVISIONS

NO.:	DESCRIPTION:	DATE:	BY:
Rev. 1	Added designation DT-1 at title & Day Tank	1/21/2008	JCC
	Added Liquid Lines to Day Tank	1/21/2008	JCC

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

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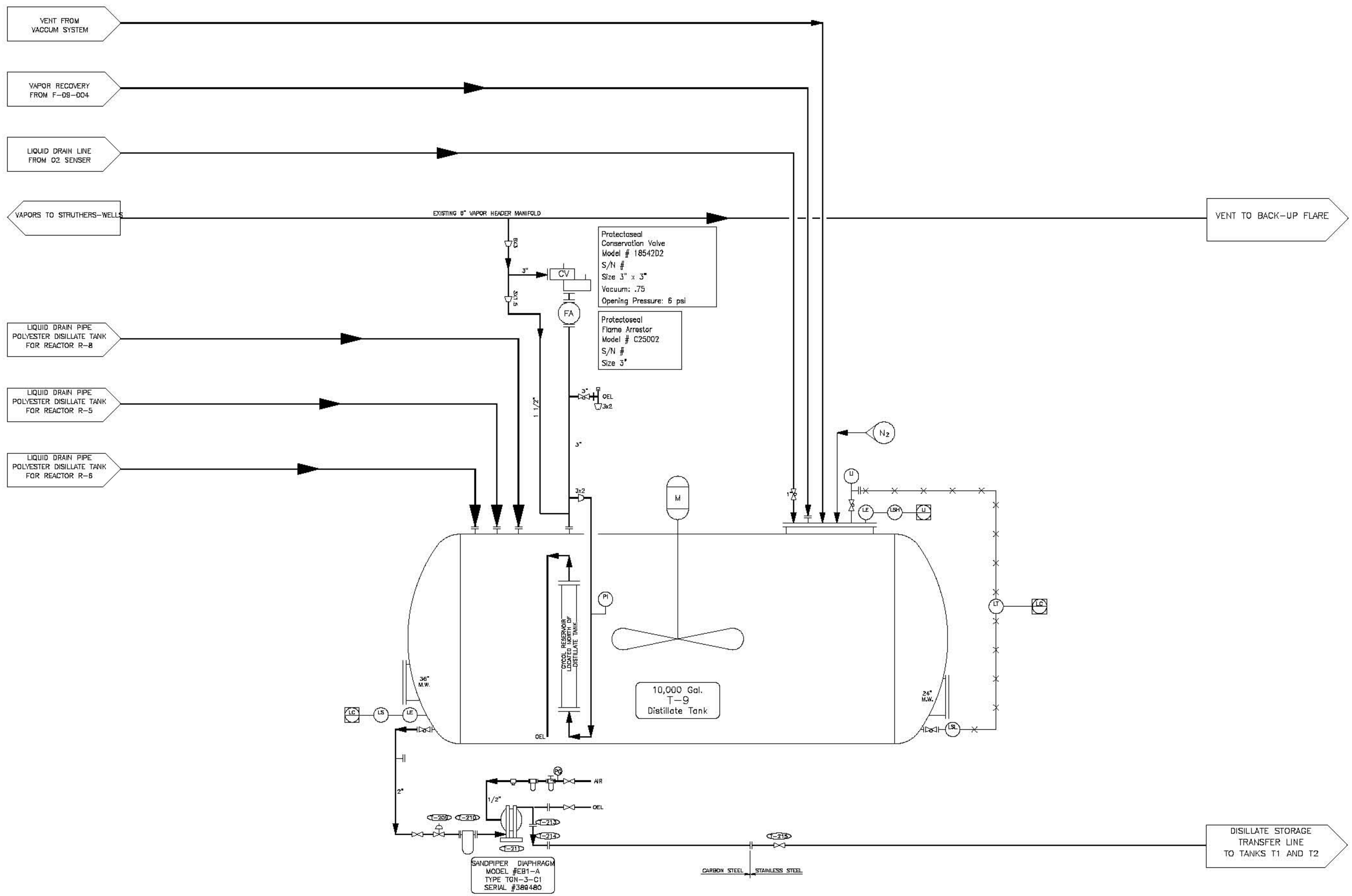
DAY TANK (DT-1) DISTILLATE STORAGE & TRANSFER
PROCESS FLOW DIAGRAM
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MASSACHUSETTS

SCALE: NONE
DATE: 11/06
PROJECT NUMBER: 00963-035

FIGURE NUMBER: **D-3**
SHEET NUMBER: X

Figure D-4 T-9 Distillate Tank P&ID



REFERENCE:
BOSTIK, INC.
F-09-001 DISTILLATE TANK.DWG
DATED: 04/2005

NO.:	DESCRIPTION:	DATE:	BY:
REV. 1	Added T-9 designation for 10,000 gal Distillate Tank	1/21/2008	JCC

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

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T-9 DISTILLATE TANK P&ID
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MASSACHUSETTS

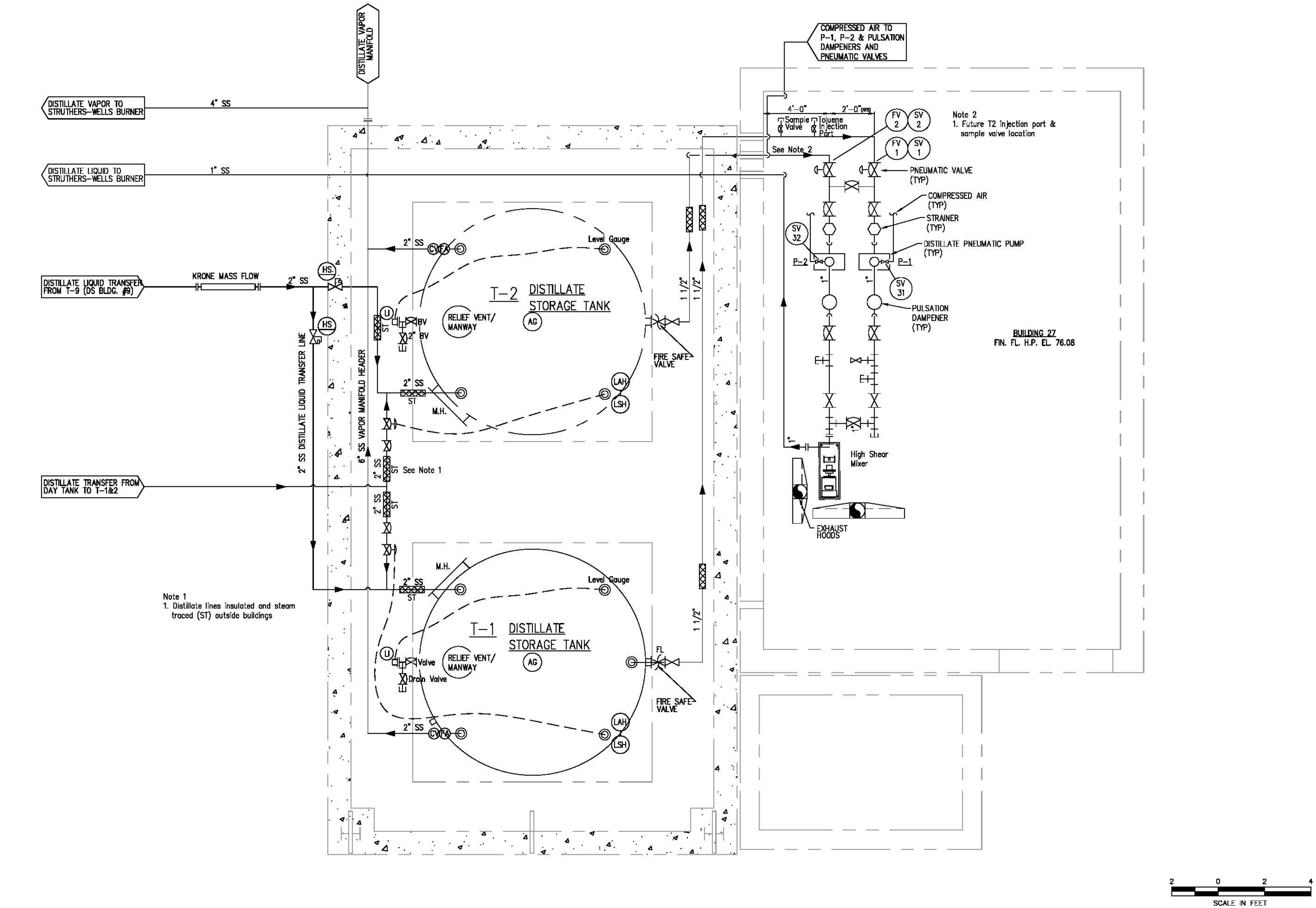
SCALE: NTS
DATE: 08/07
PROJECT NUMBER: 00963-035

FIGURE NUMBER:
D-4

SHEET NUMBER:
X

Figure D-5 T-1, T-2 Storage Tanks and Bldg 27 P&ID

New Fig D-5 attached



REVISIONS			
NO.:	DESCRIPTION:	DATE:	BY:
1	Revised as per field conditions	8/14/07	JCC
2	As-Built	12/19/08	JCC

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

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T-1, T-2 STORAGE TANKS AND BLDG. 27 P&ID
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MA 01949

SCALE: 1"=2'
DATE: 12/08
PROJECT NUMBER: 00963-051-400

FIGURE NUMBER: D-5

SHEET NUMBER: 1

FILENAME: D-4 T-1, T-2 & Bldg. #27 P&ID rev1.dwg

ATTACHMENT D-1

TANK CERTIFICATION REPORT

Prepared for:
Bostik, Inc.
211 Boston Street
Middleton, MA

RCRA Tank Assessment

Final Report

AECOM, Inc.
December 2008
Document No.: 00963-045-400

Prepared for:
Bostik, Inc.
211 Boston Street
Middleton, MA

RCRA Tank Assessment
Final Report

Prepared By: Douglas R. Roeck

Reviewed By: John Woodhull, P.E.

AECOM, Inc.
December 2008
Document No.: 00963-045-400

Contents

List of Appendices

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List of Figures

No figures included in this document

1.0 Introduction

1.1 Facility Overview

The Bostik plant manufactures polyester resins in two manufacturing units at the facility; the Polyester and Direct Solvation departments. A number of batch reactors are employed to generate products used in a variety of adhesive applications. Polyester resins are produced in Buildings 36 and 39 and include batch reactors R-1, R-2, R-3 and R-4 (Building 36) and R-10, R-13 and R-14 (Building 39). Direct Solvation resins are produced in Building 9 in reactors R-5, R-6 and R-8.

The polyester polymerization reactions that take place in the Polyester and Direct Solvation departments generate a byproduct known as polyester distillate. This material, although primarily water and methanol, is a hazardous waste in terms of ignitability (D001) and the potential for residual concentrations of benzene and methyl ethyl ketone (MEK) that would require listing waste codes D018 and D035. The hazardous waste is currently burned in a vertically-fired process heater, referred to as the Polyester Burner unit or boiler / industrial furnace (BIF). This hazardous waste combustor (HWC) provides energy for the thermal requirements associated with the polyester resin manufacturing processes (i.e., to heat the reactor hot oil system).

Process vapors from the various tanks and batch process reactors are collected in a 6-inch vapor header and routed to the polyester burner. The process vapor stream is fed into the combustion chamber directly above the liquid waste burner. These process vapors are also capable of being sent to a thermal oxidizer (enclosed flare) in case the BIF unit goes down for an extended period of time.

The distillate waste material generated by the polyester department is collected in the "Day Tank" (DT-1), a 950-gallon tank located under the vacuum pump room in Building 39. When the Day Tank's level reaches a predetermined point, the pump and bottom outlet valve are turned on and the tank's contents are pumped to either T-1 or T-2. The distillate generated in Buildings 36 and 39 is accumulated in two (2) newly installed 8,000 gallon aboveground storage tanks adjacent to Building 39. These tanks are identified as T-1 and T-2. The distillate generated in the Direct Solvation department is accumulated in a 10,000 gallon aboveground storage tank adjacent to Building 9. This tank is identified as T-9. The distillate in T-9 is then periodically pumped to T-1 and T-2. The distillate from T-1 and T-2 is then pumped to the Struthers-Wells Industrial Boiler (polyester burner unit) adjacent to Building 36 where it is subsequently co-fired with natural gas. A process flow diagram showing the flow path between these tanks and the polyester burner unit is shown in Figure D-1 of this permit application.

1.2 Project Background

In July 1995, Bostik conducted a RCRA tank assessment for the original storage tanks T-1, T-2 and T-9 as part of the initial Part B permit application that was submitted to U.S. EPA at that time. When EPA subsequently requested an updated permit application (submitted in December 2006), the original 1995 tank assessment report was included in the updated submittal. During EPA's initial review of the updated Part B application, the following comment was provided with respect to the 1995 tank assessment that was conducted:

A review of Attachment D-1 – Tank Certification Report indicated that the certification or assessment does not comply with the requirements of 40 CFR 264.192(b). In particular, there was no discussion on existing corrosion protection or the results of a leak test, internal inspections or other tank integrity examination. A visual inspection of Tanks T-1 and T-2 as noted in the report is not adequate. In addition, there was no assessment for Tank DT-1.

In light of these comments and the fact that the prior assessment was over 10 years old, Bostik decided to conduct a new RCRA tank assessment that would also include the day tank (DT-1). This report represents the new tank assessment that was performed by AECOM, Inc.

The most recent tank inspection conducted in October 2007, indicated that tank T-2 needed to be taken out of service due to microbial influenced/induced corrosion and that tank T-1 have the interior floor treated to reduce the rate of corrosion and be re-inspected within 5 years. In light of this information, Bostik made the decision to immediately take T-2 out of service and then to make plans to replace both tanks. New tanks were ordered from Highland Tank and Manufacturing Co., Inc. The new storage vessels are both 8,000 gallon vertical tanks with double wall bottoms rated for atmospheric service. New tank T-2 was placed into service on May 19, 2008. New tank T-1 was placed into service on October 12, 2008.

1.3 Regulatory Requirements

Regulation of hazardous waste storage systems is covered under both State and Federal statutes. The applicable Massachusetts rules are provided under 310 CMR 30.690 – 30.699. The governing Federal RCRA regulations are provided in Subpart J (Tank Systems) at 40 CFR 264.190 – 264.200. Of particular interest to this project is the fact that the Massachusetts regulations provide for slightly more stringent requirements in certain areas as identified below:

- Massachusetts requires that the certification by an independent registered professional engineer be by an engineer registered in Massachusetts (310 CMR 30.692);
- Massachusetts does not allow the use of a containment building for secondary containment of a tank system;
- Massachusetts does not have a variance provision that is equivalent to 40 CFR 193(g); and
- Massachusetts requirements for secondary containment for tanks (310 CMR 30.694(5)(b)(1) are more stringent than the federal requirements (40 CFR 264.193(e)(1)(i). Massachusetts requires that the secondary containment system contain 110% of the largest tank or 10% of the total volume.

While the RCRA tank assessment that has been performed is intended to satisfy the request from U.S. EPA, particular attention has been paid to the more stringent State requirements identified above.

1.4 Document Organization

Section 2.0 presents technical specifications and pertinent design information for each of the hazardous waste storage tanks at the facility. Detailed information related to the tank assessment performed is presented in Section 3.0. Conclusions and recommendations are outlined in Section 4.0. **Appendix A** provides a copy of the report prepared by Commonwealth Tank of Wakefield, MA concerning the tank thickness testing performed on October 18, 2007. **Appendix B** provides relevant documentation on the design and installation of new tanks T-1 and T-2 in April/May and October 2008. Finally, **Appendix C** provides a copy of the applicable sections of the State and Federal tank regulations.

2.0 Certification

The purpose of this assessment is to fulfill the requirements of the applicable provisions of 40 CFR 264.190 – 264.200 and 310 CMR 30.690 – 30.699 for the tanks designated as T-1, T-2, T-9 and DT-1 and their associated ancillary piping, equipment and secondary containment systems. Limited to the information contained in this assessment report, AECOM, Inc. provides the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

John W. Woodhull

John W. Woodhull, P.E.
Registration No. 39884
Commonwealth of Massachusetts

3.0 Storage Tank Technical Specifications

The hazardous waste material generated at the facility is stored in four different tanks located throughout the plant. **Table 3-1** provides an overview of the technical specifications for these storage tanks including pertinent information on the provisions for secondary containment.

3.1 Tank Systems T-1 and T-2

The waste byproduct material (a pumpable-liquid hazardous waste) generated from the plant's polyester and direct solvation resin manufacturing units is piped to the main distillate storage tanks designated as T-1 and T-2. Tanks T-1 and T-2 are two vertical 8,000-gallon storage vessels located adjacent to Building 27, which contain polyester distillate for feed to the burner. These tanks were newly fabricated and installed in 2008. Both are designed in accordance with the U.L. 142 Standard except that they have flat roofs. The tanks are rated for 2.5 psig and are fabricated from carbon steel with top, double bottom, and walls at $^{1}/_{4}$ inch thick.

3.2 Tank System T-9

Tank T-9, the direct solvation tank, is a 10,000-gallon stainless steel tank located outside Building 9 which contains polyester distillate generated by the direct solvation department. This tank was fabricated and installed in 1987 and is constructed in accordance with ASME pressure vessel code, Section VIII, Division I. The tank is a horizontal tank with dished heads rated for atmospheric service. The tank is fabricated from 304 stainless steel with the walls and heads both $^{3}/_{16}$ inch thick.

3.3 Tank System DT-1

Tank DT-1, the polyester day tank, is a 950-gallon carbon steel tank located in Building 36 which temporarily contains polyester distillate generated by the polyester department. This tank is designed to continuously pump to T-1 or T-2 and then stop when the liquid level reaches 25% of capacity. This tank was fabricated and installed in 2000 and is constructed in accordance with ASME pressure vessel code, Section VIII, Division I. The tank is a horizontal tank with dished heads rated for atmospheric service. The tank is fabricated from carbon steel with the walls and heads both $^{1}/_{4}$ inch thick.

Table 3-1 Storage Tank System Design Information

Design Parameter	Units	RCRA Storage Tank ID Number T-1	T-2	T-9	DT-1
Tank Vessel --					
Storage Capacity	gallons	8,000	8,000	10,000	950
Location in Plant	--	adj to Bldg 27	adj to Bldg 27	outside Bldg 9	inside Bldg 36
Orientation	--	vertical	vertical	horizontal	horizontal
Tank definition	--	At grade on concrete pad	At grade on concrete pad	Above ground	Above ground
Installation Date	--	2008	2008	1987	2000
Existing or New (RCRA)	--	New	New	New	New
Construction Material	--	mild carbon steel	mild carbon steel	304 ss	carbon steel
Pressure Rating	psia	17.2	17.2	14.7	14.7
Wall Thickness	inches	$^{1}/_{4}$	$^{1}/_{4}$	$^{3}/_{16}$	$^{1}/_{4}$
Height / Length	feet	14	14	18	7.4
Diameter (Outside)	feet	10	10	10	5
Volume	ft^3	1,100	1,100	1,414	145
Secondary Containment --					
Length (Inside)	feet	30	included	30.2	11.7
Width (Inside)	feet	16	within	15	11.2
Height	inches	45	secondary	42.5	19
Wall Thickness	inches	10	containment	10	8.25
Gross Volume	ft^3	1,800	area for T-1	1,603	206
	gallons	13,466		11,990	1,543
T-1 or T-2 displacement	ft^3	216			
Concrete Pads / Corners	ft^3	197			
Net Volume	ft^3	1,387		1,603	206
	gallons	10,376		11,990	1,543
Percent Capacity	**%**	**130%**		**120%**	**162%**
Interior Coating Material	--	SikaGuard Epoxy	SikaGuard Epoxy	SikaGuard Epoxy	SikaGuard Epoxy

3.4 Description of Feed Systems, Safety Bypass Systems and Pressure Controls

The distillate generated from the manufacture of polyesters is formed in two distinct process operations. Both stages require the addition of heat to the reaction vessel and result in production of a distillate. The distillate generated is collected into the Day Tank, DT-1. The Day Tank is a 950-gallon tank located in Building 39 beneath the vacuum pump room. The tank contents are pumped continuously to either T-1 or T-2. The pump and bottom outlet valve are controlled by tank level. A continued rise in level to the high-high point is alarmed, so that the operator can take action to prevent overflow of the tank. A flashing light indicates the tank level has reached 50% and a continuously on light indicates 70% capacity. A shutdown of the polyester burner would be triggered if the tank level reached 90%. At low level (25%) the pump is stopped.

Tanks T-1 and T-2 are each equipped with level indication. High level is alarmed. At the high-high level point (90%) the Day Tank Transfer Pump is stopped and the condition is alarmed so that the operator can take action to prevent an overflow. There is a level equalizing line that runs between T-1 and T-2 so that if one tank fills it will overflow to the other before overflowing to the diked area.

Distillate collected in T-9 is pumped to T-1 and T-2. The air-operated pump is started and stopped by the operators. The operators watch the levels in both tank T-9 and in T-1/T-2. They do not start the transfer pump unless there is sufficient room in T-1/T-2 to handle the volume to be transferred. Tank T-9 has both high and high-high level alarms. It takes about 60 minutes for Tank T-9 to fill from the high to the high-high level, giving operations time to initiate a transfer.

4.0 RCRA Tank Assessment

All four of the distillate storage tanks operated by Bostik meet EPA's definition of a "new" tank (see 40 CFR 260.10) in that they were installed after July 14, 1986. In addition, all four of the tanks are equipped with secondary containment systems designed to hold greater than 100% of the volume of the largest tank within the diked area. The requirements for a RCRA tank assessment are outlined at 40 CFR 264.192 and are summarized in the following paragraph.

"The assessment must show that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail. This assessment, which will be used by the Regional Administrator to review and approve or disapprove the acceptability of the tank system design, must include, at a minimum, the following information:

(1) Design standard(s) according to which tank(s) and/or the ancillary equipment are constructed;

(2) Hazardous characteristics of the waste(s) to be handled;

(3) For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, a determination by a corrosion expert of:

> *(i) Factors affecting the potential for corrosion, including but not limited to:*
>
> > *(A) Soil moisture content;*
> >
> > *(B) Soil pH;*
> >
> > *(C) Soil sulfides level;*
> >
> > *(D) Soil resistivity;*
> >
> > *(E) Structure to soil potential;*
> >
> > *(F) Influence of nearby underground metal structures (e.g., piping);*
> >
> > *(G) Existence of stray electric current;*
> >
> > *(H) Existing corrosion-protection measures (e.g., coating, cathodic protection), and*
>
> *(ii) The type and degree of external corrosion protection that are needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following:*
>
> > *(A) Corrosion-resistant materials of construction such as special alloys, fiberglass reinforced plastic, etc.;*
> >
> > *(B) Corrosion-resistant coating (such as epoxy, fiberglass, etc.) with cathodic protection (e.g., impressed current or sacrificial anodes); and*
> >
> > *(C) Electrical isolation devices such as insulating joints, flanges, etc."*

The following sections describe the tank system information investigated as part of this overall project. The types of information that have been investigated as part of this study are summarized in **Table 4-1**.

Table 4-1 RCRA Tank Assessment Requirements

Assessment Requirement	How Information Verified
1. Adequate design	Evaluate tank construction against original design criteria and/or appropriate API or ASME standard for pressure, vacuum and materials of construction Review operations and maintenance history of each tank and all ancillary equipment Review secondary containment to assess adequate volume and ability to contain leaks or spills from the tank and ancillary equipment
2. Sufficient structural strength	Evaluate tank foundation structural adequacy and tank wall thickness Evaluate pipe supports and evidence of problems during field inspections
3. Compatibility with waste	Evaluate standard references for material selection. Review results of X-ray or ultrasound NDT testing and review any internal inspection reports Review documented leaks and evaluate causes and repairs.
4. Maintenance of cracks, leaks, corrosion or erosion	Evaluate NDT test reports and documentation of repairs of leaks, thin spots, etc. Inspect secondary containment for evidence of cracks and repairs to same

4.1 Design Standards

Tanks T-1 and T-2 are small atmospheric vessels designed and constructed by Highland Tank. The design of these vessels is per UL-142, with the exception that each has a flat floor and roof. Flat heads provide less structural reinforcement than curved heads do. These tanks do not meet UL standards.

Tanks T-9 and DT-1 are designed to comply with the ASME pressure vessel code, Section VIII, Division I. A vessel designed in accordance with the ASME pressure vessel code has sufficient structural strength so that it will not collapse, rupture or fail so long as operating conditions are within design limitations and sufficient shell thickness, as per the original design, is maintained at all times.

4.2 Waste Characteristics

The tanks being investigated as part of this study store a pumpable liquid hazardous waste stream generated by the Polyester and Direct Solvation resin manufacturing units at the facility. The waste is categorized as a characteristic hazardous waste by ignitability because it exhibits a flash point of less than 140°F (D001). An overall summary of analytical data for physical parameters and metal constituents is provided in **Table 4-2**.

Table 4-2 Representative Analysis for Distillate Waste Stream

Analytical Parameters	Units	Expected Range
METALS --		
Antimony	mg/kg	2 - 10
Arsenic	mg/kg	0 - 0.1
Barium	mg/kg	0 - 0.2
Beryllium	mg/kg	0 - 0.06
Cadmium	mg/kg	0 - 0.03
Chromium	mg/kg	0 - 1.5
Lead	mg/kg	0 - 0.1
Mercury	mg/kg	0 - 0.04
Silver	mg/kg	0 - 0.03
Thallium	mg/kg	0 - 0.4
PHYSICAL PARAMETERS --		
Chlorine	mg/kg	200 - 400
Ash Content	% (wt)	0.1 - 0.6
Heat Content	Btu/lb	5,300 - 7,500
Density	g/cc	0.90 - 1.00

C:\PROJECTS\BOSTIK\CY 2006\Part B Renewal\[Feed Stream Data.xls]Part B Smry

Note: Data from January 2003 compliance recertification, November 2006 waste analyses and the June 2008 RCRA Trial Burn / MACT CPT.

The recovered hydrocarbon material has a heating value of approximately 6,500 Btu/lb and generally low or non-detectable levels of chlorine and toxic metals as determined by analytical procedures specified in SW-846. Historically, the polyester distillate material has consisted of various organics as summarized in **Table 4-3**.

On the basis of process knowledge and waste analysis, the only hazardous organic constituents listed in 40 CFR Part 261, Appendix VIII that can be expected to be present in the hazardous waste are methyl ethyl ketone (MEK) and toluene. The remaining nonmetal compounds listed in 40 CFR Part 261, Appendix VIII could not reasonably be expected to be present in the hazardous waste, since they are not identified in the raw material specifications and material safety data sheets (MSDS); they are not identified on the product quality specifications; they are not expected to be formed during the production process; and they have not been detected in prior waste analyses.

Tanks T-1, T-2, T-9 and DT-1 each contain a mixture of water and organic compounds. This is the waste material that has been, or is intended to be handled in these tanks. This waste is compatible with the materials of construction used for the tanks so long as the pH of the aqueous phase is controlled within the neutral to slightly alkaline range. Tanks T-1, T-2 and DT-1 are constructed using mild carbon steel lined with a SikaGuard Epoxy. Tank T-9 is constructed of 304 SS with a SikaGuard epoxy lining. The design specific gravity, that of water, will not be exceeded as any possible mixture of water and the organics which are expected to be present in the tank will have a specific gravity less than 1.0.

Table 4-3 Major Constituents Typically Expected in the Distillate Waste Stream

Component	Polyester Distillate (%)	RCRA Part 261 App VIII?	NESHAPs Sect. 112(b) HAP?
Methanol	10 - 40	No	**Yes**
Water	30 - 50	No	No
Xylene	0 - 5	No	**Yes**
Butanediol	4 - 10	No	No
Diethylene Glycol	1 - 3	No	No
Tetrahydrofuran	5 - 15	No	No
Ethylene Glycol	0 - 20	No	**Yes**
Dimethyl terephthalate	0 - 2	No	No
Hexanediol	1 - 3	No	No
Ethyl Acetate	0 - 5	No	No
Methyl Ethyl Ketone	0 - 5	**Yes**	No
Toluene	0 - 5	**Yes**	**Yes**

There has been no evidence of leakage from any of the four tanks evaluated. None of the four tanks have been repaired. Corrosion charts show that for both epoxy-lined carbon steel or 304 stainless steel, contact with the aqueous mixtures of hydrocarbons that are present in these vessels (polyester distillate) would not be expected to result in accelerated rates of corrosion so long as the aqueous phase is at neutral to alkaline pH. However, the October 2007 tank inspection report noted evidence of microbial corrosion at the bases of Tanks T-1 and T-2. This is the result of solids accumulation at the tank base, and is not evidence of incompatible materials of construction; regular cleaning could mitigate or eliminate this problem.

4.3 Corrosion Potential – Soil and Water Corrosion

The exteriors of the steel tanks and ancillary steel piping systems are not in contact with soil or water. None of the other metal components of the tanks or tank systems are in contact with soil or water. Newly installed Tanks T-1 and T-2 are mounted on steel cradles on concrete pads such that they are raised 22-inches above the containment area floor. Any rainfall that might accumulate in this area will be pumped out before reaching the bottom of the tanks. Tanks T-9 and DT-1 are above-grade horizontal tanks located under cover of a roof. Tanks T-9 and DT-1 are mounted on saddles which keep the tank above any water which might intermittently accumulate within the diked area.

4.4 Thickness Testing

The thickness of each of the four storage tanks evaluated (T-1, T-2, T-9 and DT-1) was tested by Mr. Kevin Hoag of Commonwealth Tank using an ultrasonic thickness gauging procedure. The result from this testing was that wall thickness was found to be greater than 75% of the original design value (which is acceptable for continued use) for tanks T-1, T-9, and DT-1. Tanks T-9 and DT-1 are horizontal tanks on saddles, so it was possible to inspect the entire tank using ultrasonic gauging. At the time of the thickness testing (October 2007), original tanks T-1 and T-2 sat directly on a concrete pad, so internal inspections were required to evaluate the tank bottoms. The interior inspection revealed that both tanks had experienced corrosion induced or accelerated by microbes. This finding resulted in Bostik's decision to replace both T-1 and T-2. As stated previously, new tanks were installed in April/May and October 2008.

The Commonwealth Tank report is included as **Appendix A**.

4.5 Ongoing Maintenance and Inspection Results

The tanks and piping systems are all located on or above grade within concrete diked areas allowing visual inspection. The tanks and tank systems were inspected for weld breaks, punctures, cracks and corrosion.

No structural damage or indication of inadequate construction or installation was observed. Pipe lines adjacent to T-1 and T-2 were observed to be corroded, however it was subsequently determined that this piping is no longer in use. No other problems with the piping that forms a part of the tank systems were noted.

The above-grade piping is supported from below by steel hangers. Pipe run lengths are relatively short. Operating temperatures for the distillate (waste) are greater than ambient, but are not so high that problems with stress caused by thermal expansion are expected. Expansion bellows, flexible connections and glass viewports, all of which are potential failure points, have not been used as part of the piping system. Tank T-9 is insulated. Tracing and insulation are provided on the lines filling DT-1, however the tank itself is not insulated; T-1 and T-2 are not insulated either.

Tanks T-1 and T-2 are vertical tanks set on steel cradles above a concrete pad. Tanks T-9 and DT-1 are horizontal tanks set on saddles, resting on concrete. In each case, the concrete supporting the vessel, which as been in place for between 7 and 21 years, remains competent based on visual inspection. It shows no signs of cracking, spalling or settlement.

Tanks T-1, T-2, DT-1 and T-9 are all located within the main operating area of the Bostik facility. Operators frequently pass by these tank systems. Inspection of the tanks and piping systems for signs of leakage occurs daily as the operators pass by this equipment in the course of plant operation. Operators complete daily inspection sheets documenting system integrity based on visual observation.

4.6 Secondary Containment

As shown previously in Table 3-1, each of the storage tanks covered by this assessment are located within a concrete secondary containment area. In each case the volume contained is greater than 110% of the volume of the largest tank within the containment area. The containment areas are monitored for tank leakage by visual observation (daily inspection). Tanks T-1 and T-2 are located outside, so that rainwater can collect within the secondary containment area. When rainwater collects in this area, it is pumped from the dike. New tanks T-1 and T-2 are now set on steel cradles above a concrete pad that is elevated above the base of the secondary containment area. Operators check daily for signs of leakage from the base of each tank across this elevated foundation, which remains dry even following rain.

The diked areas surrounding tanks DT-1 and T-9 are under cover and do not collect rainwater. The concrete secondary containment areas beneath these tanks are checked daily for any indication of leakage from the tank.

In each case, the concrete providing storage tank secondary containment was observed to be free of cracks without evidence of the need for repair. Concrete secondary containment surfaces beneath DT-1 and T-9 have been coated, which provides improved ability to contain any potential spill.

5.0 Conclusions and Recommendations

5.1 Summary of Primary Findings

Inspection of all four storage tanks led to the conclusion that Tanks T-1 and T-2 showed signs of microbe-induced corrosion on the bottoms of the tanks. No other tank storage system deficiencies were uncovered by the assessment.

5.2 Recommendations

Following the interior inspection of T-1 and T-2, Commonwealth Tank recommended that "T-1 have the interior floor treated to reduce the rate of corrosion and be re-inspected within 5 years. T-2 should be taken out of service, since in this case repairs of the tank are not possible." AECOM, Inc. fully supported these recommendations and Bostik proceeded with plans to replace both tanks.

5.3 Corrective Actions

In order to be able to maintain operation, Bostik embarked on a program to replace both tanks T-1 and T-2 in a staged fashion. The following actions were taken to implement this program:

- Upon receipt of the inspection report from Commonwealth Tank, T-2 was immediately taken out of service. Tank T-1 was kept online to allow continued storage of waste distillate and burning of the material in the polyester burner unit.

- Replacement tanks were ordered from Highland Tank on March 14, 2008

- Both tanks were delivered to Bostik in April 2008

- New tank T-2 was inspected by a Bostik plant engineer on April 30, 2008 to verify structural integrity and proper design. The tank was placed into service on May 19, 2008.

- New tank T-1 was installed during the week of October 7, 2008 and inspected by a Bostik plant engineer to verify structural integrity and proper design. The tank was placed into service on October 12, 2008.

Appendix A

October 2007 Thickness Testing Results

Comm Tank

Installation | Remediation | Removal

Commonwealth Tank Inc.

84 New Salem Street
Wakefield, MA 01880

T 877.668.2657
877.66.TANKS
800.628.8260

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E info@commtank.com
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January 3, 2008

Mr. Daniel Welch
Health Safety Environment & Quality Manager
Bostik, Inc.
211 Boston Street
Middleton, MA 01949-2128

Dear Mr. Welch:

On October 18, 2007, CommTank performed aboveground storage tank (AST) inspections on several tanks at your facility in Middleton, MA. The following report was prepared to detail the inspection process and subsequent tank test data. The CommTank certified inspector was Kevin Hoag STI #AST-516-03.

The inspection was conducted using the ultrasonic thickness (UT) gauging procedure. The objective of the thickness gauging is to assure the average tank shell thickness is greater than 75 percent of the original shell metal thickness through a series of identified, averaged measurements of 3-foot by 3-foot quadrants; 1-foot by 1-foot subdivisions of quadrants; perforations; and thin metal target areas. This inspection report describes the results of the tank inspections and the recommended actions to be taken by the owner.

The inspection included four above ground storage tanks: two 8,800 gallon A36 mild carbon steel vertical tanks (T1-T2), a 10,000 gallon stainless steel horizontal tank (T-9), and a 950 gallon A36 mild carbon steel horizontal tank (DT-1). The inspection included an external visual inspection as well as UT. The inspection indicated that T-1, T-9 and DT-1 passed and are suitable for their intended storage use (see attached reports).

T-1 and T-2 both required internal inspections since they are vertical tanks and were installed so that the bottom of each tank was in contact with the ground (a concrete pad). Therefore, direct inspection of the AST's could not be conducted from the exterior.

An interior inspection revealed that both AST's had microbial influenced/induced corrosion (MIC) accelerated/caused by microbes. This was characterized by a ring like pattern of cone and crater shaped penetrations (see attached photos). MIC is characterized by a high rate of corrosion. It sometimes penetrates tank walls and bottoms in two years or less.

Under the Steel Tank Institute (STI) AST inspection standard, "SP001 10.2.1" it states, "If evidence of MIC is found at anytime, then corrections and repairs should be promptly made to the AST." We recommend that T-1 have the interior floor treated to reduce the rate of corrosion and be re-inspected within 5 years. T-2 should be taken out of service since, in this case, repairs of the tank are not possible.

Additional facts to be considered regarding T-1 and T-2:

1. These tanks do not contain an Underwriters Laboratory* (UL 142) inspection plate, due to their shell heads being flat they do not provide the proper structural reinforcement. UL has been contacted and will not inspect or approve these tanks for continued use.
2. These tanks contain a flammable material requiring a permit issued by the local Fire Department.
3. Local Fire Chief will not approve repair of these tanks based upon their age, use, and proximity to local drinking water.

In conclusion, based upon this information we recommend that the T-2 be immediately removed from service. This would include removing product from the tank, cleaning the tank, and removing hazardous vapors from the AST.

Please give me a call if you have any questions regarding this letter.

Sincerely,

Kevin M. Hoag

Kevin M. Hoag
President

cc: Doug Roeck, ENSR Corporation ✓

*This is a widely accepted tank standard.

Tank 27001 - T1	Shell		Tank 27001 - T1		Tank 27001 - T1	Tank 27001 - T1	
Location	Thickness	Thickness	Location	Thickness	Location	Location	Thickness
A 01	5/16"	0.322	B 01	0.326	C 01	D 01	0.162
A 02		0.324	B 02	0.317	C 02	D 02	0.161
A 03		0.330	B 03	0.325	C 03	D 03	0.321
A 04		0.326	B 04	0.327	C 04	D 04	0.322
A 05		0.328	B 05	0.318	C 05	D 05	0.197
A 06		0.333	B 06	0.316	C 06	D 06	0.81
A 07		0.333	B 07	0.329	C 07	D 07	0.171
A 08		0.329	B 08	0.333	C 08	D 08	0.166
A 09		0.321	B 09	0.335	C 09	D 09	0.171
A 10		0.326	B 10	0.330	C 10	D 10	0.164
Tank 27002 - T2	Shell		Tank 27002 - T2		Tank 27002 - T2	Tank 27002 - T2	
Location	Thickness	Thickness	Location	Thickness	Location	Location	Thickness
A 01	5/16"	0.317	B 01	0.329	C 01	D 01	FAIL
A 02		0.326	B 02	0.333	C 02	D 02	FAIL
A 03		0.33	B 03	0.327	C 03	D 03	FAIL
A 04		0.325	B 04	0.318	C 04	D 04	FAIL
A 05		0.326	B 05	0.319	C 05	D 05	FAIL
A 06		0.325	B 06	0.325	C 06	D 06	FAIL
A 07		0.327	B 07	0.330	C 07	D 07	FAIL
A 08		0.321	B 08	0.326	C 08	D 08	FAIL
A 09		0.315	B 09	0.334	C 09	D 09	FAIL
A 10		0.329	B 10	0.333	C 10	D 10	FAIL

BOSTIK, INC.

DT - 1			Tank 09518 T - 9		
Location	Shell Thickness	Thickness	Location	Thickness	Shell Thickness
A	1/4"	0.251	A	0.187	3/16"
		0.247	B	0.183	
		0.239	C	0.19	
		0.260	D	0.191	
		0.248	E	0.187	
		0.240	F	0.189	
		0.241	G	0.184	
		0.241			
		0.252			
		0.240			

1/3/08

Certified Tank Inspection Report

Date 10/18/07

Inspector Name Kevin Hoag	
Company Commonwealth Tank, Inc.	Phone 617-628-8260
Address 84 New Salem Street, Wakefield, MA 01880	FAX 781-224-9908
Tank Owner's Name: Bostik, Inc.	Phone 978-750-7402
Tank Location : DT-1 211 Boston Street, Middleton, MA	
Tank Dimensions: 7.4' by 5'	Capacity Gallons: 950
Product Stored: hazardous waste distillate	

Tank Type (check all that apply)

☑ Single wall	☐ Double wall	☐ Secondary containment
☑ Horizontal	☐ Vertical	☐ Rectangular
☐ In contact with the ground	☐ Not in contact with the ground	☐ Cathodic protection installed
☑ Tank equipped with man way	☐ Tank not equipped with man way	☐

		Yearly Inspection Requirements
Section	**Item to check**	**Comments**
4.2	Water in tank(s)	N/A
4.3	Tank interstice Leak detection	N/A
4.4	Pipe connections	Pass
4.5	Exterior	Pass
4.6	Vents Emergency Vents Spill Containers	Pass
4.7	Site drainage	N/A
4.8	Emergency Vents o-rings or gaskets	N/A
4.9	Tank Supports	Pass
4.10	Tank Foundation	Pass

Tank Tightness Testing			
Type of tests performed	Pressure	Time	Comments
Primary tank pressure test	—		
Secondary tank pressure test	—		
Interstice vacuum test	—		
Hydrostatic pressure test	—		
Ultrasonic gauge thickness test			See Attached

Cathodic Protection Testing (for tanks so equipped)		
System type	Testing interval	Comments
Sacrificial anode or Impressed current (circle one)		

Next Certified Tank Inspection Recommendation		
❑ 1 year	❑ 5 years	☑ 10 years
❑ Other______________ Explain______________		
To be determined following Certification testing		

Tank Integrity Report

Test performed (reference Section no.) Exterior AST inspection using Ultrasonic Thickness. Tank has remained at 90-100% of original steel thickness

Results

Recommendations

Test Performed (reference Section no.)

Results

Recommendations

Test Performed (reference Section no.)

Results

Recommendations

Kevin M Hoag

Kevin M. Hoag, President
STI AST#-516-03

Certified Tank Inspection Report

Date 10/18/07

Inspector Name Kevin Hoag	
Company Commonwealth Tank, Inc.	Phone 617-628-8260
Address 84 New Salem Street, Wakefield, MA 01880	FAX 781-224-9908
Tank Owner's Name: Bostik, Inc.	Phone 978-750-7402
Tank Location : T-1 211 Boston Street, Middleton, MA	
Tank Dimensions: 10' by 15'	Capacity Gallons: 8,800
Product Stored: hazardous waste distillate	

Tank Type (check all that apply)

☑ Single wall	☐ Double wall	☐ Secondary containment
☐ Horizontal	☑ Vertical	☐ Rectangular
☑ In contact with the ground	☐ Not in contact with the ground	☐ Cathodic protection installed
☑ Tank equipped with man way	☐ Tank not equipped with man way	☑ Cylindrical

		Yearly Inspection Requirements
Section	Item to check	Comments
4.2	Water in tank(s)	N/A
4.3	Tank interstice Leak detection	N/A
4.4	Pipe connections	Pass
4.5	Exterior	Prime, Paint
4.6	Vents Emergency Vents Spill Containers	Pass
4.7	Site drainage	Pass
4.8	Emergency Vents o-rings or gaskets	Pass
4.9	Tank Supports	Pass
4.10	Tank Foundation	Pass

Tank Tightness Testing			
Type of tests performed	Pressure	Time	Comments
Primary tank pressure test	—		
Secondary tank pressure test	—		
Interstice vacuum test	—		
Hydrostatic pressure test	—		
Ultrasonic gauge thickness test			See Attached

Cathodic Protection Testing (for tanks so equipped)		
System type	Testing interval	Comments
Sacrificial anode or Impressed current (circle one)	N/A	

Next Certified Tank Inspection Recommendation		
☐ 1 year	☐ 5 years	☐ 10 years
☑ Other: Condem Tank	Explain: Microbial corrosion tank floor	
To be determined following Certification testing		

Tank Integrity Report

Test performed (reference Section no.) Performed non-destructive Ultrasonic Thickness readings using a Panametrics Model # 37 DL Plus

Results Fail tank floor - corroded less than 75% of original steel thickness remains

Recommendations

Test Performed (reference Section no.)

Results

Recommendations

Test Performed (reference Section no.)

Results

Recommendations

Kevin M. Hoag

Kevin M. Hoag, President
STI AST#-516-03

Certified Tank Inspection Report

Date 10/18/07

Inspector Name Kevin Hoag	
Company Commonwealth Tank, Inc.	Phone 617-628-8260
Address 84 New Salem Street, Wakefield, MA 01880	FAX 781-224-9908
Tank Owner's Name: Bostik, Inc.	Phone 978-750-7402
Tank Location : T-2 211 Boston Street, Middleton, MA	
Tank Dimensions: 10' by 15'	Capacity Gallons: 8,800
Product Stored: hazardous waste distillate	

Tank Type (check all that apply)

☑ Single wall	☐ Double wall	☑ Secondary containment
☐ Horizontal	☑ Vertical	☐ Rectangular
☑ In contact with the ground	☐ Not in contact with the ground	☐ Cathodic protection installed
☑ Tank equipped with man way	☐ Tank not equipped with man way	☑ Cylindrical

		Yearly Inspection Requirements
Section	Item to check	Comments
4.2	Water in tank(s)	N/A
4.3	Tank interstice Leak detection	N/A
4.4	Pipe connections	Pass
4.5	Exterior	Pass
4.6	Vents Emergency Vents Spill Containers	Pass
4.7	Site drainage	N/A
4.8	Emergency Vents o-rings or gaskets	Pass
4.9	Tank Supports	N/A
4.10	Tank Foundation	Pass

Tank Tightness Testing			
Type of tests performed	Pressure	Time	Comments
Primary tank pressure test	—		
Secondary tank pressure test	—		
Interstice vacuum test	—		
Hydrostatic pressure test	—		
Ultrasonic gauge thickness test			See Attached

Cathodic Protection Testing (for tanks so equipped)		
System type	Testing interval	Comments
Sacrificial anode or Impressed current (circle one)	N/A	

Next Certified Tank Inspection Recommendation		
☐ 1 year	☐ 5 years	☐ 10 years
☑ Other 2 Years Explain Microbial Corrosion (MIC) tank floor To be determined following Certification testing		

Tank Integrity Report

Test performed (reference Section no.) Interior AST inspection UT

Results Tank floor severely corroded approximately 50% or less of original steel thickness remaining

Recommendations

Test Performed (reference Section no.)

Results

Recommendations

Test Performed (reference Section no.)

Results

Recommendations

Kevin M. Hoag

Kevin M. Hoag, President
STI AST#516-03

Certified Tank Inspection Report

Date 10/18/07

Inspector Name Kevin Hoag	
Company Commonwealth Tank, Inc.	Phone 617-628-8260
Address 84 New Salem Street, Wakefield, MA 01880	FAX 781-224-9908
Tank Owner's Name: Bostik, Inc.	Phone 978-750-7402
Tank Location : T-9 211 Boston Street, Middleton, MA	
Tank Dimensions: 10' by 18'	Capacity Gallons: 10,000
Product Stored: hazardous waste distillate	

Tank Type (check all that apply)

☑ Single wall	☐ Double wall	☐ Secondary containment
☑ Horizontal	☐ Vertical	☐ Rectangular
☐ In contact with the ground	☑ Not in contact with the ground	☐ Cathodic protection installed
☐ Tank equipped with man way	☐ Tank not equipped with man way	☐

		Yearly Inspection Requirements
Section	**Item to check**	**Comments**
4.2	Water in tank(s)	N/A
4.3	Tank interstice Leak detection	N/A
4.4	Pipe connections	Pass
4.5	Exterior	Pass
4.6	Vents Emergency Vents Spill Containers	Pass
4.7	Site drainage	N/A
4.8	Emergency Vents o-rings or gaskets	N/A
4.9	Tank Supports	Cradle
4.10	Tank Foundation	Pass

Tank Tightness Testing			
Type of tests performed	Pressure	Time	Comments
Primary tank pressure test	—		
Secondary tank pressure test	—		
Interstice vacuum test	—		
Hydrostatic pressure test	—		
Ultrasonic gauge thickness test			See Attached

Cathodic Protection Testing (for tanks so equipped)		
System type	Testing interval	Comments
Sacrificial anode or Impressed current (circle one)		

Next Certified Tank Inspection Recommendation		
☐ 1 year	☐ 5 years	☑ 10 years
☐ Other______________ Explain______________ To be determined following Certification testing		

Tank Integrity Report

Test performed (reference Section no.) 100% of original thickness - PASS

Results

Recommendations

Test Performed (reference Section no.)

Results

Recommendations

Test Performed (reference Section no.)

Results

Recommendations

Kevin M. Hoag, President
STI AST#516-03

Appendix B

Documentation on the Design and Installation of New Tanks T-1 and T-2 in 2008

T2 design and installation prior use statement

Prior to placing new tank UL-P253360 (T2) into service on April 30th 2008 I inspected the Tank, piping, and ancillary equipment for the following items: Weld breaks, Punctures, Scrapes of protective coating, Cracks, Corrosion, and other structural damage or inadequate construction / installation. T2, piping, and Ancillary equipment was determined to be free of all above defects.

T2 was lagged to concrete in 4 places to prevent movement of tank or piping due to vibration or expansion and contraction.

After installation and prior to placing T2 into service on May 19th 2008 I certify that T2 and all associated piping were inspected for proper supports, installation, and pressured to 2 PSIG repeating factory test prior to shipment. All flanges, welds, and connections were sprayed with a soap and water solution during a visual check of all welds and connections and no leaks or discrepancies were found.

The bolts were loosened on the relief device to drawing specification and pressurized until said device lifted, supply closed, and maintained a constant 0.33 PSIG for 2 hours ensuring proper relief setting and tank and piping maintained pressure with no leaks.

I certify tank was designed, installed, and inspected in accordance with 40 CFR 264.192 paragraphs b – f and found to be ready for service.

Randy L. LaVigne 5-20-08

Randy LaVigne
Process Engineer
Bostik Inc.
May 20th 2008

T1 Design and Installation Prior Use Statement

The New UL listed Aboveground Tank for Flammable Liquid P253358 (T1) was installed during the week of October 7, 2008 and placed into service on October 12, 2008.

The engineering controls taken during the installation process were as follows:

1. Existing concrete containment area inspected for irregularities or failures; such as cracking, spaulding, deteriorations, etc. The inspection of the existing concrete containment area was found to be in excellent shape and ready to receive the new T1 tank.
2. Fabrication and installation of tank base support system designed to elevate tank off concrete to allow for tank bottom inspection and testing for wear points and steel thickness. Containment floor and base support are shown in the attached photo.

Containment floor and base support

3. T1 tank was inspected and certified OK to be picked up and placed in the containment area for the purpose of distillate storage. Tank was inspected for bad welds, punctures, protective coating & corrosion issues, dents and other structural damage or inadequate construction / installation and found to be OK.
4. T1 tank was anchored to concrete floor and bonded to containment grounding system.

Tank placement

Anchoring & Grounding

5. T1 suction line was fabricated and installed using 304 welded stainless steel pipe, heated with steam tracing and insulated. Line tested OK
6. Top of T1 agitator, flame arrestor, high level switch and pressure relief all inspected, installed and tested. Signage was placed where required.

Piping w/insulation

Top of T1 Tank

7. On October 10, 2008, a start-up procedure took place to review project for certification of use.
8. T1 has been certified by me, Joseph Condon, that the tank and all associated piping were inspected for proper supports, installation, and pressured to 2 psig repeating factory test prior to shipment. All flanges, welds, and connections were sprayed with a soap and water solution during a visual check of all welds and connections and no leaks or discrepancies were found.
   The bolts were loosened on the relief device to drawing specification and pressurized until said device lifted, supply closed, and maintained a constant 0.33 psig for 2 hours ensuring proper relief setting and tank and piping maintained pressure with no leaks.
9. I certify T1 tank was designed, installed, and inspected in accordance with 40 CFR 264.192 paragraphs b - f and found to be ready for service.
10. Placed into service October 12, 2008

Joseph C. Condon
Facility Manager
Date: 11/06/08

TOUCH UP OF FINISHED PAINT IS REQUIRED BY INSTALLATION CONTRACTOR. TOUCH UP PAINT SHIPPED WITH TANK.

NOTES

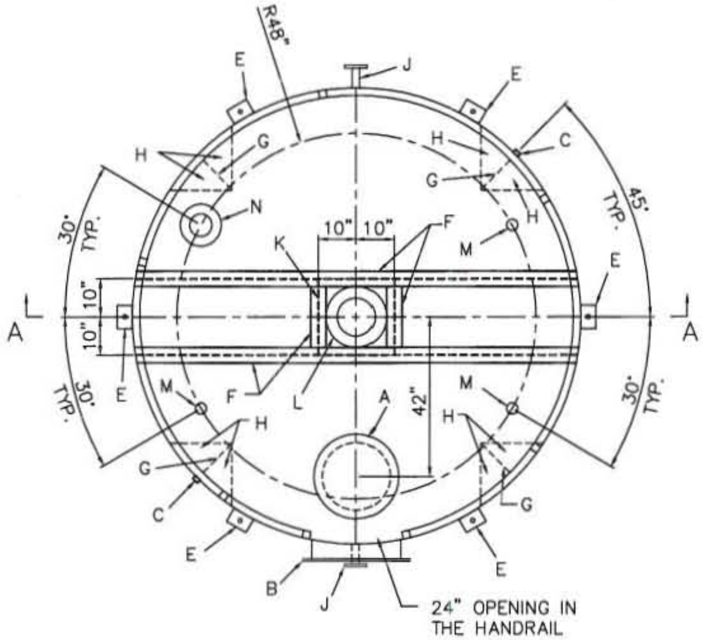
1. SEE PLAN VIEW FOR TRUE ORIENTATION AND LOCATION OF FITTING
2. LIFTING LUGS FOR UNLOADING UNIT & STANDING UNIT UPRIGHT TO BE PLACED AS NEEDED BY FABRICATION SHOP
3. A 3x3x¼" STEEL GROUNDING LUG WITH A ⅝"ø HOLE IN CENTER TO BE PLACED ON SHELL AT BOTTOM OF TANK IN LINE WITH LIFTING LUGS

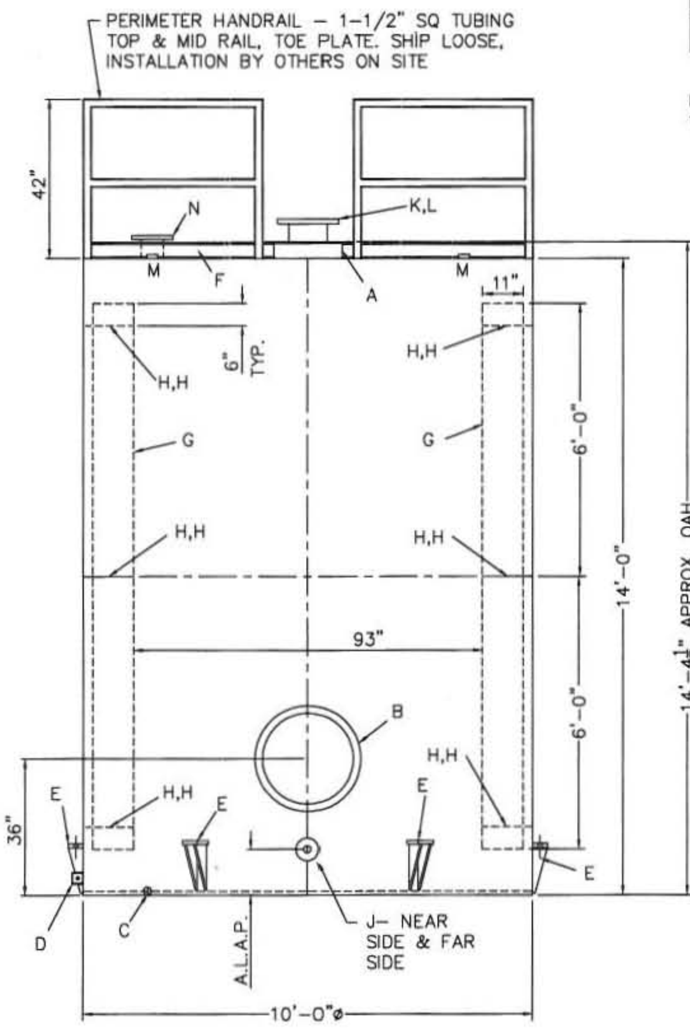
DESIGN DATA

CAPACITY – 8,000 GALLONS
TYPE – SINGLE WALL ABOVEGROUND VERTICAL
NO. REQ. – TWO
OPERATING PRESSURE – ATMOSPHERIC
TANK MATERIAL – MILD CARBON STEEL
THICKNESS – TOP: 1/4" FLAT THICKNESS – BOTTOM: 1/4" DOUBLE PER DETAIL THICKNESS – SHELL: 1/4"
CONSTRUCTION – LAP WELD INSIDE & OUTSIDE
TANK TEST – 2 PSIG
INT. FINISH – NONE
EXT. FINISH – SP6 BLAST, GRAY EPOXY PRIMER
LABEL – UL 142

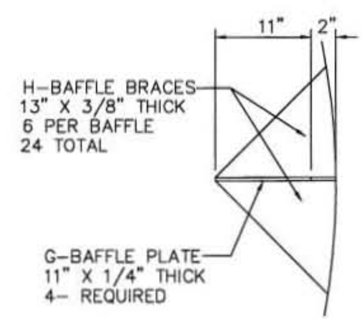
LEGEND

A	24" LOOSE BOLT MANWAY
B	24"ø CLOSE BOLT MANWAY w/ 1/4" NECK AND FLANGE & 3/8" COVER PLATE w/ 1/8" NEO-CORK GASKET
C	3/4" FNPT FITTING W/ DOPED CAST IRON PLUG PER BOTTOM JOINT DETAIL
D	GROUNDING LUG WITH 5/8" HOLE
E	HOLD DOWN LUGS PER DWG 58487
F	W4 I-BEAM – MIXER SUPPORTS
G	PLATE – 1/4" x 11" x 12'-0" LONG BAFFLE PLATES
H	PLATE – 3/8" x 13" x 13" BAFFLE PLATES SUPPORT GUSSET PLATES
J	2" RFSO 150# FLANGE w/ BLIND FLANGE (OUTLET)
K	PLATE – 1/4" x 20" x 20" MIXER MOUNT
L	10" RFSO 150# FLANGE (MIXER MOUNT)
M	2" FNPT FITTING
N	6" RFSO 150# FLANGE





NOTE:
1) SEE DRAWING 58487 FOR BOTTOM JOINT DETAIL & SECTION A-A.



BAFFLE DETAIL

Rev.	Description	Date	By
2	CHANGED TOP FROM 7 GA TO 1/4" PER TODD S.	3/18/08	003
1	CUSTOMER ADDED TWO 2" RFSO FLANGES, DELETED ONE 4" FNPT FITTING.	3/17/08	003

Highland Tank®

8,000 GAL 120"ø DOUBLE BOTTOM VERT. TANK

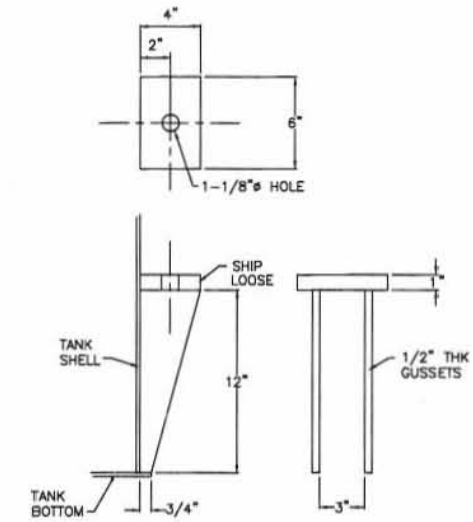
CUSTOMER: BOSTIK INC

PROJECT: MIDDLETON, MA

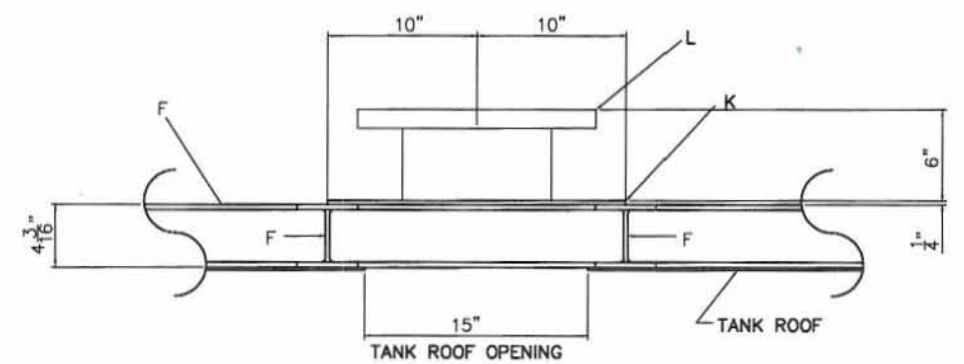
QUOTE NO: 202657 CHK'D BY:

SCALE: 3/8" = 12" | DATE: 3/17/08 | DWG. BY: 003 | DWG. NO: 58469

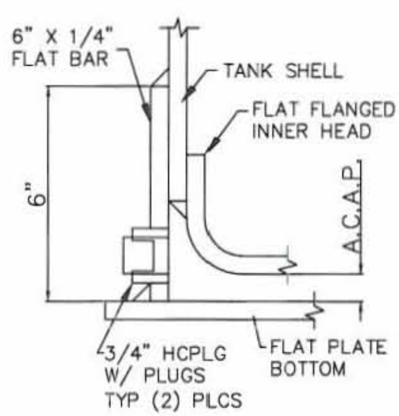
TOUCH UP OF FINISHED PAINT IS REQUIRED BY INSTALLATION CONTRACTOR. TOUCH UP PAINT SHIPPED WITH TANK.



ITEM "E" – HOLD DOWN LUG DETAIL



SECTION A–A



BOTTOM JOINT DETAIL

SEE DRAWING 58469 FOR TANK DETAILS

△1 CHANGED ROOF OPENING FROM 18" TO 15"	3/18/08	003

Highland Tank®

8,000 GAL 120"ø DOUBLE BOTTOM VERT. TANK

CUSTOMER: BOSTIK INC

PROJECT: MIDDLETON, MA

QUOTE NO: 202657 — CHK'D BY:

SCALE:	DATE:	DWG. BY:	DWG. NO:
1-1/2" = 12"	3/17/08	003	58487

Appendix C

Applicable Sections of MA DEP and U.S. EPA Regulations

30.687: continued

(3) Storage areas that store containers holding only hazardous wastes that do not contain free liquids and that do not contain any polyhalogenated aromatic hydrocarbons, need not have a containment system required by 310 CMR 30.687(2), if:

(a) The storage area is sloped or is otherwise designed and operated to drain and remove liquid resulting from precipitation; or

(b) The containers are elevated or are otherwise protected from contact with accumulated liquid.

30.688: Special Requirements for Ignitable, Reactive, and Incompatible Hazardous Wastes, and Hazardous Wastes That Are Polyhalogenated Aromatic Hydrocarbons

(1) Containers holding ignitable or reactive hazardous waste shall be located at least 15 meters from the facility's property line.

(2) Incompatible hazardous wastes or materials incompatible with hazardous wastes (*see* 310 CMR 30.561 for examples) shall not be placed in the same container unless 310 CMR 30.560(3) is complied with.

(3) Hazardous waste shall not be placed in an unwashed container that previously held waste or material incompatible with such hazardous waste.

(4) A container holding a hazardous waste that is incompatible with any waste or other material stored nearby in other containers or in piles, open tanks or surface impoundments shall be separated from the other waste or other material or protected from it by means of a dike, berm, wall, or other device.

(5) If containers holding polyhalogenated aromatic hydrocarbons are to be located or used at the facility, the facility's contingency plan shall include the following:

(a) Procedures for responding to spills or leaks of polyhalogenated aromatic hydrocarbons into the containment system.

(b) Procedures for removing polyhalogenated aromatic hydrocarbons from the containment system.

(c) Procedures for repairing or replacing leaking containers.

30.689: Closure

(1) At closure, the owner or operator shall remove all hazardous waste and hazardous waste residues from the containment system and shall decontaminate or remove all remaining containers, liners, bases and soil containing or contaminated with hazardous waste or hazardous waste residues.

(2) Upon removing hazardous waste from the containment system, the owner or operator shall become a generator of hazardous waste and shall manage it in compliance with all applicable requirements of 310 CMR 30.000.

30.690: Storage and Treatment in Tanks

30.691: Applicability

310 CMR 30.691 through 30.699, cited collectively as 310 CMR 30.690, prescribe requirements which apply to owners and operators of facilities that use tanks to treat or store hazardous waste, except:

(1) Tanks that are used to store or treat hazardous waste which contains no free liquids and are situated inside a building with an impermeable floor are exempted from the requirements in 310 CMR 30.694. To demonstrate the absence or presence of free liquids in the stored/treated waste, EPA method 9095 (Paint Filter Liquids Test) as described in *Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods* (EPA Publication No. SW-846) shall be used.

30.691: continued

(2) Tanks, including sumps, that serve as part of a secondary containment system to collect or contain releases of hazardous waste are exempted from the requirements of 310 CMR 30.694.

Owners and operators of facilities that use tanks to treat or store hazardous waste shall be in compliance with all applicable requirements of 527 CMR 9.00.

30.692: Assessment of Existing Tank System's Integrity

(1) For each existing tank system that does not have secondary containment meeting the requirements of 310 CMR 30.694, the owner or operator shall determine that the tank system is not leaking and does not pose a threat of release of hazardous waste to the environment. By no later than June 1, 1989, the owner or operator shall obtain a written assessment that has been reviewed and certified by a Massachusetts registered professional engineer, in accordance with 310 CMR 30.009, and that attests to the system's integrity. Once obtained, this assessment shall be kept on file at the facility until the facility has been closed pursuant to 310 CMR 30.699.

(2) This assessment shall correctly determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be stored or treated, to ensure that it will not collapse, rupture, or fail. In addition, the assessment shall correctly demonstrate that a minimum shell thickness has been maintained at all times to ensure sufficient shell strength. At a minimum, this assessment shall consider the following:

(a) Design standard(s), if available, according to which the tank and ancillary equipment were constructed;

(b) The design of the tank, including, without limitation, the foundation, structural support, seams, and pressure controls;

(c) Hazardous characteristics of the waste(s) that have been or are intended to be, handled;

(d) Existing corrosion protection measures;

(e) Documented age of the tank system, if available (otherwise, an estimate of the age);

(f) A soil corrosion survey as described in 310 CMR 30.693(1)(c);

(g) The width, height, and materials of construction of the tank, and the specific gravity of the waste that has been, and is intended to be, placed in the tank, in establishing minimum shell thickness; and

(h) Results of a leak test, internal inspection, or other tank integrity examination such that

1. For non-enterable underground tanks, the assessment shall include a leak test method that has been approved by the State Fire Marshal and that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets, and high water table effects. Such a leak test must have an accuracy equal to or greater than 0.1 gallons per hour for detecting leakage from the tank with a probability of detection of 0.99 and a probability of false positive of 0.01. As the state of the art of the technology for testing underground tanks improves, the Department may specify that a test with an accuracy of better than 0.1 gallons per hour be used; and

2. For other than non-enterable underground tanks and for ancillary equipment, this assessment shall include a leak test in compliance with 310 CMR 30.692(2)(h)1., or other integrity examination, that is certified by a Massachusetts registered professional engineer in accordance with 310 CMR 30.009, that addresses leaks, cracks, corrosion, and erosion. (Note: The practices described in the American Petroleum Institute (API) Publication, Guide for Inspection of Refinery Equipment, Chapter XIII, *Atmospheric and Low-Pressure Storage Tanks*, 4th edition, 1981, may be used, where applicable, as guidelines for conducting other than a leak test.)

(3) Owners or operators of tank systems in which are stored or treated materials that are classified as hazardous waste, pursuant to amendments to 310 CMR 30.000, that take effect on or after June 1, 1989, shall conduct and complete this assessment within 12 months after the date on which the materials became a hazardous waste.

30.692: continued

(4) If, as a result of the assessment conducted in accordance with 310 CMR 30.692(2)(h), a tank system is found to be leaking or to pose a threat of release to the environment, the owner or operator must comply with the requirements of 310 CMR 30.697.

(5) Until such time as secondary containment in compliance with 310 CMR 30.694 is provided, all existing tank systems shall comply with the following:

(a) For non-enterable underground tanks, a leak test that meets the requirements of 310 CMR 30.692(2)(h)1. must be conducted at least once every 12 months;

(b) For other than non-enterable tanks, an integrity assessment in compliance with 310 CMR 30.692(2)(h)1. or 2. must be conducted at least once every 12 months;

(c) For all existing tanks:

1. The owner or operator shall maintain accurate daily inventory records and shall check such records for indication of possible leakage from each tank. Inventory shall be based on the actual daily measurement and recording of tank liquid levels and the daily recording of a material balance for wastes entering and exiting the tank. Measurements shall be taken on all days except days (e.g., Sundays, holidays) when facility business is not transacted. The inventory records shall include a daily computation of gain or loss. All records shall be made part of the operating record of the facility and shall be kept at the facility, readily available to the personnel of the Department for inspection until the facility has been closed pursuant to 310 CMR 30.699.

2. With the license application, the owner or operator shall submit a proposed test for determining whether any gain or loss of material in the tank system shall be considered a statistically significant gain or loss for any one (daily) material balance or series of material balances (*e.g.*, the running balance for a weekly period). Upon approval by the Department, this test for statistical significance shall be made a condition of the license;

3. If the inventory control program required by 310 CMR 30.692(5)(c)1. indicates a statistically significant gain or loss of material as determined in compliance with 310 CMR 30.692(5)(c)2., the owner or operator shall comply with 310 CMR 30.697.

4. If the Department determines in writing that it is infeasible for the owner or operator to comply with the inventory control program specified in 310 CMR 30.692(5)(c), the Department may specify in writing an alternate leak detection program.

30.693: Design and Installation of New Tank Systems or Components

(1) Owners or operators of new tank systems or components shall obtain and submit to the Department, at the time information is submitted to the Department pursuant to 310 CMR 30.099(6) and 310 CMR 30.802, 310 CMR 30.099(7) and (8), or 310 CMR 30.850, a written assessment, reviewed and certified by an independent, qualified, registered professional engineer, in accordance with 310 CMR 30.009, attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment shall show that the foundation, structural support, seams, connections and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that it shall not collapse, rupture, or fail. This assessment be used by the Department, but which the Department will not be limited to considering, to determine the acceptability of the tank system design, must include, at a minimum, the following information:

(a) Design standard(s) according to which the tank(s) and/or ancillary equipment are constructed.

(b) Hazardous characteristics of the waste(s) to be handled.

(c) For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, a determination by a corrosion expert of

30.693: continued

1. Factors affecting the potential for corrosion, including but not limited to:
   a. Soil moisture content;
   b. Soil pH;
   c. Soil sulfides level;
   d. Soil resistivity;
   e. Structure to soil potential;
   f. Influence of nearby underground structures (*e.g.* piping);
   g. Existence of stray electric current;
   h. Existing corrosion protection measures (*e.g.* coating, cathodic protection); and
2. The type and degree of external corrosion protection that are needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following
   a. Corrosion-resistant materials of construction such as special alloys, fiberglass reinforced plastic, *etc.*;
   b. Corrosion-resistant coating (such as epoxy, fiberglass, *etc.*) with cathodic protection (*e.g.* impressed current or sacrificial anodes); and
   c. Electrical isolation devices such as insulating joints, flanges, *etc.*

(NOTE - Practices in providing corrosion protection for tank systems are published in the National Association of Corrosion Engineers (NACE) standard, *Recommended Practice (RP-02-85) - Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems*, and the American Petroleum Institute (API) Publication 1632, *Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems*.)

(d) For underground tank system components that are likely to be adversely affected by vehicular traffic, a determination of design or operational measures that will protect the tank system against potential damage; and

(e) Design considerations to ensure that:
1. Tank foundations will maintain the load of a full tank;
2. Tank systems will be anchored to prevent flotation or dislodgement where the tank system is placed within ten feet of a saturated zone; and
3. Tank systems will withstand the effects of a frost heave.

(2) All tanks installed on or after October 15, 1983 must be equipped with a means (*e.g.* manhole) for an individual to enter for inspection.

(3) The owner or operator of a new tank system shall ensure that proper handling procedures shall be adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, a Massachusetts registered professional engineer who is trained and experienced in the proper installation of tank systems or components shall inspect the system for the presence of weld breaks, punctures, scrapes of protective coatings, cracks, corrosion, or other structural damage or inadequate construction/installation. All discrepancies shall be remedied before the tank system is covered, enclosed, or placed in use. In addition, all tank installations shall be in compliance with the applicable provisions of 527 CMR 9.00.

(4) New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous, homogeneous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported. If the tank contents are, or are intended to be, flammable, as defined by 527 CMR 9.00, the backfill materials shall comply with the requirements of 527 CMR 9.10(3).

(5) All new tanks and ancillary equipment must be tested for tightness pursuant to 310 CMR 30.692(2)(h)1. prior to being covered, enclosed, or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed before the tank system is covered, enclosed, or placed into use.

30.693: continued

(6) Ancillary equipment must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

(7) The owner or operator must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided in 310 CMR 30.693(1)(c), or other corrosion protection if the Department believes that other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a tank system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation.

(8) There shall be a rebuttable presumption that the Department should not license the storage or treatment, in an underground tank, of acutely hazardous waste identified or described in 310 CMR 30.136. Without limiting the generality of 310 CMR 30.810 through 30.813, the owner or operator may rebut this presumption by persuading the Department that there are no feasible alternatives to the storage or treatment of acutely hazardous waste in an underground tank (*e.g.*, by showing that another permitting authority requires that the waste be stored or treated underground).

(9) No portion of an underground tank storing or treating hazardous waste shall be placed at or below the probable high groundwater level, as determined pursuant to 310 CMR 30.675, unless the owner or operator takes suitable measures, approved by the Department, which shall minimize the potential for corrosion or collapse of the tank and prevent flotation of the tank in the event that the tank is emptied.

(10) The owner or operator must obtain written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of 310 CMR 30.693(3), (4), (5), (6), and (7), that attest that the tank system was properly designed and installed and that repairs pursuant to 310 CMR 30.693(3) and (5), were performed. These written statements must be in compliance with 310 CMR 30.009. Once obtained, these statements shall be kept on file at the facility until the facility has been closed pursuant to 310 CMR 30.699.

<u>30.694: Containment and Detection of Releases</u>

(1) In order to prevent the release of hazardous waste or hazardous constituents into the environment, secondary containment that meets the requirements of 310 CMR 30.694 must be provided except as provided in 310 CMR 30.694(6):

(a) For all new tank systems or components, before they are put into service;

(b) For all existing tank systems which are, or are intended to be, used to store polyhalogenated aromatic hydrocarbons or the hazardous waste no. F023, or located in an interim Zone II, or constructed of porous materials such as brick or concrete, by no later than two years from June 1, 1989;

(c) For all existing tank systems in which the tank is single-walled, bare steel, and cathodically unprotected, before the tank system reaches ten years of age, or by no later than two years from June 1, 1989, whichever comes later;

(d) For those tank systems referred to in 310 CMR 30.694(1)(c) for which the age cannot be documented, by no later than three years from June 1, 1989; but if the age of the facility is greater than seven years, secondary containment shall be provided before the facility reaches ten years of age, or by no later than two years from June 1, 1989, whichever comes later;

(e) For all other existing tank systems, when they reach 15 years of age, or by no later than two years from June 1, 1989, whichever comes later;

(f) For those tank systems referred to in 310 CMR 30.694(1)(e) for which the age cannot be documented, by no later than eight years from June 1, 1989; but if the age of the facility is greater than seven years, secondary containment shall be provided by the time the facility reaches 15 years of age, or by no later than two years from June 1, 1989, whichever comes later; and

30.694: continued

(g) For tank systems in which are stored or treated materials that are classified as hazardous waste pursuant to 310 CMR 30.000, on or after June 1, 1989, by no later than the time intervals required in 310 CMR 30.694(1)(a) through (f), except that the date that a material becomes a hazardous waste shall be used in place of the June 1, 1989 date set forth therein.

(2) Secondary containment systems must be:

(a) Designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, groundwater, surface water, sewer system, or adjoining property at any time during the use of the tank system; and

(b) Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.

(3) To meet the requirements of 310 CMR 30.694(2), secondary containment systems must be at a minimum:

(a) Constructed of or lined with materials that are compatible with the waste(s) to be placed in the tank system. Such material must have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic);

(b) Placed on a foundation or base capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift; and

(c) Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary containment within 24 hours, or in as timely a manner as is possible to prevent a threat to public health, safety, welfare, or the environment, if the owner or operator can demonstrate to the Department that removal of the released waste or accumulated liquid cannot be accomplished within 24 hours. If the collected material is hazardous waste pursuant to 310 CMR 30.100, it shall be managed as hazardous waste in compliance with 310 CMR 30.000.

(4) Secondary containment for all underground tanks must consist of either:

(a) A double wall that is:

1. Designed as an integral structure (*i.e.* an inner structure completely enveloped within an outer shell) so that any release from the inner tank is contained by the outer shell;

2. Designed to prevent deteriorination of the primary tank interior and of the external surface of the outer shell; and

3. Provided with a leak detection system that is designed and operated so that that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system. Leak detection systems must be equipped with a visual or audible alarm to signal such a failure or release; or

(b) An alternative form of secondary containment that is approved by the State Fire Marshal.

(5) Secondary containment for aboveground tanks shall consist of:

(a) A double wall in compliance with 310 CMR 30.694(4)(a); or

(b) An external liner system that is:

1. Designed or operated to contain either 10% of the total possible contained volume of the tanks or 110% of the volume of the largest single tank, whichever is greater. Where two or more tanks are connected, the owner or operator shall make provisions for shutting off the connection in the event of a release or threat of a release from the tank system;

30.694: continued

2. Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the containment system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event;

3. Provided with a continuous, impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of the waste into the substrate material;

4. Free of cracks or gaps; and

5. Designed and installed to surround the tank completely and to cover all surrounding surface likely to come into contact with the waste if the waste is released from the tank(s) (*i.e.*, capable of preventing lateral as well as vertical migration of the waste); or

(c) A vault system that is:

1. In compliance with 310 CMR 30.694(5)(b)1. through 3.;

2. Constructed with chemical resistant water stops in place at all joints (if any);

3. Provided with a means to protect against the formation and ignition of vapors within the vault, if the waste being stored or treated is ignitable or reactive as defined in 310 CMR 30.122 or 30.124;

4. Provided with an exterior moisture barrier or is otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure.

(6) Ancillary equipment shall be provided with secondary containment (*e.g.*, trench, jacketing, double-walled piping) that meets the requirements of 310 CMR 30.694(2) and (3) except for any of the following that are visually inspected for leaks on a daily basis:

(a) Aboveground piping (exclusive of flanges, joints, valves, and other connections);

(b) Welded flanges, welded joints, and welded connections;

(c) Sealless or magnetic coupling pumps; and

(d) Pressurized aboveground piping systems with automatic shut-off devices (*e.g.*, excess flow check valves, flow metering shutdown devices, loss of pressure actuated shut-off devices).

30.695: General Operating Requirements

(1) Hazardous wastes and other materials (*e.g.*, treatment reagents) which are incompatible with the material of construction of the tank shall not be placed in the tank unless the tank is protected from accelerated corrosion, erosion or abrasion through the use of:

(a) An inner liner or coating which is compatible with the hazardous waste or other material and which is free of leaks, cracks, holes and other deterioration; or

(b) Alternate means of protection (*e.g.*, cathodic protection or corrosion inhibitors).

(2) The owner or operator shall use appropriate controls and practices to prevent overfilling (*e.g.*, waste feed cut-off or by-pass system to standby tank).

(a) Controls to prevent overfilling (*e.g.*, waste feed cut-off or by-pass system to standby tank); and

(b) For uncovered tanks, maintenance of sufficient freeboard to prevent overtopping by wave or wind action or by precipitation.

(3) Throughout the period of storage or treatment, each tank shall be clearly marked and labelled in a manner which clearly identifies, in words, the hazardous waste(s) being stored or treated in the tank (*e.g.*, acetone, toluene) and the hazard(s) associated with the hazardous waste (*e.g.*, ignitable, toxic, dangerous when wet). Each tank shall also be marked clearly with the words "Hazardous Waste".

(4) In the event of a release of hazardous waste from the tank system, the owner or operator shall comply with 310 CMR 30.697.

(5) A tank holding hazardous waste shall always be closed during storage, except when waste is being added or removed.

30.696: Inspections

(1) The owner or operator shall inspect:

(a) Controls to prevent overfilling (*e.g.*, waste feed cut-off systems and by-pass systems to a stand-by tank) at least once each operating day to ensure that such controls are in good working order;

(b) Data gathered from monitoring equipment (*e.g.*, pressure and temperature gauges), where present, at least once each operating day to ensure that the tank is being operated according to its design;

(c) The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (*e.g.*, dikes), at least once daily, to detect erosion or signs of releases of hazardous waste (*e.g.*, wet spots, dead vegetation).

(2) The owner or operator must inspect cathodic protection systems, if present, according to, at a minimum, the following schedule to ensure that they are functioning properly:

(a) The proper operation of the cathodic protection system must be confirmed within six months after initial installation and annually thereafter; and

(b) All sources of impressed current must be inspected and/or tested, as appropriate, at least bimonthly (*i.e.*, every other month).

(3) The frequency of the comprehensive assessment required by 310 CMR 30.696(2) shall be based on the material of construction of the tank, the type of corrosion or erosion protection used, the rate of corrosion or erosion observed during previous inspections, and the properties of the hazardous waste being treated or stored. The frequency of inspection shall also be based upon any anticipated change(s) in the waste or properties of the waste(s) that will be treated or stored throughout the tank's operating life and any impurities in a waste or mixture(s) of waste(s) which may result in a deterioration rate different from one which would be projected using standard corrosion charts and calculations.

(4) As part of the contingency plan required by 310 CMR 30.520 through 30.524, the owner or operator shall specify the procedures he intends to use to respond to tank spills or leakage, including procedures and timing for expeditious removal of leaked or spilled waste and for repair of the tank.

(5) The owner or operator must document in the operating record of the facility an inspection of those items in 310 CMR 30.696.

30.697: Response to Leaks or Spills and Disposition of Leaking Tank Systems

The owner or operator shall remove from service immediately a tank system or secondary containment system from which there has been a leak or spill, or which poses a threat of release to the environment and shall satisfy the following requirements:

(1) Cessation of Use; Prevent Flow or Addition of Wastes. The owner or operator shall immediately stop the flow of hazardous waste into the tank system or secondary containment system and determine the cause of the release.

(2) Removal of Waste from the Tank System or Secondary Containment System.

(a) If the release was from the tank system, the owner or operator shall within 24 hours of the release or, if the owner or operator demonstrates that it is not possible, at the earliest practicable time, remove as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank system to be performed.

(b) If the material released was to a secondary containment system, the owner or operator shall remove all released materials within 24 hours or in as timely a manner as possible to prevent a threat to public health, safety, welfare, or the environment.

30.697: continued

(3) Containment of visible releases to the environment. The owner or operator shall immediately conduct a visual inspection of the release and, based upon that inspection:

(a) Prevent further migration of the leak or spill to soils or surface water; and

(b) Remove, and properly dispose of, any visible contamination of the soil or surface water.

(4) Notifications, reports.

(a) The owner or operator shall report to the Department all releases or threats of releases of hazardous wastes to the environment as soon as possible but not more than two hours after obtaining knowledge thereof, and in compliance with 310 CMR 40.0000.

(b) For any hazardous waste not having a reportable quantity pursuant to 310 CMR 40.0000 the owner or operator shall report to the Department releases or threats of release exceeding one pound in compliance with 310 CMR 30.697(4)(a).

(c) The owner or operator shall report to the local fire departments releases from tanks subject to 527 CMR 9.00 in accordance with 527 CMR 9.20.

(d) Within seven days of the detection of a release to the environment, the owner or operator shall submit to the Department's Division of Hazardous Waste a written report containing the following information:

1. Likely route of migration of the release;

2. Characteristics of the surrounding soil (soil composition, geology, hydrology, climate);

3. Results of any monitoring or sampling conducted in connection with the release (if available). If sampling or monitoring data relating to the release are not available within seven days, these data must be submitted to the Department as soon as they become available;

4. Proximity to downgradient drinking water, surface water, and populated areas; and

5. Description of response actions taken or planned.

(5) Provision of secondary containment, repair, or closure.

(a) Unless the requirements of 310 CMR 30.697(5) are met, the owner or operator shall close the tank system in compliance with 310 CMR 30.699.

(b) If the cause of the release was a spill that has not damaged the integrity of the system, the owner or operator may return the system to service as soon as the released waste is removed and repairs, if necessary, are made.

(c) If the cause of the release was a leak from the primary tank system into the secondary containment system, the owner or operator shall repair the primary tank system prior to returning the tank system to service.

(d) If the source of the release was a leak to the environment from a component of the tank system without secondary containment, the owner or operator shall provide the secondary containment for the component of the system from which the leak occurred. Such secondary containment shall meet the requirements of 310 CMR 30.694 before the component of the tank system may be returned to service, unless the source of the leak is an aboveground portion of a tank system that can be inspected visually.

(e) If the source is an aboveground component that can be inspected visually, the owner or operator shall repair and may return the component to service without secondary containment provided that the requirements of 310 CMR 30.697(6) are met.

(f) If a component is replaced to comply with the requirements of 310 CMR 30.697(5)(d), that component must meet the provisions of 310 CMR 30.693 and 30.694.

(g) If a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection, (*e.g.*, the bottom of an onground tank), the entire component must be provided with secondary containment in accordance with 310 CMR 30.694 prior to being returned to use.

(h) Repairs of tanks subject to 527 CMR 9.00 shall be required to obtain a permit from the local fire department in accordance with 527 CMR 9.21.

30.697: continued

(6) Certification of major repairs. If the owner or operator has repaired a tank system in accordance with 310 CMR 30.697(5), and the repair has been extensive (*e.g.*, repair of a ruptured primary containment or secondary containment vessel), the tank system must not be returned to service unless the owner or operator has obtained a certification by a Massachusetts registered professional engineer in accordance with 310 CMR 30.009 that the repaired system is capable of handling hazardous waste without release for the intended life of the the system. This certification must be submitted to the Department within seven days after returning the tank system to use.

30.698: Special Requirements for Ignitable, Reactive, and Incompatible Hazardous Wastes, and Hazardous Wastes That Are Polyhalogenated Aromatic Hydrocarbons

(1) Ignitable or reactive waste shall not be placed in a tank unless:

(a) The waste is treated before or immediately after placement in the tank so that the resulting waste is no longer ignitable or reactive hazardous waste pursuant to 310 CMR 30.122 or 30.124, and 30.560(3) is complied with; or

(b) The waste is stored or treated in such a way that it is protected from any material or conditions which might cause the waste to ignite or react; or

(c) The tank is used solely for emergencies.

(2) The owner or operator of a facility which treats or stores ignitable or reactive waste in covered tanks shall comply with the National Fire Protection Association's (NFPA) buffer zone requirements in tables 2-1 through 2-6 of the *Flammable and Combustible Code*, 1981 and with the tank location requirements of the Board of Fire Prevention Regulations, 527 CMR 9.08.

(3) Incompatible hazardous wastes or materials incompatible with hazardous waste (*see* 310 CMR 30.561 for examples) shall not be placed in the same tank unless 310 CMR 30.560(3) is complied with.

(4) Hazardous waste shall not be placed in an unwashed tank which previously held an incompatible waste or material unless 310 CMR 30.560(3) is complied with.

(5) If tanks holding polyhalogenated aromatic hydrocarbons are to be located or used at the facility, the following requirements, in addition to any other set forth in 310 CMR 30.000, shall be complied with:

(a) Each such tank shall have a system designed and operated to detect and contain spills, leaks, or other releases from each such tank. The Department may approve the design and operation of such a system only if, after considering at least the following criteria, the Department determines that such approval is in accordance with provisions set forth in 310 CMR 30.810 through 30.814.

1. the capacity of each such tank.
2. the volume and characteristics of the waste stored or treated in each such tank.
3. the method used for the collection of spills, leaks, or other releases from each such tank.
4. the construction materials used for each such tank and for the system.
5. the method used to prevent precipitation and run-on from entering the system.

(b) The facility's contingency plan shall include the following:

1. procedures for responding to spills or leaks of polyhalogenated aromatic hydrocarbons into the containment system.
2. procedures for removing polyhalogenated aromatic hydrocarbons from the containment system.
3. procedures for repairing or replacing leaking tanks.

30.699: Closure and Post-closure Care

(1) At closure of a tank system, the owner or operator shall remove or decontaminate all waste residues, contaminated containment system components, contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless the conditions of 310 CMR 30.141 are met. The owner or operator shall be in compliance with all requirements for a closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems as set forth in 310 CMR 30.580, 30.590, and 30.900.

(2) If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in 310 CMR 30.699(1), then the owner or operator shall close the tank system and perform post-closure care in accordance with the closure and post-closure care requirements that apply to landfills (310 CMR 30.633). In addition, for the purposes of closure, post-closure, and financial responsibility, such a tank system is considered to be a landfill, and the owner or operator shall meet all of the requirements for landfills specified in 310 CMR 30.580, 30.590 and 310 CMR 30.900.

(3) If an owner or operator has a tank system that does not have secondary containment that meets the requirements of 310 CMR 30.694, then:

(a) The closure plan for the tank system shall include a plan for complying with 310 CMR 30.699(1) and a contingent plan for complying with 310 CMR 30.699(2).

(b) A contingent post-closure plan for complying with 310 CMR 30.699(2) shall be prepared and submitted as part of the permit application.

(c) The cost estimates calculated for closure and post-closure care shall reflect the costs of complying with the contingent closure plan and the contingent post-closure plan, if those costs are greater than the costs of complying with the closure plan prepared for the expected closure under 310 CMR 30.699(1).

(d) Financial assurance must be based on the cost estimates in 310 CMR 30.699(3)(c).

(e) For the purpose of the contingent closure and post-closure plans, such a tank system is considered to be a landfill, and the owner or operator shall be in compliance with all requirements for all of the closure, post-closure, and financial responsibility requirements for landfills under 310 CMR 30.580, 30.590, and 30.900.

30.700: FACILITY LOCATION STANDARDS

310 CMR 30.701 through 30.799, cited collectively as 310 CMR 30.700, set standards for the location of facilities subject to 310 CMR 30.800: *Licensing Requirements and Procedures*, and set standards and requirements for land disposal of specified hazardous wastes subject to 310 CMR 30.000. Different provisions apply to different classes and categories of facilities. 310 CMR 30.701 through 30.705 apply to facilities subject to 310 CMR 30.800: *Licensing Requirements and Procedures*.

30.701: Land Subject to Flooding

310 CMR 30.701 applies to all inland and coastal land subject to flooding. 310 CMR 30.701(1) through 30.701(5) apply to all treatment or storage units except surface impoundments, waste piles and land treatment units.

(1) No active portion of a new storage or treatment facility which receives hazardous waste from any off-site source shall be located within the boundary of land subject to flooding from the statistical 100-year frequency storm.

(a) This boundary shall be determined by reference to the most recently available flood profile data prepared pursuant to the National Flood Insurance Program (NFIP) for the city or town within which the facility is proposed to be located. Said boundary, as so determined, shall be presumed accurate. Whenever required by the Department, the owner or operator shall submit such information with the license application to the Department. This presumption may be overcome only by credible evidence, persuasive to the Department, submitted by an independent Massachusetts registered professional engineer or other professional competent in such matters.

30.701: continued

(b) Where NFIP profile data is unavailable, the license applicant shall determine the boundary of the land subject to flooding by using engineering calculations which shall be based upon the standard methodologies set forth in the U.S. Soil Conservation Service Technical Release No. 55, *Urban Hydrology For Small Watersheds* and section 4 of the U.S. Soil Conservation Service, *National Engineering Hydrology Handbook*. Another methodology may be used with written approval from the Department. This determination shall be made by an independent Massachusetts registered professional engineer or other professional competent in such matters.

(2) The owner or operator of a new or expanding storage or treatment facility which receives no hazardous waste from any off-site source, and the active portion of which is located within the boundary of land subject to flooding from the statistical 100-year frequency storm, shall floodproof the active portion of the facility.

(a) Floodproofing shall be designed, constructed, operated and maintained to prevent floodwaters from coming into contact with hazardous waste.

(b) Either:

1. Floodproofing shall be designed, constructed, operated and maintained to prevent floodwaters from coming into contact with any container or tank or other unit holding hazardous waste; or

2. Any container, tank or other unit holding hazardous waste shall be designed, constructed, operated and maintained to withstand hydrostatic, dynamic and buoyant forces so as to be secured during the 100-year flood.

(3) Each owner or operator shall floodproof each active portion of each existing storage or treatment facility which is located within the boundary of land subject to flooding from the statistical 100-year frequency storm. Floodproofing shall be in compliance with 310 CMR 30.701(2)(a) and (b).

(4) No facility which receives hazardous waste from any off-site source shall be expanded into or within the boundary of land which is subject to flooding from the statistical 100-year frequency storm.

(5) The owner or operator of each new storage or treatment facility which receives hazardous waste fron any off-site source shall floodproof each active portion located outside the boundary of land subject to flooding from the statistical 100-year frequency storm but within the boundary of land subject to flooding from the statistical 500-year frequency storm. For the purposes of 310 CMR 30.701(5) only, the term off-site shall not include the same or geographically contiguous property in single ownership which may be divided by public or private right-of-way, other than a limited access highway or a way to which the owner or operator has no physical or legal access, regardless of whether access is by crossing or by going along the right-of-way.

(a) Floodproofing shall be designed, constructed, operated and maintained to prevent floodwaters from coming into contact with hazardous waste.

(b) Either:

1. Floodproofing shall be designed, constructed, operated and maintained to prevent floodwaters from coming into contact with any container, tank or other unit holding hazardous waste; or

2. Any container, tank or other unit holding hazardous waste shall be designed, constructed, operated and maintained to withstand hydrostatic, dynamic and buoyant forces so as to be secured during the 500-year flood.

(6) No active portion of a landfill, land treatment unit, surface impoundment or waste pile shall be constructed or expanded into or within the boundary of land subject to flooding from the statistical 500-year frequency storm. This boundary shall be determined as set forth in 310 CMR 30.701(1)(a) and (b).

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Title 40: Protection of Environment

PART 260—HAZARDOUS WASTE MANAGEMENT SYSTEM: GENERAL
Subpart B—Definitions

§ 260.10 Definitions.

When used in parts 260 through 273 of this chapter, the following terms have the meanings given below:

Above ground tank means a device meeting the definition of "tank" in §260.10 and that is situated in such a way that the entire surface area of the tank is completely above the plane of the adjacent surrounding surface and the entire surface area of the tank (including the tank bottom) is able to be visually inspected.

Act or *RCRA* means the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended, 42 U.S.C. section 6901 et seq.

Active life of a facility means the period from the initial receipt of hazardous waste at the facility until the Regional Administrator receives certification of final closure.

Active portion means that portion of a facility where treatment, storage, or disposal operations are being or have been conducted after the effective date of part 261 of this chapter and which is not a closed portion. (See also "closed portion" and "inactive portion".)

Administrator means the Administrator of the Environmental Protection Agency, or his designee.

Ancillary equipment means any device including, but not limited to, such devices as piping, fittings, flanges, valves, and pumps, that is used to distribute, meter, or control the flow of hazardous waste from its point of generation to a storage or treatment tank(s), between hazardous waste storage and treatment tanks to a point of disposal onsite, or to a point of shipment for disposal off-site.

Aquifer means a geologic formation, group of formations, or part of a formation capable of yielding a significant amount of ground water to wells or springs.

Authorized representative means the person responsible for the overall operation of a facility or an operational unit (i.e., part of a facility), e.g., the plant manager, superintendent or person of equivalent responsibility.

Battery means a device consisting of one or more electrically connected electrochemical cells which is designed to receive, store, and deliver electric energy. An electrochemical cell is a system consisting of an anode, cathode, and an electrolyte, plus such connections (electrical and mechanical) as may be needed to allow the cell to deliver or receive electrical energy. The term battery also includes an intact, unbroken battery from which the electrolyte has been removed.

Boiler means an enclosed device using controlled flame combustion and having the following characteristics:

(1)(i) The unit must have physical provisions for recovering and exporting thermal energy in the form of steam, heated fluids, or heated gases; and

(ii) The unit's combustion chamber and primary energy recovery sections(s) must be of integral design. To be of integral design, the combustion chamber and the primary energy recovery section(s) (such as waterwalls and superheaters) must be physically formed into one manufactured or assembled unit. A unit in which the combustion chamber and the primary energy recovery section(s) are joined only by ducts or connections carrying flue gas is not integrally designed; however, secondary energy recovery equipment (such as economizers or air preheaters) need not be physically formed into the same unit as the combustion chamber and the primary energy recovery section. The following units are not precluded from being boilers solely because they are not of integral design: process heaters (units that transfer energy directly to a process stream), and fluidized bed combustion units; and

(iii) While in operation, the unit must maintain a thermal energy recovery efficiency of at least 60 percent, calculated in terms of the recovered energy compared with the thermal value of the fuel; and

(iv) The unit must export and utilize at least 75 percent of the recovered energy, calculated on an annual basis. In this calculation, no credit shall be given for recovered heat used internally in the same unit. (Examples of internal use are the preheating of fuel or combustion air, and the driving of induced or forced draft fans or feedwater pumps); or

(2) The unit is one which the Regional Administrator has determined, on a case-by-case basis, to be a boiler, after considering the standards in §260.32.

Carbon regeneration unit means any enclosed thermal treatment device used to regenerate spent activated carbon.

Cathode ray tube or CRT means a vacuum tube, composed primarily of glass, which is the visual or video display component of an electronic device. A used, intact CRT means a CRT whose vacuum has not been released. A used, broken CRT means glass removed from its housing or casing whose vacuum has been released.

Certification means a statement of professional opinion based upon knowledge and belief.

Closed portion means that portion of a facility which an owner or operator has closed in accordance with the approved facility closure plan and all applicable closure requirements. (See also “active portion” and “inactive portion”.)

Component means either the tank or ancillary equipment of a tank system.

Confined aquifer means an aquifer bounded above and below by impermeable beds or by beds of distinctly lower permeability than that of the aquifer itself; an aquifer containing confined ground water.

Container means any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

Containment building means a hazardous waste management unit that is used to store or treat hazardous waste under the provisions of subpart DD of parts 264 or 265 of this chapter.

Contingency plan means a document setting out an organized, planned, and coordinated course of action to be followed in case of a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

Corrosion expert means a person who, by reason of his knowledge of the physical sciences and the principles of engineering and mathematics, acquired by a professional education and related practical experience, is qualified to engage in the practice of corrosion control on buried or submerged metal piping systems and metal tanks. Such a person must be certified as being qualified by the National Association of Corrosion Engineers (NACE) or be a registered professional engineer who has certification or licensing that includes education and experience in corrosion control on buried or submerged metal piping systems and metal tanks.

CRT collector means a person who receives used, intact CRTs for recycling, repair, resale, or donation.

CRT glass manufacturer means an operation or part of an operation that uses a furnace to manufacture CRT glass.

CRT processing means conducting all of the following activities:

(1) Receiving broken or intact CRTs; and

(2) Intentionally breaking intact CRTs or further breaking or separating broken CRTs; and

(3) Sorting or otherwise managing glass removed from CRT monitors.

Designated facility means:

(1) A hazardous waste treatment, storage, or disposal facility which:

(i) Has received a permit (or interim status) in accordance with the requirements of parts 270 and 124 of this chapter;

(ii) Has received a permit (or interim status) from a State authorized in accordance with part 271 of this chapter; or

(iii) Is regulated under §261.6(c)(2) or subpart F of part 266 of this chapter; and

(iv) That has been designated on the manifest by the generator pursuant to §262.20.

(2) *Designated facility* also means a generator site designated on the manifest to receive its waste as a return shipment from a facility that has rejected the waste in accordance with §264.72(f) or §265.72(f) of this chapter.

(3) If a waste is destined to a facility in an authorized State which has not yet obtained authorization to regulate that particular waste as hazardous, then the designated facility must be a facility allowed by the receiving State to accept such waste.

Destination facility means a facility that treats, disposes of, or recycles a particular category of universal waste, except those management activities described in paragraphs (a) and (c) of §§273.13 and 273.33 of this chapter. A facility at which a particular category of universal waste is only accumulated, is not a destination facility for purposes of managing that category of universal waste.

Dike means an embankment or ridge of either natural or man-made materials used to prevent the movement of liquids, sludges, solids, or other materials.

Dioxins and furans (D/F) means tetra, penta, hexa, hepta, and octa-chlorinated dibenzo dioxins and furans.

Discharge or *hazardous waste discharge* means the accidental or intentional spilling, leaking, pumping, pouring, emitting, emptying, or dumping of hazardous waste into or on any land or water.

Disposal means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.

Disposal facility means a facility or part of a facility at which hazardous waste is intentionally placed into or on any land or water, and at which waste will remain after closure. The term disposal facility does not include a corrective action management unit into which remediation wastes are placed.

Drip pad is an engineered structure consisting of a curbed, free-draining base, constructed of non-earthen materials and designed to convey preservative kick-back or drippage from treated wood, precipitation, and surface water run-on to an associated collection system at wood preserving plants.

Elementary neutralization unit means a device which:

(1) Is used for neutralizing wastes that are hazardous only because they exhibit the corrosivity characteristic defined in §261.22 of this chapter, or they are listed in subpart D of part 261 of the chapter only for this reason; and

(2) Meets the definition of tank, tank system, container, transport vehicle, or vessel in §260.10 of this chapter.

EPA hazardous waste number means the number assigned by EPA to each hazardous waste listed in part 261, subpart D, of this chapter and to each characteristic identified in part 261, subpart C, of this chapter.

EPA identification number means the number assigned by EPA to each generator, transporter, and treatment, storage, or disposal facility.

EPA region means the states and territories found in any one of the following ten regions:

Region I—Maine, Vermont, New Hampshire, Massachusetts, Connecticut, and Rhode Island.

Region II—New York, New Jersey, Commonwealth of Puerto Rico, and the U.S. Virgin Islands.

Region III—Pennsylvania, Delaware, Maryland, West Virginia, Virginia, and the District of Columbia.

Region IV—Kentucky, Tennessee, North Carolina, Mississippi, Alabama, Georgia, South Carolina, and Florida.

Region V—Minnesota, Wisconsin, Illinois, Michigan, Indiana and Ohio.

Region VI—New Mexico, Oklahoma, Arkansas, Louisiana, and Texas.

Region VII—Nebraska, Kansas, Missouri, and Iowa.

Region VIII—Montana, Wyoming, North Dakota, South Dakota, Utah, and Colorado.

Region IX—California, Nevada, Arizona, Hawaii, Guam, American Samoa, Commonwealth of the Northern Mariana Islands.

Region X—Washington, Oregon, Idaho, and Alaska.

Equivalent method means any testing or analytical method approved by the Administrator under §§260.20 and 260.21.

Existing hazardous waste management (HWM) facility or *existing facility* means a facility which was in operation or for which construction commenced on or before November 19, 1980. A facility has commenced construction if:

(1) The owner or operator has obtained the Federal, State and local approvals or permits necessary to begin physical construction; and either

(2)(i) A continuous on-site, physical construction program has begun; or

(ii) The owner or operator has entered into contractual obligations—which cannot be cancelled or modified without substantial loss—for physical construction of the facility to be completed within a reasonable time.

Existing portion means that land surface area of an existing waste management unit, included in the original Part A permit application, on which wastes have been placed prior to the issuance of a permit.

Existing tank system* or *existing component means a tank system or component that is used for the storage or treatment of hazardous waste and that is in operation, or for which **installation has commenced on or prior to July 14, 1986**. Installation will be considered to have commenced if the owner or operator has obtained all Federal, State, and local approvals or permits necessary to begin physical construction of the site or installation of the tank system and if either (1) a continuous on-site physical construction or installation program has begun, or (2) the owner or operator has entered into contractual obligations—which cannot be canceled or modified without substantial loss—for physical construction of the site or installation of the tank system to be completed within a reasonable time.

Explosives or munitions emergency means a situation involving the suspected or detected presence of unexploded ordnance (UXO), damaged or deteriorated explosives or munitions, an improvised explosive device (IED), other potentially explosive material or device, or other potentially harmful military chemical munitions or device, that creates an actual or potential imminent threat to human health, including safety, or the environment, including property, as determined by an explosives or munitions emergency response specialist. Such situations may require immediate and expeditious action by an explosives or munitions emergency response specialist to control, mitigate, or eliminate the threat.

Explosives or munitions emergency response means all immediate response activities by an explosives and munitions emergency response specialist to control, mitigate, or eliminate the actual or potential threat encountered during an explosives or munitions emergency. An explosives or munitions emergency response may include in-place render-safe procedures, treatment or destruction of the explosives or munitions and/or transporting those items to another location to be rendered safe, treated, or destroyed. Any reasonable delay in the completion of an explosives or munitions emergency response caused by a necessary, unforeseen, or uncontrollable circumstance will not terminate the explosives or munitions emergency. Explosives and munitions emergency responses can occur on either public or private lands and are not limited to responses at RCRA facilities.

Explosives or munitions emergency response specialist means an individual trained in chemical or conventional munitions or explosives handling, transportation, render-safe procedures, or destruction techniques. Explosives or munitions emergency response specialists include Department of Defense (DOD) emergency explosive ordnance disposal (EOD), technical escort unit (TEU), and DOD-certified civilian or contractor personnel; and other Federal, State, or local government, or civilian personnel similarly trained in explosives or munitions emergency responses.

Facility means:

(1) All contiguous land, and structures, other appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous waste. A facility may consist of several treatment, storage, or disposal operational units (e.g., one or more landfills, surface impoundments, or combinations of them).

(2) For the purpose of implementing corrective action under 40 CFR 264.101 or 267.101, all contiguous property under the control of the owner or operator seeking a permit under subtitle C of RCRA. This definition also applies to facilities implementing corrective action under RCRA Section 3008(h).

(3) Notwithstanding paragraph (2) of this definition, a remediation waste management site is not a facility that is subject to 40 CFR 264.101, but is subject to corrective action requirements if the site is located within such a facility.

Federal agency means any department, agency, or other instrumentality of the Federal Government, any independent agency or establishment of the Federal Government including any Government corporation, and the Government Printing Office.

Federal, State and local approvals or permits necessary to begin physical construction means permits and approvals required under Federal, State or local hazardous waste control statutes, regulations or ordinances.

Final closure means the closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under parts 264 and 265 of this chapter are no longer conducted at the facility unless subject to the provisions in §262.34.

Food-chain crops means tobacco, crops grown for human consumption, and crops grown for feed for animals whose products are consumed by humans.

Free liquids means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure.

Freeboard means the vertical distance between the top of a tank or surface impoundment dike, and the surface of the waste contained therein.

Generator means any person, by site, whose act or process produces hazardous waste identified or listed in part 261 of this chapter or whose act first causes a hazardous waste to become subject to regulation.

Ground water means water below the land surface in a zone of saturation.

Hazardous waste means a hazardous waste as defined in §261.3 of this chapter.

Hazardous waste constituent means a constituent that caused the Administrator to list the hazardous waste in part 261, subpart D, of this chapter, or a constituent listed in table 1 of §261.24 of this chapter.

Hazardous waste management unit is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is significant likelihood of mixing hazardous waste constituents in the same area. Examples of hazardous waste management units include a surface impoundment, a waste pile, a land treatment area, a landfill cell, an incinerator, a tank and its associated piping and underlying containment system and a container storage area. A container alone does not constitute a unit; the unit includes containers and the land or pad upon which they are placed.

In operation refers to a facility which is treating, storing, or disposing of hazardous waste.

Inactive portion means that portion of a facility which is not operated after the effective date of part 261 of this chapter. (See also “active portion” and “closed portion”.)

Incinerator means any enclosed device that:

(1) Uses controlled flame combustion and neither meets the criteria for classification as a boiler, sludge dryer, or carbon regeneration unit, nor is listed as an industrial furnace; or

(2) Meets the definition of infrared incinerator or plasma arc incinerator.

Incompatible waste means a hazardous waste which is unsuitable for:

(1) Placement in a particular device or facility because it may cause corrosion or decay of containment materials (e.g., container inner liners or tank walls); or

(2) Commingling with another waste or material under uncontrolled conditions because the commingling might produce heat or pressure, fire or explosion, violent reaction, toxic dusts, mists, fumes, or gases, or flammable fumes or gases.

(See appendix V of parts 264 and 265 of this chapter for examples.)

Individual generation site means the contiguous site at or on which one or more hazardous wastes are generated. An individual generation site, such as a large manufacturing plant, may have one or more sources of hazardous waste but is considered a single or individual generation site if the site or property is contiguous.

Industrial furnace means any of the following enclosed devices that are integral components of manufacturing processes and that use thermal treatment to accomplish recovery of materials or energy:

(1) Cement kilns

(2) Lime kilns

(3) Aggregate kilns

(4) Phosphate kilns

(5) Coke ovens

(6) Blast furnaces

(7) Smelting, melting and refining furnaces (including pyrometallurgical devices such as cupolas, reverberator furnaces, sintering machine, roasters, and foundry furnaces)

(8) Titanium dioxide chloride process oxidation reactors

(9) Methane reforming furnaces

(10) Pulping liquor recovery furnaces

(11) Combustion devices used in the recovery of sulfur values from spent sulfuric acid

(12) Halogen acid furnaces (HAFs) for the production of acid from halogenated hazardous waste generated by chemical production facilities where the furnace is located on the site of a chemical production facility, the

acid product has a halogen acid content of at least 3%, the acid product is used in a manufacturing process, and, except for hazardous waste burned as fuel, hazardous waste fed to the furnace has a minimum halogen content of 20% as-generated.

(13) Such other devices as the Administrator may, after notice and comment, add to this list on the basis of one or more of the following factors:

(i) The design and use of the device primarily to accomplish recovery of material products;

(ii) The use of the device to burn or reduce raw materials to make a material product;

(iii) The use of the device to burn or reduce secondary materials as effective substitutes for raw materials, in processes using raw materials as principal feedstocks;

(iv) The use of the device to burn or reduce secondary materials as ingredients in an industrial process to make a material product;

(v) The use of the device in common industrial practice to produce a material product; and

(vi) Other factors, as appropriate.

Infrared incinerator means any enclosed device that uses electric powered resistance heaters as a source of radiant heat followed by an afterburner using controlled flame combustion and which is not listed as an industrial furnace.

Inground tank means a device meeting the definition of “tank” in §260.10 whereby a portion of the tank wall is situated to any degree within the ground, thereby preventing visual inspection of that external surface area of the tank that is in the ground.

Injection well means a well into which fluids are injected. (See also “underground injection”.)

Inner liner means a continuous layer of material placed inside a tank or container which protects the construction materials of the tank or container from the contained waste or reagents used to treat the waste.

Installation inspector means a person who, by reason of his knowledge of the physical sciences and the principles of engineering, acquired by a professional education and related practical experience, is qualified to supervise the installation of tank systems.

International shipment means the transportation of hazardous waste into or out of the jurisdiction of the United States.

Lamp, also referred to as “universal waste lamp”, is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.

Landfill means a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a pile, a land treatment facility, a surface impoundment, an underground injection well, a salt dome formation, a salt bed formation, an underground mine, a cave, or a corrective action management unit.

Landfill cell means a discrete volume of a hazardous waste landfill which uses a liner to provide isolation of wastes from adjacent cells or wastes. Examples of landfill cells are trenches and pits.

Land treatment facility means a facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface; such facilities are disposal facilities if the waste will remain after closure.

Leachate means any liquid, including any suspended components in the liquid, that has percolated through or drained from hazardous waste.

Leak-detection system means a system capable of detecting the failure of either the primary or secondary containment structure or the presence of a release of hazardous waste or accumulated liquid in the secondary containment structure. Such a system must employ operational controls (e.g., daily visual inspections for releases into the secondary containment system of aboveground tanks) or consist of an interstitial monitoring device designed to detect continuously and automatically the failure of the primary or secondary containment structure or the presence of a release of hazardous waste into the secondary containment structure.

Liner means a continuous layer of natural or man-made materials, beneath or on the sides of a surface impoundment, landfill, or landfill cell, which restricts the downward or lateral escape of hazardous waste, hazardous waste constituents, or leachate.

Management or *hazardous waste management* means the systematic control of the collection, source separation, storage, transportation, processing, treatment, recovery, and disposal of hazardous waste.

Manifest means: The shipping document EPA Form 8700–22 (including, if necessary, EPA Form 8700–22A), originated and signed by the generator or offeror in accordance with the instructions in the appendix to 40 CFR part 262 and the applicable requirements of 40 CFR parts 262 through 265.

Manifest tracking number means: The alphanumeric identification number (*i.e.* , a unique three letter suffix preceded by nine numerical digits), which is pre-printed in Item 4 of the Manifest by a registered source.

Mercury-containing equipment means a device or part of a device (including thermostats, but excluding batteries and lamps) that contains elemental mercury integral to its function.

Military munitions means all ammunition products and components produced or used by or for the U.S. Department of Defense or the U.S. Armed Services for national defense and security, including military munitions under the control of the Department of Defense, the U.S. Coast Guard, the U.S. Department of Energy (DOE), and National Guard personnel. The term military munitions includes: confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries used by DOD components, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. Military munitions do not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components thereof. However, the term does include non-nuclear components of nuclear devices, managed under DOE's nuclear weapons program after all required sanitization operations under the Atomic Energy Act of 1954, as amended, have been completed.

Mining overburden returned to the mine site means any material overlying an economic mineral deposit which is removed to gain access to that deposit and is then used for reclamation of a surface mine.

Miscellaneous unit means a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, pile, land treatment unit, landfill, incinerator, boiler, industrial furnace, underground injection well with appropriate technical standards under part 146 of this chapter, containment building, corrective action management unit, unit eligible for a research, development, and demonstration permit under 40 CFR 270.65, or staging pile.

Movement means that hazardous waste transported to a facility in an individual vehicle.

New hazardous waste management facility or *new facility* means a facility which began operation, or for which construction commenced after October 21, 1976. (See also “Existing hazardous waste management facility”.)

New tank system* or *new tank component means a tank system or component that will be used for the storage or treatment of hazardous waste and for which **installation has commenced after July 14, 1986**; except, however, for purposes of §264.193(g)(2) and §265.193(g)(2), a new tank system is one for which construction commences after July 14, 1986. (See also “existing tank system.”)

On ground tank means a device meeting the definition of “tank” in §260.10 and that is situated in such a way that the bottom of the tank is on the same level as the adjacent surrounding surface so that the external tank bottom cannot be visually inspected.

On-site means the same or geographically contiguous property which may be divided by public or private right-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing as opposed to going along, the right-of-way. Non-contiguous properties owned by the same person but connected by a right-of-way which he controls and to which the public does not have access, is also considered on-site property.

Open burning means the combustion of any material without the following characteristics:

(1) Control of combustion air to maintain adequate temperature for efficient combustion,

(2) Containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion, and

(3) Control of emission of the gaseous combustion products.

(See also “incineration” and “thermal treatment”.)

Operator means the person responsible for the overall operation of a facility.

Owner means the person who owns a facility or part of a facility.

Partial closure means the closure of a hazardous waste management unit in accordance with the applicable closure requirements of parts 264 and 265 of this chapter at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems), landfill cell, surface impoundment, waste pile, or other hazardous waste management unit, while other units of the same facility continue to operate.

Performance Track member facility means a facility that has been accepted by EPA for membership in the National Environmental Performance Track Program and is still a member of the Program. The National Environmental Performance Track Program is a voluntary, facility based, program for top environmental performers. Facility members must demonstrate a good record of compliance, past success in achieving environmental goals, and commit to future specific quantified environmental goals, environmental management systems, local community outreach, and annual reporting of measurable results.

Person means an individual, trust, firm, joint stock company, Federal Agency, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.

Personnel or *facility personnel* means all persons who work at, or oversee the operations of, a hazardous waste facility, and whose actions or failure to act may result in noncompliance with the requirements of part 264 or 265 of this chapter.

Pesticide means any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or desiccant, other than any article that:

(1) Is a new animal drug under FFDCA section 201(w), or

(2) Is an animal drug that has been determined by regulation of the Secretary of Health and Human Services not to be a new animal drug, or

(3) Is an animal feed under FFDCA section 201(x) that bears or contains any substances described by paragraph (1) or (2) of this definition.

Pile means any non-containerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage and that is not a containment building.

Plasma arc incinerator means any enclosed device using a high intensity electrical discharge or arc as a source of heat followed by an afterburner using controlled flame combustion and which is not listed as an industrial furnace.

Point source means any discernible, confined, and discrete conveyance, including, but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

Publicly owned treatment works or *POTW* means any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a "State" or "municipality" (as defined by section 502(4) of the CWA). This definition includes sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

Qualified Ground-Water Scientist means a scientist or engineer who has received a baccalaureate or post-graduate degree in the natural sciences or engineering, and has sufficient training and experience in ground-water hydrology and related fields as may be demonstrated by state registration, professional certifications, or completion of accredited university courses that enable that individual to make sound professional judgements regarding ground-water monitoring and contaminant fate and transport.

Regional Administrator means the Regional Administrator for the EPA Region in which the facility is located, or his designee.

Remediation waste means all solid and hazardous wastes, and all media (including ground water, surface water, soils, and sediments) and debris, that are managed for implementing cleanup.

Remediation waste management site means a facility where an owner or operator is or will be treating, storing or disposing of hazardous remediation wastes. A remediation waste management site is not a facility that is subject to corrective action under 40 CFR 264.101, but is subject to corrective action requirements if the site is located in such a facility.

Replacement unit means a landfill, surface impoundment, or waste pile unit (1) from which all or substantially all of the waste is removed, and (2) that is subsequently reused to treat, store, or dispose of hazardous waste. "Replacement unit" does not apply to a unit from which waste is removed during closure, if the subsequent reuse solely involves the disposal of waste from that unit and other closing units or corrective action areas at the facility, in accordance with an approved closure plan or EPA or State approved corrective action.

Representative sample means a sample of a universe or whole (e.g., waste pile, lagoon, ground water) which can be expected to exhibit the average properties of the universe or whole.

Run-off means any rainwater, leachate, or other liquid that drains over land from any part of a facility.

Run-on means any rainwater, leachate, or other liquid that drains over land onto any part of a facility.

Saturated zone or *zone of saturation* means that part of the earth's crust in which all voids are filled with water.

Sludge means any solid, semi-solid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility exclusive of the treated effluent from a wastewater treatment plant.

Sludge dryer means any enclosed thermal treatment device that is used to dehydrate sludge and that has a maximum total thermal input, excluding the heating value of the sludge itself, of 2,500 Btu/lb of sludge treated on a wet-weight basis.

Small Quantity Generator means a generator who generates less than 1000 kg of hazardous waste in a calendar month.

Solid waste means a solid waste as defined in §261.2 of this chapter.

Sorbent means a material that is used to soak up free liquids by either adsorption or absorption, or both. *Sorb* means to either adsorb or absorb, or both.

Staging pile means an accumulation of solid, non-flowing remediation waste (as defined in this section) that is not a containment building and that is used only during remedial operations for temporary storage at a facility. Staging piles must be designated by the Director according to the requirements of 40 CFR 264.554.

State means any of the several States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

Storage means the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of, or stored elsewhere.

Sump means any pit or reservoir that meets the definition of tank and those troughs/trenches connected to it that serve to collect hazardous waste for transport to hazardous waste storage, treatment, or disposal facilities; except that as used in the landfill, surface impoundment, and waste pile rules, "sump" means any lined pit or reservoir that serves to collect liquids drained from a leachate collection and removal system or leak detection system for subsequent removal from the system.

Surface impoundment or *impoundment* means a facility or part of a facility which is a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

Tank means a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

Tank system means a hazardous waste storage or treatment tank and its associated ancillary equipment and containment system.

TEQ means toxicity equivalence, the international method of relating the toxicity of various dioxin/furan congeners to the toxicity of 2,3,7,8-tetrachlorodibenzo-p-dioxin.

Thermal treatment means the treatment of hazardous waste in a device which uses elevated temperatures as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, molten salt, pyrolysis, calcination, wet air oxidation, and microwave discharge. (See also "incinerator" and "open burning".)

Thermostat means a temperature control device that contains metallic mercury in an ampule attached to a bimetal sensing element, and mercury-containing ampules that have been removed from these temperature control devices in compliance with the requirements of 40 CFR 273.13(c)(2) or 273.33(c)(2).

Totally enclosed treatment facility means a facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment. An example is a pipe in which waste acid is neutralized.

Transfer facility means any transportation related facility including loading docks, parking areas, storage areas and other similar areas where shipments of hazardous waste are held during the normal course of transportation.

Transport vehicle means a motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (trailer, railroad freight car, etc.) is a separate transport vehicle.

Transportation means the movement of hazardous waste by air, rail, highway, or water.

Transporter means a person engaged in the offsite transportation of hazardous waste by air, rail, highway, or water.

Treatability Study means a study in which a hazardous waste is subjected to a treatment process to determine: (1) Whether the waste is amenable to the treatment process, (2) what pretreatment (if any) is required, (3) the optimal process conditions needed to achieve the desired treatment, (4) the efficiency of a treatment process for a specific waste or wastes, or (5) the characteristics and volumes of residuals from a particular treatment process. Also included in this definition for the purpose of the §261.4 (e) and (f) exemptions are liner compatibility, corrosion, and other material compatibility studies and toxicological and health effects studies. A "treatability study" is not a means to commercially treat or dispose of hazardous waste.

Treatment means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

Treatment zone means a soil area of the unsaturated zone of a land treatment unit within which hazardous constituents are degraded, transformed, or immobilized.

Underground injection means the subsurface emplacement of fluids through a bored, drilled or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension. (See also “injection well”.)

Underground tank means a device meeting the definition of “tank” in §260.10 whose entire surface area is totally below the surface of and covered by the ground.

Unfit-for use tank system means a tank system that has been determined through an integrity assessment or other inspection to be no longer capable of storing or treating hazardous waste without posing a threat of release of hazardous waste to the environment.

United States means the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, the U.S. Virgin Islands, Guam, American Samoa, and the Commonwealth of the Northern Mariana Islands.

Universal waste means any of the following hazardous wastes that are managed under the universal waste requirements of part 273 of this chapter:

(1) Batteries as described in §273.2 of this chapter;

(2) Pesticides as described in §273.3 of this chapter;

(3) Mercury-containing equipment as described in §273.4 of this chapter; and

(4) Lamps as described in §273.5 of this chapter.

Universal Waste Handler:

(1) Means:

(i) A generator (as defined in this section) of universal waste; or

(ii) The owner or operator of a facility, including all contiguous property, that receives universal waste from other universal waste handlers, accumulates universal waste, and sends universal waste to another universal waste handler, to a destination facility, or to a foreign destination.

(2) Does not mean:

(i) A person who treats (except under the provisions of 40 CFR 273.13 (a) or (c), or 273.33 (a) or (c)), disposes of, or recycles universal waste; or

(ii) A person engaged in the off-site transportation of universal waste by air, rail, highway, or water, including a universal waste transfer facility.

Universal Waste Transporter means a person engaged in the off-site transportation of universal waste by air, rail, highway, or water.

Unsaturated zone or *zone of aeration* means the zone between the land surface and the water table.

Uppermost aquifer means the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically interconnected with this aquifer within the facility's property boundary.

Used oil means any oil that has been refined from crude oil, or any synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities.

Vessel includes every description of watercraft, used or capable of being used as a means of transportation on the water.

Wastewater treatment unit means a device which:

(1) Is part of a wastewater treatment facility that is subject to regulation under either section 402 or 307(b) of the Clean Water Act; and

(2) Receives and treats or stores an influent wastewater that is a hazardous waste as defined in §261.3 of this chapter, or that generates and accumulates a wastewater treatment sludge that is a hazardous waste as defined in §261.3 of this chapter, or treats or stores a wastewater treatment sludge which is a hazardous waste as defined in §261.3 of this Chapter; and

(3) Meets the definition of tank or tank system in §260.10 of this chapter.

Water (bulk shipment) means the bulk transportation of hazardous waste which is loaded or carried on board a vessel without containers or labels.

Well means any shaft or pit dug or bored into the earth, generally of a cylindrical form, and often walled with bricks or tubing to prevent the earth from caving in.

Well injection: (See “underground injection”.)

Zone of engineering control means an area under the control of the owner/operator that, upon detection of a hazardous waste release, can be readily cleaned up prior to the release of hazardous waste or hazardous constituents to ground water or surface water.

[45 FR 33073, May 19, 1980]

Editorial Note: ForFederal Registercitations affecting §260.10, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

Title 40: Protection of Environment

Subpart J—Tank Systems

Source: 51 FR 25472, July 14, 1986, unless otherwise noted.

§ 264.190 Applicability

The requirements of this subpart apply to owners and operators of facilities that use tank systems for storing or treating hazardous waste except as otherwise provided in paragraphs (a), (b), and (c) of this section or in §264.1 of this part.

(a) Tank systems that are used to store or treat hazardous waste which contains no free liquids and are situated inside a building with an impermeable floor are exempted from the requirements in §264.193. To demonstrate the absence or presence of free liquids in the stored/treated waste, the following test must be used: Method 9095B (Paint Filter Liquids Test) as described in “Test Methods for Evaluating Solid Waste, Physical/Chemical Methods,” EPA Publication SW–846, as incorporated by reference in §260.11 of this chapter.

(b) Tank systems, including sumps, as defined in §260.10, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes are exempted from the requirements in §264.193(a).

(c) Tanks, sumps, and other such collection devices or systems used in conjunction with drip pads, as defined in §260.10 of this chapter and regulated under 40 CFR part 264 subpart W, must meet the requirements of this subpart.

[51 FR 25472, July 14, 1986; 51 FR 29430, Aug. 15, 1986, as amended at 53 FR 34086, Sept. 2, 1988; 55 FR 50484, Dec. 6, 1990; 58 FR 46050, Aug. 31, 1993; 70 FR 34581, June 14, 2005]

§ 264.191 Assessment of Existing Tank System's Integrity

(a) For each existing tank system that does not have secondary containment meeting the requirements of §264.193, the owner or operator must determine that the tank system is not leaking or is unfit for use. Except as provided in paragraph (c) of this section, the owner or operator must obtain and keep on file at the facility a written assessment reviewed and certified by a qualified Professional Engineer, in accordance with §270.11(d) of this chapter, that attests to the tank system's integrity by January 12, 1988.

(b) This assessment must determine that the tank system is adequately designed and has sufficient structural strength and compatibility with the waste(s) to be stored or treated, to ensure that it will not collapse, rupture, or fail. At a minimum, this assessment must consider the following:

(1) Design standard(s), if available, according to which the tank and ancillary equipment were constructed;

(2) Hazardous characteristics of the waste(s) that have been and will be handled;

(3) Existing corrosion protection measures;

(4) Documented age of the tank system, if available (otherwise, an estimate of the age); and

(5) Results of a leak test, internal inspection, or other tank integrity examination such that:

(i) For non-enterable underground tanks, the assessment must include a leak test that is capable of taking into account the effects of temperature variations, tank end deflection, vapor pockets, and high water table effects, and

(ii) For other than non-enterable underground tanks and for ancillary equipment, this assessment must include either a leak test, as described above, or other integrity examination that is certified by a qualified Professional Engineer in accordance with §270.11(d) of this chapter, that addresses cracks, leaks, corrosion, and erosion.

[Note: The practices described in the American Petroleum Institute (API) Publication, Guide for Inspection of Refinery Equipment, Chapter XIII, “Atmospheric and Low-Pressure Storage Tanks,” 4th edition, 1981, may be used, where applicable, as guidelines in conducting other than a leak test.]

(c) Tank systems that store or treat materials that become hazardous wastes subsequent to July 14, 1986, must conduct this assessment within 12 months after the date that the waste becomes a hazardous waste.

(d) If, as a result of the assessment conducted in accordance with paragraph (a), a tank system is found to be leaking or unfit for use, the owner or operator must comply with the requirements of §264.196.

[51 FR 25472, July 14, 1986; 51 FR 29430, Aug. 15, 1986, as amended at 71 FR 16905, Apr. 4, 2006]

§ 264.192 Design and Installation of New Tank Systems or Components

(a) Owners or operators of new tank systems or components must obtain and submit to the Regional Administrator, at time of submittal of part B information, a written assessment, reviewed and certified by a qualified Professional Engineer, in accordance with §270.11(d) of this chapter, attesting that the tank system has sufficient structural integrity and is acceptable for the storing and treating of hazardous waste. The assessment must show that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed and that the tank system has sufficient structural strength, compatibility with the waste(s) to be stored or treated, and corrosion protection to ensure that it will not collapse, rupture, or fail. This assessment, which will be used by the Regional Administrator to review and approve or disapprove the acceptability of the tank system design, must include, at a minimum, the following information:

(1) Design standard(s) according to which tank(s) and/or the ancillary equipment are constructed;

(2) Hazardous characteristics of the waste(s) to be handled;

(3) For new tank systems or components in which the external shell of a metal tank or any external metal component of the tank system will be in contact with the soil or with water, a determination by a corrosion expert of:

(i) Factors affecting the potential for corrosion, including but not limited to:

(A) Soil moisture content;

(B) Soil pH;

(C) Soil sulfides level;

(D) Soil resistivity;

(E) Structure to soil potential;

(F) Influence of nearby underground metal structures (e.g., piping);

(G) Existence of stray electric current;

(H) Existing corrosion-protection measures (e.g., coating, cathodic protection), and

(ii) The type and degree of external corrosion protection that are needed to ensure the integrity of the tank system during the use of the tank system or component, consisting of one or more of the following:

(A) Corrosion-resistant materials of construction such as special alloys, fiberglass reinforced plastic, etc.;

(B) Corrosion-resistant coating (such as epoxy, fiberglass, etc.) with cathodic protection (e.g., impressed current or sacrificial anodes); and

(C) Electrical isolation devices such as insulating joints, flanges, etc.

[Note: The practices described in the National Association of Corrosion Engineers (NACE) standard, "Recommended Practice (RP–02–85)—Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," and the American Petroleum Institute (API) Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," may be used, where applicable, as guidelines in providing corrosion protection for tank systems.]

(4) For underground tank system components that are likely to be adversely affected by vehicular traffic, a determination of design or operational measures that will protect the tank system against potential damage; and

(5) Design considerations to ensure that:

(i) Tank foundations will maintain the load of a full tank;

(ii) Tank systems will be anchored to prevent flotation or dislodgment where the tank system is placed in a saturated zone, or is located within a seismic fault zone subject to the standards of §264.18(a); and

(iii) Tank systems will withstand the effects of frost heave.

(b) The owner or operator of a new tank system must ensure that proper handling procedures are adhered to in order to prevent damage to the system during installation. Prior to covering, enclosing, or placing a new tank system or component in use, an independent, qualified, installation inspector or a qualified Professional Engineer, either of whom is trained and experienced in the proper installation of tanks systems or components, must inspect the system for the presence of any of the following items:

(1) Weld breaks;

(2) Punctures;

(3) Scrapes of protective coatings;

(4) Cracks;

(5) Corrosion;

(6) Other structural damage or inadequate construction/installation.

All discrepancies must be remedied before the tank system is covered, enclosed, or placed in use.

(c) New tank systems or components that are placed underground and that are backfilled must be provided with a backfill material that is a noncorrosive, porous, homogeneous substance and that is installed so that the backfill is placed completely around the tank and compacted to ensure that the tank and piping are fully and uniformly supported.

(d) All new tanks and ancillary equipment must be tested for tightness prior to being covered, enclosed, or placed in use. If a tank system is found not to be tight, all repairs necessary to remedy the leak(s) in the system must be performed prior to the tank system being covered, enclosed, or placed into use.

(e) Ancillary equipment must be supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

[Note: The piping system installation procedures described in American Petroleum Institute (API) Publication 1615 (November 1979), "Installation of Underground Petroleum Storage Systems," or ANSI Standard B31.3, "Petroleum Refinery Piping," and ANSI Standard B31.4 "Liquid Petroleum Transportation Piping System," may be used, where applicable, as guidelines for proper installation of piping systems.]

(f) The owner or operator must provide the type and degree of corrosion protection recommended by an independent corrosion expert, based on the information provided under paragraph (a)(3) of this section, or other corrosion protection if the Regional Administrator believes other corrosion protection is necessary to ensure the integrity of the tank system during use of the tank system. The installation of a corrosion protection system that is field fabricated must be supervised by an independent corrosion expert to ensure proper installation.

(g) The owner or operator must obtain and keep on file at the facility written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system in accordance with the requirements of paragraphs (b) through (f) of this section, that attest that the tank system was properly designed and installed and that repairs, pursuant to paragraphs (b) and (d) of this section, were performed. These written statements must also include the certification statement as required in §270.11(d) of this chapter.

[51 FR 25472, July 14, 1986; 51 FR 29430, Aug. 15, 1986, as amended at 71 FR 16905, Apr. 4, 2006]

§ 264.193 Containment and Detection of Releases

(a) In order to prevent the release of hazardous waste or hazardous constituents to the environment, secondary containment that meets the requirements of this section must be provided (except as provided in paragraphs (f) and (g) of this section):

(1) For all new and existing tank systems or components, prior to their being put into service.

(2) For tank systems that store or treat materials that become hazardous wastes, within two years of the hazardous waste listing, or when the tank system has reached 15 years of age, whichever comes later.

(b) Secondary containment systems must be:

(1) Designed, installed, and operated to prevent any migration of wastes or accumulated liquid out of the system to the soil, ground water, or surface water at any time during the use of the tank system; and

(2) Capable of detecting and collecting releases and accumulated liquids until the collected material is removed.

(c) To meet the requirements of paragraph (b) of this section, secondary containment systems must be at a minimum:

(1) Constructed of or lined with materials that are compatible with the wastes(s) to be placed in the tank system and must have sufficient strength and thickness to prevent failure owing to pressure gradients (including static head and external hydrological forces), physical contact with the waste to which it is exposed, climatic conditions, and the stress of daily operation (including stresses from nearby vehicular traffic).

(2) Placed on a foundation or base capable of providing support to the secondary containment system, resistance to pressure gradients above and below the system, and capable of preventing failure due to settlement, compression, or uplift;

(3) Provided with a leak-detection system that is designed and operated so that it will detect the failure of either the primary or secondary containment structure or the presence of any release of hazardous waste or accumulated liquid in the secondary containment system within 24 hours, or at the earliest practicable time if the owner or operator can demonstrate to the Regional Administrator that existing detection technologies or site conditions will not allow detection of a release within 24 hours; and

(4) Sloped or otherwise designed or operated to drain and remove liquids resulting from leaks, spills, or precipitation. Spilled or leaked waste and accumulated precipitation must be removed from the secondary

containment system within 24 hours, or in as timely a manner as is possible to prevent harm to human health and the environment, if the owner or operator can demonstrate to the Regional Administrator that removal of the released waste or accumulated precipitation cannot be accomplished within 24 hours.

[Note: If the collected material is a hazardous waste under part 261 of this chapter, it is subject to management as a hazardous waste in accordance with all applicable requirements of parts 262 through 265 of this chapter. If the collected material is discharged through a point source to waters of the United States, it is subject to the requirements of sections 301, 304, and 402 of the Clean Water Act, as amended. If discharged to a Publicly Owned Treatment Works (POTW), it is subject to the requirements of section 307 of the Clean Water Act, as amended. If the collected material is released to the environment, it may be subject to the reporting requirements of 40 CFR part 302.]

(d) Secondary containment for tanks must include one or more of the following devices:

(1) A liner (external to the tank);

(2) A vault;

(3) A double-walled tank; or

(4) An equivalent device as approved by the Regional Administrator.

(e) In addition to the requirements of paragraphs (b), (c), and (d) of this section, secondary containment systems must satisfy the following requirements:

(1) External liner systems must be:

(i) Designed or operated to contain 100 percent of the capacity of the largest tank within its boundary;

(ii) Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event.

(iii) Free of cracks or gaps; and

(iv) Designed and installed to surround the tank completely and to cover all surrounding earth likely to come into contact with the waste if the waste is released from the tank(s) (i.e., capable of preventing lateral as well as vertical migration of the waste).

(2) Vault systems must be:

(i) Designed or operated to contain 100 percent of the capacity of the largest tank within its boundary;

(ii) Designed or operated to prevent run-on or infiltration of precipitation into the secondary containment system unless the collection system has sufficient excess capacity to contain run-on or infiltration. Such additional capacity must be sufficient to contain precipitation from a 25-year, 24-hour rainfall event;

(iii) Constructed with chemical-resistant water stops in place at all joints (if any);

(iv) Provided with an impermeable interior coating or lining that is compatible with the stored waste and that will prevent migration of waste into the concrete;

(v) Provided with a means to protect against the formation of and ignition of vapors within the vault, if the waste being stored or treated:

(A) Meets the definition of ignitable waste under §261.21 of this chapter; or

(B) Meets the definition of reactive waste under §261.23 of this chapter, and may form an ignitable or explosive vapor; and

(vi) Provided with an exterior moisture barrier or be otherwise designed or operated to prevent migration of moisture into the vault if the vault is subject to hydraulic pressure.

(3) Double-walled tanks must be:

(i) Designed as an integral structure (i.e., an inner tank completely enveloped within an outer shell) so that any release from the inner tank is contained by the outer shell;

(ii) Protected, if constructed of metal, from both corrosion of the primary tank interior and of the external surface of the outer shell; and

(iii) Provided with a built-in continuous leak detection system capable of detecting a release within 24 hours, or at the earliest practicable time, if the owner or operator can demonstrate to the Regional Administrator, and the Regional Administrator concludes, that the existing detection technology or site conditions would not allow detection of a release within 24 hours.

[Note: The provisions outlined in the Steel Tank Institute's (STI) “Standard for Dual Wall Underground Steel Storage Tanks” may be used as guidelines for aspects of the design of underground steel double-walled tanks.]

(f) Ancillary equipment must be provided with secondary containment (e.g., trench, jacketing, double-walled piping) that meets the requirements of paragraphs (b) and (c) of this section except for:

(1) Aboveground piping (exclusive of flanges, joints, valves, and other connections) that are visually inspected for leaks on a daily basis;

(2) Welded flanges, welded joints, and welded connections, that are visually inspected for leaks on a daily basis;

(3) Sealless or magnetic coupling pumps and sealless valves, that are visually inspected for leaks on a daily basis; and

(4) Pressurized aboveground piping systems with automatic shut-off devices (e.g., excess flow check valves, flow metering shutdown devices, loss of pressure actuated shut-off devices) that are visually inspected for leaks on a daily basis.

(g) The owner or operator may obtain a variance from the requirements of this section if the Regional Administrator finds, as a result of a demonstration by the owner or operator that alternative design and operating practices, together with location characteristics, will prevent the migration of any hazardous waste or hazardous constituents into the ground water; or surface water at least as effectively as secondary containment during the active life of the tank system *or* that in the event of a release that does migrate to ground water or surface water, no substantial present or potential hazard will be posed to human health or the environment. New underground tank systems may not, per a demonstration in accordance with paragraph (g)(2) of this section, be exempted from the secondary containment requirements of this section.

(1) In deciding whether to grant a variance based on a demonstration of equivalent protection of ground water and surface water, the Regional Administrator will consider:

(i) The nature and quantity of the wastes;

(ii) The proposed alternate design and operation;

(iii) The hydrogeologic setting of the facility, including the thickness of soils present between the tank system and ground water; and

(iv) All other factors that would influence the quality and mobility of the hazardous constituents and the potential for them to migrate to ground water or surface water.

(2) In deciding whether to grant a variance based on a demonstration of no substantial present or potential hazard, the Regional Administrator will consider:

(i) The potential adverse effects on ground water, surface water, and land quality taking into account:

(A) The physical and chemical characteristics of the waste in the tank system, including its potential for migration,

(B) The hydrogeological characteristics of the facility and surrounding land,

(C) The potential for health risks caused by human exposure to waste constituents,

(D) The potential for damage to wildlife, crops, vegetation, and physical structures caused by exposure to waste constituents, and

(E) The persistence and permanence of the potential adverse effects;

(ii) The potential adverse effects of a release on ground-water quality, taking into account:

(A) The quantity and quality of ground water and the direction of ground-water flow,

(B) The proximity and withdrawal rates of ground-water users,

(C) The current and future uses of ground water in the area, and

(D) The existing quality of ground water, including other sources of contamination and their cumulative impact on the ground-water quality;

(iii) The potential adverse effects of a release on surface water quality, taking into account:

(A) The quantity and quality of ground water and the direction of ground-water flow,

(B) The patterns of rainfall in the region,

(C) The proximity of the tank system to surface waters,

(D) The current and future uses of surface waters in the area and any water quality standards established for those surface waters, and

(E) The existing quality of surface water, including other sources of contamination and the cumulative impact on surface-water quality; and

(iv) The potential adverse effects of a release on the land surrounding the tank system, taking into account:

(A) The patterns of rainfall in the region, and

(B) The current and future uses of the surrounding land.

(3) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of paragraph (g)(1) of this section, at which a release of hazardous waste has occurred from the primary tank system but has not migrated beyond the zone of engineering control (as established in the variance), must:

(i) Comply with the requirements of §264.196, except paragraph (d), and

(ii) Decontaminate or remove contaminated soil to the extent necessary to:

(A) Enable the tank system for which the variance was granted to resume operation with the capability for the detection of releases at least equivalent to the capability it had prior to the release; and

(B) Prevent the migration of hazardous waste or hazardous constituents to ground water or surface water; and

(iii) If contaminated soil cannot be removed or decontaminated in accordance with paragraph (g)(3)(ii) of this section, comply with the requirement of §264.197(b).

(4) The owner or operator of a tank system, for which a variance from secondary containment had been granted in accordance with the requirements of paragraph (g)(1) of this section, at which a release of

hazardous waste has occurred from the primary tank system and has migrated beyond the zone of engineering control (as established in the variance), must:

(i) Comply with the requirements of §264.196 (a), (b), (c), and (d); and

(ii) Prevent the migration of hazardous waste or hazardous constituents to ground water or surface water, if possible, and decontaminate or remove contaminated soil. If contaminated soil cannot be decontaminated or removed or if ground water has been contaminated, the owner or operator must comply with the requirements of §264.197(b); and

(iii) If repairing, replacing, or reinstalling the tank system, provide secondary containment in accordance with the requirements of paragraphs (a) through (f) of this section or reapply for a variance from secondary containment and meet the requirements for new tank systems in §264.192 if the tank system is replaced. The owner or operator must comply with these requirements even if contaminated soil can be decontaminated or removed and ground water or surface water has not been contaminated.

(h) The following procedures must be followed in order to request a variance from secondary containment:

(1) The Regional Administrator must be notified in writing by the owner or operator that he intends to conduct and submit a demonstration for a variance from secondary containment as allowed in paragraph (g) of this section according to the following schedule:

(i) For existing tank systems, at least 24 months prior to the date that secondary containment must be provided in accordance with paragraph (a) of this section.

(ii) For new tank systems, at least 30 days prior to entering into a contract for installation.

(2) As part of the notification, the owner or operator must also submit to the Regional Administrator a description of the steps necessary to conduct the demonstration and a timetable for completing each of the steps. The demonstration must address each of the factors listed in paragraph (g)(1) or paragraph (g)(2) of this section;

(3) The demonstration for a variance must be completed within 180 days after notifying the Regional Administrator of an intent to conduct the demonstration; and

(4) If a variance is granted under this paragraph, the Regional Administrator will require the permittee to construct and operate the tank system in the manner that was demonstrated to meet the requirements for the variance.

(i) All tank systems, until such time as secondary containment that meets the requirements of this section is provided, must comply with the following:

(1) For non-enterable underground tanks, a leak test that meets the requirements of §264.191(b)(5) or other tank integrity method, as approved or required by the Regional Administrator, must be conducted at least annually.

(2) For other than non-enterable underground tanks, the owner or operator must either conduct a leak test as in paragraph (i)(1) of this section or develop a schedule and procedure for an assessment of the overall condition of the tank system by a qualified Professional Engineer. The schedule and procedure must be adequate to detect obvious cracks, leaks, and corrosion or erosion that may lead to cracks and leaks. The owner or operator must remove the stored waste from the tank, if necessary, to allow the condition of all internal tank surfaces to be assessed. The frequency of these assessments must be based on the material of construction of the tank and its ancillary equipment, the age of the system, the type of corrosion or erosion protection used, the rate of corrosion or erosion observed during the previous inspection, and the characteristics of the waste being stored or treated.

(3) For ancillary equipment, a leak test or other integrity assessment as approved by the Regional Administrator must be conducted at least annually.

[Note: The practices described in the American Petroleum Institute (API) Publication Guide for Inspection of Refinery Equipment, Chapter XIII, “Atmospheric and Low-Pressure Storage Tanks,” 4th edition, 1981, may be used, where applicable, as guidelines for assessing the overall condition of the tank system.]

(4) The owner or operator must maintain on file at the facility a record of the results of the assessments conducted in accordance with paragraphs (i)(1) through (i)(3) of this section.

(5) If a tank system or component is found to be leaking or unfit for use as a result of the leak test or assessment in paragraphs (i)(1) through (i)(3) of this section, the owner or operator must comply with the requirements of §264.196.

[51 FR 25472, July 14, 1986; 51 FR 29430, Aug. 15, 1986, as amended at 53 FR 34086, Sept. 2, 1988; 71 FR 16905, Apr. 4, 2006; 71 FR 40273, July 14, 2006]

§ 264.194 General Operating Requirements

(a) Hazardous wastes or treatment reagents must not be placed in a tank system if they could cause the tank, its ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail.

(b) The owner or operator must use appropriate controls and practices to prevent spills and overflows from tank or containment systems. These include at a minimum:

(1) Spill prevention controls (e.g., check valves, dry disconnect couplings);

(2) Overfill prevention controls (e.g., level sensing devices, high level alarms, automatic feed cutoff, or bypass to a standby tank); and

(3) Maintenance of sufficient freeboard in uncovered tanks to prevent overtopping by wave or wind action or by precipitation.

(c) The owner or operator must comply with the requirements of §264.196 if a leak or spill occurs in the tank system.

§ 264.195 Inspections

(a) The owner or operator must develop and follow a schedule and procedure for inspecting overfill controls.

(b) The owner or operator must inspect at least once each operating day data gathered from monitoring and leak detection equipment (e.g., pressure or temperature gauges, monitoring wells) to ensure that the tank system is being operated according to its design.

[Note: Section 264.15(c) requires the owner or operator to remedy any deterioration or malfunction he finds. Section 264.196 requires the owner or operator to notify the Regional Administrator within 24 hours of confirming a leak. Also, 40 CFR part 302 may require the owner or operator to notify the National Response Center of a release.]

(c) In addition, except as noted under paragraph (d) of this section, the owner or operator must inspect at least once each operating day:

(1) Above ground portions of the tank system, if any, to detect corrosion or releases of waste.

(2) The construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system (*e.g.* , dikes) to detect erosion or signs of releases of hazardous waste (*e.g.* , wet spots, dead vegetation).

(d) Owners or operators of tank systems that either use leak detection systems to alert facility personnel to leaks, or implement established workplace practices to ensure leaks are promptly identified, must inspect at least weekly those areas described in paragraphs (c)(1) and (c)(2) of this section. Use of the alternate inspection schedule must be documented in the facility's operating record. This documentation must include a description of the established workplace practices at the facility.

(e) Performance Track member facilities may inspect on a less frequent basis, upon approval by the Director, but must inspect at least once each month. To apply for a less than weekly inspection frequency, the Performance Track member facility must follow the procedures described in §264.15(b)(5).

(f) Ancillary equipment that is not provided with secondary containment, as described in §264.193(f)(1) through (4), must be inspected at least once each operating day.

(g) The owner or operator must inspect cathodic protection systems, if present, according to, at a minimum, the following schedule to ensure that they are functioning properly:

(1) The proper operation of the cathodic protection system must be confirmed within six months after initial installation and annually thereafter; and

(2) All sources of impressed current must be inspected and/or tested, as appropriate, at least bimonthly (i.e., every other month).

[Note: The practices described in the National Association of Corrosion Engineers (NACE) standard, "Recommended Practice (RP–02–85)—Control of External Corrosion on Metallic Buried, Partially Buried, or Submerged Liquid Storage Systems," and the American Petroleum Institute (API) Publication 1632, "Cathodic Protection of Underground Petroleum Storage Tanks and Piping Systems," may be used, where applicable, as guidelines in maintaining and inspecting cathodic protection systems.]

(h) The owner or operator must document in the operating record of the facility an inspection of those items in paragraphs (a) through (c) of this section.

[51 FR 25472, July 14, 1986, as amended at 71 FR 16906, Apr. 4, 2006]

§ 264.196 Response to Leaks or Spills and Disposition of Leaking or Unfit-for-Use Tank Systems

A tank system or secondary containment system from which there has been a leak or spill, or which is unfit for use, must be removed from service immediately, and the owner or operator must satisfy the following requirements:

(a) *Cessation of use; prevent flow or addition of wastes.* The owner or operator must immediately stop the flow of hazardous waste into the tank system or secondary containment system and inspect the system to determine the cause of the release.

(b) *Removal of waste from tank system or secondary containment system.* (1) If the release was from the tank system, the owner/operator must, within 24 hours after detection of the leak or, if the owner/operator demonstrates that it is not possible, at the earliest practicable time, remove as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the tank system to be performed.

(2) If the material released was to a secondary containment system, all released materials must be removed within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment.

(c) *Containment of visible releases to the environment.* The owner/operator must immediately conduct a visual inspection of the release and, based upon that inspection:

(1) Prevent further migration of the leak or spill to soils or surface water; and

(2) Remove, and properly dispose of, any visible contamination of the soil or surface water.

(d) *Notifications, reports.* (1) Any release to the environment, except as provided in paragraph (d)(2) of this section, must be reported to the Regional Administrator within 24 hours of its detection. If the release has been reported pursuant to 40 CFR part 302, that report will satisfy this requirement.

(2) A leak or spill of hazardous waste is exempted from the requirements of this paragraph if it is:

(i) Less than or equal to a quantity of one (1) pound, and

(ii) Immediately contained and cleaned up.

(3) Within 30 days of detection of a release to the environment, a report containing the following information must be submitted to the Regional Administrator:

(i) Likely route of migration of the release;

(ii) Characteristics of the surrounding soil (soil composition, geology, hydrogeology, climate);

(iii) Results of any monitoring or sampling conducted in connection with the release (if available). If sampling or monitoring data relating to the release are not available within 30 days, these data must be submitted to the Regional Administrator as soon as they become available.

(iv) Proximity to downgradient drinking water, surface water, and populated areas; and

(v) Description of response actions taken or planned.

(e) *Provision of secondary containment, repair, or closure.* (1) Unless the owner/operator satisfies the requirements of paragraphs (e)(2) through (4) of this section, the tank system must be closed in accordance with §264.197.

(2) If the cause of the release was a spill that has not damaged the integrity of the system, the owner/operator may return the system to service as soon as the released waste is removed and repairs, if necessary, are made.

(3) If the cause of the release was a leak from the primary tank system into the secondary containment system, the system must be repaired prior to returning the tank system to service.

(4) If the source of the release was a leak to the environment from a component of a tank system without secondary containment, the owner/operator must provide the component of the system from which the leak occurred with secondary containment that satisfies the requirements of §264.193 before it can be returned to service, unless the source of the leak is an aboveground portion of a tank system that can be inspected visually. If the source is an aboveground component that can be inspected visually, the component must be repaired and may be returned to service without secondary containment as long as the requirements of paragraph (f) of this section are satisfied. If a component is replaced to comply with the requirements of this subparagraph, that component must satisfy the requirements for new tank systems or components in §§264.192 and 264.193. Additionally, if a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection (e.g., the bottom of an inground or onground tank), the entire component must be provided with secondary containment in accordance with §264.193 prior to being returned to use.

(f) *Certification of major repairs.* If the owner/operator has repaired a tank system in accordance with paragraph (e) of this section, and the repair has been extensive (*e.g.* , installation of an internal liner; repair of a ruptured primary containment or secondary containment vessel), the tank system must not be returned to service unless the owner/operator has obtained a certification by a qualified Professional Engineer in accordance with §270.11(d) of this chapter that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. This certification must be placed in the operating record and maintained until closure of the facility.

[Note: The Regional Administrator may, on the basis of any information received that there is or has been a release of hazardous waste or hazardous constituents into the environment, issue an order under RCRA section 3004(v), 3008(h), or 7003(a) requiring corrective action or such other response as deemed necessary to protect human health or the environment.]

[Note: See §264.15(c) for the requirements necessary to remedy a failure. Also, 40 CFR part 302 may require the owner or operator to notify the National Response Center of certain releases.]

[51 FR 25472, July 14, 1986; 51 FR 29430, Aug. 15, 1986, as amended at 53 FR 34086, Sept. 2, 1988; 71 FR 16906, Apr. 4, 2006]

§ 264.197 Closure and Post-Closure Care

(a) At closure of a tank system, the owner or operator must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated soils, and structures and equipment contaminated with waste, and manage them as hazardous waste, unless §261.3(d) of this chapter applies. The closure plan, closure activities, cost estimates for closure, and financial responsibility for tank systems must meet all of the requirements specified in subparts G and H of this part.

(b) If the owner or operator demonstrates that not all contaminated soils can be practicably removed or decontaminated as required in paragraph (a) of this section, then the owner or operator must close the tank system and perform post-closure care in accordance with the closure and post-closure care requirements that apply to landfills (§264.310). In addition, for the purposes of closure, post-closure, and financial responsibility, such a tank system is then considered to be a landfill, and the owner or operator must meet all of the requirements for landfills specified in subparts G and H of this part.

(c) If an owner or operator has a tank system that does not have secondary containment that meets the requirements of §264.193 (b) through (f) and has not been granted a variance from the secondary containment requirements in accordance with §264.193(g), then:

(1) The closure plan for the tank system must include both a plan for complying with paragraph (a) of this section and a contingent plan for complying with paragraph (b) of this section.

(2) A contingent post-closure plan for complying with paragraph (b) of this section must be prepared and submitted as part of the permit application.

(3) The cost estimates calculated for closure and post-closure care must reflect the costs of complying with the contingent closure plan and the contingent post-closure plan, if those costs are greater than the costs of complying with the closure plan prepared for the expected closure under paragraph (a) of this section.

(4) Financial assurance must be based on the cost estimates in paragraph (c)(3) of this section.

(5) For the purposes of the contingent closure and post-closure plans, such a tank system is considered to be a landfill, and the contingent plans must meet all of the closure, post-closure, and financial responsibility requirements for landfills under subparts G and H of this part.

[51 FR 25472, July 14, 1986; 51 FR 29430, Aug. 15, 1986]

§ 264.198 Special Requirements for Ignitable or Reactive Wastes

(a) Ignitable or reactive waste must not be placed in tank systems, unless:

(1) The waste is treated, rendered, or mixed before or immediately after placement in the tank system so that:

(i) The resulting waste, mixture, or dissolved material no longer meets the definition of ignitable or reactive waste under §§261.21 or 261.23 of this chapter, and

(ii) Section 264.17(b) is complied with; or

(2) The waste is stored or treated in such a way that it is protected from any material or conditions that may cause the waste to ignite or react; or

(3) The tank system is used solely for emergencies.

(b) The owner or operator of a facility where ignitable or reactive waste is stored or treated in a tank must comply with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built upon as required in Tables 2–1 through 2–6 of the National Fire Protection Association's “Flammable and Combustible Liquids Code,” (1977 or 1981), (incorporated by reference, see §260.11).

§ 264.199 Special Requirements for Incompatible Wastes

(a) Incompatible wastes, or incompatible wastes and materials, must not be placed in the same tank system, unless §264.17(b) is complied with.

(b) Hazardous waste must not be placed in a tank system that has not been decontaminated and that previously held an incompatible waste or material, unless §264.17(b) is complied with.

§ 264.200 Air Emission Standards

The owner or operator shall manage all hazardous waste placed in a tank in accordance with the applicable requirements of subparts AA, BB, and CC of this part.

[61 FR 59950, Nov. 25, 1996]

Title 40: Protection of Environment

§ 270.11 Signatories to Permit Applications and Reports.

(a) ***Applications****.* All permit applications shall be signed as follows:

(1) *For a corporation:* By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decisionmaking functions for the corporation, or (ii) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note: EPA does not require specific assignments or delegations of authority to responsible corporate officers identified in §270.11(a)(1)(i). The Agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the Director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate positions under §270.11(a)(1)(ii) rather than to specific individuals.

(2) *For a partnership or sole proprietorship;* by a general partner or the proprietor, respectively; or

(3) *For a municipality, State, Federal, or other public agency:* by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (i) The chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

(b) ***Reports****.* All reports required by permits and other information requested by the Director shall be signed by a person described in paragraph (a) of this section, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph (a) of this section;

(2) The authorization specifies either an individual or a position having responsibility for overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, or position of equivalent responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

(3) The written authorization is submitted to the Director.

(c) *Changes to authorization.* If an authorization under paragraph (b) of this section is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph (b) of this section must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

(d)(1) Any person signing a document under paragraph (a) or (b) of this section must make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(2) For remedial action plans (RAPs) under subpart H of this part, if the operator certifies according to paragraph (d)(1) of this section, then the owner may choose to make the following certification instead of the certification in paragraph (d)(1) of this section:

Based on my knowledge of the conditions of the property described in the RAP and my inquiry of the person or persons who manage the system referenced in the operator's certification, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

(Clean Water Act (33 U.S.C. 1251 *et seq.*), Safe Drinking Water Act (42 U.S.C. 300f *et seq.*), Clean Air Act (42 U.S.C. 7401 *et seq.*), Resource Conservation and Recovery Act (42 U.S.C. 6901 *et seq.*))

[48 FR 14228, Apr. 1, 1983, as amended at 48 FR 39622, Sept. 1, 1983; 63 FR 65941, Nov. 30, 1998; 71 FR 40279, July 14, 2006]

BOSTIK INTEROFFICE CORRESPONDENCE

DATE: July 25, 1995

TO: R. D. Murray

FROM: G. E. Bilger

SUBJECT: BIF Application
Storage Tank Integrity

COPIES: J. J. Noyer

As requested, attached is the statement with regard to the Distillate storage tanks integrity. Let me know if any additional documentation is required.

GEB

July 25, 1995

Assessment of Existing Tank System's Integrity

Three tanks are currently used to store hazardous waste distillate at Bostik's facility in Middleton, Massachusetts. The tanks are numbered 09518 which is a nominal 10,000 gallon capacity horizontal tank, known as the Direct Solvation Distillate Storage Tank. Tanks 27001 and 27002 are nominal 8800 gallon capacity vertical tanks, known as the Distillate Storage Tanks.

Design Standards:

Tank #09518 is fabricated in accordance with ASME pressure vessel code, Section VIII, Division I. It is a horizontal tank with dished heads rated for atmospheric service. The tank is fabricated from 304 stainless steel with the walls and heads both 3/16 inch thick. Attachment #1 provides the basic design for the tank.

Tank #27001 & #27002 are fabricated in accordance with U.L.142 Standard except that they have flat roofs. The tanks are vertical and rated for 1 psi. The tanks are fabricated from carbon steel with top, bottom, and walls all 5/16 inch thick. Attachment #2 gives the design specification for the tank. Attachment #3 is the vendor drawing. Attachment #4 is the vendor's statement on the design standard.

Waste Hazardous Characteristics:

The distillate product is classified as hazardous according to RCRA due to its flammability. Attachment #5 is the description of the waste product.

Tank Age:

Tank #09518 was fabricated in 1987 and installed in 1988. Tank #27001 & #27002 were fabricated and installed in 1992.

Tank Integrity:

The three tanks are all installed above ground in diked areas. Visual inspection indicates no sign of leakage.

On July 24, 1995 a tank wall thickness test was performed on all three tanks. Attachment #6 is the results of this test. This is the first thickness test performed on the tanks, as such, there is no basis to determine if any loss of wall thickness is occurring. However, all results are within expected tolerances for the original specified wall thickness.

Attachments:

#1	Tank #09518 Design
#2	Tank #27001 & #27002 Design Specification
#3	Tank #27001 & #27002 Vendor Design
#4	Tank #27001 & #27002 Statement of Compliance to U.L. 142
#5	Waste Characteristics
#6	Tank Wall Thickness Test Report

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information, the information submitted is, to be the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

G. Edward Bilger

G. Edward Bilger
Massachusetts Registration # 35348

NOZZLE SCHEDULE

MARK	SIZE	RTG/TYPE	SCH.	REMARKS	SERVICE
[illegible]	2"	150# STUB END	40	SEE DETAIL (1)	
[illegible]	[illegible]	150# CLAD SO	10	" " (2)	
[illegible]	[illegible]	SPEC [illegible]	40	[illegible]	
[illegible]	[illegible]	3000# [illegible]		SEE DETAIL (6)	
[illegible]	6"	150# STUB END	10	" " (5)	
[illegible]	3"	150# STUB END	40	" " (4)	
[illegible]	3"	150# STUB END	40	" " (4)	
[illegible]	3"	150# STUB END	40	" " (4)	
[illegible]	2"	150# STUB END	40	" " (1)	
[illegible]	24"	150# CLAD. SO	10	[illegible] PL 3/16" " " (7)	
[illegible]	2"	150# STUB END	40	" " (1)	
[illegible]	4"	150# WELD NECK	40	" " (9)	

* Indicates Nozzle to be Supplied with Blind Cover, Bolts, Nuts and Gasket

DESIGN DATA

	Main Vessel	Jacket/Coil
Design Pressure	ATMOSPHERIC PSIG	PSIG
Design Temperature	AMBIENT F.	F.
Hydro Test Pressure	PSIG	PSIG
Radiographic Examination		
Stress Relieve		
Specific Gravity of Contents		
Shell/Heads Joint Efficiency	% %	% %
Corrosion Allowance		

FABRICATION

Fabrication in Accordance with the Latest ASME Pressure Vessel Code. Section VIII, Division 1

ASME Code Stamp ☐ YES ☑ NO

Specifications — Other

Welding Procedures:

Carbon Steel:

Alloy:

Inside Weld Finish

Outside Weld Finish

Other:

Cleaning and Painting:

Sandblast: — Wire Brush: TO CLEAN

Paint Exterior: CS RED OXIDE — Passivate:

Paint Interior: — Other:

Inspection:

Norwalk Fabricators, Inc., Quality Control:

Authorized ASME Inspection:

Other:

Name Plate — Tag Equip.:

MATERIALS

Description	Main Vessel	Jacket/Coil	Description	Misc.
Shell	304 S/S		Body Flanges	
Heads	304 S/S		Stiffening Rings	
Lining/Cladding	304 S/S		Closure Bar	
Nozzle Necks	304 S/S		Baffles/Internals	
Nozzle Flanges	AS NOTED		External Clips	
Manway Neck	304 S/S		Wear Plates	
Manway Flange	AS NOTED		Supports	A-36
Manway Cover	AS NOTED		Reinforcing Pads	304
Studding Pads			Lifting Lugs	A-36
Couplings	304 S/S			
Studs	A-307			
Nuts	A-307			
Gaskets	CORE-TEX			

WEIGHTS

Nom. Capacity: Gals.	Full Capacity: 10,770	Gals.
Empty Weight: 7080 LBS Lbs.	Weight Full H_2O: 89 887	Lbs.

NOTES

1. All Bolt Holes to Straddle Vessel Nat. Centerlines unless Noted Otherwise.
2. All Flanges to have Std. Gasket Surface Finish unless Noted Otherwise.
3. All Openings to be Weather Protected for Shipment.
4. All Vessels shall be Free of Excessive Weld Spatter, Mill Scale, etc.

DRAWING DISTRIB.	APPVL	FINAL
Customer		
Shop		
File		
Shipping		
QC		
Insp		
Purch		
Sales		
Field		

Steel-Pro Incorporated

660 Rear Main Street • P.O. Box 449 • Rockland, Maine 04841

ITEM: DISTILLATE TANK T-9

CUST. BOSTIK — P.O. NO.

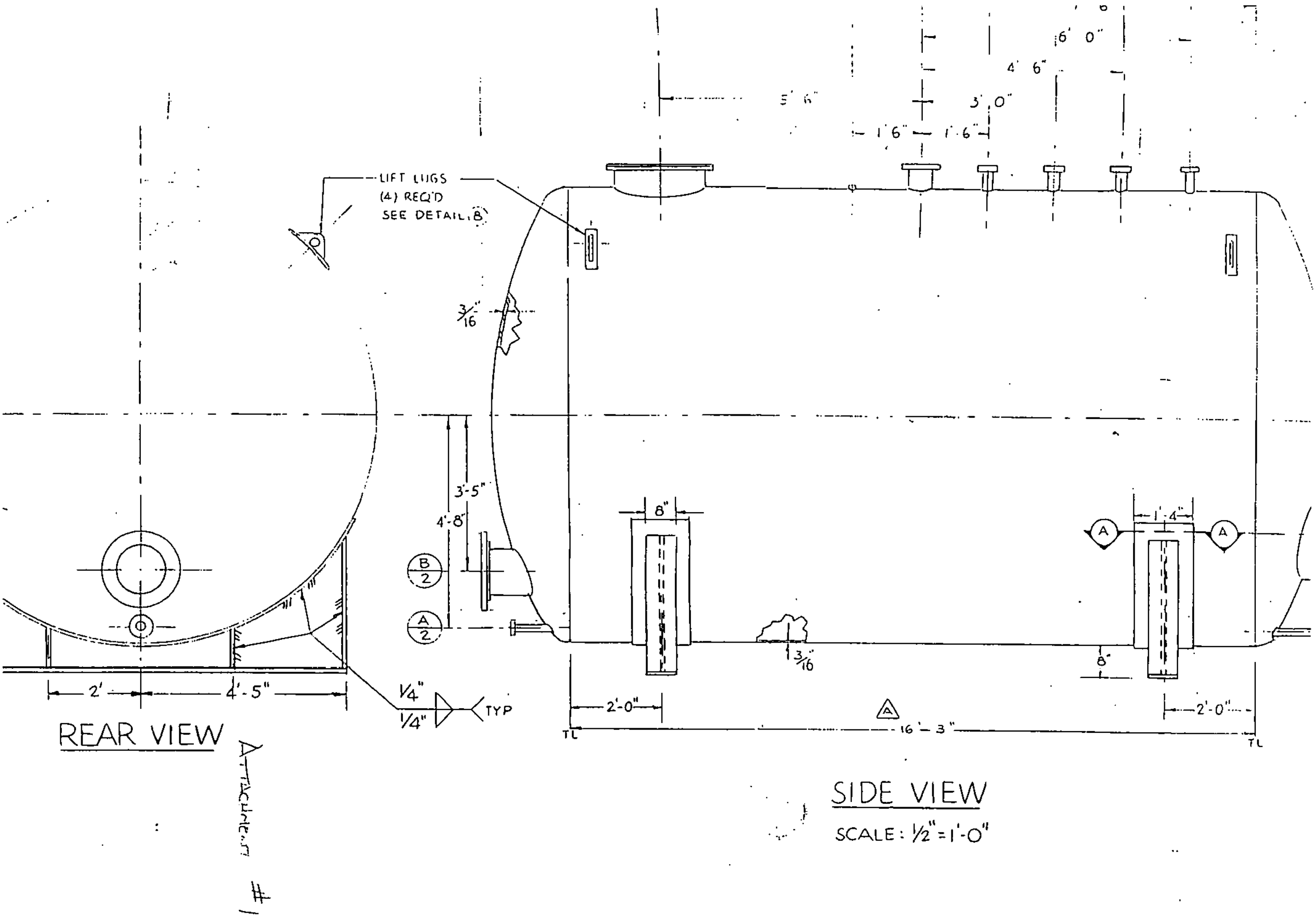
Dwn P GAGNON — S. O. No. 5451 — QUAN 1

Chk'd [illegible]

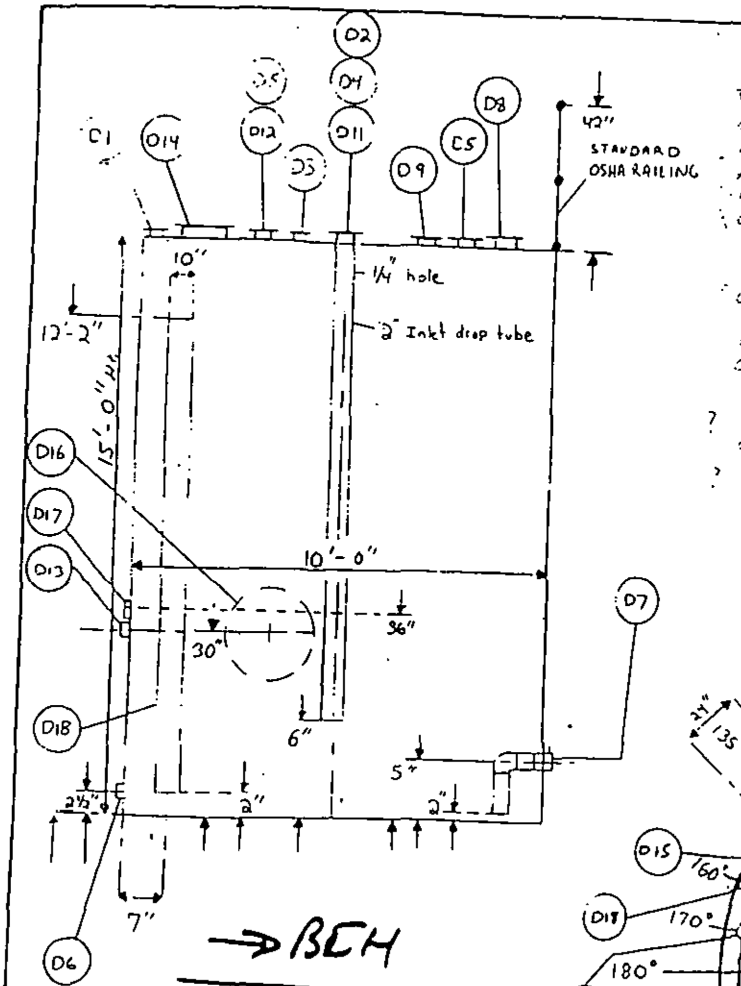
Date 10/26/87 — DWG: M-0116 — Rev. B

Attachment #1

Tank # 09518


LIFT LUGS
(4) REQ'D
SEE DETAIL B
3/16"
3'-5"
4'-8"
B 2
A 2
8"
1'-4"
A
A
3/16"
8"
2'-0"
2'-0"
16'-3"
TL
TL
2'
4'-5"
1/4"
1/4"
TYP
6'0"
4'6"
3'0"
5'6"
1'6"
1'6"
REAR VIEW
SIDE VIEW
SCALE: 1/2"=1'-0"
Attachment #1

Attachment #2 . Tank # 27001



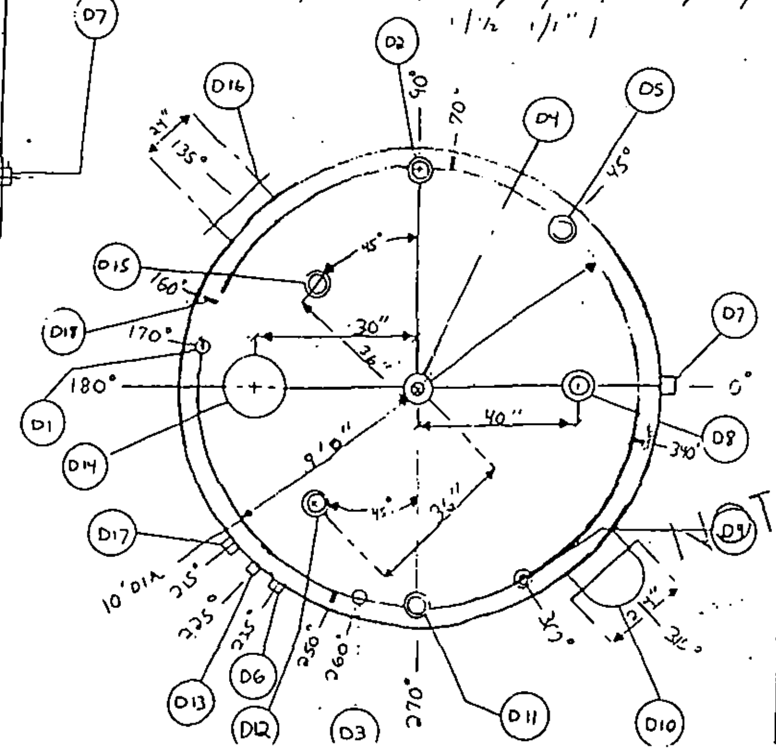
CONN. IDENT.	SIZE	ANSI RATING	SERVICE	REMARKS	NO. REQ'D.
D1	6"	150#	LSH Probe	Float Switch	
D2	[illegible]	[illegible]	INLET	[illegible]	
D3	2"	"	Level Indicator	Bubbler Tube	
D4	2"	150#	Mixer		
D5	2"	3000#	Access Inlet		
D6	2"		Drain	w/ [illegible]	
D7	2"		Outlet	w/NPT Nipple & Elbow	
D8	2"	"	PRV	Conservation Vent	
D9	2"	"	Manual Gauge		
D10			Access Ladder		
D11	2"	3000#	Vapor Recov.		
D12	2"	"	Spare	w/ [illegible]	
D13	1/2"	"	Sample Port		
D14	24"		Access Vent/[illegible]		
D15	2"	3000#	Spare	w/ plug	
D16	24"		Manway	Cleanout	
D17	1"	3000#	TW/TI	Temperature Ind.	
D18	10" width	2" off wall	Baffle, Typ. of (4)	2" off bottom 12'-0" ht.	4

10/2" 1/6" Flange cap 1/10" Flange/cap
1/1 1/2 1/1"

TANK DATA		
NO.	ITEM Tag No:	T-1
	REQUIRED	1
PRESS	DESIGN	1 PSI
	OPERATING	Atmospheric
	TEST	UL142 or API650 1.5 psi
TEMP.	DESIGN	Ambient
	OPERATING	Ambient
SHELL	INSIDE (DIAM/~~WIDTH~~)	10'-0"
	~~LENGTH~~/HEIGHT	15'-0"
	THICKNESS	Per Test
	CORR. ALLOW INCL.	1/16"
HEAD(S)	TYPE	Flat
	MIN. THICKNESS	1/4"
CONN'S.	MANHOLE RATING	
	MANHOLE DAVIT OR HINGE	Flange
	NOZZLE RATING	150# flg / 3000# Full Coupling
	CONSTRUCTION	C.S.
MATERIALS	SHELL AND HEADS	
	PARTITIONS/WEIRS	(4) baffles, 20°, 160°, 250°, 340°
	~~OTHER INTERNALS~~	2" off wall, 10" wide
	~~INTERNAL BOLTING~~	2" off Tank bottom, 12'-0" high
	~~EXTERNAL BOLTING~~	(Typ of 4)
	EXTERNAL GASKETS	Teflon
	SUPPORTS	AS Req'd
DESIGN & CONSTR.	M & E SPECIFICATION	
	PAINTING	Red Oxide Primer
	INSULATION	
	SHIPMENT	

NO.	DATE	DESCRIPTION	BY

REVISIONS



→ BEH

O.K. [signature]

Z

MAY - 4 1992

BOSTIK

BIF SYSTEM UPGRADE, BFN27

DISTILLATE STORAGE TANK

T-1

NOT FOR CONSTRUCTION

DRAWN S. THIBAULT

SCALE (Dwg NOT TO Scale)

JOB NO.

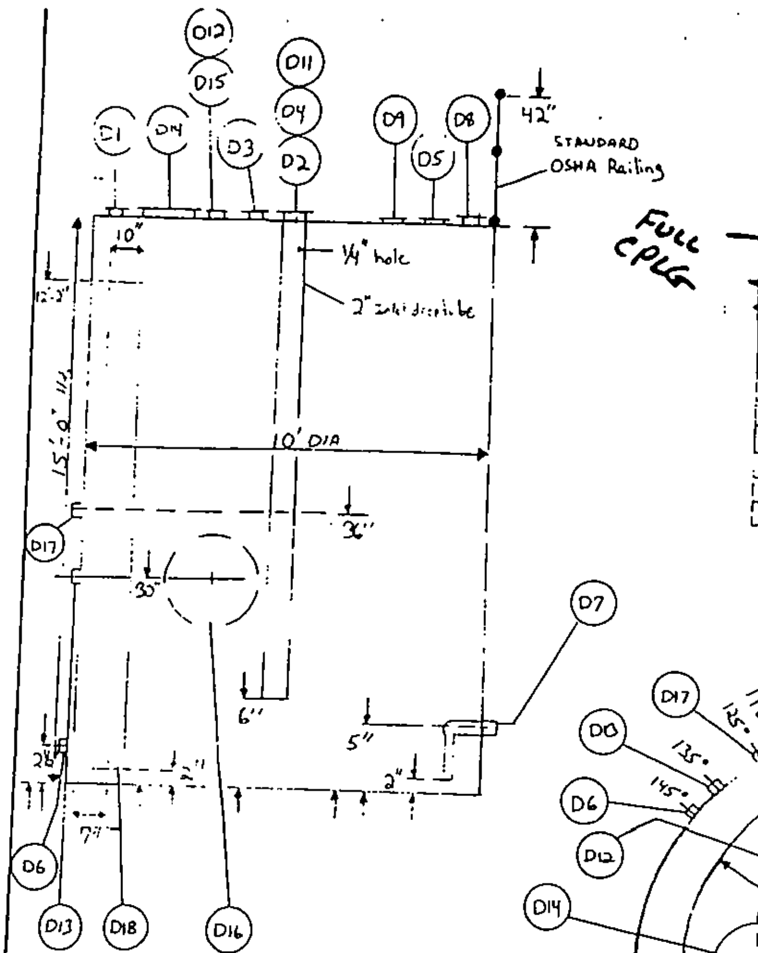
DRAWING NO. | REV.

MAY - 4 1992

M&E METCALF & EDDY/ENGINEERS

BFN 27

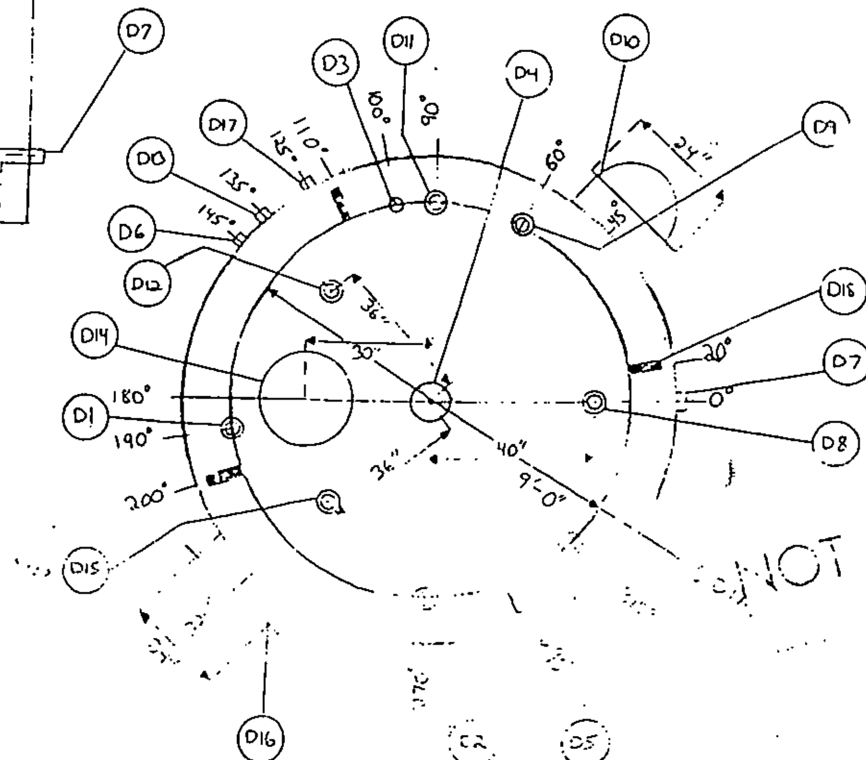
Attachment #2, Tank #27002



CONN IDENT	SIZE	ANSI RATING	SERVICE	REMARKS	NO. REQ'D.
D1	6"	150#	LSH Probe	Float Switch	
D2	2"	3000#	Inlet/Drop Tube		
D3	2"	3000#	Level Indicator	Bubbler Tube	
D4	10"	150#	mixer		
D5	2"	3000#	Recirc. Inlet		
D6	2"	"	Drain	w/ plug	
D7	2"	"	outlet	WNPT Nipple + Elbow	
D8	2"	"	PRV	conservation vent	
D9	2"	"	manual Gauge	W/PLUG	
D10		--	Access Ladder	PER OSHA	
D11	2"	3000#	Vapor recov		
D12	2"	"	Spare	w/plug	
D13	1/2"	"	Sample Port		
D14	24"	"	Emr Vent/manhole		
D15	2"	"	Spare	w/ plug	
D16	24"		manway	cleanout	
D17	1"	"	TW/TI	Temperature Ind.	
D18	10" width	2" off wall	(Type of 4)	2" off bottom, 12' Ht.	4

TANK DATA

NO.	ITEM Tag No:	T-2
	REQUIRED	1
PRESS	DESIGN	1 PSI
	OPERATING	Atmospheric
	TEST	UL 142 or API 650 1.5 psi
TEMP.	DESIGN	Ambient
	OPERATING	Ambient
SHELL	INSIDE (DIAM/~~WIDTH~~)	10'-0"
	~~LENGTH~~/HEIGHT	15'-0"
	THICKNESS	Per test
	CORR. ALLOW INCL.	1/16"
HEAD(S)	TYPE	Flat
	MIN. THICKNESS	1/4"
CONN'S.	MANHOLE RATING	
	MANHOLE DAVIT OR HINGE	Flange
	NOZZLE RATING	150# Flange / 3000# Full Coupling
	CONSTRUCTION	C.S.
MATERIALS	SHELL AND HEADS	
	PARTITIONS/~~WEIRS~~	(4) baffles, 20°, 110°, 200°, 290°
	~~OTHER INTERNALS~~	2" off wall, 10" wide
	~~INTERNAL BOLTING~~	2" off tank bottom, 12'-0" ht
	~~EXTERNAL BOLTING~~	(Type of 4)
	EXTERNAL GASKETS	Teflon
	SUPPORTS	As Req'd
DESIGN & CONSTR.	M & E SPECIFICATION	
	PAINTING	Red oxide Primer
	INSULATION	
	SHIPMENT	



NO.	DATE	DESCRIPTION	BY

REVISIONS

BOSTIK

BIF SYSTEM UPGRADE BFN27

DISTILLATES STORAGE TANK

T-2

NOT FOR CONSTRUCTION

DRAWN S. THIBAULT

SCALE (not to Scale)

JOB NO.

DRAWING NO.

REV.

MAY - 4 1992

M&E METCALF & EDDY/ENGINEERS

BFN27

→ ACH

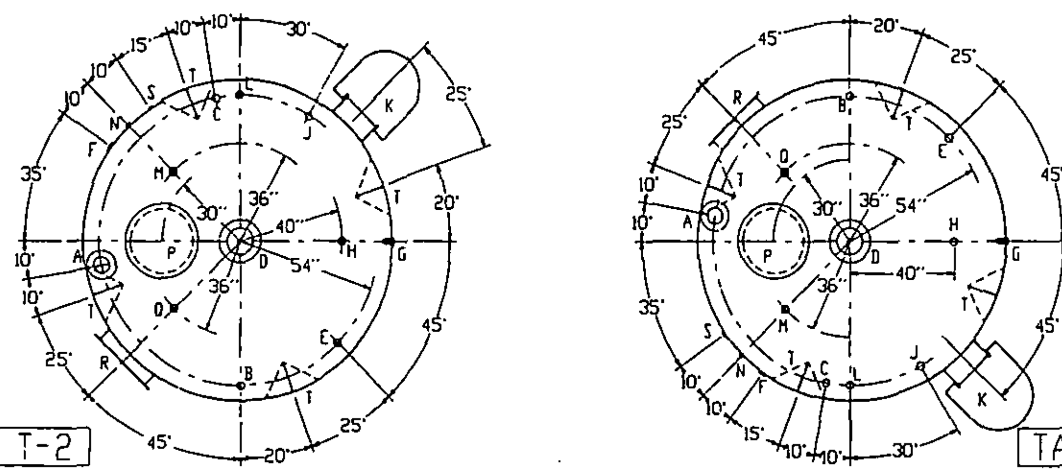
O.K

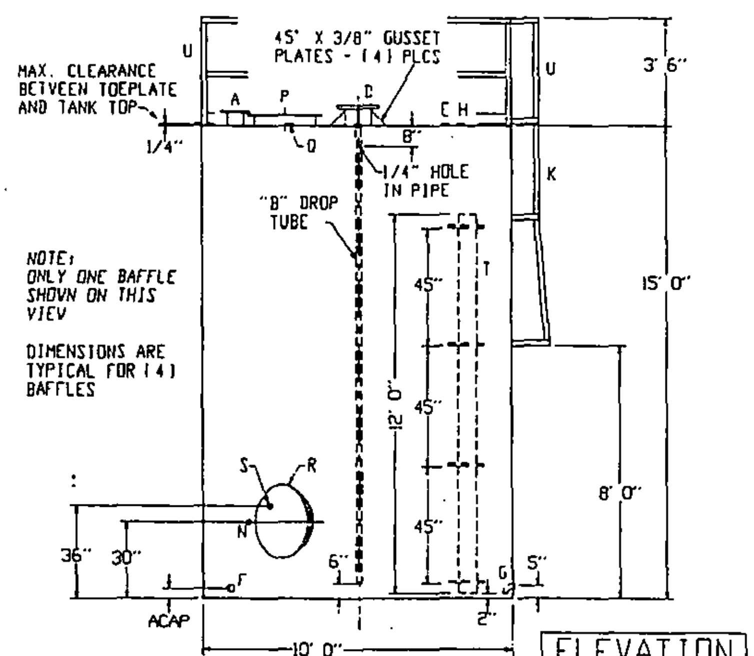
[illegible]

MAY - 4 1992

Attachment #3

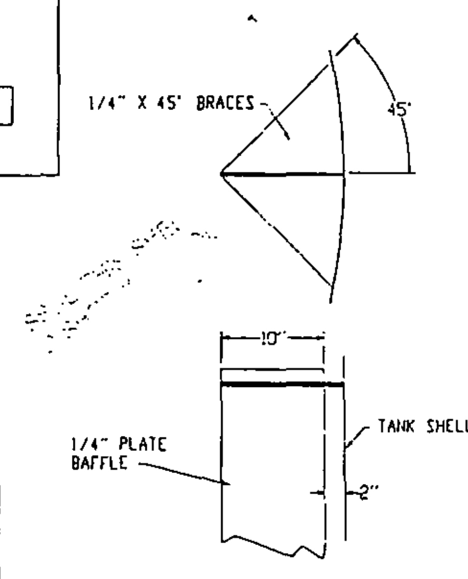
CAP- 8800 GAL (2) TANKS REQUIRED
MAT'L- MILD CARBON STEEL
THICKNESS- TOP- 5/16" FLAT FLANGED
BOTTOM- 5/16" FLAT PLATE
SHELL- 5/16"
CONSTR- LAP WELD OUTSIDE ONLY
TEST- 2 PSIG
PAINT- INT- NONE
EXT- RED OXIDE PRIMER
LABEL- NONE





ELEVATION

- ✓ A 6" X 150# FLG WITH BLIND FLANGE
- ✓ B 2" X 3000# FCPLG WITH 2" DROP PIPE (T.O.E.)
- ✓ C 2" X 3000# HCPLG
- ✓ D 10" X 150# FLG - NECK TO HAVE (4) 45° GUSSETS
- ✓ E 2" X 3000# HCPLG
- ✓ F 2" X 3000# HCPLG WITH PLUG
- ✓ G 2" X 3000# FCPLG WITH 2" X 90° LR THRD ELBOW
- ✓ H 2" X 3000# HCPLG
- ✓ J 2" X 3000# HCPLG WITH PLUG
- ✓ K OSHA LADDER AND CAGE PER DWG C17170
- ✓ L 2" X 3000# HCPLG
- ✓ M 2" X 3000# HCPLG WITH PLUG
- ✓ N 1/2" X 3000# HCPLG
- ✓ P 24" X 1/4" PLATE LOOSE BOLT MANHOLE WITH TEFLON GASKET
- ✓ Q 2" X 3000# HCPLG WITH PLUG
- ✓ R 24" X 1/4" PLATE MANHOLE WITH TEFLON GASKET
- ✓ S 1" X 3000# HCPLG
- ✓ T 10" WIDE X 1/4" PLATE BAFFLES - TYP (4) PLCS SEE BAFFLE DETAIL
- ✓ U OSHA HANDRAIL AROUND TOP L2 X 2 X 3/8" POSTS AND RAILS AND 4" X 1/4" TOEPLATE SHIP UNIT LOOSE



BAFFLE DETAIL

SCALE 1" = 1'-0"

8800 GAL AG VERTICALS

HIGHLAND TANK AND MFG CO

CUSTOMER	REV DATE	REV NO
ZECCO	5/21/92	1

SCALE	DATE	DRAWN BY	DWG NO
1/4" = 1'-0"	5/18/92	TJA	C19569

Attachment # 4

HIGHLAND TANK & MFG. CO.
99 WEST ELIZABETHTOWN ROAD • MANHEIM, PA 17545-9410 • TELEPHONE 717-665-6877
FAX 717-665-2790

July 16, 1992

Mr. Howard Steiman
Metcalf and Eddy
30 Harvard Mill Square
Wakefield, MA 01888

RE: Zecco Purchase Order #16805 (Bostik)

Dear Mr. Steiman:

The two 8,800 gallon vertical tanks provided by Highland Tank & Mfg. Company do not bear a U.L. 142 label. The fact that these tanks have flat tops prevents them from fully meeting the U.L. 142 Standard. In all other aspects, however, (weld design, testing, venting capacity, material thickness, etc.), these tanks meet the U.L. specifications.

Highland Tank & Mfg. Company understands that a flat roof was specified by Metcalf and Eddy due to personnel access requirements to equipment located at the top of the tank.

Sincerely,

Timothy J. Silva (mk)

Timothy J. Silva
Regional Sales Manager

TJS:mk

cc Jeff Bridgeman - Zecco
Charles E. Aument
File

#5

1.2 DISTILLATE DESCRIPTION

According to Bostik, the distillate waste has the following characteristics:

1. Composition - the "average" distillate composition is:

Methanol	39%
Water	40
Tetrahydrofuran, THF	9
1,4 Butanediol	6
Ethylene Glycol	2
Xylene	2
Caprolactone	2
Total:	100%

2. The distillate is classified as a hazardous waste only because it is flammable.

3. The heating value of the distillate is 44-55,000 Btu/gallon.

4. The elemental composition of the distillate is:

Carbon	33.8%
Hydrogen	13.1%
Oxygen	53.1%
Halogenated Compounds	None
Heavy Metals	None
Sulfur	None
Nitrogen	Nil

Based upon Bostik's description of the distillate, M&E has assumed that it is a Class 1B Liquid as defined by NFPA standards. Therefore, the applicable provisions of NFPA 30 for a Class 1B flammable fluid have been incorporated into the system design basis.

BAKER TESTING SERVICES, INC.

OFFICE AND LABORATORIES:
98 Reservoir Park Drive
Rockland, MA 02370

NONDESTRUCTIVE EXAMINATION
METALLURGY AND FAILURE ANALYSIS

(TEL) 617-871-4458
(FAX) 617-871-0123

NON-DESTRUCTIVE TEST REPORT

Customer Bostik Job No. 0795-103

P.O. 122532 Inspection Date 7-24-95

Test Method Ultrasonics Type Thickness Readings

Test Equipment Panametrics Model 26 DL Plus

Part Name Storage Tanks Part No. Quantity 3

Part Identification 27001, 27002, 09518 Material Carbon Steel / Stainless Steel

Specification Customer Information Acceptance Standard Customer Information

Test Data Transducer - 5 Mhz .312" dia. dual element

Calibration - Stepwedges

Couplant - Sonotrace Grade #30

Row A girth band, Row B bottom to top at ladder

Row C & D top X pattern, bottoms inaccessible,

On tanks 27001 and 27002. See drawing for tank 09518

Results

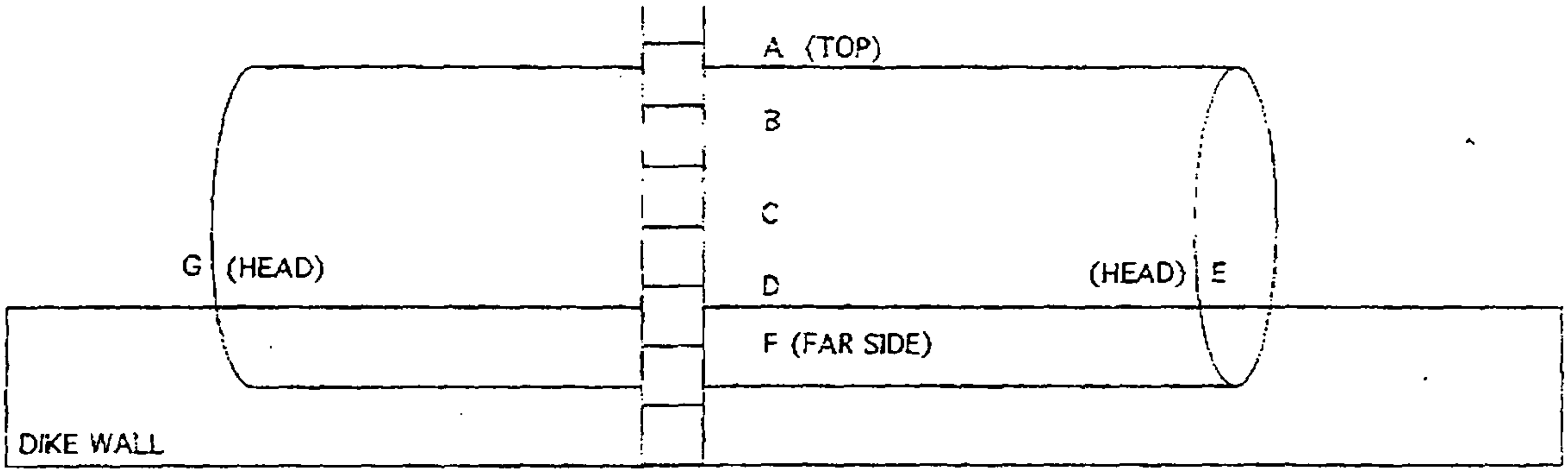
See Attached Sheets

Inspector James S. Doyle Level 111 Date 7-24-95

JM-1602

UT THICHNESS READING LOCATIONS
BOSTIK TANK#09518

INSULATION WAS REMOVED AT 7 LOCATIONS.



Filename: BOSTIK.TXT
Operator: JAMES DOYLE
Location: BOSTIK
Date: 7/25/1995
Time: 07:24
Probe ID: D790/791   for SU# 2
Probe ID: D790/791   for SU# 5
Comments:

IDENTIFIER	THICKNESS	UNITS	FLAGS	SU #
27001-A01	0.324	IN	M-----A	2
27001-A02	0.332	IN	M-----	2
27001-A03	0.333	IN	M-----	2
27001-A04	0.322	IN	M-----	2
27001-A05	0.328	IN	M-----	2
27001-A06	0.329	IN	M-----	2
27001-A07	0.326	IN	M-----	2
27001-A08	0.331	IN	M-----	2
27001-A09	0.325	IN	M-----	2
27001-A10	0.332	IN	M-----	2
27001-B01	0.330	IN	M-----	2
27001-B02	0.325	IN	M-----	2
27001-B03	0.329	IN	M-----	2
27001-B04	0.334	IN	M-----	2
27001-B05	0.330	IN	M-----	2
27001-B06	0.331	IN	M-----	2
27001-B07	0.331	IN	M-----	2
27001-B08	0.343	IN	M-----	2
27001-B09	0.339	IN	M-----	2
27001-B10	0.345	IN	M-----	2
27001-C01	0.330	IN	M-----	2
27001-C02	0.335	IN	M-----	2
27001-C03	0.337	IN	M-----	2
27001-C04	0.329	IN	M-----	2
27001-C05	0.329	IN	M-----	2
27001-C06	0.321	IN	M-----	2
27001-C07	0.327	IN	M-----	2
27001-C08	0.327	IN	M-----	2
27001-C09	0.325	IN	M-----	2
27001-C10	0.326	IN	M-----	2
27001-D01	0.331	IN	M-----	2
27001-D02	0.326	IN	M-----	2
27001-D03	0.323	IN	M-----	2
27001-D04	0.321	IN	M-----	2
27001-D05	0.339	IN	M-----	2
27001-D06	0.326	IN	M-----	2
27001-D07	0.330	IN	M-----	2
27001-D08	0.332	IN	M-----	2
27001-D09	0.346	IN	M-----	2
27001-D10	0.343	IN	M-----	2
27002-A01	0.327	IN	M-----A	2
27002-A02	0.332	IN	M-----	2
27002-A03	0.328	IN	M-----	2
27002-A04	0.330	IN	M-----	2
27002-A05	0.332	IN	M-----	2
27002-A06	0.327	IN	M-----	2
27002-A07	0.332	IN	M-----	2
27002-A08	0.323	IN	M-----	2
27002-A09	0.326	IN	M-----	2

27002-B01	0.328	IN	M------	2
27002-B02	0.322	IN	M------	2
27002-B03	0.321	IN	M------	2
27002-B04	0.331	IN	M------	2
27002-B05	0.333	IN	M------	2
27002-B06	0.334	IN	M------	2
27002-B07	0.336	IN	M------	2
27002-B08	0.336	IN	M------	2
27002-B09	0.334	IN	M------	2
27002-B10	0.324	IN	M------	2
27002-C01	0.314	IN	M------	2
27002-C02	0.309	IN	M------	2
27002-C03	0.319	IN	M------	2
27002-C04	0.324	IN	M------	2
27002-C05	0.327	IN	M------	2
27002-C06	0.330	IN	M------	2
27002-C07	0.343	IN	M------	2
27002-C08	0.321	IN	M------	2
27002-C09	0.322	IN	M------	2
27002-C10	0.317	IN	M------	2
27002-D01	0.330	IN	M------	2
27002-D02	0.322	IN	M------	2
27002-D03	0.316	IN	M------	2
27002-D04	0.322	IN	M------	2
27002-D05	0.336	IN	M------	2
27002-D06	0.319	IN	M------	2
27002-D07	0.324	IN	M------	2
27002-D08	0.321	IN	M------	2
27002-D09	0.327	IN	M------	2
27002-D10	0.330	IN	M------	2
09518A	0.182	IN	M------	5
09518B	0.185	IN	M------	5
09518C	0.191	IN	M------	5
09518D	0.191	IN	M------	5
09518E	0.183	IN	M------	5
09518F	0.190	IN	M------	5
09518G	0.181	IN	M------	5

OK

SU #	VEL(/uS)	DIFF	LO-ALM	HI-ALM	EXT-BLANK	UNITS	TRANSDUCER	GAIN dB
2	0.2371	0.000	0.000	10.000	0.000	IN	D790/791	53
5	0.2253	0.000	0.000	10.000	0.000	IN	D790/791	53

OK

CODE	COMMENT
A	MANWAY

OK

Section E - Groundwater Monitoring

Bostik, Inc.'s Middleton, MA facility does not operate a surface impoundment, waste pile, landfill, or land treatment unit that received hazardous waste after July 26, 1982; therefore, the additional informational requirements of 40 CFR Part 270.14(c) are not applicable to this permit application.

Section F - Procedures to Prevent Hazards

F.1 Security [40 CFR 270.14(b)(4); 264.14]

The Bostik facility has a 24 hour surveillance system and a means to control entry to the site. The surveillance system includes 24-hour video monitoring of the front gate (adjacent to Building # 3) but does not include video surveillance of the BIF unit. Bostik operates essentially 24/7 throughout the year with the exception of key holidays. Since heat is required to operate the polyester reactors, the BIF unit also essentially operates 24/7 with the exception of key holidays and planned maintenance downtime. Bostik polyester department personnel work rotating 12 hour shifts and are therefore present to perform an inspection of the BIF operation at all times. The Bostik facility has a chain-link fence that completely surrounds the property and there are gates at each vehicle entrance which are closed and locked during non-operation hours.

The Direct Solvation Tank, the storage/feed tanks (T-1 and T-2), and the Polyester Burner each have signs posted with the legend, "Danger - Unauthorized Personnel Keep Out", that can be seen from any approach to these units. The fencing along the roadways and on the western perimeter of the property also have warning signs. The legends of these signs are written in English and are legible from a distance of at least 25 feet.

F.2 Inspection Schedule [40 CFR 270.14(b)(4); 264.14]

F.2.1 General Inspection Requirements

The Bostik facility maintains a schedule for inspection of monitoring equipment, safety and emergency equipment, security devices, and operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards. The inspection schedule identifies the types of problems to look for and the frequency of inspection. The frequency of inspection is based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections. Areas subject to potential spills and major features of the facility (such as dikes, storage conditions, application rates, and general site appearance) will be inspected daily when in use. This inspection schedule will be kept at the facility and is included as **Attachment F-1**. In addition, inspection checklists are provided in **Attachment F-2**.

F.2.2 Specific Process Inspection Requirements

F.2.2.1 Container Inspection

The Bostik facility does not store hazardous waste in containers for greater than 90 days; therefore, this section is not applicable.

F.2.2.2 Tank System Inspection

Three aboveground tank systems are subject to inspection under this section: T-9 (10,000 gallon); T-1 (8,000 gallon); and T-2 (8,000 gallon). The daily inspection form that will be completed by trained

Bostik personnel is provided in Attachment F-2. The inspector will check each tank system, looking for external corrosion or releases of waste. The inspector will check the construction materials and the area immediately surrounding the externally accessible portions of the tank systems, including the secondary containment systems, daily to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation, etc.). The levels indicated for each tank will be recorded on the inspection form. The inspection schedule is included in Attachment F-1.

F.2.2.3 Waste Pile Inspection

The Bostik facility does not manage hazardous waste in waste piles; therefore, this section is not applicable.

F.2.2.4 Surface Impoundment Inspection

The Bostik facility does not manage hazardous waste in surface impoundments; therefore, this section is not applicable.

F.2.2.5 Incinerator Inspection

The Bostik facility does not manage hazardous waste in an incinerator; therefore, this section is not applicable.

F.2.2.6 Landfill Inspection

The Bostik facility does not manage hazardous waste in a landfill; therefore, this section is not applicable.

F.2.2.7 Land Treatment Facility Inspection

The Bostik facility does not manage hazardous waste in a land treatment facility; therefore, this section is not applicable.

F.2.2.8 Miscellaneous Unit Inspections

The Bostik facility does not manage hazardous waste in any miscellaneous units as specified in 40 CFR 264.602; therefore, this section is not applicable.

F.2.2.9 Boilers and Industrial Furnaces (BIF) Inspections

The Struthers-Wells polyester burner will be subject to thorough visual inspections at least daily (during days of operation and when the unit contains hazardous waste) for signs of leaks, spills, fugitive emissions, and tampering. The inspector will complete the daily BIF inspection form (see Attachment F-2) including the following areas:

- Burning distillate;
- Flows;
- Totalizers;
- Containment areas (diked areas);
- Monitoring equipment to include measuring devices and overflow protection devices;

- Rain water collection basins and freeboard levels of both diking and storage facilities;
- Stack plume (observing color and opacity); and
- All industrial equipment which relates to the combustion of hazardous waste and associated equipment such as pumps, filters, etc., including testing of the automatic waste cut-off system to ensure its proper operation.

Attachment F-2 shows the daily inspection form to ensure the proper operation of the Continuous Emissions Monitoring (CEM) system for the polyester burner. The inspector will review the Envicom Plus computer screen and complete all questions on the form utilizing the information from the computer screen. The inspector will verify that the date and time are correct and check the printer paper (and refill if needed). The inspector will open the analyzer control cabinet and inspect the following:

- sample line;
- gas cylinder pressure;
- sample pressure;
- chiller cooling; and
- flow meter settings.

The inspector will review the hourly rolling average (HRA) carbon monoxide (CO) printout sheets and note the cause. The inspector will review the daily log book and record in the reason block any activity that took place to affect the CO average. The inspector will notify management of any unusual conditions and record the information in the daily log book. The inspector will file completed forms and computer printouts in the master file cabinet located in the BIF control room.

In accordance with the BIF regulations, an automatic waste feed cutoff (AWFCO) system has been installed on the polyester burner and has been operational since mid-1992. Parameters tied into the waste feed cutoff system include:

- selected CEM system failure;
- high heater firing rate;
- high waste feed rate to the heater;
- high CO hourly rolling average; or
- data collection system is down.

Activating any of these triggers causes the control valves on the waste feed system to close. Additionally, a number of other alarms and sensors are in place to monitor heater operations. **Table F-1** indicates the setpoints for each of the alarm, shutdown, warning, and waste feed cutoff designations. These shutdown alarms are part of the overall burner management system and are designed to ensure proper and safe heater operation.

The BIF regulations require that the HRA CO emissions never exceed 100 ppm. If the CO HRA exceeds 100 ppm, the distillate feed will be shut off and the condition which resulted in the high CO level corrected before any more distillate is fired into the burner. The Programmable Logic Controller

(PLC) computer will be alerted if the one-minute traveling average CO level exceeds 75 ppm and will alarm if the level exceeds 100 ppm. The PLC is programmed to shut down the firing of distillate if the CO reading is above 100 ppm on a rolling hourly average.

The BIF rules call for testing of the AWFCO system every seven days. The system undergoes this testing manually to fulfill this regulatory requirement. One individual stays in the BIF trailer/CEM room while the other manually presses the AWFCO buttons located around the plant. The two individuals communicate by Nextel Direct Connect/Cell phone to ensure manual AWFCOs are working properly. The waste feed cutoff buttons are located:

T1/T2 – on the left wall as you enter Building 27 from the Ipswich River side

Day Tank (DT-1) – near the blue tarps as you enter Day Tank Area

CEM/BIF trailer – to the right of the door as you enter the CEM/BIF trailer

Direct Solvation – on the wall to 2nd floor of Bldg. 9 near freight elevator

A demonstration of the AWFCO system test will be included during implementation of the Trial Burn.

There is a manual emergency shutdown button in the North American 8096 controller panel which is wired to the PLC. Emergency buttons in several locations are also received by the PLC. These four buttons, located at the CEM Building, the Day Tank, T1 & T2, and Building 27, shutdown the entire system, including the Polyester Burner.

Hazardous waste will not be transferred from a transport vehicle (or container) to the boiler.

F.2.2.10 Containment Building Inspection

The Bostik facility does not manage hazardous waste in a containment building; therefore, this section is not applicable.

F.3 Waiver or Documentation of Preparedness and Prevention Requirements [40 CFR 270.14(b)(6); 264.32(a)-(d)]

F.3.1 Equipment Requirements

F.3.1.1 Internal Communications

The Bostik facility uses internal communications and an alarm system to provide immediate emergency instruction (voice and signal) to facility personnel. Facility personnel will utilize Nextel Phones or telephones located near each hazardous waste unit to communicate with internal response personnel. A Nextel phone is carried by the lead polyester operator on each shift and telephones are located in the CEM Room and the Polyester Control Room for this communication. Alarm pull boxes, located at every building exit, will also be used in emergency situations to notify the plant personnel to evacuate in accordance with the Contingency Plan (see Section G). In-plant alarm pull boxes are electrically connected to the fire department and the enunciator panel is on the external wall of the Boiler Room (Building # 3).

F.3.1.2 External Communications

The hazardous waste units have telephones immediately available for summoning emergency assistance from local police departments, fire departments, or state or local emergency response teams. Internal communication equipment will also be used to contact boiler room personnel or emergency coordinators to evaluate the criteria for requesting external assistance.

The manufacturing complex is protected by the multiplex fire detection system. This system consists of flow switches, tamper switches, heat detectors, and pull stations. When activated, the system is a direct connection to the Middleton Fire Department city box 461, one (1) printer at Bostik (Boiler Room), and at an off-site alarm company. This system will activate internal horns and external strobe lights for evacuation and location purposes.

There are three (3) direct call pull boxes which send a signal directly to the Middleton Fire Department:

1. Box 461 Boiler Room, Building #3 (East Side)

2. Box 462 Pilot Plant, Building #30 (Pond Side)

3. Box 463 Tank Farm (Boston Street Side)

The location of the in-plant pull boxes, the direct call boxes, and fire hydrants at the facility is maintained in the Facility Manager's office.

F.3.1.3 Emergency Equipment

The Bostik facility maintains portable fire extinguishers, fire control equipment, spill control equipment, and decontamination equipment to respond to emergency incidents. An overview of fire protection services for the Bostik facility is presented in **Figure F-1**. Section 2.4.3.2 and Attachment 4 of the Contingency Plan (see Section G of this permit application) provide detailed information regarding all portable fire extinguishers and fire control equipment. In addition, Section 2.4.3.3 Table 2-9 provides detail on the extensive inventory of spill control and decontamination equipment that is maintained in the emergency response trailer (stationed adjacent to Building # 17), the spill control supply room (Building # 17) and adjacent to each hazardous waste accumulation area.

F.3.1.4 Water for Fire Control

The facility has water at adequate volume and pressure to supply water hose streams and automatic sprinklers. The plant sprinkler system is made of heat activated sprinkler heads which are tied into a water supply. The water supply consists of a matrix of piping loops. This enables water flow from more than one direction. In other words, if a break or blockage occurs in a major supply pipe, water flow will be maintained via another route. Water pressure is obtained from two sources: Peabody city water and Ipswich River water. The fire pump is set at 96-106 psi. A jockey pump assists in maintaining this pressure at all times. If the sprinkler system water pressure drops below 80 psi, the fire pump located in Building #8 comes on automatically to maintain required flow with river water. In addition, the solvent tank farm truck unloading station is protected by a foam extinguishing system and the Computer Room is protected with a Halon System.

F.3.1.5 Posted Emergency Information

An up to date written list containing the following information is posted at the telephones near the hazardous waste units:

- The name(s) and telephone number(s) of the Incident Commanders;
- The location(s) of the fire extinguisher(s), spill control material(s), and fire alarms;
- The telephone number of the fire department; and
- Evacuation routes, where applicable.

F.3.2 Aisle Space Requirement

The Bostik facility maintains sufficient aisle space to allow the unobstructed movement of personnel, fire protection equipment, or spill control equipment to any area of facility operation in an emergency. All the units subject to this permit application are outdoors and readily accessible by facility roadways.

F.4 Prevention Procedures, Structures and Equipment [40 CFR 270.14]

F.4.1 Unloading Operations

Bostik does not have unloading operations associated with the polyester burner as all tanks are hard-piped. Rain water that may collect in the containment dike for the storage tanks will be pumped out to the groundwater drainage sewer provided that the water has been analyzed by the on-site analytical laboratory. The results and actions will be noted in the daily log book for BIF Operations. As shown previously in Figures F-1 and F-2, the daily inspections of the BIF and tanks ensure that the containment systems are not deteriorating and that there are no signs of a release of waste (e.g., wet spots; dead vegetation; etc.).

The stations will also be inspected daily for accumulation of rain water. If rain water is detected in the containment system, it will be sampled and analyzed by the facility laboratory to determine if any hazardous constituents are present. If the rain water is contaminated with hazardous waste or if hazardous waste has released to the containment system, the liquid will be pumped into containers and sent off-site to a licensed hazardous waste facility. If the rain water is determined to be non-hazardous, the liquid will be pumped into a sewer to discharge to the Ipswich River.

F.4.2 Run-Off

All hazardous waste activities (storage and handling) are accomplished in permanently diked areas (see Section D, Process Information) to prevent run-off to other areas of the facility or the environment. These dikes would also prevent the unlikely event of a flooding around the hazardous waste units. If a spill of hazardous waste were to occur outside the diked areas, Bostik personnel will place covers over all storm drains. The areas around the hazardous waste units are asphalt paved; therefore, Bostik personnel will use absorptive spill cleanup materials (e.g., Zip-Zorb, rags, sawdust, etc.) to contain the spill. Any spilled hazardous waste and contaminated cleanup materials will be disposed as hazardous waste in accordance with 310 CMR 30.000.

F.4.3 Water Supplies

The same procedures, structures, and equipment described above will be used to prevent contamination of water supplies (i.e., the Ipswich River or Bostik's Upper and Lower Ponds).

F.4.4 Equipment and Power Failure

In addition to the previously identified controls, the hazardous waste feed system is designed to become inoperable in the event of a power failure. Waste feed control valves are normally closed and require electricity to open; therefore, the valves automatically return to the closed position when power is interrupted, thus securing the system. The CEM system monitors the polyester burner and will automatically shut off the waste feed when predetermined CO parameters are exceeded (i.e., 100 ppm based on the hourly rolling average). Battery-powered emergency lighting is also available throughout indoor areas at the Bostik facility.

F.4.5 Personal Protective Equipment (PPE)

Employees involved in hazardous waste activities will receive classroom and on-the-job training equal to their level of responsibility, including identification of hazardous waste, emergency response, and the care and use of PPE (e.g., safety glasses, face shield, eye protection, respiratory protection, and protective clothing). Bostik employees requiring PPE are issued individual equipment fitted for their personal use.

F.5 Prevention of Reaction of Ignitable, Reactive and Incompatible Wastes [40 CFR 270.14(b)(9)]

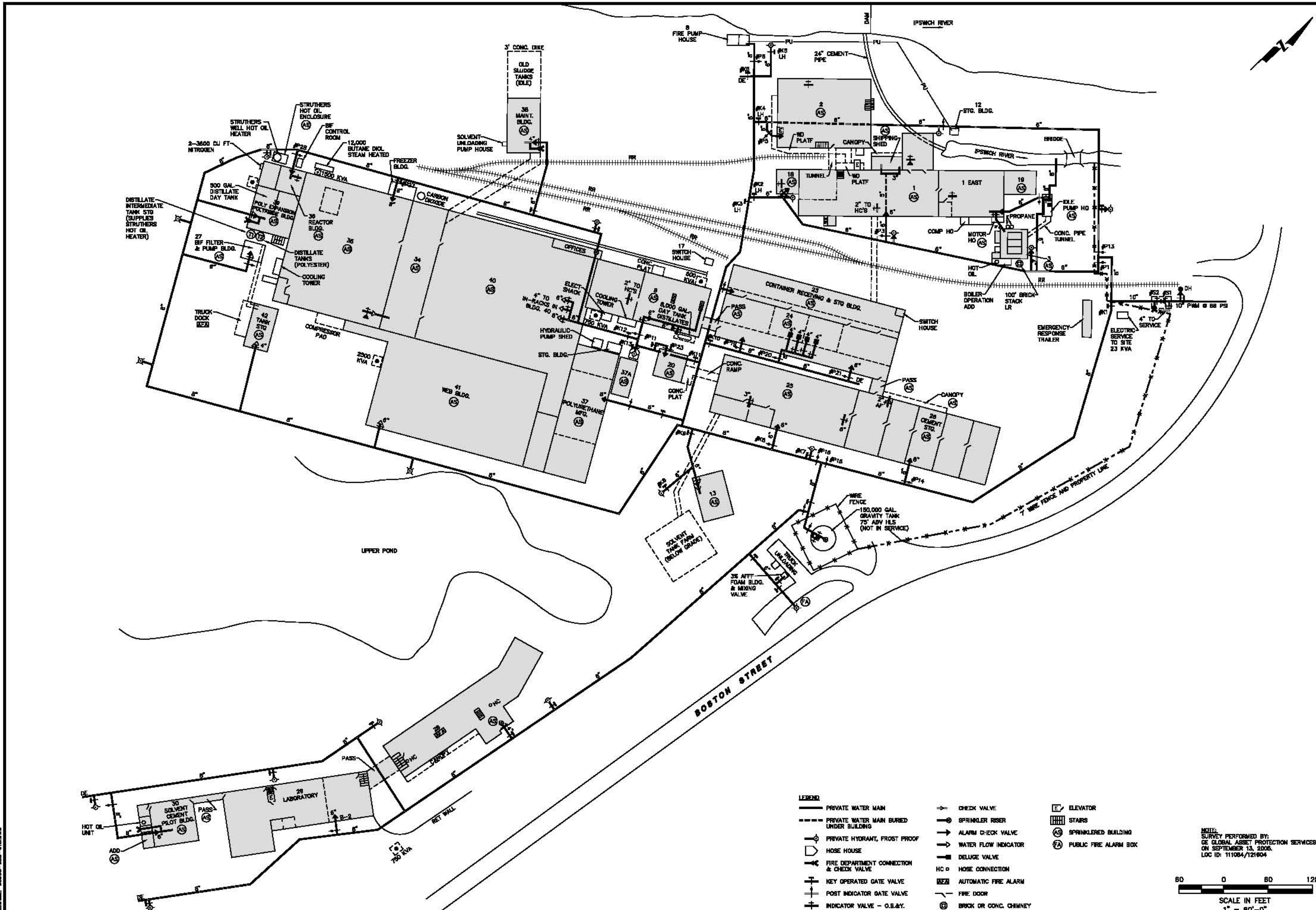
The units subject to this RCRA Part B permit application do not handle reactive or incompatible wastes.

Overflow of the tanks is prevented by Magnetrol high level float switches mounted on the top of the tanks and interfaced with the PLC. If a high level condition occurs, the float switch signals the PLC and alarming to the Envicom Plus data system will occur. All pump transfer operations will then automatically stop until the condition is corrected. An audible alarm alerts the Polyester operators that a problem requiring their attention exists.

Table F-1 BIF Non-Regulatory Shutdown Limits

Alarm Designation	Description of Limit
Low Combustion Air Pressure	10-45 in w.c.
Low Heat Transfer Oil Pressure	15 psi
Low Pilot Gas Pressure	8 psi
High Pilot Gas Pressure	27 psi
Low Heat Transfer Oil Flow	200 gpm
Low Heat Transfer Oil Level	2-inches
High Heat Transfer Oil Temperature	600°F

Figure F-1 Fire Protection Services



FILENAME: 00963-035-010.DWG

REVISIONS

NO.:	DESCRIPTION:	DATE:	BY:

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

ENSR | AECOM

ENSR CORPORATION
2 TECHNOLOGY PARK DRIVE
WESTFORD, MASSACHUSETTS 01886
PHONE: (978) 589-3000
FAX: (978) 589-3100
WEB: HTTP://WWW.ENSR.AECOM.COM

FIRE PROTECTION SERVICES
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MA

SCALE: 1"=120'
DATE: 11/06
PROJECT NUMBER: 00963-035-300

FIGURE NUMBER: F-1

SHEET NUMBER: 1

ATTACHMENT F-1

RCRA GENERAL INSPECTION PLAN

Bostik Findley Inc.
Middleton Site
211 Boston Street Middleton, MA 01949-2128

Standard Operating Procedure

Title: RCRA GENERAL INSPECTION PLAN	**Procedure Number** HSE-6-002 **Revision:** 1

Department: Manufacturing **Area:** Middleton	*Approved & Released Standard Operating Procedure*	**Implementation Date:** 08/14/2007

Type of Document: HSE Management System Procedure	**Review Period** - 365 **Days**

1.0 Purpose:

To ensure that all safety and emergency equipment, monitoring equipment, security devices, and operating and structural equipment that are important to preventing, detecting, or responding to environmental or human health hazards are appropriately inspected so as to ensure their effectiveness when needed.

2.0 Scope:

This plan applies to equipment located at the Bostik, Inc. facility in Middleton, MA.

3.0 Responsibilities:

HSEQ: Ensures that inspections relating to this plan are conduxcted according to the schedule below.
Facilities Manager: Ensures that inspections relating to the fire and emergency notification systems are conducted as specified in the

schedule below.
Loss Prevention Coordinator: Completes the L:oss Prevention inspection checklist as specified in the schedule below.
Management: Ensures that the inspections specified below are carried out in the timeframes specified and that the commitment to correct deficiencies is given the appropriate priority and resources.

4.0 Definitions:

HSEQ: The Bostik Middleton Health Safety Environment & Quality department.
MAA: The 90-Day Hazardous Waste Main Accumulation Area.
SAA: Satellite Hazardous Waste Accumulation areas.
BIF: The Struthers-Wells Industrial Boiler (and associated equipment) regulated under the EPA's Boiler & Industrial Furnace regulation.
CEM: The Continuous Emissions Monitor designed to monitor air emissions and fuel usage rates at the BIF unit.

5.0 Procedure:

5.1 Inspection Schedule

5.1.1 Inspections shall be conducted according to the following schedule:

Equipment	Reason for Inspection	Responsibility	Frequency	Form
Fire, Smoke Detectors	Ensure Proper Operation	Facilities - Contractor	Semi-Annually	Report
Fire/Evacuation Alarms	Ensure Proper Operation	Facilities - Contractor Dept. HSE Coord.	Semi-Annually Bi-Monthly (visual)	Report HSE-2-4.3
Emergency Lighting	Ensure Proper Operation	HSEQ - Contractor	Annually	Report
Fire Doors	Ensure Proper Operation	HSEQ - Contractor Loss Prev. Coordinator	Annually Bi-Monthly	Report HSE-2-4.12
Fire Extinguishers	Ensure Proper	HSEQ - Contractor	Annually	Report

	Operation	Loss Prev. Coord.	Bi-Monthly (visual)	HSE-2-4.12
Fire Pump	Ensure Proper Operation	Facilities - Contractor Loss Prev. Coord.	Annually Bi-Monthly	Report HSE-2-4.12
Churn Room Deluge System	Ensure Proper Operation	HSEQ - Contractor Loss Prev. Coord.	Annually Bi-monthly (visual)	Report HSE-2-4.12
Fire Hydrants / PIV's	Ensure Proper Operation	Loss Prev. Coord.	Annually Bi-monthly (visual)	HSE-2-4.12 HSE-2-4.12
Computer Room Halon System	Ensure Proper Operation	HSEQ - Contractor Loss Prev. Coord.	Semi-Annually Monthly (visual)	Report HSE-2-4.12
Solvent Tank Farm Foam System	Ensure Proper Operation	HSEQ - Contractor HSEQ - Contractor Loss Prev. Coord.	Quarterly (inspection) Annually (trip test) Monthly (visual)	Report Report HSE-2-4.12
Kitchen Fire Suppression System	Ensure Proper Operation	HSEQ - Contractor Loss Prev. Coord.	Semi-Annually Monthly (visual)	Report HSE-2-4.12
Sprinkler Waterflow Alarm Tests	Ensure Proper Operation	HSEQ - Contractor Loss Prev. Coord.	Quarterly Bi-Monthly (visual)	Report HSE-2-4.12
Emerg. Eyewashes/Safety Showers	Ensure Proper Operation	Dept. HSE Coord.	Weekly (test)	HSE-2-4.3
First Aid Kits	Ensure Properly Stocked	HSEQ - Contractor	Monthly	NA
Self Contained Breathing Apparatus	Ensure Proper Operation	HSEQ - Contractor	Monthly	Report
Security Devices	Ensure Proper Operation	Site Security Officer	Monthly	Report
Multi-Gas Meters	Ensure Proper Operation	HSEQ - Contractor	Monthly	Report

Satellite Hazardous Waste Accumulation Areas (SAA)	Ensure Proper Storage	HSEQ - Contractor	Weekly	HSE-FO-003
90-Day Hazardous Waste Main Acumulation Area (MAA)	Ensure Proper Storage	HSEQ - Contractor	Weekly	HSE-FO-004
BIF Subpart BB Monitoring Piping/Flanges/Valves/Pumps	Observe for leaks	HSEQ - Contractor	Monthly/Quarterly	HSE-FO-005
BIF Tanks/Piping/Pumps	Observe for leaks	HSEQ	Daily	HSE-FO-002
BIF Diked Areas	Observe for leaks or Containment Issues	HSEQ	Daily	HSE-FO-002
BIF CEM System	Ensure Proper Operation	HSEQ	Daily	HSE-FO-001
BIF CEM Cylinder Gas Audits	Ensure Proper Operation	HSEQ - Contractor	Quarterly	Report

5.1.2 Instructions on how to conduct inspections shall be documented whenever necessary.

5.2 Corrective Action

5.2.1 The responsible person shall ensure that substandard conditions identified during the above listed inspections are entered into the QSI Corrective Action Database or Maintenance Work Order System for corrective action.

5.2.2 During the daily BIF tank inspections, any leak or spill from the BIF tanks or determination that the tanks are no longer fit for use, shall result in the following corrective actions:

i. All flow of waste to the tank must cease immediately.
ii. Enough waste must be removed from the tank within 24 hours (or at the earliest practical time) as is necessary to prevent further release of hazardous waste and to allow inspection and repair of the tank system.
iii. All wastes contained in the secondary containment structure must be removed within 24 hours (or at the earliest practical time).
iv. A visual inspection of the release must be conducted to prevent further migration of the release to soil or surface water
v. Any visibly contaminated soil or surface water must be removed and properly disposed.
vi. A report of the release must be submitted to the EPA Regional Administrator, within 24 hours of it's detection, unless it is less than or equal to 1 pound and it was immediately contained and cleaned up.
vii. A a report must be submitted to the EPA Regional Administrator, within 30 days, identifying the likely route of contaminant

migration, characteristics of the the surrounding soil, results of any monitoring activities, proximity to downgradient drinking water, surface water, and populated areas, and a description of response actions taken or planned.

viii. If the cause of the release was a spill that did not damage the integrity of the tank system, the tank system can be returned to operation as soon as the weaste is removed and repairs, if necessary, are made.

ix. If the cause of the release was a leak from the tank system, the tank system must be repaired prior to returning to service, or it must be closed in accordance with the requirements of the facility Closure Plan.

x. If the cause of the release was a component of the tank system without secondary containment, the component may be repaired and returned to service without secondary containment if a certification of major repairs is conducted.

xi. If an extensive repair of the tank system is required (ie. installation of an internal liner, repair of secondary containment), the tank systyem cannot be returned to service until a certification is obtained from an independant qualified, registered, professional engineer that the repaired system is capable of handling hazardous waste without release for the intended life of the system. This certification must be submitted to the Regional Administrator within 7 days of returning the tank system to use.

5.2.3 Any piping leaks identified during the BIF daily inspections or the Subpart BB monitoring program will be addressed as soon as practicle but no less than 15 days as identified in the Subpart BB Monitoring Plan.

5.2.4 The responsible person shall ensure that all substandard conditions are addressed in an appropriate timeframe.

5.3 Recordkeeping

5.3.1 HSEQ shall ensure that equipment requiring periodic calibration is calibrated and documentation is maintained to verify said calibration in the HSEQ Central file.

5.3.2 The responsible party shall ensure that all records are maintained in complaince with the company document retention policy.

6.0 Safety & Environmental Information:

A Hard hat, safety glasses with sideshields, and safety Shoes are required when conducting inspections.

7.0 Associated Documents:

HSE-2-004 Audits & Planned Inspections

8.0 Document Revision History:

Revision: 1	**Date Created:** 07/16/2007 **Date of Last Revision:** 08/14/2007	**Last Approval Date:** 08/14/2007
Document Author: Dan Welch		

9.0 Reason for Change:

Revision:	Sec/Para Changed	Change Made:	Date
1	N/A	Initial Issue of Document	

10 Notification List:

Jim Bacon
Joe Condon
Brian Leary
Mike Keefe
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11.0 Approvals:

First Approver's Signature

Name: Scott Cullen
Title: QSI HPP Approver

Aug 14, 2007 03:07:34 PM EDT - Approved by: Mike Mahoney/AFI_TOSA/AFI_NAM/AFI.
System authorized backup for: Scott Cullen

Second Approver's Signature

Name: John Raymond
Title: Approver

Aug 14, 2007 03:01:58 PM EDT - Approved by: John Raymond/AFI_TOSA/AFI_NAM/AFI

Document History Section

ATTACHMENT F-2

RELEVANT INSPECTION CHECKLISTS

Bostik, Inc.
BIF Daily Inspection

Name: ______________________ Date: ______________

Time: ______________

	T-1	T-2	(T-9) DS
Tank Level			
Last time tank was empty (< 90 days)			

	T1/T2	Day Tank	CEM	DS
Has an Emergency Waste Feed Cut-off been tested in the last 7 days?				

	PE	Bld. 27	DS	Pipeline
Conduct a visual inspection of all tanks, including fixed roofs and closure devices, for leaks.				
Conduct a visual inspection of all pumps, piping, and valves for leaks.				

If tank leaks are identified, waste flow to the tank must cease immediately and the tank repaired before returned to operation.
Tank repairs must be conducted as soon as possible, but no later than 45 days after detection (first attempt within 5 days).
Any non-tank leaks must be repaired as soon as possible, but no later than 15 days after detection (first attempt within 5 days).

	BIF	Enclosed Flare
Inspect readings from monitoring devices to check for proper operation		

Any malfunctions must be corrected immediately.

	T1/T2	(T-9) DS	Day Tank	Struthers Wells
Are all diked areas free of rain water and or waste?				
Are all containment structures in good condition (not deteriorating/leaking)?				

If there is water in a diked area a sample must be collect and brought to the Analytical Lab for testing.
Rainwater cannot be pumped from dikes without results from the Analytical Lab.

Comments:

Bostik, Inc.
CEM Daily Inspection

Name: ____________________ Date: ____________________

Time: ____________________

Acceptable		Inspection Procedure	Comments
Yes	No		
		Check room temperature in the CEM building. Is the room temperature between 60-110F?	
		Check the heated sample line temperature control. Verify line temperature is set to 100 +/- 5C and light is flashing on and off?	
		Check the Sample Flow roatmeter. Verify flow rated at 4 slpm +/- 0.5 slpm (equivilant to top of ball height of 6.8). Verify positive flow through the glass manifold from the magnehelic flow gauge.	
		Check the temperature on both sides of the universal analyzer chiller. Verify temperature is 4C +/- 2C and proper operation of the peristaltic pump.	
		Check the CO Analyzer display and verify that there are no alarms listed.	
		Check the O_2 monitor sample flow rotameter. Verify that the sample flow is set at 750 cc/min (equivilant to top of ball height of 4.2).	
		Was a manual recalibration performed? Record the reason for calibration in the comment section.	
		Was any maintenance/repair work conducted? If so, please explain in the BIF Log book.	
		Check the calibration gas bottles and record the information requested in the table below.	
		Check the daily calibration report for drift exceedences. The 40 CFR 266 limit is 3% for CO and 0.5% for O2.	

	Bottle PSI	Reg PSI	Spares	Replaced
Zero Gas (NIC215A) Nitrogen				
Low Span (NI181E15A) ~160 ppm CO & 18% O2 Balance Nitrogen				
High Span (NI99E15A) ~2400 ppm CO Balance Nitrogen				

EHS Coordinator Checklist - Polyester/Polyamide Reactor

Buildings 1, 27, 35, 36 and 39

GENERAL INSPECTION:	YES	NO	NA
Have all Incidents/Near Misses been reported?	___	___	___
Bulk containers properly labeled with HMIS or NFPA placards?	___	___	___
Drums/containers properly labeled with HMIS or NFPA labels?	___	___	___
Are MSDS sheets readily accessible to operators in the area?	___	___	___
Have Emergency Eyewashes and Showers been tested once a week?	___	___	___
Are Forklift Inspections being conducted for each forklift on all shifts?	___	___	___
Are Means of Egress and Emergency Exits clear from obstructions?	___	___	___
Are Fire Doors clear from obstruction and operational?	___	___	___
Are Fire Alarm Pull Stations clear from obstruction?	___	___	___
Are Fire Extinguishers in working order and clear from obstruction?	___	___	___
Are Gas Cylinders properly stored and secured?	___	___	___
Electrical boxes properly labeled and kept closed?	___	___	___
Are Electrical wires and connections are in good working order?	___	___	___
Are Ventilation Systems are operational and in use?	___	___	___
Grounding/Bonding equipment is in good condition and available or in use?	___	___	___
Is the Guarding properly installed and in use?	___	___	___
Is the Building # 1 Oil Skimmer operating?	___	___	___
Are Satellite Areas Properly Maintained Bldg. 19 1st, 2nd floors, Bldg. 27 1st floor, Bldg.36 1st floor & Bldg.39 1st, 2nd floors?	___	___	___
Safeties are working properly and not bypassed?	___	___	___
Does each container of raw material in your workspace have an HMIS label on it designating the hazard(s) associated to that product? If not, how many don't?	___	___	___
WORK OBSERVATIONS:			
Are operators following safe work practices?	___	___	___
Are operators in the area adhering to PPE guidelines?	___	___	___
Are Lockout/Tagout guidelines adhered to in this area?	___	___	___
Are proper Housekeeping practices being maintained in the area?	___	___	___
Are forklifts operators wearing their seatbelts and operating at safe speeds?	___	___	___
Are Contractors working safely within Bostik premises?	___	___	___
If Hot Work is being conducted, does the contractor have a permit?	___	___	___
Have you done an Observation in the past two weeks? If so, where and when?	___	___	___

DOCUMENTATION:

The following documentation must be collected by the EHS Coordinator and submitted to the EHS Department monthly:

Confined Space Entry Permits   Hot Work Permits   Forklift Inspections

COMMENTS: ______________________________

Date: ___/___/___   EHS Coordinator Signature: ______________________

COPY: Department Supervisor - Manufacturing Manager - Scott Cullen - Carl Ohlson

FIRE / LOSS PREVENTION   EHS COORDINATOR CHECKLIST

DATE OF TOUR: / / 2007   **INSPECTED BY:**

John Zukowski

BUILDING NUMBER	1	2	3	4	7	8	9	10	12	13	17	18	19	20	21	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	40R	41	42	43	44
Sprinkler riser valve number	1E - 1W	2	1E	1E	N/A	F/P	9	1W	N/A	13	N/A	18	1E	20	1W	23	24D 24E - 24W	25	26	27	28	29	30	N/A	N/A	N/A	35	35	36	37	38	39	40	Racks	41	42	N/A	N/A
Sprinkler riser valve (wet)	2	1				1	1			1		1		1		1	2	1	1	1	1	1	1					1	1	1	1	1	1	1	1	1		
NUMBER INSPECTED																																						
Water pressure (before valve)	\																\																					
Water pressure (after valve)	\																\																					
Post indicator valve number	1E-1W	2	1E	1E	N/A	8	9	1W	N/A	13	N/A	18	1E	20	1W	23	24D 24E - 24W	25	26	27	U/G	29	30	31	N/A	N/A	35	35	36	37	U/G	39					N/A	N/A
Post indicator valves	2	1				1	1			1		1		1		1	3	1	1	1		1	1	1				1	1	1		1						
NUMBER INSPECTED																																						
Fire doors	5	1					5										9	2	9	4								4					4					
NUMBER INSPECTED																																						
Fire Blankets	2	2	2		2		1									1	1	3	1		1	5	1					2	1	1	1		1		1			
NUMBER INSPECTED																																						
Fire Hydrants	1	2	3	4	5	6	7	10	11	12	13	14	15	16	17	17	20 / 21	22	23	24	25	26	26	Solvent Cement DELUGE valves			V-1	V-2	V-3	V-4	Post indicator valves				61 N	62 E	63 S	64 W
NUMBER INSPECTED																								NUMBER INSPECTED							System loops							

Computer Room Halon system	Building # 28 - Monthly visual inspection:							
Cafeteria Fire Suppression system	Building # 28 - Monthly visual inspection:							
Sprinkler Waterflow Alarm Test - Quarterly inspection:	January		April		June		October	
Fire Pump Test Building # 8 - Bi-Monthly Test and Inspection:	First Test:		Second Test:					

Does each container of raw material in your workspace have an HMIS label on it designating the hazard(s) associated to that product? If not, how many don't? YES NO

Have you done an Observation in the past two weeks? If so, where and when? YES NO

COPY: Department Supervisor - Facilities Manager - Scott Cullen - Carl Ohlson

Bostik, Inc.

Hazardous Waste Main Accumulation Area (MAA) Weekly Inspection

Plant Main (Building 13)	
Pilot Plant Main (Building 30)	

Inspection Criteria	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time
Are all containers labeled with the the words "Hazardous Waste", the Hazard Description (Acetone, Waste Oil, etc.), and the Hazard Type (Ignitable, Corrosive, Toxic)?					
Are all containers less than 90 days old?					
Is each container marked with the accumulation start date?					
Is there at least 48" of aisle space between pallets and/or walls?					
Are all container labels visible for inspection?					
Are containers closed (bungs, lids, rings)?					
Are all containers in good condition? Check for leakage, rusting, dents and bulges.					
Is the MAA area marked with the words " Hazardous Waste"?					
Is a sign posted at the MAA preventing unauthorized access?					
Is the MAA marked with Emergency contact names and phone numbers?					
Is the MAA area clean and free of obstructions?					
Is the MAA contaiment area surface impervious to leaks?					
Is a phone available in case of emergencies?					
Does MAA have spill control supplies?					
Inspectors Initials					

Note: Any nonconformances must be immediately reported to the Bostik HSE Department.

Comments and Corrective Actions:

Bostik, Inc.

Middleton, Ma

Hazardous Waste Satellite Area Weekly Inspection

Inspection Date: ____________________ Inspected By: ____________________

	Bldg 36 1st floor PE # of containers inspected:		Bldg 39 1st floor PE # of cont inspected:		Bldg 39 2nd floor PE # of cont inspected:		Bldg 27 BIF Pumps # of cont inspected:	
Criteria	**Inspection Criteria Met (Yes/No)**	**No. of Containers at Fault**	**Inspection Criteria Met (Yes/No)**	**No. of Containers at Fault**	**Inspection Criteria Met (Yes/No)**	**No. of Containers at Fault**	**Inspection Criteria Met (Yes/No)**	**No. of Containers at Fault**
Is the area under control for the process that generated the waste?		NA		NA		NA		NA
Is the SAA at or near the point of generation?		NA		NA		NA		NA
Is the waste generated from the process where waste accumulates?		NA		NA		NA		NA
Is SAA marked with the words "Hazardous Waste"?		NA		NA		NA		NA
If the area contains waste oil is the SAA marked with the words "Waste Oil"?		NA		NA		NA		NA
Is the SAA marked with Emergency response information?		NA		NA		NA		NA
Is there one container per waste stream accumulating at any one time ?		NA		NA		NA		NA
If a container is full is it dated & moved to the MAA with in 3 days?								
Is each contaniner label visible for inspection?								
Is each container marked with the words "Hazardous Waste"?								
Is each container marked with the words "Waste Oil" if waste oil is being stored in it?								
Is each container labeld with the chemical names not abbreviations?								
Does each label list the hazard of the container (ignitable, toxic)?								
Is the surface underlying the containers surface impervious to leaks?								
Are containers compatible with the waste inside?								
Are containers closed when waste is not being added to it?								
Is each container free of structural damage?								
Is each container free from leakage or ruptures?								
	# of Violations:		# of Violations:		# of Violations:		# of Violations:	
Comments or corrective Actions taken:								

Bostik, Inc.

Middleton, Ma

Hazardous Waste Satellite Area Weekly Inspection

Inspection Date: ____________ Inspected By: ____________

Criteria	Bldg 9 1st Floor DS # of cont inspected:		Bldg 9 2nd Floor DS # of cont inspected:		Bldg 9 3rd floor DS # of cont inspected:		Bldg 9 2nd floor Banbury # of cont inspected:	
	Inspection Criteria Met (Yes/No)	**No. of Containers at Fault**	**Inspection Criteria Met (Yes/No)**	**No. of Containers at Fault**	**Inspection Criteria Met (Yes/No)**	**No. of Containers at Fault**	**Inspection Criteria Met (Yes/No)**	**No. of Containers at Fault**
Is the area under control for the process that generated the waste?		NA		NA		NA		NA
Is the SAA at or near the point of generation?		NA		NA		NA		NA
Is the waste generated from the process where waste accumulates?		NA		NA		NA		NA
Is SAA marked with the words "Hazardous Waste"?		NA		NA		NA		NA
If the area contains waste oil is the SAA marked with the words "Waste Oil"?		NA		NA		NA		NA
Is the SAA marked with Emergency response information?		NA		NA		NA		NA
Is there one container per waste stream accumulating at any one time ?		NA		NA		NA		NA
If a container is full is it dated & moved to the MAA with in 3 days?								
Is each contaniner label visible for inspection?								
Is each container marked with the words "Hazardous Waste"?								
Is each container marked with the words "Waste Oil" if waste oil is being stored in it?								
Is each container labeld with the chemical names not abbreviations?								
Does each label list the hazard of the container (ignitable, toxic)?								
Is the surface underlying the containers surface impervious to leaks?								
Are containers compatible with the waste inside?								
Are containers closed when waste is not being added to it?								
Is each container free of structural damage?								
Is each container free from leakage or ruptures?								
	# of Violations:		# of Violations:		# of Violations:		# of Violations:	
Comments or corrective Actions taken:								

Bostik, Inc.

Middleton, Ma

Hazardous Waste Satellite Area Weekly Inspection

Inspection Date: ____________ Inspected By: ____________

Criteria	Bldg. 19 2nd floor PA # of cont inspected:		Bldg. 19 1st floor PA # of cont inspected:		Bldg. 38 Remediation # of cont inspected:		Bldg. 29 Quality Control # of cont inspected:	
	Inspection Criteria Met (Yes/No)	No. of Containers at Fault	Inspection Criteria Met (Yes/No)	No. of Containers at Fault	Inspection Criteria Met (Yes/No)	No. of Containers at Fault	Inspection Criteria Met (Yes/No)	No. of Containers at Fault
Is the area under control for the process that generated the waste?		NA		NA		NA		NA
Is the SAA at or near the point of generation?		NA		NA		NA		NA
Is the waste generated from the process where waste accumulates?		NA		NA		NA		NA
Is SAA marked with the words "Hazardous Waste"?		NA		NA		NA		NA
If the area contains waste oil is the SAA marked with the words "Waste Oil"?		NA		NA		NA		NA
Is the SAA marked with Emergency response information?		NA		NA		NA		NA
Is there one container per waste stream accumulating at any one time ?		NA		NA		NA		NA
If a container is full is it dated & moved to the MAA with in 3 days?								
Is each contaniner label visible for inspection?								
Is each container marked with the words "Hazardous Waste"?								
Is each container marked with the words "Waste Oil" if waste oil is being stored in it?								
Is each container labeld with the chemical names not abbreviations?								
Does each label list the hazard of the container (ignitable, toxic)?								
Is the surface underlying the containers surface impervious to leaks?								
Are containers compatible with the waste inside?								
Are containers closed when waste is not being added to it?								
Is each container free of structural damage?								
Is each container free from leakage or ruptures?								
	# of Violations:		# of Violations:		# of Violations:		# of Violations:	
Comments or corrective Actions taken:								

Bostik, Inc.

Middleton, Ma

Hazardous Waste Satellite Area Weekly Inspection

Inspection Date: ____________ Inspected By: ____________

Criteria	Bldg. 29 Polymer Lab		Bldg 37 Polyurethane # of cont inspected:		# of cont inspected:		# of cont inspected:	
	Inspection Criteria Met (Yes/No)	No. of Containers at Fault	Inspection Criteria Met (Yes/No)	No. of Containers at Fault	Inspection Criteria Met (Yes/No)	No. of Containers at Fault	Inspection Criteria Met (Yes/No)	No. of Containers at Fault
Is the area under control for the process that generated the waste?		NA		NA		NA		NA
Is the SAA at or near the point of generation?		NA		NA		NA		NA
Is the waste generated from the process where waste accumulates?		NA		NA		NA		NA
Is SAA marked with the words "Hazardous Waste"?		NA		NA		NA		NA
If the area contains waste oil is the SAA marked with the words "Waste Oil"?		NA		NA		NA		NA
Is the SAA marked with Emergency response information?		NA		NA		NA		NA
Is there one container per waste stream accumulating at any one time ?		NA		NA		NA		NA
If a container is full is it dated & moved to the MAA with in 3 days?								
Is each contaniner label visible for inspection?								
Is each container marked with the words "Hazardous Waste"?								
Is each container marked with the words "Waste Oil" if waste oil is being stored in it?								
Is each container labeld with the chemical names not abbreviations?								
Does each label list the hazard of the container (ignitable, toxic)?								
Is the surface underlying the containers surface impervious to leaks?								
Are containers compatible with the waste inside?								
Are containers closed when waste is not being added to it?								
Is each container free of structural damage?								
Is each container free from leakage or ruptures?								
	# of Violations:		# of Violations:		# of Violations:		# of Violations:	
Comments or corrective Actions taken:								

BostikFindley

Middleton, Ma

Hazardous Waste Satellite Area Weekly Inspection

Inspection Date: ____________________ Inspected By: ____________________

	Bldg. 20		Bldg 24 Solvent Cement		Bldg 35 Rod Cement			
	# of cont inspected:		# of cont inspected:		# of cont inspected:			
Criteria	Inspection Criteria Met (Yes/No)	No. of Containers at Fault	Inspection Criteria Met (Yes/No)	No. of Containers at Fault	Inspection Criteria Met (Yes/No)	No. of Containers at Fault	Inspection Criteria Met (Yes/No)	No. of Containers at Fault
Is the area under control for the process that generated the waste?		NA						
Is the SAA at or near the point of generation?		NA						
Is the waste generated from the process where waste accumulates?		NA						
Is SAA marked with the words "Hazardous Waste"?		NA						
If the area contains waste oil is the SAA marked with the words "Waste Oil"?		NA						
Is the SAA marked with Emergency response information?		NA						
Is there one container per waste stream accumulating at any one time ?		NA						
If a container is full is it dated & moved to the MAA with in 3 days?								
Is each contaniner label visible for inspection?								
Is each container marked with the words "Hazardous Waste"?								
Is each container marked with the words "Waste Oil" if waste oil is being stored in it?		NA						
Is each container labeld with the chemical names not abbreviations?								
Does each label list the hazard of the container (ignitable, toxic)?								
Is the surface underlying the containers surface impervious to leaks?								
Are containers compatible with the waste inside?								
Are containers closed when waste is not being added to it?								
Is each container free of structural damage?								
Is each container free from leakage or ruptures?								
	# of Violations:		# of Violations:		# of Violations:		# of Violations:	
Comments or corrective Actions taken:								

BIF Subpart BB

Leak Detection Monitoring Log

Inspector's Name: Benjamin Perez

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-001	Struthers Wells Boiler	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-002	Struthers Wells Boiler	Reducer Bushing	1" x 3/4 "	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-003	Struthers Wells Boiler	Tee	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-004	Struthers Wells Boiler	Tee	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-005	Struthers Wells Boiler	Reducer Bushing	1" x 3/4 "	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-006	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-007	Struthers Wells Boiler	Coupling	3/4" x 1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-008	Struthers Wells Boiler	Reducer Bushing	1/2" x 1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-009	Struthers Wells Boiler	Ball Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-010	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-011	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-012	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-013	Struthers Wells Boiler	Tee	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-014	Struthers Wells Boiler	Reducer Bushing	1/2" x 3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-015	Struthers Wells Boiler	Pressure Gauge	3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-016	Struthers Wells Boiler	Motorized Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-017	Struthers Wells Boiler	Ball Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-018	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-019	Struthers Wells Boiler	Tee	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-020	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-021	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-022	Struthers Wells Boiler	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-023	Struthers Wells Boiler	Filter Basket	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-024	Struthers Wells Boiler	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-025	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-026	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-027	Struthers Wells Boiler	Tee	/4 x 3/4 x 1/	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-028	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-029	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-030	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-031	Struthers Wells Boiler	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-032	Struthers Wells Boiler	Filter Basket	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-033	Struthers Wells Boiler	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-034	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-035	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-036	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-037	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-038	Struthers Wells Boiler	Tee	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-039	Struthers Wells Boiler	Reducer Bushing	1/2" x 7/16"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-040	Struthers Wells Boiler	Ball Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-041	Struthers Wells Boiler	Motorized Valve	7/16"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-042	Struthers Wells Boiler	Coupling	7/16" x 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-043	Struthers Wells Boiler	Tee	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-044	Struthers Wells Boiler	Ball Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-045	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-046	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-047	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-048	Struthers Wells Boiler	Elbow – 45	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-049	Struthers Wells Boiler	Coupling	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-050	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-051	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-052	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-053	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-054	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-055	Struthers Wells Boiler	Tee	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-056	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-057	Struthers Wells Boiler	Reducer Bushing	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-058	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-059	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-060	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-061	Struthers Wells Boiler	Reducer Bushing	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-062	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-063	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-064	Struthers Wells Boiler	Coupling	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-065	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-066	Struthers Wells Boiler	Elbow – 45	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-067	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-068	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-069	Struthers Wells Boiler	Flange	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-070	Struthers Wells Boiler	Flange	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-071	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-072	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-073	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-074	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-075	Struthers Wells Boiler	Coupling	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-076	Struthers Wells Boiler	Coupling	3/4" x 1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-077	Struthers Wells Boiler	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-078	Struthers Wells Boiler	Reducer Bushing	1" x 3"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-079	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-080	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-081	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-082	Struthers Wells Boiler	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-083	Struthers Wells Boiler	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-084	Struthers Wells Boiler	Solenoid Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-085	Struthers Wells Boiler	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-086	Struthers Wells Boiler	Elbow - Street 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-087	Struthers Wells Boiler	Reducer Bushing	3/8" x 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-088	Struthers Wells Boiler	Ball Valve	3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-089	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-090	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-091	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-092	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-093	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-094	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-095	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-096	Struthers Wells Boiler	Reducer Bushing	3/8" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-097	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-098	Struthers Wells Boiler	Reducer Bushing	3/8" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-099	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-100	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-101	Struthers Wells Boiler	Reducer Bushing	1/2" x 3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-102	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-103	Struthers Wells Boiler	Reducer Bushing	3/8" x 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-104	Struthers Wells Boiler	Ball Valve	3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-105	Struthers Wells Boiler	Elbow – 90	3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-106	Struthers Wells Boiler	Coupling	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-107	Struthers Wells Boiler	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-108	Struthers Wells Boiler	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-109	Struthers Wells Boiler	Coupling	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-110	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-111	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-112	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-113	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-114	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-115	Struthers Wells Boiler	Flange	2" x 4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-116	Building 27	Flange	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-117	Building 27	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-118	Building 27	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-119	Building 27	Flange	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-120	Building 27	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-121	Building 27	End Cap	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-122	Building 27	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-123	Building 27	End Cap	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-124	Building 27	Tee	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-125	Building 27	Ball Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-126	Building 27	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-127	Building 27	Reducer Bushing	1" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-128	Building 27	Union	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-129	Building 27	Diaphragm Pump	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-130	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-131	Building 27	Filter Basket	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-132	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-133	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-134	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-135	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-136	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-137	Building 27	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-138	Building 27	End Cap	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-139	Building 27	Globe Valve	1"	No	6.3 ppm	No	2/8/2008	Method 21	No	No
BB-140	Building 27	Reducer Bushing	1" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-141	Building 27	Union	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-142	Building 27	Diaphragm Pump	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-143	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-144	Building 27	Filter Basket	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-145	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-146	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-147	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-148	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-149	T2	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-150	T2	Flange - Fire Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-151	T2	Flange - Fire Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-152	T2	Reducer Bushing	2" x 3"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-153	T2	Temp. Gauge	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-154	T2	Globe Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-155	T2	End Cap	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-156	T2	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-157	T2	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-158	T2	Hose Connector - Male	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-159	T1	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-160	T1	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-161	T1	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-162	T1	Reducer Bushing	2" x 3"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-163	T1	Temp. Gauge	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-164	T1	Globe Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-165	T1	End Cap	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-166	T1	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-167	T1	Hose Connector - Female	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-168	Day Tank	Sight Glass	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-169	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-170	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-171	Day Tank	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-172	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-173	Day Tank	Tee	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-174	Day Tank	Tee	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-175	Day Tank	Tee	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-176	Day Tank	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-177	Day Tank	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-178	Day Tank	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-179	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-180	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-181	Day Tank	Diaphragm Pump	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-182	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-183	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-184	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-185	Day Tank	Tee	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-186	Day Tank	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-187	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-188	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-189	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-190	Day Tank	Diaphragm Pump	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-191	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-192	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-193	Day Tank	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-194	Day Tank	Elbow – 45	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-195	Day Tank	Elbow – 45	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-196	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-197	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-198	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-199	Day Tank	Globe Valve	1 1/2" x 2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-200	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-201	Day Tank	Fire Valve	2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-202	Day Tank	Elbow - 90	2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-203	Day Tank	Reducer Bushing	1 1/2" x 2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-204	Blg. 9 Dike	Ball Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-205	Blg. 9 Dike	Flange	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-206	Blg. 9 Dike	Flange	1" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-207	Blg. 9 Dike	Ball Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-208	Blg. 9 Dike	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-209	Blg. 9 Dike	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-210	Blg. 9 Dike	Filter Basket	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-211	Blg. 9 Dike	Diaphragm Pump	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-212	Blg. 9 Dike	Flange	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-213	Blg. 9 Dike	Flange	1" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-214	Blg. 9 Dike	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-215	Blg. 9 Dike	Ball Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-216	Blg. 9 Dike	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-217	Blg. 9 , 1st Flr. South	Ball Valve	2"	No	14.5 ppm	No	2/8/2008	Method 21	No	No
BB-218	Blg. 9, 2nd Flr. West	Ball Valve	2"	No	7 ppm	No	2/8/2008	Method 21	No	No

Section G - Contingency Plan

The contingency plan (CP) for the Bostik location describes the actions facility personnel will take to comply with 40 CFR 264 Subpart D in response to fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water at the facility.

This CP is designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. The provisions of this plan are carried out immediately whenever there is a fire, explosion, or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment.

Bostik has prepared a facility-wide **Integrated Contingency Plan (ICP)** that addresses all RCRA and non-RCRA emergency procedures and actions. <u>The ICP is being submitted as a separate document to fulfill the requirements of this section.</u> The ICP is designed to minimize hazards to human health and the environment from fires, explosions, severe weather events, or any unplanned release of oil or hazardous substance to air, soil, or surface water. The provisions of the ICP are to be carried out immediately whenever there is a fire, explosion, severe weather event or release of oil or a hazardous substance that could threaten human health or the environment. <u>The Bostik ICP is the primary plan for emergency response.</u>

Bostik's ICP was written to satisfy the requirements for emergency response planning specified in the following regulations:

- Resource Conservation and Recovery Act (RCRA) Regulations
    - 40 CFR 264 Subpart D – Contingency Plan and Emergency Procedures
    - 40 CFR 265 Subpart D – Contingency Plan and Emergency Procedures
    - 40 CFR 279.52 – General Facility Standards
- Oil Pollution Act (OPA) Regulations
    - 40 CFR 112.7 – Guidelines for the Preparation and Implementation of a Spill Prevention Control and Countermeasures (SPCC) Plan
- Occupational Safety and Health Administration (OSHA) Regulations
    - 29 CFR 1910.38(a) – Emergency Action Plan
    - 29 CFR 1910.119 – Process Safety Management of Highly Hazardous Chemicals
    - 29 CFR 1910.120 – Hazardous Waste Operations and Emergency Response

The remainder of Section G has been organized to follow the RCRA checklist for CP preparation with reference to the specific location in the ICP where the required information can be found.

G.1 General Information [40 CFR 270.14(b)(7)]

Bostik, Inc. is an international manufacturer of industrial grade adhesives and sealants. Approximately 225 people are employed at the Middleton facility in administration, research and development, and manufacturing sectors. Industrial grade adhesives manufactured at the facility include solid polyester and polyamide hot melt, resins, and solvent and water based liquid adhesives. The facility is a large quantity generator of hazardous waste and combusts hazardous waste in a RCRA regulated industrial boiler under the BIF regulations. The site is also a Massachusetts Department of Environmental Protection (DEP) listed Tier 1B waste disposal site under the Massachusetts Contingency Plan (MCP) currently approaching the final stages of remediation.

Bostik manufactures liquid adhesives in a process that combines organic solvents with rubber and polyester based polymers. A 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, Direct Solvation, and Polyurethane departments (Buildings 24, 9, and 37, respectively).

Bostik manufactures resins in polymerization reactions, which occur when diacids react with glycols (polyesters), fatty acids react with amines (polyamides), or isocyanates react with polyols (polyurethanes). Polyester distillate, a hazardous waste due to its ignitability, is a byproduct of the polymerization reactions. The polyester distillate is recycled when it is co-fired with natural gas to produce steam for the plant in the RCRA regulated industrial boiler. The polymerization reactions occur in the Polyester, Polyamide, Polyurethane, and Direct Solvation departments (Buildings 36, 1, 37, and 9, respectively).

The Bostik site, located at 211 Boston Street, Middleton, Massachusetts, consists of approximately 103 acres of paved and unpaved areas and buildings. The developed portion of the site is bounded by the Ipswich River to the north, Boston Street to the south and east, and dense woods and the Middleton-Lynnfield town line to the west.

G.2 Emergency Coordinators [40 CFR 270.14(b)(7); 264.52(d); 264.55]

Please refer to Section 2.1.2 of the ICP as well as Annex 2 (pages A2-1 through A2-3) and Annex 3 (A3.2 Command).

G.3 Implementation [40 CFR 270.14(b)(7); 264.52(a); 264.56(d)]

Please refer to Section 2 (pages 2-1 through 2-3) of the ICP.

G.4 Emergency Actions [40 CFR 270.14(b)(7); 264.56]

Please refer to Annex 3 (A3.2.1 Incident Command Structure) of the ICP.

G.4.1 Notification

Please refer to Sections 2.1.1, 2.1.3, 2.2 and 2.3 of the ICP as well as Annex 2 (pages A2-4 through A2-7) and Annex 3.

G.4.2 Identification of Hazardous Materials

Whenever there is a fire, explosion, or other release, the IC or designated alternate should immediately identify the character, exact source, amount, and extent of all released materials. If necessary, Material Safety Data Sheets (MSDS) can be accessed from Chem Trac (1-800-255-3924) which has a computer file of all Bostik MSDS for emergency calls. Chem-Trac has operators on duty 24 hours a day.

In order to make all information on pertinent material hazards available to employees, all departments have been equipped with hard copy right-to-know stations. There are also multiple computer terminals throughout the facility with access to the facility's web-based MSDS search site for both raw materials and product MSDS. In order to enhance this capability, Bostik's computer system has an emergency access system for all products. The system responds to the password and user ID "MSDS" and is menu driven for quick results. This is critical for on-site incidents as well as Poison Control Center calls.

The plant administration office and Emergency Command Center each house a specific MSDS cabinet that contains all hard copies of MSDS for all the raw materials on-site in case the computer system cannot be accessed.. In addition, the shipping area has the MSDS for all of Bostik's products.

G.4.3 Assessment

Please refer to Section 2.1.3 of the ICP as well as Annex 2 (Section A2.2).

G.4.4 Control Procedures

Please refer to Section 1 of the ICP.

G.4.5 Prevention of Recurrence of Spread of Fires, Explosions or Releases

During an emergency, the IC should take all reasonable measures necessary to ensure that fires, explosions, runoff, and other releases do not occur, recur, or spread off the site or to other hazardous materials/waste at the facility. These measures should include, where applicable, the following:

- Stopping processes and operations in the affected area;
- Collecting and containing released waste;
- Removing or isolating containers; and
- Moving other hazards away from the incident.

If operations are stopped, the IC should designate a Bostik representative to monitor the operations for leaks, pressure buildup, gas generation, and ruptures in valves, pipes, or other equipment, whenever this is appropriate.

Additional information can be found in Section 1 of the ICP as well as Annex 4 with regard to incident investigation.

G.4.6 Storage, Treatment and Disposal of Released Material

All recovered waste, collected run off, contaminated soil or surface water, or any other material from an incident will be characterized to determine whether it is a hazardous waste in accordance with 310 CMR 30.100. Until characterized, the collected material will be managed as a hazardous waste in accordance with 310 CMR 30.000.

G.4.7 Incompatible Waste

Incompatible wastes will be moved to separate storage locations within the Bostik facility. The IC will notify the EPA Regional Administrator, Massachusetts DEP, and local authorities that the site is in compliance with RCRA requirements specified in 40 CFR 264.56(h)(1) and 310 CMR 30.524(6)(e)3a before operations are resumed in the affected area(s) of the site. The regulations specify that incompatible wastes will not be treated, stored, or disposed until the completion of the cleanup.

G.4.8 Post-Emergency Equipment Management

The IC should promptly initiate restoration of emergency and fire protection equipment (fire extinguishers, sprinklers, etc.) to normal operation, including heat if necessary to mitigate losses due to water damage, etc. If the plant or a portion of it is shut down because of hazardous wastes being released, it will not be restarted until cleanup is completed and all emergency equipment has been cleaned and made ready for reuse. Response personnel should secure the hazard area after the incident and guard against vandalism.

The IC will notify the EPA Regional Administrator, Massachusetts DEP, and local authorities that the site is in compliance with RCRA requirements specified in 40 CFR 264.56(h)(2) and 310 CMR 30.524(6)(e)3b before operations are resumed in the affected area(s) of the site. The regulations specify that all emergency equipment be cleaned and fit for use before operations are resumed. All of this information will be listed in the hazardous waste log and when the problem is over the IC will certify that cleanup is complete.

G.4.9 Container Spills and Leakage

If a container holding hazardous waste is not in good condition (e.g., severe rusting; apparent structural defects; etc.) or if it begins to leak, the IC or designated alternate should transfer the hazardous waste from this container to a container that is in good condition, or place the entire damaged waste container into an oversized (overpack) container.

G.4.10 Tank or BIF unit Spills and Leakage

In addition to the emergency actions described above, the IC or designated alternate should complete the actions described in this subsection related to the hazardous waste spills and leaks from the storage tanks, BIF unit and associated equipment. Additional measures are discussed below.

G.4.10.1 Stopping Waste Addition

If the tank system, BIF system or secondary containment system has a leak, has had a spill, or is unfit for use, the IC or designated alternate should immediately stop the flow of hazardous waste into that system or secondary containment system and inspect the system to determine the cause of the release.

G.4.10.2 Removing Waste

If the tank system or BIF system has had a release, the IC or designated alternate should remove as much of the waste as is necessary to prevent further release of hazardous waste to the environment and to allow inspection and repair of the system to be performed. The waste removal must be completed within 24 hours after detection of the leak, or if Bostik can demonstrate that this time limit is not possible, at the earliest practicable time. If the material released was to the secondary containment system, all released materials must be removed within 24 hours or in as timely a manner as is possible to prevent harm to human health and the environment.

G.4.10.3 Containment of Visible Releases

The IC or designated alternate should immediately conduct a visual inspection of a release. If the visual inspection cannot confirm that further migration of the leak or spill to soils and surface water is being prevented, control procedures should be immediately implemented (see Section G.4.4). Any visible contamination of the soil or surface water will be removed and properly disposed in accordance with 40 CFR 262 and 310 CMR 30.000.

G.4.10.4 Notification Reports

Please refer to Section 2.1.3 of the ICP.

G.4.10.5 Provisions of Secondary Containment, Repair or Closure

If the requirements listed below cannot be met, Bostik will close the tank or BIF system in compliance with Section I of this permit application:

- If the cause of the release was a spill that has not damaged the integrity of the system, the system will be returned to service as soon as the released waste is removed and repairs, if necessary, are made.

- If the cause of the release was a leak from the primary tank or BIF system into the secondary containment system, the primary system in question will be repaired prior to returning that system to service.

- If the source of the release was a leak to the environment from a component of the tank or BIF system without secondary containment, the secondary containment will be provided for the component of the system from which the leak occurred. Such secondary containment will meet the requirements of 40 CFR 264.193(b) through (f) and 310 CMR 30.694 before the component of the system is returned to service, unless the source of the leak is an aboveground portion of the system that can be inspected visually.

- If a component is replaced to comply with the requirements described in the item above, that component will meet the provisions of 310 CMR 30.693 (Design and Installation of New Tank Systems or Components) and 30.694 (Containment and Detection of Releases).
- If the source is an aboveground component that can be inspected visually, the component may be repaired and returned to service without secondary containment.
- If a leak has occurred in any portion of a tank system component that is not readily accessible for visual inspection, (e.g., the bottom of an on-ground tank), the entire component will be provided with secondary containment in accordance with 40 CFR 264.193(b) through (f) and 310 CMR 30.694 (Containment and Detection of Releases) prior to being returned to use.

The Bostik facility will obtain a permit from the Middleton Fire Department in accordance with 527 CMR 9.21 for repairs of tanks subject to Fire Prevention Regulations (527 CMR 9.00).

Additional information can also be found in Section 3 of the ICP

G.4.11 Surface Impoundment Spills and Leakage

Bostik does not manage hazardous waste in a surface impoundment and, therefore, this section is not applicable.

G.4.12 Containment Building Leaks

Bostik does not manage hazardous waste in a containment building and, therefore, this section is not applicable.

G.4.13 Drip Pad Spills and Leakage

Bostik does not manage hazardous waste using drip pads and, therefore, this section is not applicable.

G.5 Emergency Equipment [40 CFR 270.14(b)(7); 264.52(e)]

Please refer to Section II, Section 2.4.3.2, Table 2-9 and Attachment 4 of the ICP. In addition, there are fire extinguishers located at every door throughout the plant, including Buildings 36 and 39 (2 buildings adjacent to Struthers Wells Boiler). The Building 36 Polyester Department Satellite Accumulation Area (SAA) is located just inside the door adjacent to the Struthers Wells Unit (within 5 feet of the unit). This satellite area contains spill response supplies, and the list of supplies can be found in ICP Annex 7 under the SAA response equipment checklist. For Class A areas (light/ordinary hazard), additional extinguishers are located in each 75 foot grid. For Class B areas (extra or flammable hazard), additional extinguishers are located in each 50 foot grid. The aqueous film-forming foams (AFFF) concentrate storage tank is located inside an environmentally controlled building adjacent to the tanker unloading station (within 1 foot of the offloading station).

G.6 Arrangements with Local Authorities [40 CFR 270.14(b)(7); 264.37; 264.52(c)]

Please refer to Section 2.2.3 of the ICP.

G.7 Evacuation Plan for Facility Personnel [40 CFR 270.14(b)(7); 264.52(f)]

Please refer to Section 1.2 of the ICP.

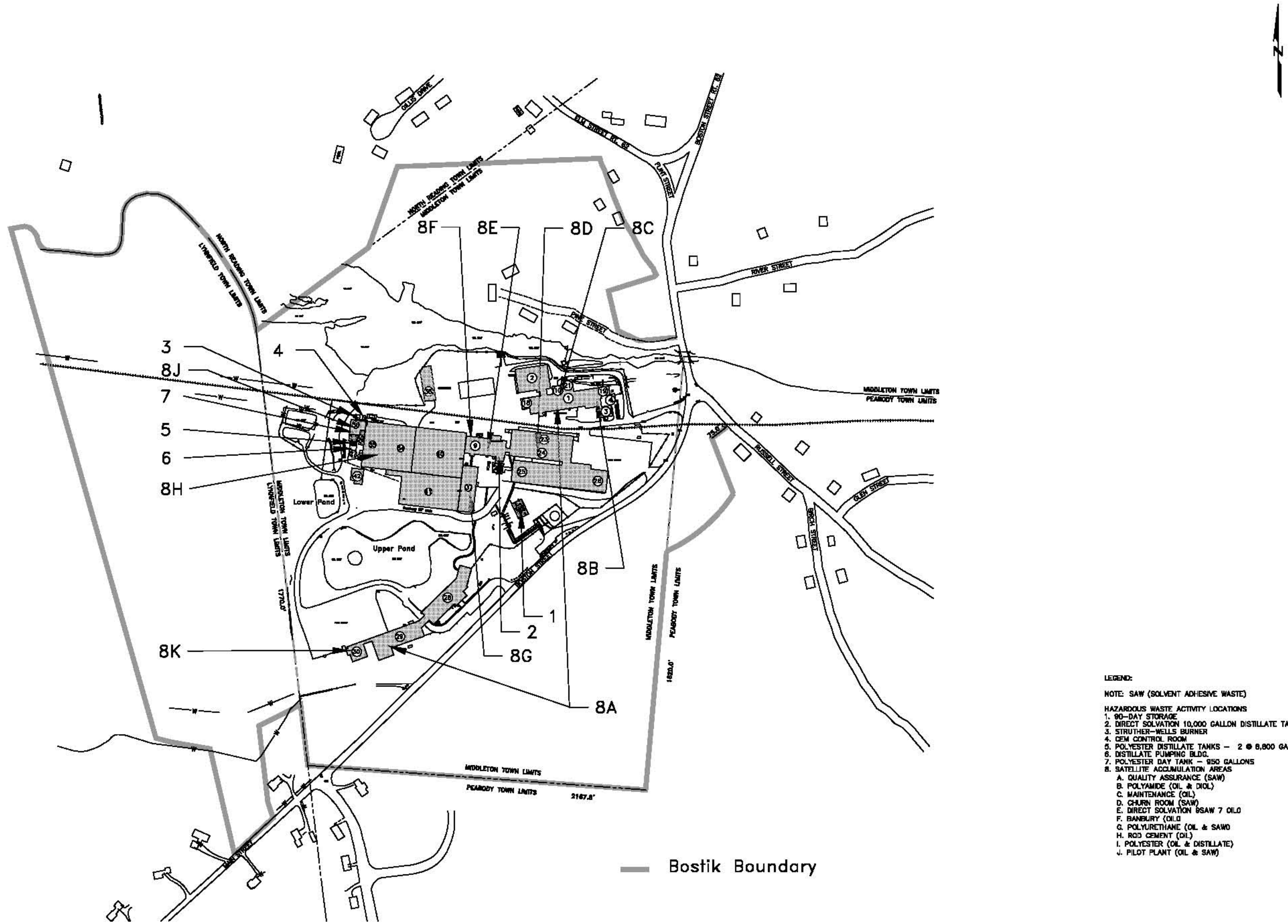
G.8 Required Report Procedures [40 CFR 270.14(b)(7); 264.56(j)]

Please refer to Section 4.4.1 of the ICP.

G.9 Location and Distribution of Contingency Plan [40 CFR 270.14(b)(7); 264.53]

Please refer to Annex 3 (Section A3.2.4) of the ICP.

Figure G-1 Hazardous Waste Activity



LEGEND:

NOTE: SAW (SOLVENT ADHESIVE WASTE)

HAZARDOUS WASTE ACTIVITY LOCATIONS
1. 90-DAY STORAGE
2. DIRECT SOLVATION 10,000 GALLON DISTILLATE TANK
3. STRUTHER-WELLS BURNER
4. CEM CONTROL ROOM
5. POLYESTER DISTILLATE TANKS – 2 @ 8,800 GALLONS
6. DISTILLATE PUMPING BLDG.
7. POLYESTER DAY TANK – 950 GALLONS
8. SATELLITE ACCUMULATION AREAS
   A. QUALITY ASSURANCE (SAW)
   B. POLYAMIDE (OIL & DIOL)
   C. MAINTENANCE (OIL)
   D. CHURN ROOM (SAW)
   E. DIRECT SOLVATION (SAW & OIL)
   F. BANBURY (OIL)
   G. POLYURETHANE (OIL & SAW)
   H. ROD CEMENT (OIL)
   I. POLYESTER (OIL & DISTILLATE)
   J. PILOT PLANT (OIL & SAW)

REFERENCE:
BOSTIK, INC.
HAZARDOUS WASTE ACTIVITY, DWG. NO. 10052006
DATED: 9/28/06

REVISIONS			
NO.:	DESCRIPTION:	DATE:	BY:

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

ENSR | AECOM

ENSR CORPORATION
2 TECHNOLOGY PARK DRIVE
WESTFORD, MASSACHUSETTS 01886
PHONE: (978) 589-3000
FAX: (978) 589-3100
WEB: HTTP://WWW.ENSR.AECOM.COM

HAZARDOUS WASTE ACTIVITY
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MASSACHUSETTS

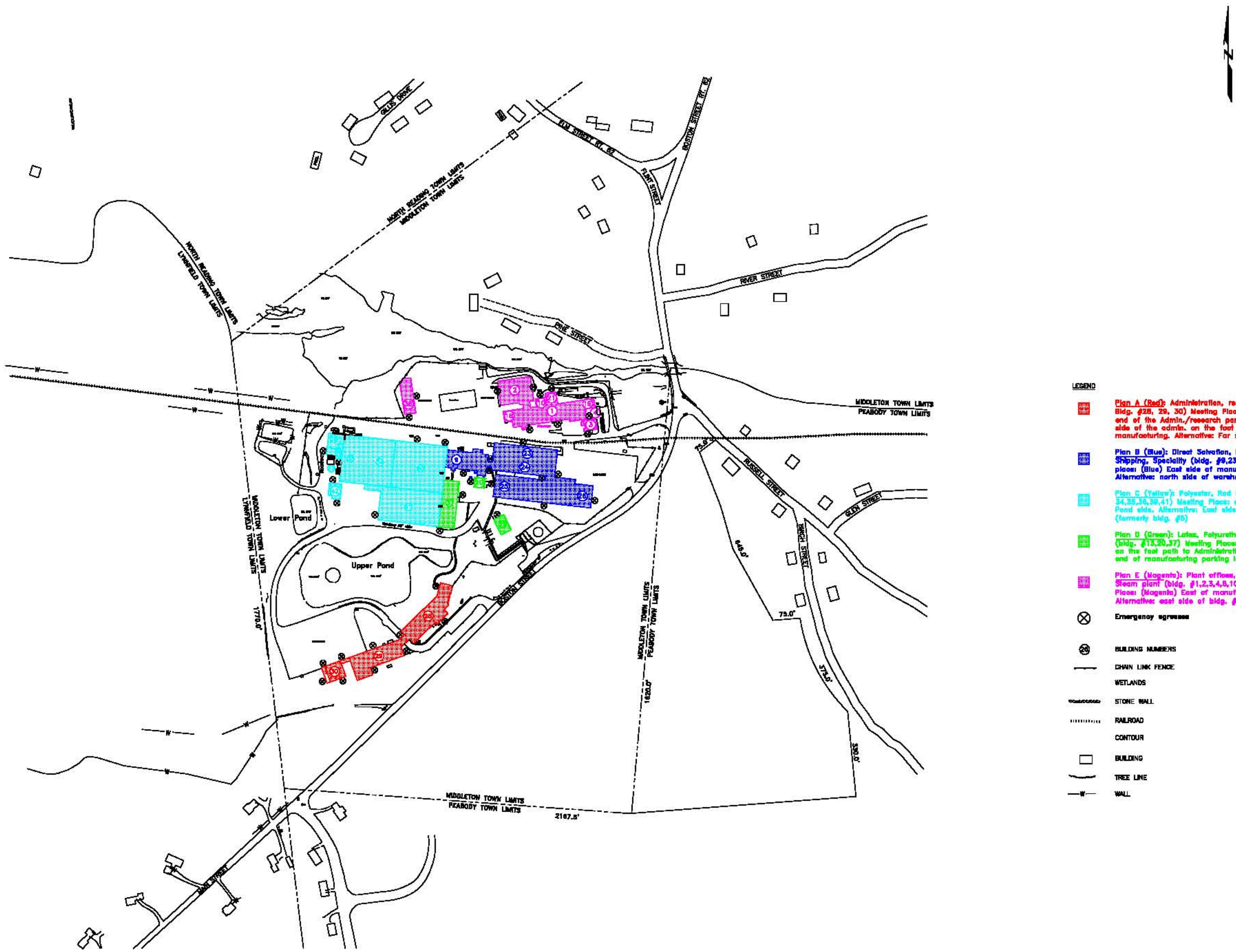
SCALE: 1"=400'
DATE: 11/06
PROJECT NUMBER: 00963-035

FIGURE NUMBER: G-1

SHEET NUMBER: X

FILENAME: 00963-035-05D.DWG

Figure G-2 Building Exits and Evacuation Areas



LEGEND

Plan A (Red): Administration, research & pilot Plant Bldg. #28, 29, 30) Meeting Place: (Red) The west end of the Admin./research parking lot and the east side of the admin. on the foot path to manufacturing. Alternative: Far side of the pond.

Plan B (Blue): Direct Solvation, Banbury, SBA, Shipping, Speciality (bldg. #9,23,24,25,26,37) Meeting place: (Blue) East side of manufacturing parking lot. Alternative: north side of warehouse bldg.

Plan C (Yellow): Polyester, Rod Cement, Web (Bldg. 34,35,36,39,41) Meeting Place: south side Web — Pond side. Alternative: East side of bldg. #38 (formerly bldg. #5)

Plan D (Green): Latex, Polyurethane, 90-day storage (bldg. #13,20,37) Meeting Place: (Green) Along fence on the foot path to Administration. Alternative East end of manufacturing parking lot.

Plan E (Magenta): Plant offices, Engineering, QC Lab, Steam plant (bldg. #1,2,3,4,8,10,18,19,21,38) Meeting Place: (Magenta) East of manufacturing parking lot. Alternative: east side of bldg. #38 (lawn area)

Emergency egresses

BUILDING NUMBERS

CHAIN LINK FENCE

WETLANDS

STONE WALL

RAILROAD

CONTOUR

BUILDING

TREE LINE

WALL

REFERENCE:
BOSTIK, INC.
BLDG. EXITS & EVACUATION AREAS
DATED: 10/02/2006

0 200 400
SCALE, FEET

REVISIONS			
NO.:	DESCRIPTION:	DATE:	BY:

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

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WEB: HTTP://WWW.ENSR.AECOM.COM

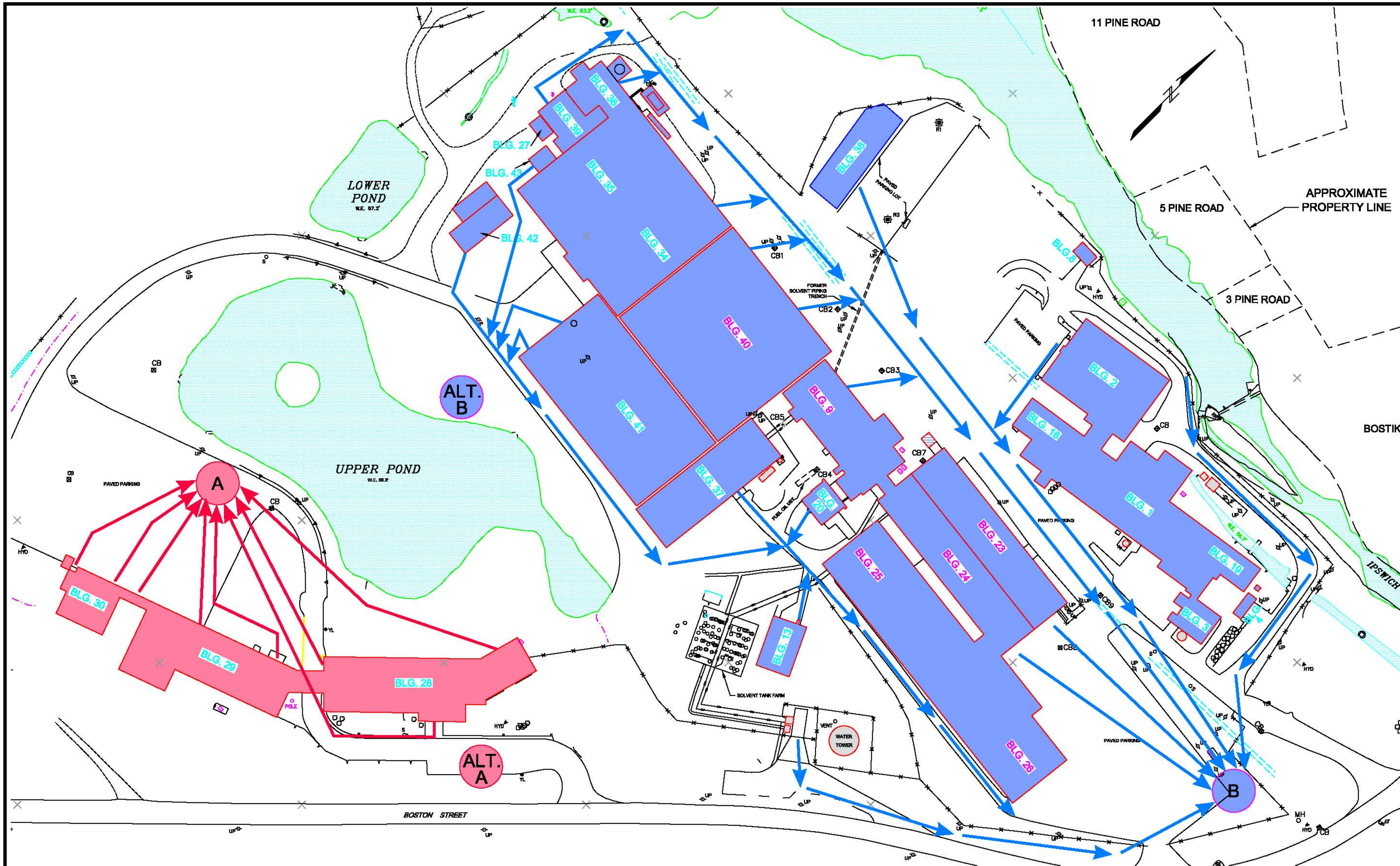
BLDG. EXITS & EVACUATION AREAS
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MASSACHUSETTS

SCALE: 1"=200'
DATE: 11/06
PROJECT NUMBER: 00963-035

FIGURE NUMBER:
G-2
SHEET NUMBER:
X

FILENAME: 00963-035-100.DWG

Figure G-3 Evacuation Routes



LEGEND

A EVACUATION MEETING LOCATION "A"

EVACUATION ROUTE

NOTES:

1. LOCATIONS ARE APPROXIMATE.

REFERENCE:
GEI CONSULTANTS, INC.
EVACUATION ROUTES, FIG. A1-1
DATED: October 2002

0 120 240
SCALE, FEET

FILENAME: 00963-035-11D.DWG

REVISIONS			
NO.:	DESCRIPTION:	DATE:	BY:

DESIGNED BY: X
DRAWN BY: K.P.B.
CHECKED BY: D.R.
APPROVED BY: X

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PHONE: (978) 589-3000
FAX: (978) 589-3100
WEB: HTTP://WWW.ENSR.AECOM.COM

EVACUATION ROUTES
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MASSACHUSETTS

SCALE: 1"=120'
DATE: 11/06
PROJECT NUMBER: 00963-035

FIGURE NUMBER: G-3

SHEET NUMBER: X

Section H - Personnel Training

H.1 Outline of Introductory and Continuing Training Program [40 CFR 270.14(b)(12); 264.16(a)(1)]

This training program includes job titles and descriptions, training content, frequency, and techniques, training director, relevance of training to the job descriptions, training for emergency response, and implementation of the training program. Bostik has prepared an SOP entitled "Recruiting and Training" that covers much of the requirements of this section. This SOP is included herein as **Attachment H-1**.

H.1.1 Job Title / Job Description

The following Bostik personnel will receive the training described in this plan:

- Polyester Reactor Operators,
- Direct Solvation Reactor Operators,
- Health Safety & Environmental Supervisor, and
- Health, Safety, Environment & Quality Manager

Job descriptions for these positions are appended at the end of Attachment H-1.

H.1.2 Description of How Training Will be Designed to Meet Actual Job Tasks

All Bostik personnel associated with the BIF operation (i.e., permitted hazardous waste operations) will successfully complete a program consisting of class room and on-the-job training. Training will ensure that each operator understands and can perform the requirements necessary to maintain compliance with this RCRA Part B Permit Application.

This training program includes a description of the type and amount of introductory and continuing education that each operator will receive in accordance with their specific responsibilities.

Facility personnel will successfully complete the required training within six months after the date of their initial employment with Bostik, or transfer to a new position at the facility, whichever is later. New employees will not be allowed to work in unsupervised positions until they have completed the necessary training requirements. Personnel assigned duties in hazardous waste management will participate in an annual review of their initial training and must continue to successfully display their full understanding of the requirements relative to their level of involvement.

H.1.3 Training Director

As the HSEQ Manager, Daniel F. Welch will ensure that the necessary training is conducted for all applicable employees. Mr. Welch maintains the following qualifications:

- M.S., Hazadous Materials Management, Tufts University
- B.S., Biology (Chemistry Minor), Salem State College
- OSHA 40 hour certification;
- OSHA General Industry Outreach Trainer

H.1.4 Relevance of Training to Job Position

Please refer to the HSE Departmental Training Matrix in Attachment H-1.

H.1.5 Training for Emergency Response

Please refer to the HSE Departmental Training Matrix in Attachment H-1.

H.2 Maintenance of Training Records and Documentation [40 CFR 270.14(b)(12); 264.16(b), (d)(4), (e)]

Each individual involved with the handling, storage, transfer and burning of hazardous waste will be identified in relation to their duties and their job title and training requirements will be maintained on the Health, Safety & Environment Training matrix.

This training program will ensure that all authorized personnel will be able to respond effectively to all emergency situations. Training will familiarize all personnel with established emergency procedures, emergency equipment and emergency systems, including where applicable:

a. Procedures for using, inspecting, repairing and replacing facility emergency and monitoring equipment;

b. Key parameters for automatic waste feed cut-off systems;

c. Communications and alarm systems;

d. Response to spills, fires and explosions;

e. Response to potential ground-water and river contamination incidents;

f. Struthers-Wells boiler operation; and

g. Shutdown of operations.

Written job descriptions will be maintained for each position listed in Section H-1a and will include the requisite skills, education and other qualifications and duties required for the personnel assigned to each function.

Written documentation of facility personnel training will be maintained in the Health, Safety & Environmental central file system and will include:

a. A written description of the type and amount of both introductory and continuing training that has been given to each person filling a position listed in Section H.1.1;

b. Records will document that the training and job experience has been successfully completed and that facility personnel understand the duties and responsibilities of their assignment;

c. Records of current personnel will be kept until closure of the facility is achieved;

d. Records of former employees will be maintained for at least three years from the date they last worked at the facility; and

e. Employees transferred within the company will have their records accompany them to their new assignment.

ATTACHMENT H-1

RECRUITING AND TRAINING

BOSTIK FINDLEY

Bostik Findley Inc.
Middleton Site
211 Boston Street Middleton, MA 01949-2128

Standard Operating Procedure

Title: RECRUITING & TRAINING		Doc Number HSE-1-003 Revision: 1
Department: Manufacturing Area: Middleton	*Approved & Released Standard Operating Procedure*	Implementation Date: 05/27/2004
Document Type: HSE Management System Procedure		Review Period - 365 Days

1.0 Purpose:

To ensure that all new employees and employees with new assignments are positioned to conduct their jobs safely through pre-employment screening and effective new employee/new assignment orientation and training.

2.0 Scope:

This procedure applies to the hiring and placement of all new or transferred employees at the Bostik Findley, Inc. facility located in Middleton, MA.

3.0 Responsibilities:

HSEQ: ensures that all employees receive a proper orientation and training program and that the training is commensurate with the training required of the area the employee will be working.
Human Resources: supplies the hiring managers with a list of applicants and handles the pre-employment physicals.
Plant Managers: hire the employees and ensure that they receive the required orientation and training.
Manufacturing Administrator: documents all training in the employee training matrix.

4.0 Definitions:

HSEQ: The Middleton Health Safety Environment & Quality Department.
Plant Management: Area Managers, Section Foremen, and the Plant Manager.

5.0 Procedure:

5.1 Recruiting of Permanent Employees

Human Resources:

5.1.1 Forwards the completed application to the hiring manager.
5.1.2 Following a decision to hire, arranges a Pre-employment Physical and mandatory drug and alcohol screening through:
   i. Occupational Health & Rehabilitation for employees hired in the Middleton area.
   ii. Another occupational health provider for employees hired from outside the Middleton area (i.e. sales)
5.1.3 Receives the determination of fitness for work and the drug and alcohol screening results from the occupational health provider.
5.1.4 Notifies the candidate in writing if the candidate is no longer considered qualified for the position based on the results of the medical examination.

The Hiring Manager:

5.1.5 Arranges for formal interviews;
5.1.6 Informs the Human Resource and HSEQ Departments once a candidate has been chosen;

HSEQ:

5.1.7 Ensures that the Occupational Health Provider is aware of the requirements of the medical examination dependant on the type of job the employee will be doing. In addition to the general physical, manufacturing employees must also receive baseline pulmonary function tests and hearing exams.

5.2 Recruiting of Temporary Employees

<u>The Hiring Manager:</u>

5.2.1 Supplies the Temporary Agency with the requirements of the open position

5.2.2 Arranges for a formal interview with potential candidates and determines the best candidate for the open position.

5.2.3 Informs the Human Resources and HSEQ Departments once a candidate has been chosen.

<u>The Temporary Agency:</u>

5.2.4 Supplies Job Applications to the hiring manager that includes work experiences for the potential candidates.

5.2.5 Receives the determination of fitness for work and the drug and alcohol screening results from the occupational health provider.

5.2.6 Notifies the candidate in writing if the candidate is no longer considered qualified for the position based on the results of the medical examination.

<u>HSEQ:</u>

5.2.7 Ensures that the Occupational Health Provider is aware of the requirements of the medical examination dependant on the type of job the employee will be doing. In addition to the general physical, manufacturing employees must also receive baseline pulmonary function tests and hearing exams.

5.3 Initial Training and Organization

<u>HSEQ:</u>

5.3.1 Upon successful medical clearance and approval of the hiring manager, ensures that the new or transferred employee receives a proper HSE Orientation before commencing normal job activities. To ensure this is done in a systematic and consistent manner, the New Employee/New Assignment Safety Orientation form (HSE-1-3.1) will be completed. This form requires that, at a minimum, the following topics are covered:

i. Review of the facility HSE Program using the Employee Safety Booklet (HSE-1-3.2)
ii. Review of Emergency Response Procedures
iii. Review of Incident Reporting & Investigation Procedures
iv. Review of Environmental considerations
v. Review of Miscellaneous Company Policies (smoking, visitor, food & drink, hair, jewelry, drug & alcohol, enforcement)
vi. Review of General Personal Protective Equipment (PPE) Requirements
vii. HSE Training required for the job to be conducted (see Department Training Matrix HSE-1-2.1)
viii. Review of Job Description
ix. A Facility Tour

5.3.2 Ensures that the training was effective and understood by the employee through the use of proficiency quizzes wherever necessary. Any employee receiving a test score of less than 75% in any topic will be required to review and retest in that segment of the training program;

5.3.3 Ensures that the employee is supplied with the necessary PPE to safety conduct his/her job. This would include at a minimum safety shoes, safety glasses, and hard hat but could include more specific equipment depending on the job tasks such as protective clothing, hearing protection, respiratory protection, etc.

5.3.4 Ensures that any new employee or existing employee reassigned to a new department will receive, prior to starting work in the new department, the HSE Training required of employees in that department as specified in the Department Training Matrix (HSE-1-2.1).

Plant Management:

5.3.5 Ensures that at no point should any employee be working in a department without first receiving the required HSE training identified as necessary for employees of that department.

5.3.6 Ensures that new or transferred employees understand the tasks associated with their job and are capable of carrying them out by thoroughly reviewing the job description.

5.3.7 Ensures that employees receive the proper on-the-job training regarding their specific job tasks by observing a senior operator for a period of one week.

5.4 Documentation

HSEQ:

5.4.1 Collects the training documentation following the completion of the Orientation course. This documentation may include the following:

- i. Sign-in Sheets
- ii. Proficiency Quizzes
- iii. Worksheets
- iv. Copies of training materials (handouts)

5.4.2 Distributes the training documentation to the Manufacturing Administrator who logs the information into the Employee Training Matrix (HSE-1-2.2).

5.4.3 Files the training documentation in the Safety Information Room located in the Manufacturing Office Area (Building 1).

5.4.4 Ensures that training records are properly documented for a period of 5 (five) years.

The Manufacturing Administrator:

5.4.5 Enters the employee specific training documentation onto the Employee Training matrix (HSE-1-2.2).

5.4.6 Gives the training documentation back to the HSEQ Department for filing.

6.0 Safety & Environmental Information:

Not Applicable

7.0 Associated Documents:

New Employee/New Assignment Safety Orientation form (HSE-1-3.1)
Employee Safety Booklet (HSE-1-3.2)
Department Training Matrix (HSE-1-2.1)
Employee Training Matrix (HSE-1-2.2)

HSE-1-3.1 Orientation Form. HSE-1-3.2 Employee Safety Booklet HSE-1-2.1 Department Training Matrix 20 Middleton EMPLOYEE Training Matrix 20

8.0 Document Revision History:

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Third Approver's Signature

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Title: Approver

Document History Section

HSE Departmental Training Matrix

Bostik - Middleton

	Administration	Sales & Marketing	Manufacturing Admin	Plant Managagement Engineering	R&D/Tech Service QC	Pilot Plant	Banbury Churn Room	Maintenance	Shipping Receiving	Direct Solvation	Polyurethane	Web	Conversions	Polyester Polyamide	HSE	ER Team
General Safety Training [a]	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
ICP Training [b]	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P
Hazard Communication [c]		A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	
Bonding & Grounding - Static				P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	
Personal Protective Equipment				P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3
Respiratory Protection					A/P	A/P	A/P	A/P		A/P	A/P		A/P	A/P	A/P	A/P
Audiograms & Training	P	P	P	P	P	P	A/P	A/P	P	A/P	A/P	P	A/P	A/P	P	
Forklift Safety						P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3		
Forklift Evaluation						P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3		
Lockout / Tagout				P/3		P/3	P/3	A/P		P/3	P/3	P/3	P/3	P/3		
Chemical Hygiene Plan					A/P	A/P										
Confined Space Entry								A/P								A/P
Hot Work Permit						P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	
Defensive Driving		P/3														
PSM Awareness				P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	
Ladders/Fall Protection Walking-Working Surfaces				P/3		P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	P/3	
Hazardous Waste Handling				A	A	A	A	A	A	A	A				A	
BIF Compliance				P/3				P/3		P/3					P/3	P/3
24 Hr ER Technician								P		P				P	P	P
8 Hr ER Awareness					A	A	A			A	A	A	A			
8 Hr ER Technician Refresher				A				A		A				A	A	A
Environmental Awareness	P/3	P/3	P/3	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	A/P	
DOT Refresher									P/3						P/3	
RCRA Refresher															A	
HSE Management System				P/3											P/3	
First Aid / CPR				P/3											P/3	P/3
OSHA General Industry				P/3											P/3	

A = Annual Training **P = Preemployment or Preassignment** **3 = at least every 3 years**

a General Training to include the following topics: General Safety Rules, Incident Reporting, Pedestrian Awareness, Lockout/Tagout Awareness, Confined Space Awareness, Bonding & Grounding, General Hazard Communication, Bloodborne Pathogen Awareness, Ladders, Walking/Working Surfaces, Fall Protection.

b ICP Training to include Emergency Action Plan and Fire Drill

c Hazard Communication will include Job Hazard Analysis, Asbestos and Lead Awareness

Job Description

QA-FO-011 rev2

Department: HSEQ

Title: Health Safety Environment & Quality Manager

Reports to: Plant Manager (dotted line to Transportation Division General Manager)

Reports: HSE, Supervisor
Safety Specialist
Quality Specialist/ISO Management Representative
QC Lab Manager
QC Technicians (2)

Scope: *HSEQ Issues for Transportation Division - Middleton, MA.*

Job Requirements:

- Ensure the health and safety of all employees and contractors.
- Ensure compliance with all State and Federal Health, Safety & Environmental regulations and permits.
- Maintain a documented HSE Management System.
- Ensure compliance with ISO9001/AS9100 Quality Management System.
- Manage of all Waste Site Clean-up activities at Middleton facility.
- Document, investigate, and analyze HSE incidents and ensure implementation of corrective actions.
- Ensure that the Struthers wells industrial boiler combusts our waste byproducts in compliance with the EPA "BIF" regulation.
- Manage the generation, storage, and disposal of Hazardous/Non-hazardous Wastes.
- Control costs and budget expenses within the HSEQ Department.
- Assist with product quality investigations and problem solving teams.
- Assist with Incident Response activities as one of site Incident Commanders.
- Manage Middleton Behavior Based Safety (HAWKS) program.
- Manage the six Safety, QC and QA employees of the HSEQ Department.

Education:

- BS or MS in EHS Science or Engineering discipline.

Experience:

- Experience implementing OSHA, EPA, or DEP requirements.
- Experience dealing with regulators.
- General or Limited Practice TURA Planner

Special Skills:

- Ability to lead
- Well organized
- Detail oriented
- Strong Planning Skills
- Strong recordkeeping skills
- Excellent verbal and written communicate skills

Training:

- RCRA/DOT Certifications
- 40-hour HAZWOPPER Trained
- 24-hour Emergency Response Trained
- Trained in root cause analysis problem solving methods

Job Description

QA-FO-011 rev2

Department: HSEQ

Title: **HSE Supervisor**

Reports to: HSEQ Manager

Reports: Safety Specialist

Scope: HSE compliance for Transportation Division - Middleton, MA.

Job Requirements:

- Facility compliance with applicable OSHA regulation
- Compliance with all applicable BIF regulations
- Industrial hygiene monitoring program
- Incident management and reporting
- Emergency response
- Solid waste disposal management
- Safety and environmental training
- Federal and state environmental reporting
- Safety and emergency response equipment
- Contractor training
- Asbestos abatement program
- ER planning team
- RCRA compliance
- Supervise the Safety Specialist position

Education:

- BS in EHS or related field

Experience:

- Experience interpreting and applying OSHA, RCRA, regulation
- OSHA, RCRA training experience

Special Skills:

- Ability to lead
- Well organized
- Detail oriented
- Excellent recording and reporting skills
- Must communicate well verbally and in writing
- Knowledge of Microsoft PC tools (Word, Excel, PowerPoint, etc.

Training:

- 40 hour Hazwoper trained
- Trained in problem solving methods

Job Description

QA-FO-011 rev2

Department: Polyester / Polyamide

Title: **Reactor Operator**

Reports to: Production Supervisor

Reports: N / A

Scope: *Responsible and authorized to perform all operations associated with the manufacturing of Polyester and Polyamide resins. Works collaboratively with Polyester / Polyamide reactor operators to produce a quality product in the most cost effective and timely manner possible without risk to the employee or the environment.*

Job Requirements:

C-Operator Duties:

- Follows written instructions and standard operating procedures to manufacture quality Polyester and Polyamide products.
- Works collaboratively with Polyester / Polyamide reactor operators to insure a quality product is produced.
- Perform preventive maintenance functions as required.
- Assist as needed and when available in the Polyester/Polyamide processing operations.
- Perform in-plant laboratory testing to satisfy intermediate and finished product requirements.
- Responsible for accurate batch sheet administration and retain sample collection.
- Follow proper procedures for the handling, storage and transfer of hazardous waste.
- Monitor polyester distillate levels and assist in the distillate incineration operation when required.
- Operates Polyester/Polyamide reactor systems to include reactor loading, polymerization and direct pelletization.
- Loads and unloads hotbox units.
- Assume responsibility for stocking of the polyester department racking systems.
- Operates fork truck and material handling equipment.
- Follows all safety guidelines and promotes a safe working environment at all times.
- Maintains good Housekeeping practices.
- Fills out maintenance work requests in the event of foreseen mechanical problems.
- Maintains a positive work environment.

B-Operator Additional Duties:

- Proficient with all Polyester / Polyamide equipment and is able to work independently.
- Demonstrates the ability to troubleshoot process equipment.

- Provides leadership and training to C operators on his/her shift.
- Demonstrates the capability to make batch process adjustments based on in-process test results.
- Follows written instructions and standard operating procedures to manufacture quality Polyester and Polyamide products.
- Coordinate manufacturing schedule for all shifts and alert A Operators/Lead Operator of schedule modifications, changes, and reasons.
- Coordinate paperwork, work orders, batch sheets, time cards daily /weekly.
- Create operational procedures following the ISO 9000 format.
- Support department manufacturing and processing operations as appropriate.
- Insure manufacturing equipment is maintained and appropriate supplies are inventoried and relay the need for reordering.
- Assist management in maintaining a positive working environment.
- Establish personal goals to support Bostik's manufacturing/quality mission.
- Operates grinding and blending equipment when required.
- Monitors Polyester and Polyamide distillate levels and transfers Direct Solvation distillates when required.
- Responsible for printing labels and product labeling.

A-Operator Additional Duties:
- Was a B-Operator for a minimum of 12 months with above average Performance Reviews.
- Provides leadership and training to B-Operators on his/her shift.
- Responsible for Polyester distillate incineration and insures incineration is within regulation compliance.
- Provides back-up coverage to Department Lead.

Lead Operator Additional Duties:
- Responsible for run sheet data input into Microsoft Access program.
- Has demonstrated above average leadership skills.
- Provides leadership and training to A operators within the entire department.
- Works collaboratively with department foreman and employees to solve problems and insure a quality product is produced.
- Coordinate manufacturing schedule for all shifts in rotation schedule and alerts foreman of schedule modifications, changes, and reasons.
- Coordinate paperwork, work orders, batch sheets, time cards, etc., daily/weekly.
- Insure proper procedures are followed for the handling, storage and transfer of hazardous waste.
- Conduct monthly safety meetings and forward minutes to department supervisor.
- Participates in and oversees employee training and Performance Reviews.
- Provides back-up coverage to department supervisor when required.
- Has completed 24 hour Hazwoper training.

Education:
- High School diploma, or higher education preferred.

Job Description

QA-FO-011 rev2

Experience:

- Prefer individual be familiar with Hot Melt Polyester and Polyamide resins, and manufacturing operations.
- Must be committed to the concepts of in-plant intermediate testing and preventive maintenance.

Special Skills:

- An Operator should demonstrate a history of equipment proficiency, troubleshooting and organizational skills.
- A Lead Operator should demonstrate a history of equipment proficiency, troubleshooting, organizational skills, and leadership skills.

Job Description

QA-FO-011 rev2

Department: Direct Solvation

Title: **Reactor Operator**

Reports to: Production Supervisor

Reports: N / A

Scope: *Responsible and authorized to perform all operations associated with the manufacturing of Vitel Resins, Direct Solvated Polyesters resins and Buiding #20 products. Works collaboratively with Direct Solvation reactor operators to produce a quality product in the most cost effective and timely manner possible without risk to the employee or the environment.*

Job Requirements:

C-Operator Duties:

- Follows written instructions and standard operating procedures to manufacture quality Direct Solvation products.
- Works collaboratively with Direct Solvation reactor operators to insure a quality product is produced.
- Perform preventive maintenance functions as required.
- Perform all downstream packaging requirements including grinding, bagging, boxing, and slabbing.
- Perform in-plant laboratory testing to satisfy intermediate and finished product requirements.
- Responsible for accurate batch sheet administration and retain sample collection.
- Follow proper procedures for the handling, storage and transfer of hazardous waste.
- Monitor Direct Solvation distillate levels.
- Operates Direct Solvation reactor systems to include reactor loading, polymerization, and direct solvation.
- Loads and unloads hotbox units.
- Assume responsibility for stocking of the direct solvation department racking systems.
- Operates fork truck and material handling equipment.
- Follows all safety guidelines and promotes a safe working environment at all times.
- Maintains good housekeeping practices.
- Fills out maintenance work requests in the event of foreseen mechanical problems.
- Maintains a positive work environment.

B-Operator Additional Duties:

- Proficient with all Direct Solvation equipment and is able to work independently.
- Demonstrates the ability to troubleshoot process equipment.
- Provides leadership and training to C operators on his/her shift.
- Demonstrates the capability to make batch process adjustments based on in-process test results.

Job Description

QA-FO-011 rev2

- Follows written instructions and standard operating procedures to manufacture quality Direct Solvation products.
- Coordinate manufacturing schedule for all shifts and alert A Operators/Lead Operator of schedule modifications, changes, and reasons.
- Coordinate paperwork, work orders, batch sheets, time cards daily /weekly.
- Create operational procedures following the ISO 9000 format.
- Support department manufacturing and processing operations as appropriate.
- Insure manufacturing equipment is maintained and appropriate supplies are inventoried and relay the need for reordering.
- Assist management in maintaining a positive working environment.
- Establish personal goals to support Bostik's manufacturing/quality mission.
- Operates grinding and blending equipment when required.
- Monitors distillate levels.
- Responsible for printing labels and product labeling.

A-Operator Additional Duties:
- Was a B-Operator for a minimum of 12 months with above average Performance Reviews.
- Provides leadership and training to B-Operators on his/her shift.
- Provides back-up coverage to Department Lead.

Lead Operator Additional Duties:
- Responsible for run sheet data input into Microsoft Access program.
- Has demonstrated above average leadership skills.
- Provides leadership and training to A operators within the entire department.
- Works collaboratively with department foreman and employees to solve problems and insure a quality product is produced.
- Coordinate manufacturing schedule for all shifts in rotation schedule and alerts foreman of schedule modifications, changes, and reasons.
- Coordinate paperwork, work orders, batch sheets, time cards, etc., daily/weekly.
- Insure proper procedures are followed for the handling, storage and transfer of hazardous waste.
- Conduct monthly safety meetings and forward minutes to department supervisor.
- Participates in and oversees employee training and Performance Reviews.
- Provides back-up coverage to department supervisor when required.
- Has completed 24 hour Hazwoper training.

Education:
- High School diploma, or higher education preferred.

Experience:
- Preferred familiarity with Direct Solvation products and manufacturing operations.
- Must be committed to the concepts of in-plant intermediate testing and preventive maintenance.

Special Skills:

- Demonstrate a record of reliability and safety awareness.
- Prefer individual to have demonstrated sound decision making practices.
- Capable of fostering a positive working atmosphere through teamwork and cooperation.
- An Operator should demonstrate a history equipment proficiency, troubleshooting and organizational skills.
- Lead Operators should demonstrate a history of equipment proficiency, troubleshooting, organizational skills, and leadership skills.

Training Course Outline

Environmental Awareness

Water Quality Long history of water withdrawal/discharge
- No longer discharge process water/Storm water Discharge Permit only
  - Sanitary wastewater from sinks/toilets to sewer
  - Storm water run-off to Ipswich River via catch basins (tested periodically)
- Basic Rules:
  - No chemical down sink drains
  - No liquids in dumpsters/compactors
  - Report all Spills/Releases

Waste Disposal Bostik Waste streams
  - Normal Trash, Hazardous & Non-hazardous Wastes
- Recyclable Materials
  - Office Paper/ News & Magazines, Cardboard, Metal, Computer Monitors, Fluorescent bulbs, Batteries
- The following should never be in the trash:
  - Hazardous Materials, Recyclables, & Liquids

Incident ReportingReport ***all*** work related incidents
  - Spills/releases, Injuries/Illnesses, Unsafe acts/conditions/near misses
- Get Incident Report from HR/HSEQ/Supervisor
  - Involved party complete first section of form
  - Management completes second half of form
  - HSEQ ensures corrective actions implemented and approves incident closure

Health & Safety Basics
- Health & Safety Measurable (Incidence Rate as 12 mo. rolling avg.)
  - OSHA Recordable/Lost Time Injuries/Illnesses
  - Work related injuries requiring Medical attention, restricted duty, lost time
- Minimum Personal Protective Equipment Requirements - Plant
  - Safety Shoes, Safety Glasses w/ side shields, Hard Hat,
  - Other PPE as required: Hearing Protection, Respiratory Protection, etc.
- "PPE-FREE ZONE"
- Minimum PPE Requirements – R&D - Safety Glasses
- Requirements apply to everyone! Visitors, contractors, sales & marketing, customers
- Obey Safety Signs in Plant
  - Ex. Hazard Labels, street signs, PPE Required, Caution Tape, etc,
- Safe Driving/Pedestrian Awareness

Fire/Evacuation Procedures

Security Overview
- Access cards for gates/doors
- Report all suspicious activities

Training Course Outline

First Aid – CPR & AED

Standard First Aid:

- Training ever two years
- Trainers American Red Cross of Massachusetts Bay
- Location of First Aid Stations at Bostik
- How and when to call for EMS
- Proper PPE.

CPR – Adult Cardiopulmonary Resuscitation:

- Training ever year
- Trainers American Red Cross of Massachusetts Bay
- Proper PPE.

AED - Automated External Defibrillation:

- Training ever year
- Trainers American Red Cross of Massachusetts Bay
- Location of the five Defibrillators

O^2 - Emergency Oxygen:

- Training ever year
- Trainers American Red Cross of Massachusetts Bay and Middleton Fire Department.
- Location of the five O^2 kits

Bloodborne Pathogen:

- Training ever two years
- Trainers American Red Cross of Massachusetts Bay
- Proper PPE.

Training Course Outline

Forklift Safety & Pedestrian Awareness

Requirements of PIT - Powered Industrial Trucks:

Written program Definitions

- Qualifications
- Training Requirements
- Safe Operating Procedures
- Battery Changing/Charging/Storage
- Pre-Use Safety Checklist
- Record Keeping Requirements

Types of PIT's

Conventional Forklift (electric or propane), Electric Walkers/Stackers, Narrow Aisle Stackers, and Maintenance Trucks

Pre-Qualifications for PIT Operators:

Vision problems, Hearing loss, Physical impairments, Neurological disorders, Medication

Truck Related Topics:

- Operating Instructions
- Vehicle capacity and stability
- Vehicle inspection, maintenance, refueling, recharging
- Visibility
- Fork and attachment adaptation and useLoading and unloading trucks and trailers

Workplace Related Topics

1. Surface conditions
2. Composition of loads / stability
3. Stacking/Unstacking
4. Pedestrian traffic
5. Hazardous Locations
6. Pedestrian Safety

General Training:Daily pre-use safety inspection conducted on each shiftRecords kept for minimum of 1 yearSeatbelts required on sit-down PIT

- Pedestrians have right of way, but are not free of responsibilityRefresher

TrainingRequired every 3 years or when operators are:

- Observed operating in unsafe manner
- Involved in an accident or near miss
- Assigned to a different type of truck
- Workplace changes significantly

Annual Evaluation / Certification

- Drivers test reviews training effectiveness
- Operators scored on performance of various tasks
- Only certified personnel can operate PIT's (trained and evaluated)Training

Course Outline

General Safety Training / Employee Safety Orientation

Overview of Bostik Middleton facility.

Emergency Equipment & Locations:

Fire Extinguishers, Fire Blankets, Fire Pull Stations, Exits, Emergence lighting
Fist Aid Stations, Defibrillators, Emergency Oxygen, Emergency showers

Emergency Eye Washes

Overview of safety and Employee commitment.

Employee responsibility to safety
- Follow safety Rules/Procedures
- Report unsafe conditions

Hazard Recognition
- Signs & placards, Machine guarding, Lockout/Tagout, Confined Space
- Right to Know, Housekeeping

MSDS's available in two ways:
- Hard Copies in Plant Office/ER Trailer
- Company Intranet

Personal Protective Equipment
- Plant/Lab Minimum Requirements
- Other PPE as necessary
- Wear is PPE stored?
- Clothing requirement (including uniforms)

Facility Inspections and Safety Tours.

Permits
- General Work Permit, Hot Work, Pipe Line Entry, and Confined Space Entry.

Incident reporting:
- Injury/Illness, Fire, Environmental release, Near Miss, Safety Concern

Company Policies relating to Safety:
- Visitor, Smoking, Food & drink, Hair, Jewelry, Substance abuse, Enforcement

Pedestrian walkways, Pedestrian Awareness and Unauthorized Areas

Summary

Safety is a continuous process that requires total commitment by you. Safety is an individual responsibility that must be incorporated in every job function you perform.

Training Course Outline

Hazard Communication

Requirements of Hazard Communication Standard

- Manufacturer Develops MSDS
- Written Haz Com Program
- List of Chemicals
- Labeling
- Employee Training

Material Safety Data Sheet Review

- Chemical/Company Information Section
- Hazardous Ingredient Section
  % Mixtures, PEL/TLV, STEL, Ceiling Limit, IDLH
- Physical Characteristics Section
  Appearance/Odor
  Specific Chemical data (VP, Density, BP, MP, Evap. Rate, Solubility)
- Fire & Explosion Hazards Section
  Flammables, Combustibles, Explosives, Oxidizers
  Flash Point
- Reactivity Section
  Incompatibility, polymerization, decomposition, stability
- Health Hazard Section
  Irritants, Corrosives, Sensitizers, Reproductive Hazards, Carcinogens
  Routes of Entry (Inhalation, Ingestion, Injection, Absorption)
  Acute vs. Chronic
- Control Measures Section
  Special Work Practices
  Engineering Controls (ventilation)
  Personal Protective Equipment (PPE)
- Precautions for Safe Handling
  Storage and Handling Information
  Spill/Disposal Procedures

MSDS Access

- Paper or Electronic/Readily Available

Labeling Systems/ Rating Scales

- NFPA Diamond
- HMIS

Summary

- Read MSDS and Labels
- Wear appropriate PPE

Training Course Outline

Hearing Conservation

Requirements of Hearing Conservation Program:

- Monitoring Noise Exposure Levels
- Audiometric Testing
- Provide Hearing Protection Devices
- Employee Training
- Record keeping

Purpose:

- To protect employees from hearing loss which could result from exposure to high levels of workplace noise.

Hearing testing – Employees will be tested if:

- Work in high noise areas
- Past testing showed some loss
- Pre-employment/Never tested before
- Employees request

How the Ear Works

Hearing Protection Training.

- How to use and wear hearing protection
- When and where to wear hearing protection
- How to maintain and how to replace worn hearing protection
- Assess Employee's knowledge

Identifying/Dealing with Hazardous Areas:

- PPE Assessment
- Eliminated hazard
- Engineering controls or substitution to minimize or eliminate the hazard
- Administrative controls
- PPE - Select the hearing protection that will protect the employee from the hazard

Training Course Outline

Hot Work Permit

Requirements for hot work:Hot Work Permits (Bostik uses GE GAP Services Hot Work Permits)Designated hot work areas.Written hot work policy.

- Monitor procedures.
- Employee Training.

Purpose:

- To prevent fires and explosions resulting from hot work in process areas.

Employee Training:

- What is Hot Work and examples:
  Sparks, Open flames, Significant rise in temperature capable of igniting materials.Electric Welding, Soldering, Brazing, Grinding, Cutting Torch, Plumbers Torch, Cutting, Flame Blowers

Proper Hot Work Procedures

- Review chemical labeling, warning signs and health hazards.No combustibles within 35 feet of hot workMonitor hot work processesUsing multi-gas metersInspect area, adjacent areas, walls, ceilings, partitions, ductwork, roofs, etc. for combustibles liquids and vapors.Use of fire resistant materials (fire blankets) to cover areas of concern.PPE required with various types of hot workPhysical and health hazards associated with various types of hot work.Protecting other works in the area from hazardous associated with hot work.Proper clothing and how to wear them for performing hot work.Fire Watch, how to use a fire extinguisher and how to call the fire department.

Assigned Areas for Hot Work proceduresConsider alternate methods and/or locations hot workTraining

- Supervisors and workers must be trained, authorized and competentPre-Qualify contractors, train and oversee their hot work permits.Contractors must be notified of any dangerous conditions or hazardous or flammable materials.Emergence procedures

Training Course Outline

HSE Management System

Section 1 - Organization

- Leadership & Administration
- Management Training
- Recruiting & Training

Section 2 - Management System Procedures

- Compliance with legal requirements
- Capital Project Review
- Communication
- Audits and Planned Inspections
- Site Security Plan

Section 3 - Safety Procedures
- Job Hazard Analysis
- Maintenance & Work Permits
- Accident & Incident Analysis
- Hazard Communication
- Personal Protective Equipment
- Job Related Licenses
- New Chemical Review
- Respiratory Protection
- Lockout/Tagout

Section 4 - Process Safety Management (PSM) Procedures
- Employee Participation Plan
- Process Safety Information
- Process Hazard Analysis
- Operating Procedures
- Training
- Contractor Safety
- Prep-startup Safety Review
- Mechanical Integrity
- Hot Work
- Management of Change
- Incident Reporting & Investigation
- Emergency Planning & Response
- Compliance Audits
- Trade Secrets

Section 5 - Industrial Health & Hygiene Procedures
- Occupational Health & Hygiene
- First Aid & CPR/AED

Section 6 - Environmental Protection Procedures
- Stormwater Pollution Prevention Plan
- RCRA General Inspection Plan

Training Course Outline

Integrated Contingency Plan

Section I – Introduction elements
1. Facility overview
2. Purpose and scope of plan coverage
3. Management approval
4. Professional engineer's certification
5. Revision history
6. General facility identification

Section II – Core plan elements
1. Discovery
2. Initial response
3. Sustained actions
4. Termination and follow-up actions

Section III – Annexes
- A1. Facility information, evacuation plan, site plan
- A2. Notification
- A3. Response management system
- A4. Incident documentation
- A5. Training and exercises/drills
- A6. Response critique, plan review and modification process
- A7. Prevention
- A8. Regulatory compliance and cross-reference matrices

List of tables
- Table 1-2. Immediate actions in response to a large fire or explosion
- Table 1-3. Immediate actions in response to a release of hazardous materials
- Table 1-4. Actions to take in response to a severe weather event
- Table 1-5. Immediate actions in response to a medical emergency
- Table 1-6. Evacuation procedures
- Table 2-1. Internal notification procedures
- Table 2-2. Incident commander contact information
- Table 2-3. Notifications required for a release greater than a reportable quantity
- Table 2-4. Notifications required for a release to surface water
- Table 2-5. Notifications required for a fire or explosion
- Table 2-6. Notifications required for a local evacuation
- Table 2-7. Notifications required to Bostik World Headquarters
- Table 2-7. List of response objectives and tactical actions
- Table 2-8. List of in-house spill response equipment

List of attachments
- Attachment 1. Response forms
- Attachment 2. Reportable quantity list
- Attachment 3. Directions to Hospitals

Training Course Outline

Lockout/Tagout & Electrical Safety

Requirements of The Control of Hazardous Energy and Safety Related Work PracticesHazard Analysis of all machines and equipmentWritten Lockout/Tagout Program

- Employee Training

Basics of Lockout/Tagout:

- Method of Identifying, Disabling, and De-energizing equipment so that it can be worked on without an unexpected, hazardous release of energyNecessary when maintenance on equipment includes:Constructing, Installing, Setting up, Adjusting, Inspecting, Repairing, ModifyingEnergy comes in many different forms, such as:Electrical, Hydraulic, Steam, Stored, Vacuum, Momentum, Kinetic, Pneumatic, Rays, Mechanical, Gravitational, Thermal, Chemical

Employee Training for Lockout/Tagout (four levels):

1. Authorized Employee – Employees that are authority and responsibility to perform a specific assignment that requires Lockout/Tagout; they can recognize hazardous energy sources and know how to isolate and control energy.
2. Affected Employee – Employees who work with equipment that may at some time need to be locked or tagged out; they need to recognize when equipment is locked or tagged out and understand why not to start it.
3. Other Employees – Employees who work in an environment where equipment is locked or tagged out.
4. Outside Contractors - Those who perform work requiring Lockout/Tagout; they need to know the Bostik procedures for Lockout/Tagout

The seven steps in every Lockout/Tagout:

Prepare, Shutdown, Isolate, Apply, Release/Control, Verify, Restore

Zero Energy State

Energy-Isolating Devices

Employee Training for Electrical Safety:

- Qualified by the level of training they received
- Understand various voltages and safe work distances.
- Proper PPE's.
- Use of nonconductive tools, ladders & equipment.

Summary:

- You must be authorized to work on equipment at Bostik.You must be qualified to work on electrics at Bostik.

Training Course Outline

OSHA General Industry

501 Occupational Safety and Health Standards for General Industry

- Training by the Training Institute Education Center OSHA New EnglandThe course is designed for personnel in the private sector interested in teaching the 10-hour and 30-hour general industry safety and health outreach program.

Course Topics:

- Job Hazard Analysis
- Inspection Procedures for Respiratory Protection
- Powered Industrial Truck
- Ergonomics
- Fits Aid and Bloodborne Pathogens
- OSHA 300 Log
- Walking-working surfaces
- Exit routes, emergency action plans, and fire protection
- Personal protective equipment
- Machinery and machine guarding
- Hand and portable powered tools and other hand-held equipment
- Welding, cutting, and brazing
- Electrical
- Hazard Communication
- Confined Spaces
- Miscellaneous
- Enforcement Procedures for BBP

Training Course Outline

Personal Protective Equipment

Requirements of Personal Protective Equipment Standard:

- Job Hazard Analysis
- PPE Assessment
- Written PPE Program
- Employee Training

Employee Protection Hierarchy:

- Eliminated the hazard
- Engineering controls or substitution to minimize/eliminate the hazard
- Administrative controls
- PPE

Application of Personal Protective equipment

- Eyes, face, head, and extremities
- Protective clothing
- Respiratory devices
- Protective shields and barriers

Job Hazard Analysis:

- JHA are used for training employees on where and when to wear PPE.
- JHA are broken down into three parts:
    1. Job Steps
    2. Hazard(s)
    3. Recommended Safe Job Procedure or Protection

PPE Assessment

- Look at job steps and assess necessary PPE
- Select PPE that will protect the employee from the hazards identified

Employee Training:

- When/What PPE is necessary
- How to properly don, doff, adjust, and wear PPE
- How to test
- The limitations of the PPE
- The proper care, storage, maintenance, useful life and disposal of the PPE
- Where are PPE supplies kept

Training Course Outline

Process Safety Management

Who must comply with PSM: Manufacturers using certain chemicals above threshold quantities:

- Highly Hazardous Chemical List (137)
- Flammable liquids or gases in quantities greater than 10,000 lbs.
- On-site and in one location

PSM Areas – Middleton plant:
- Solvent Cement, Direct Solvation, Polyurethane, Polyester

Discussion of 14 Elements of PSM: Employee Participation
- Employees must be involved in PS activities

- Process Safety Information (updated with changes)
  - Chemical/process specification
- Process Hazard Analysis
  - Updated every 5 years
- Operating Procedures
  - Written to specific requirements
  - Updated with changes, certified annually
- Employee Training
  - Annual/refresher
- Contractor Safety
  - Chosen based on safety performance
  - Access controlled
  - Trained
- Pre-startup Safety Review (PSSR)
  - Safety review of equipment prior to startup or after change
  - No startup w/out corrective action item completion
- Mechanical Integrity
  - Management of spare equipment
  - Procedures for maintenance activities
- Hot Work Permits
  - Any hot work requires permit
- Management of Change
  - Review pending changes for safety impact
  - Changes prohibited w/out editing PSI
- Incident Investigation
  - Our incident reporting system does this
- Emergency Planning & Response
  - Integrated Contingency Plan
- Compliance Audits
  - Conducted every three years
- Trade Secrets

Training Course Outline

RCRA - Refresher

RCRA (Resource Conservation and Recovery Act)

Section 1

- Review the Environmental Protection Agency/ Massachusetts Department of Environmental Protection regulations including recent changes

- Definitions and Terms

- Hazardous Waste Determination Procedures

- Hazardous Waste Code Identification

- Review of the types of Hazardous Waste at Bostik

- Hazardous Waste Management

    - Satellite Accumulation Areas
    - Main Accumulation Areas

- Universal Waste Regulations and Storage Requirements

Section 2

- Review of DOT Hazard Classes

- Review of DOT Labeling/Marking requirements

- Review of Packaging Requirements

- Hazardous Materials Security

- Review of Land Disposal Requirements

- Manifest Requirements

Training Course Outline

Respiratory Protection

Requirements of Respiratory Protection Standard

- Identification of work areas or tasks that require respiratorsWritten Respiratory Protection ProgramProper Selection of RespiratorsMedical EvaluationFit Testing
- Proper Usage, Maintenance and Care of respiratorsEmployee Training
- Monitoring respirator use to ensure proper usage, storage, and maintenance

Respirator Assessment:

- Eliminated hazard
- Engineering controls or substitution to minimize or eliminate the hazard
- Administrative controls
- Proper Selection of Respirators

Types of respirators:

- Air Purifying:Dust respirator
  Cartridge Air Purifying respirator – half and full face
  Powered air purifying respirator (PAPR)
- Air Supplied
- Self-contained breathing apparatus (SCBA)

Situations Requiring Respirator

- When respirators are necessary
- What type respirator is necessary?
- The limitations of each type respirator

Proper Respirator Usage

- How to properly don, doff, adjust, and wear a respirator
- How to test a respirator (Positive / Negative Fit Test)
- The proper care and maintenance
- Useful life and disposal of the respirator and cartridges
- Proper storage
- Where respirator, cartridge and parts are kept

Summary

Respirators protect workers against harmful dusts, fogs, smokes, mists, gases, vapors, and insufficient oxygen environments. These hazards may cause cancer, lung impairment, other diseases, or death.

Training Course Outline

Walking Working Surfaces – Ladders – Fall Protection

Requirements of Walking Working Surfaces:Hazard Analysis of all stairways, guardrails, floor openings and ladders, working surfaces and housekeepingWritten Program Employee Training

Passageways, storerooms, and service rooms shall be kept clean and orderly and in a sanitary condition.Keep floors in every work area maintained in a clean and dry conditionWhere wet processes are used, drainage shall be maintainedFalse floors, platforms, mats, or other dry standing places provided where practicable.Floor and Mezzanine loading

Openings and holes and proper guardingCovers and/or guardrails to protect personnel from the hazards of open pits, tanks, vats, ditches, etc.

- Fixed industrial stairs Fixed ladders Portable ladders
- Scaffolding
- Fall protection

Proper footwear and warning signs for slippery or wet floors.

Summary:

Slips, trips and falls account for over 19 percent of all disabling work injuries. keep floors clean and dry.

Training Course Outline

24 - Hour Emergency Response Training

Day 1
- Introduction to the OSHA Regulations
- Definitions and Terms
- Hazardous Materials Recognition
- How to Read a Material Safety Data Sheet
- Introduction to Toxicology
- Use of the NIOSH Guide and the Emergency Response Guidebook

Day 2
- Incidental Response versus Emergency Response
- Notification Procedures
- Personal Protective Equipment
- Levels of Protective Clothing
- Decontamination Procedures
- Introduction to the Incident Command Systems
- Terrorism Response
- Emergency Egress
- Site Specific Response Procedures

Day 3 (Hazard Awareness Level Training and continuation of 24 hour)
- Terrorism Response
- Emergency Egress
- Site Specific Response Procedures
- Decontamination Procedures
- Site Security and your role during an emergency
- Table Top/Mock Spill Response Exercise
- Review of mock exercise and class

Training Course Outline

8 - Hour Emergency Response Awareness Training

- Introduction to the OSHA Regulations
- Definitions and Terms
- Hazardous Materials Recognition
- How to Read a Material Safety Data Sheet
- Introduction to Toxicology
- Use of the NIOSH Guide and the Emergency Response Guidebook
- Incidental Response versus Emergency Response
- Notification Procedures
- Personal Protective Equipment
- Levels of Protective Clothing
- Decontamination Procedures
- Introduction to the Incident Command Systems
- Terrorism Response
- Emergency Egress
- Site Specific Response Procedures
- Terrorism Response
- Emergency Egress
- Site Specific Response Procedures
- Decontamination Procedures
- Site Security and your role during an emergency
- Table Top/Mock Spill Response Exercise

Training Course Outline

8 - Hour Emergency Response Refresher Training

- Introduction to the OSHA Regulations
- Definitions and Terms
- Hazardous Materials Recognition
- How to Read a Material Safety Data Sheet
- Introduction to Toxicology
- Use of the NIOSH Guide and the Emergency Response Guidebook
- Incidental Response versus Emergency Response
- Notification Procedures
- Personal Protective Equipment
- Levels of Protective Clothing
- Decontamination Procedures
- Introduction to the Incident Command Systems
- Terrorism Response
- Emergency Egress
- Site Specific Response Procedures
- Terrorism Response
- Emergency Egress
- Site Specific Response Procedures
- Decontamination Procedures
- Site Security and your role during an emergency
- Table Top/Mock Spill Response Exercise
- Review of Mock Exercise and Class Discussion

Training Course Outline

Controlling Static Electricity - Bonding & Grounding

Requirements of controlling static electricity

- Job Hazard Analysis
- Identification of work areas or tasks that require static controls, bonding & groundingIdentification of machinery and equipment that require static controls, bonding & groundingInspection and testing of static controls, bonding & grounding equipment

How static electricity is generated.

- Minimum Ignition Energy (MIE) in millijoules.
- Causes of static spark ignition:
  Highly Charged Liquid, Charged Plastic, Ungrounded Person, Ungrounded Conductor, Filling / Splashing, Filtering, Spraying, Agitation

The four conditions must be present before static electricity can cause a fire or explosion:Movement in such a way as to generate static charges.

Solvent Flow, Agitation, Filtering, People walking,

2. Something in the pathway of the charges that causes them to accumulate instead of recombining or dissipating
   Unbonded/ungrounded piping, Agitator not bonded to vessel, Shoes
3. Air gap in the pathway of the charges that results in a spark when the electrical current jumps across it.
4. Flammable mixture of solvent vapor and air at the point where the spark occurs.

Differences between Bonding & Grounding.

Controlling the hazardous accumulation and discharge by using well-established techniques.

- How ventilation operates in building #24 Solvent Cement.
- Other ways of controlling static electricity:
  Ventilation, Inerting, Humidification, Reducing Solvent Velocity

Conductivity TestingHow to check continuity.

- When it must be done.
  Each time that a pipe is changed
  Each time a pail or drum is filled with a flammable liquid

Training Course Outline

Chemical Hygiene Plan

Basis for the Chemical Hygiene Plan (CHP)

Hazardous Material Information System (HMIS)

Material Safety Data Sheets (MSDS)

Responsibilities of Employee and Employer for Safety

Identification of Chemical Hygiene Officer (CHO)

Chemicals and Health

Training and Education

Safety Equipment & PPE

Prior Approval

Personnel Exposure
- Exposure Limits
- Suspected Exposure to Toxic Chemicals
- Exposure Assessment
- Medical Consultation and Examination

Chemical Handling
- Proper Chemical Storage
- Proper Disposal of Chemicals
- Designated Areas

Safety Operating Procedures
- General Laboratory
- Analytical Laboratory
- Hot Melt Laboratory
- Polymer Laboratory
- Water Based Laboratory
- Liquids Laboratory
- Compounding Laboratory

Training Course Outline

Confined Space Entry

Requirements of a Confined Space Entry ProgramHazard Analysis of all Confined SpacesConfined Space Entry Policy and PermitEmployee Training

Confined space defined as an enclosed area which has the following characteristics:
- Limited openings for entry or exit
- Is large enough and shaped so that workers can enter and perform assigned work
- Is not designed for continuous human occupancy

A permit-required confined space has one or more of the following characteristics:
- Contains or may contain a hazardous atmosphere, such as a lack of oxygen or the presence of toxic vapors
- Contains a material that could engulf an entrant
- Contains walls or floor that slope inward which might affect the concentration level of potentially hazardous substances
- Contains any other recognized serious safety or health hazard

Types of Training and their Duties:

ATTENDANT:
- Know the hazards associated with the space.
- Be aware of the effects of hazardous exposures.
- Maintain accountability of entrants.Remain on duty until properly relieved.
- Monitor the status of the entrant as appropriate.
- Communicate with the entrant as appropriate.
- Monitor activities inside and outside the space.
- Order evacuation of the space when dictated.
- Summon rescue and/or emergency assistance.
- Perform non-entry rescue in accordance with policy.
- Perform no duties that interfere with attendant duties.

ENTRANT:
- Know the hazards associated with space.
- Follow the instructions on the permit.
- Use required equipment properly
- Continually communicate with attendant.
- Alert the attendant when necessary.
- Exit the space quickly when so required.

ENTRY SUPERVISOR:
- Know the hazards associated with the space.
- Ensure all entries on the written permit are appropriate.

- Ensure all tests, procedures and equipment is used.
- Terminate entry authorization when appropriate.
- Verify that rescue services are available.
- Verify methods are in place to summon rescue services.
- Remove unauthorized individuals attempting to enter the space.
- Determine when transfer of responsibility takes place.
- Ensure operations are consistent with the permit.
- Perform non-entry rescue in accordance with policy.
- Perform no duties that interfere with supervisor duties.

General Training:

- Filling out the Entry Permit.Equipment Needed:Ventilation, Respirators, Rescue Tripod, Winch System, Multi-Gas Monitors, Body harnesses, Full Protection, Extraction Cables, LanyardsAtmospheric Testing
- Decision Flow Chart

Summary:

- No entry shall be made until a permit is completed and authorized.

Training Course Outline

DOT Refresher

Part 1 - General provisions, definitions and training
- Who must comply with DOT HazMat Requirements
  - Employees who handle, package, or transport hazardous material under 49 CFR
- Definitions, units of measurement and abbreviations
- Dangerous goods forbidden from transport
- Training (certification) every three years.
- Trainers G.M.C. Foundation

Part 2 - Classification:
- Class 1 - Explosives
- Class 2 – Gases
- Class 3 – Flammable liquids
- Class 4 – Flammable solids
- Class 5 - Oxidizers
- Class 6 – Toxic and infectious substances
- Class 7 – Radioactive material
- Class 8 – Corrosives
- Class 9 – Miscellaneous dangerous substances and articles
- Marine pollutants.

Part 3 - Dangerous goods list and limited quantities exceptions.

Part 4 - Packing and Tank provisions:

Part 5 - Consignment procedures.
- General provisions
- Marking and labeling of packages, including IBC's
- Placarding and marking of cargo transport units.
- Documentation.
- Special provisions.

Part 6 - Construction and testing of containers
- Intermediate bulk containers IBC)
- Large packages
- Portable tanks
- Road tank vehicles

Part 7 - Provisions concerning transport operations:
- Stowage
- Segregation.
- Special provisions in the event of an incident involving dangerous goods
- Temperature control provisions
- Transport of wastes
- Competent authority approval

Training Course Outline

IATA Dangerous Goods Regulations - Refresher

Introduction:

- IATA (International Air Transport Association)
- Who must comply with dangerous goods regulations?
  - Employees who handle, package, or transport hazardous material by air.
- Training (certification) every two years.

Section 1 – Applicability:

- Definition of dangerous goods
- Basis of these regulations
- Application of these regulations
- Shipper's responsibilities
- Operator's responsibilities
- Training requirements
- Dangerous goods security

Section 2 – Limitations

- General
- Forbidden dangerous goods
- Hidden dangerous goods
- Dangerous goods carried by passengers or crew
- Dangerous goods in air mail
- Dangerous goods in operator's property
- Dangerous goods permitted as air cargo
- Dangerous goods in excepted quantities
- Dangerous goods in limited quantities
- State and operator variations

Section 3 – Classification:

- Class 1 - Explosives
- Class 2 – Gases
- Class 3 – Flammable liquids
- Class 4 – Flammable solids
- Class 5 - Oxidizers
- Class 6 – Toxic and infectious substances
- Class 7 – Radioactive material
- Class 8 – Corrosives
- Class 9 – Miscellaneous dangerous substances and articles

Section 4 – Identification:

Section 5 – Packing:

- Packing instructions for each class in Section 3.

Section 6 – Packaging specification and performance tests.

Section 7 – Marking and labeling

Section 8 – Documentation

Section 9 – Handling

Section 10 – Radioactive material

Section I - Closure/Post-Closure Plans and Financial Requirements

I.1 Closure Plan [40 CFR 270.14(b)(13)]

A closure plan for the Bostik facility has been prepared in accordance with the CT DEP Draft guidance as referenced by EPA. The Closure Plan is included as **Attachment I-1**. The proposed schedule for closure is shown in Table **I-1**.

I.2 Post-Closure Plans [40 CFR 270.14(b)(13)]

The industrial boiler (polyester burner unit) and the four hazardous waste fuel storage tanks will be clean closed by removing all hazardous waste and contaminated equipment and structures, as appropriate. Following this RCRA closure, no hazardous waste will be treated, stored, or disposed of in the oil heater or the three hazardous waste fuel storage tanks. Therefore, RCRA post-closure requirements/cost estimates are not applicable to this facility.

I.3 Notices Required for Disposal Facilities [40 CFR 270.14(b)(13)]

Bostik, Inc. does not operate any hazardous waste disposal units at the Middleton, MA facility. Therefore, this section does not apply.

I.4 Closure Cost Estimate [40 CFR 270.14(b)(15); 264.142]

The estimated costs to close the Bostik, Inc. hazardous waste units are found in **Table I-2**. The closure costs are based on third party estimates. RCRA closure activities include inventory removal and disposal off-site, decontamination, disposal of decontamination materials, sampling/analyses of rinseate, chip and wipe samples, and closure certification.

The cost of closure will be updated each year to reflect the effect of inflation or other factors. A copy of the closure cost estimate will be kept on file at the facility until closure is complete.

I.5 Financial Assurance for Closure [40 CFR 270.14(b)(15); 264.143; 264.151]

I.5.1 Closure Trust Fund

Bostik, Inc. is not seeking to establish a closure trust fund as the financial mechanism for closure. Therefore, this section does not apply.

I.5.2 Surety Bond

Bostik, Inc. is not seeking to establish a surety bond as the financial mechanism for closure. Therefore, this section does not apply.

I.5.3 Closure Letter of Credit

Bostik, Inc. has established a closure letter of credit as the financial mechanism for closure. A copy of the letter of credit is enclosed in **Attachment I-2**.

I.5.4 Closure Insurance

Bostik, Inc. is not seeking to obtain closure insurance as the financial mechanism for closure. Therefore, this section does not apply.

I.5.5 Financial Test and Corporate Guarantee for Closure

Bostik, Inc. is not seeking to use the financial test to demonstrate financial assurance for closure. Therefore, this section does not apply.

I.5.6 Use of Multiple Financial Mechanisms

Bostik, Inc. is not seeking the use of multiple financial mechanisms as the financial mechanism for closure. Therefore, this section does not apply.

I.5.7 Use of Multiple Financial Mechanisms for Multiple Facilities

Bostik, Inc. is not seeking the use of multiple financial mechanisms for multiple facilities as the financial mechanism for closure. Therefore, this section does not apply.

I.6 Post-Closure Cost Estimate [40 CFR 270.14(b)(16); 264.144]

The oil heater and four hazardous waste fuel storage tanks will be clean closed by removing all hazardous waste and contaminated equipment and structures, as appropriate. Following this closure, no hazardous waste will be treated, stored, or disposed of in the oil heater or four hazardous waste fuel storage tanks. Therefore, RCRA post-closure requirements/cost estimates are not applicable to this facility.

I.7 Financial Assurance Mechanism for Post-Closure Care [40 CFR 270.14(b)(16); 264.145; 264.151]

The oil heater and four hazardous waste fuel storage tanks will be clean closed by removing all hazardous waste and contaminated equipment and structures, as appropriate. Following this closure, no hazardous waste will be treated, stored, or disposed of in the oil heater or four hazardous waste fuel storage tanks. Therefore, financial assurance for RCRA post-closure care is not applicable to this facility.

I.8 Liability Requirements [40 CFR 270.14(b)(17); 264.147]

I.8.1 Coverage for Sudden Accidental Occurrences

Bostik, Inc. maintains liability coverage for sudden accidental occurrences in the amount of $8 million per occurrence with an annual aggregate of $16 million. A copy of this certificate of liability insurance is provided in **Attachment I-3**.

I.8.2 Coverage for Non-Sudden Accidental Occurrences

Bostik, Inc. does not manage hazardous waste in surface impoundments, landfills, land treatment facilities, or disposal miscellaneous units at the Middleton, MA facility. Therefore, no liability insurance is required for a non-sudden accidental occurrence.

I.8.3 Requests for Variance

Bostik, Inc. is not requesting any type of variance for adjusted level of required liability and therefore this section is not applicable.

I.9 Use of State-Required Mechanisms [40 CFR 270.14(b)(18)]

Bostik, Inc. uses mechanisms as provided for by Federal and State (310 CMR 30.900) regulations.

Table I-1 Closure Schedule

Activity	Day
Notification of Closure to U.S. EPA and MADEP	-45
Receipt of Final Hazardous Waste Volume	0
Complete Removal, Treatment or Disposal of Waste Inventories	90
Complete Decontamination of Equipment and Structures	110
Complete Sampling and Analysis	150
Removal of Equipment and Structures, if Necessary	160
Disposal of Decontamination Water and Materials	180
Certification of Closure Submitted	240

Table I-2 Closure Cost Estimate – Q2 2009

Category / Activity	Amount	Units	Unit Cost	Total Cost
Waste Transportation & Disposal				
Maximum Tank / Piping Inventory	25,826	gallons	$1.38	$35,640
Rinseate Disposal	3,800	gallons	$1.65	$6,270
Transportation of Bulk Shipments	7	shipments	$450	$3,150
Non-Pumpable Sludge Disposal	54	drums	$280	$15,120
Solid Waste (non-hazardous absorbents, PPE, etc.)	25	drums	$425	$10,625
Transportation of Drummed Wastes	1	shipments	$1,100	$1,100
Scrap Steel Disposal - Roll Off Container	10,000	lbs	$0	$500
Roll Off Transportation	1	shipments	$300	$300
Tank Disposal (T-1)	8,800	gallons	$0.05	$440
Tank Disposal (T-2)	8,800	gallons	$0.05	$440
Tank Disposal (T-9)	10,000	gallons	$0.05	$500
Tank Disposal (DT-1)	950	gallons	$0.05	$48
Struthers Wells Boiler Disposal	80,000	pounds	$0.05	$4,000
Tank / Boiler Transportation	6	shipments	$750	$4,500
Concrete Disposal	4	loads	$950	$3,800
Concrete Transportation	4	shipments	$750	$3,000
			Subtotal:	**$89,432**
Decontamination, Sampling & Analysis				
Electrical Contractor[1]	1	--	$12,000	$12,000
Equipment Rental[2]	1	--	$17,000	$17,000
Construction Materials[3]	3	--	$250	$750
Excavator / Hammer Attachment	2	days	$2,650	$5,300
Service Vehicles	60	each	$125	$7,500
PPE, Supplies and Equipment[4]	30	days	$250	$7,500
Confined Space Entry Equipment[5]	4	days	$350	$1,400
Sampling & Analysis[6]	100	samples	$685	$68,500
			Subtotal:	**$119,950**
Project Labor				
Operator Labor	1,550	hours	$60	$93,000
Job Foreman / Supervisor Oversight	410	hours	$65	$26,650
Project Manager	380	hours	$85	$32,300
Prof. Engineer / Licensed Site Professional	17	hours	$125	$2,125
			Subtotal:	**$154,075**
Certification Report Preparation	1	plan	$47,500	$47,500
			Subtotal:	**$47,500**
Project Contingency (10%)				**$41,096**
TOTAL ESTIMATED COST OF CLOSURE (Q2 2008):				**$452,053**
INFLATION FACTOR FOR Q2 2009 to Q2 2008:				**1.0148**
TOTAL ESTIMATED COST OF CLOSURE (Q2 2009):				**$458,743**

(continued)

Table I-2 (continued)
Footnotes:

[1] Electrical contractor includes necessary personnel to disconnect all power sources related to equipment being decontaminated and removed as well as perform required lock out / tag out procedures.

[2] Equipment Rental includes the crane, two-low bed trailers for the tank removal, the excavator for removal of the concrete containment structures, and the truck required for drilling boring holes for sampling.

[3] Construction Materials covers all material required to build decontamination areas.

[4] PPE, Supplies and Equipment daily rate includes the following materials:

Equipment	**Quantity**
Blue Tyvek Suits	6
Nitrile Gloves	1
Black PVC Gloves	6
Rolls of Duct Tape	3
Poly Sheeting	1
Level C PPE	6
Chicken Boots (Pairs)	6
4-Gas Meter	1

[5] Confined Space Entry Equipment daily rate includes the following materials:

Equipment	**Quantity**
Harness	2
Tripod/Retrieval Unit	2
SCBA	1
Explosion-proof Blower	1
Rope (Feet)	100

[6] Sampling and Analysis includes the sampling equipment, the sample containers and the analysis of each sample.

Analysis to be performed on each sample:

Tetrahydrofuran	SW-846 Method 8260B
Toluene	SW-846 Method 8260B
Xylenes	SW-846 Method 8260B
Methyl Ethyl Ketone	SW-846 Method 8260B
Methanol	ASTM Method D 3695
Ethyl acetate	ASTM Method E 202

ATTACHMENT I-1

CLOSURE PLAN FOR THE BOSTIK FACILITY

CLOSURE PLAN

BOSTIK INC.
MIDDLETON, MA 01949

EPA ID# 001 039 767

FEBRUARY 2010
REVISION 6

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PART 1

FACILITY INFORMATION & SITE CHARACTERIZATION WORK PLAN

1.0 FACILITY INFORMATION

1.1 Introduction

This closure plan has been designed to comply with the closure requirements of Subpart G (40 CFR Part 264.110 through 264.120), and the closure requirements under 40 CFR Part 264.197 (Closure of Tank Systems) and 40 CFR Part 266.102 (Hazardous Waste Burned in Boilers and Industrial Furnaces).

This facility is currently in full operation and is not requesting closure at this time. This plan is written to ensure that any future closure activities will be conducted according to the above mentioned regulations and to ensure that proper financial assurances are in place so that the United States Environmental Protection Agency (U.S. EPA) may obtain the appropriate funds should Bostik close at some point in the future.

There are currently no enforcement actions requiring any closure activities at the Bostik facility. The maximum extent of operations that will be active during the life of the facility consists of the maximum waste inventory of the four hazardous waste fuel storage tanks and the hazardous waste combustor as described in Sections 1.4 and 1.5.

This closure plan has been developed to accommodate full RCRA closure of the hazardous waste management units but will also be implemented in the event one or more of the units are RCRA-closed while the other units remain in service (i.e., a partial closure).

1.2 Facility Description

Bostik, Inc. is an international manufacturer of industrial grade adhesives and sealants. Approximately 200 people are employed at the Middleton facility in administration, research and development, and manufacturing areas. Industrial grade adhesives manufactured at the facility include solid polyester and polyamide hot melt resins, polyurethane adhesives, solvent and water-based liquid adhesives, web adhesives and film adhesives.

Polyester, Polyamide, and Polyurethane adhesive resins are manufactured in polymerization reactions, which occur when diacids react with glycols (polyesters), fatty acids react with amines (polyamides), or isocyanates react with polyols (polyurethanes). The polymerization reactions occur in the Polyester, Polyamide, Polyurethane, and Direct Solvation departments (Buildings 36, 39, 37, and 9, respectively).

Liquid adhesives are manufactured in mixing vessels (churns) by dissolving rubber and polyester based polymers in organic solvents. This liquids-manufacturing process occurs in the Churn Room, Direct Solvation, and Polyurethane departments (Buildings 24, 9 and 37, respectively). Film Adhesives are made by coating the liquid adhesives onto various substrates. The coated substrates then pass though a flotation oven where the solvent is driven off to a Regenerative Thermal Oxidizer. A dry adhesive film is left behind on the substrate which is then wound and shipped in rolls. Film manufacturing occurs in Building 23.

Web Adhesives are manufactured by extruding polyester or polyamide resin onto a belt or around a ring die to create a non-woven web material. This web material is then cut to customer specific widths, wound, and shipped as rolls.

Research and Development (R&D) occurs in the R&D department (Building 29) and Pilot Plant (Building 30). Quality Control and Analytical Services are also located in Building 29.

Shipping and receiving operate from three locations at the facility. Solvent based raw materials and products are received and shipped from Building 26. Non-flammable raw materials and products are received and shipped from Buildings 40 and 41.

The historical use of the site, including property transfers, can be summarized as follows:

- In 1674, John Phelps started a sawmill.
- In 1685, John McCarty and John Buxton started a "fulling" mill" for cleaning and finishing wool cloth.
- In 1709, Ezekial Upton established a grist mill.
- In 1832, Col. Francis Peabody bought property and built a paper mill and a few years later added a building to produce linseed oil.
- In 1843, Zenas and Luther Crane bought property and manufactured fine quality paper.
- In 1885, Edward Hickey acquired property and operated a wallpaper business until 1908.
- Between 1908 and 1920, the property was used as a leather finishing factory.
- In the 1920's, it became a dyeing establishment.
- Since 1928, it has been known successively as the Boston Blacking Co (shoe blacking), The B B Chemical Co, and Bostik Inc.
- USM purchased Bostik in 1929
- Emhart purchased Bostik Division in 1975
- Black & Decker purchased Bostik Division in 1989
- Orkem purchased Bostik, Inc. in 1990. Portion of Orkem containing Bostik became TOTAL Chemical (present owner of Bostik, Inc.)
- Bostik, Inc. merged with Findley, Inc. to become Bostik Findley in 2001
- Reverted name back to Bostik, Inc. in 2004

The facility is a large quantity generator of hazardous waste. All drummed wastes from off-spec adhesives and satellite accumulation areas are transferred off-site for disposal at approved and licensed waste disposal facilities. A liquid waste stream generated from the polyester reaction process is stored in bulk and combusted in a Struthers-Wells Polyester Burner unit under the Hazardous Waste Combustor (HWC) MACT (40 CFR Part 63, Subpart EEE) regulations. Hazardous and non-hazardous wastes are generated from all processes and can be summarized as follows:

<u>Churn Room Department</u>
Solvent based adhesives are manufactured in this process at the facility. Wastes generated from this process are accumulated in a satellite accumulation area (SAA) located in Building 24 before being transferred to the Main Accumulation Area (MAA) located in Building 13. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Off-spec Products	55 gal. drum	Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Solids (filtration, absorbents)	55 gal. drum	Bldg 24 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. drum	Bldg 24 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Curing Agents	55 gal. drum	Bldg 24 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF

Direct Solvation Department (3 locations)

Polyester resins and solvent based adhesives are manufactured in this process at the facility. Drummed wastes generated from this process are accumulated in a satellite area located in Building 9 before being transferred to the Main Accumulation Area located in Building 13. Bulk waste is stored in an aboveground storage tank (T-9). Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Off-spec Products	55 gal. drum	Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Solids (filtration, absorbents)	55 gal. drum	Bldg 9 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. drum	Bldg 9 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Vessel Cleanouts (non-hazardous)	55 gal. drum	Bldg 9 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. drum	Bldg 9 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Polyester Distillate	10,000 gal AST	Adjacent to Bldg 9 (T-9)	Industrial Boiler

Building 20 Direct Solvation Extension

Solvent based adhesives are manufactured in this process at the facility. Drummed wastes generated from this process are accumulated in a satellite area located in Building 20 before being transferred to the Main Accumulation Area located in Building 13. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Solvent Adhesive Liquids	55 gal. drum	Bldg 20 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF

Banbury Department

Rubbers and other inorganic raw materials are milled in this process at the facility for use in the Churn Room to manufacture rubber based solvent adhesives. Wastes generated from this process are accumulated in a satellite area located in Building 9 before being transferred to the Main Accumulation Area located in Building 13. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Waste Oil Solids (absorbents)	55 gal. drum	Bldg 9 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. drum	Bldg 9 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF

Polyester and Polyamide Department (3 locations)

Polyester and Polyamide resins are manufactured in this process at the facility. Drummed wastes generated from this process are accumulated in a satellite area located in Building 36 before being transferred to the Main Accumulation Area located in Building 13. Bulk wastes are stored in three bulk aboveground storage tanks (T-1, T-2 and DT-1). Off-specification resins are stored in roll-offs. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Off-specification Resins (non-hazardous)	Bulk Bags	Resin Roll-offs	Off-Site Transfer to Licensed TSDF
Waste Oil Solids (absorbents)	55 gal. drum	Bldg 36 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. drum	Bldg 36 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. drum	Bldg 36 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Polyester Distillate	2- 8,800 gal AST's	Adjacent to Bldg 39 (T-1/2)	Industrial Boiler
Polyester Distillate	950 gal AST	Adjacent to Bldg 39 (DT-1)	Industrial Boiler
Polyester Distillate Solids	55 gal. drum	Bldg 36 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Polyamide Distillate (non-hazardous)	10,000 gal AST	Bldg 42	Off-Site Transfer to Licensed TSDF

Pump House – Building 27

Polyester distillate is pumped from T-1 and T-2 to the Struthers-Wells Burner unit in this building at the facility. Drummed wastes generated from this process are accumulated in a satellite area located in Building 27 before being transferred to the Main Accumulation Area located in Building 13. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Polyester Distillate Solids	55 gal. drum	Bldg 27 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF

Film Department (2 locations)
Solvent-based adhesives are coated in this process at the facility. Drummed wastes generated from this process are accumulated in a satellite area located in Building 23 before being transferred to the Main Accumulation Area located in Building 13. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Solvent Adhesive Liquids	55 gal. drum	Bldg 23 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF

Polyurethane Department
Solvent free Polyurethanes and solvent based adhesives are manufactured in this process at the facility. Drummed wastes generated from this process are accumulated in a satellite area located in Building 37 before being transferred to the Main Accumulation Area located in Building 13. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Off-specification Products	55 gal. drum	Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Solids (filtration, absorbents)	55 gal. drum	Bldg 37 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. drum	Bldg 37 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Vessel Cleanouts	55 gal. drum	Bldg 37 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. drum	Bldg 37 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Curing Agent	55 gal. drum	Bldg 37 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF

Rod Cement Department
Solid Polyester and Polyamide resins are extruded in this process at the facility. Drummed wastes generated from this process are accumulated in a satellite area located in Building 35 before being transferred to the Main Accumulation Area located in Building 13. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Off-specification Products (non-hazardous)	Bulk Bags	Resin Roll-offs	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. drum	Bldg 35 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil Solids (absorbents)	55 gal. drum	Bldg 35 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF

<u>Research & Development Lab/Pilot Plant (2 locations)</u>
Various product development and product scale-up activities to support the plant are conducted in this process at the facility. Quality Control and Analytical Lab activities are also conducted in this location. Drummed wastes generated from this process are accumulated in satellite areas located in Building 29 before being transferred to the Lab Main Accumulation Area located in Building 30. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Solvent Adhesive Solids (filtration, absorbents)	55 gal. drum	Bldg 29 SAA/Bldg 30 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. drum	Bldg 29 SAA/Bldg 30 MAA	Off-Site Transfer to Licensed TSDF
Polyester Distillate	55 gal. drum	Bldg 29 SAA/Bldg 30 MAA	Off-Site Transfer to Licensed TSDF
Polyamide Distillate (non-hazardous)	55 gal. drum	Bldg 29 SAA/Bldg 30 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. drum	Bldg 29 SAA/Bldg 30 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil Solids (absorbents)	55 gal. drum	Bldg 29 SAA/Bldg 30 MAA	Off-Site Transfer to Licensed TSDF
Waste Curing Agent	55 gal. drum	Bldg 29 SAA/Bldg 30 MAA	Off-Site Transfer to Licensed TSDF

<u>Maintenance Department</u>
Various maintenance activities are conducted at the facility. Drummed wastes generated from these processes are accumulated in a satellite area located in Building 38 before being transferred to the Main Accumulation Area located in Building 13. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Waste Oil	55 gal. drum	Bldg 35 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil Solids (absorbents)	55 gal. drum	Bldg 35 SAA/Bldg 13 MAA	Off-Site Transfer to Licensed TSDF

A topographical map identifying each hazardous waste management unit is provided in Section B of this permit application.

1.3 Environmental Setting

Surface Topography

The southeastern portion of the site bordering Boston Street is the highest elevation portion of the site. From Boston Street, the site slopes downward to the north and northwest. The remainder of the site is generally flat. The surface topography of the site is shown on the Site Drainage Plan.

Geologic and Hydrogeologic Setting

The subsurface conditions at the site generally consist of granular fill overlying an alluvial deposit of silty fine sand and sandy silt. Underlying the fill and alluvial sand and silt, is a stratum of glacial till, which is dense, silty, widely graded sand and gravel with cobbles and boulders. The glacial till overlies granite and granodiorite bedrock. The depth to bedrock ranges from 19 to 44 feet.

The site is located within the Ipswich River Drainage Basin. The Ipswich River flows northeasterly from the town of Burlington past Bostik to eventually discharge into Plum Island Sound. Local groundwater flow is to the north toward the Ipswich River. Depth to groundwater at the site ranges from 3 to 10 feet below ground surface. Assuming a hydraulic conductivity of 0.3 to 30 ft/day, a porosity of 0.25 to 0.50, and an average hydraulic gradient of 0.01 feet/foot, the rate of groundwater flow is estimated to range from 3 to 450 feet/year. All groundwater at the site is classified by the MA DEP under the Massachusetts Contingency Plan (MCP) as GW3, however, category GW2 is also applicable where the depth to groundwater is less than 15 feet or within 30 feet of a building.

Surface water bodies on the site consist of two ponds, a stream, and a small canal. The Upper Pond drains to the Lower Pond, which drains into the stream. The stream flows north to the Ipswich River. The canal, which is located on the north side of Building 1, parallel to the Ipswich River, flows east through a culvert to join the Ipswich River on the eastern side of Boston Street.

Storm Water Runoff

Bostik operates under a Multi-Sector General Stormwater Discharge permit. Storm water runoff at the site is channeled into five outfalls. Cooling water from manufacturing processes does not discharge into the outfalls as it is contained in closed loop cooling towers. The Site Drainage Plan (provided in Section B of this permit application), details surface water flow from paved areas, catch basins, outfalls, and surface water bodies.

The five outfall stations include:

Outfall	Location	Discharge
1	Upper Pond, west of Solvent Tank Farm	Receives rainwater from Solvent Tank Farm containment berm
2	Upper Pond, north of Bldg 30	Receives storm water runoff from Bldgs 29 and 30 roads and parking lot
3	Stream, west of Bldg 35	Receives storm water runoff from road and paved area between Bldgs 34, 35, 41, and 42
4	Stream, northwest of Bldg 36	Receives storm water from catch basins 1, 2, 3, 4 and 5
5	Lower (eastern) canal	Receives storm water from catch basins 7, 8, and 9, and paved area to Boston Street

Sensitive Receptors

Other than on-site workers, the closest human receptors are located in residences across the Ipswich River to the north. No institutions such as hospitals or schools are located within 500 feet of the Site. The closest sensitive receptor is the Burke School, located on Birch Street in Peabody, approximately a half-mile southeast and upgradient from the Bostik facility.

Potential receptors are described in the following table:

Receptor Distance from Site	Receptor Description
North of the Site	
Abutting	Ipswich River, and associated flora and fauna.
Across Ipswich River	Residential areas on River St. use private wells for water supply (River St. wells are bedrock wells 250-450 feet deep, minimum 3 gallons per minute).
0.2 mile	Town of North Reading water supply network (wells).
East of the Site	
Across Boston Road	Residential area, along Russell St.
East of Site	City of Peabody water distribution system, extends to intersection of Boston and Russell Streets.

Southeast of the Site	
Abutting	Boston Street, a 2-lane paved highway
Abutting	Undeveloped land (contains woodlands and an abandoned gravel pit), 12-acre parcel, owned by Bostik Findley, Inc.
South of the Site	
0.5 mile	Residential area, along Main St. in Lynnfield, use private wells for water supply (hydrologically upgradient).
Southwest of the Site	
General area, 0.2 miles	Residential area, along Main St. (Lynnfield name for Boston St.)
0.8 mile	Town of Lynnfield water supply Pumping Station, 500,000 gpd capacity (hydrologically upgradient).
300 feet	Zone 2 DEP Wellhead Protection Area.
West of the Site	
500 feet	Zone 2 DEP Wellhead Protection Area.
Abutting	Undeveloped land, owned by town of Lynnfield.
Down River (Ipswich River)	
1.8 miles	Town of Danvers water supply Pumping Station, 300,000 gpd capacity, used on restricted basis.
2.5 miles	City of Peabody water supply Pumping Stations (2 production wells).
1.5 miles	City of Peabody public water supply intake (Ipswich River surface water intake).

1.4 Description of Regulated Units

Since 1988, prior to the promulgation of the boiler and industrial furnace (BIF) regulations, Bostik operated a Struthers-Wells oil heater under a MA DEP recycling permit for Class B(2) facilities. From 1988 through July of 2000, Bostik co-fired a hazardous waste byproduct from the polyester reaction process (i.e. polyester distillate) with No. 2 fuel oil. This process heats a hot oil loop that heats the polyester reactor vessels and also feeds a steam generator. Since July of 2000, the hazardous waste has been co-fired with natural gas. The oil heater is equipped with containment in the form of impervious concrete flooring and diking, which has been in place since the oil heater was put into operation. Prior to being burned for energy recovery, polyester distillate is stored in four above-ground storage tanks: a 10,000 gallon tank (T-9) for storage of distillate generated by the Direct Solvation department; a 950 gallon day tank (DT-1) for temporary storage of distillate generated by the Polyester Department, and, two 8,000 gallon tanks (T-1 and T-2) for storage of the combined distillate mixture. Each of these tanks is equipped with secondary containment structures in the form of impervious concrete flooring and diking, which has been in place since these tanks were put into operation. The key information relating to each regulated unit is described in the following table:

Regulated Unit	Tank Dimensions	Tank Maximum Inventory (gal)	Tank Install Date	Tank Materials of Construction	Secondary Containment Dimensions	Secondary Containment Materials of Construction
T-1	14' x 10' od	8,000	2008	¼ " MCS	30' x 16'x 3.75' 10" thick	Concrete Dike
T-2	14' x 10' od	8,000	2008	¼ " MCS	30' x 16'x 3.75' 10" thick	Concrete Dike
T-9	18' x 10' od	10,000	1987	3/16" 304 SS	30"x15'x3.5' 10" thick	Concrete Dike
DT-1	7.4' x 5' od	950	2000	¼" CS	11.7'x11.2'x1.5' 8.25" thick	Concrete Dike
S-W Burner	NA	NA		CS	22.5'x14'x10" 6" thick	Concrete Dike

Each concrete dike is coated with an epoxy coating that was applied at the date of installation or replacement. The T-9, DT-1, and polyester burner containment structures were re-coated in April/May of 2007.

<u>Ancillary Equipment</u>
Stainless steel piping delivers the hazardous waste generated by the Direct Solvation reactors (Bldg 9) to T-9. T-9 is equipped with a pressure relief device (conservation vent) to prevent pressure buildup during the introduction of process vapors and liquids. Released vapors are directed to the main vapor header. T-9 is equipped with level measurement instrumentation (including high level alarm) that relates the tank level to operators at their process control screen. Waste in T-9 is periodically pumped to T-1 and T-2 via a stainless steel pipeline. All piping described is located either within a building or over a containment structure.

Stainless steel piping delivers the hazardous waste generated by the Polyester reactors (Bldg 36) to four knockout pots which in turn discharge to DT-1. DT-1 is equipped with a pressure relief device (conservation vent) to prevent pressure buildup during the introduction of process vapors and liquids. Released vapors are directed to the main vapor header. DT-1 is equipped with level measurement instrumentation that automatically pumps (via carbon steel piping) the contents to T-1 or T-2. All piping described is located within containment structures.

Hazardous waste is pumped from T-1 and T-2 through carbon steel piping to the Struthers-Wells Burner unit by pumps located in Bldg 27. T-1 and T-2 are equipped with conservation vents to prevent pressure buildup during the introduction of process vapors and liquids. Released vapors are directed to the main vapor header. T-1 and T-2 are equipped with level measurement instrumentation (including high level alarms) that relates the tank level to operators at their process control screen. Numerous valves and filter housings are located in Bldg 27 and at the Struthers-Wells Burner unit to control flow and clean out lines. All piping described is located either within buildings or within containment structures with the exception of a 10 foot section between Bldg 36 and the Struthers-Wells burner.

In total, there is roughly 1,086 linear feet of piping associated with transporting polyester distillate to the regulated tanks and the combustor. This total can be broken down as follows:

Pipe Construction	Pipe Diameter	Length
Stainless Steel	2”	797 ft.
Carbon Steel	1.5”	38 ft.
Carbon Steel	1”	212.5 ft.
Carbon Steel	0.75”	38.5 ft.

The referenced hazardous waste management units are depicted on the site plan provided as Figure G-1 of the RCRA Part B Permit. At this time, Bostik is not anticipating complete closure in the near future. Bostik has conducted a partial closure of T-1 and T-2 as a result of a failed RCRA tank inspection. This partial closure involved the removal and replacement of these tanks in 2008. The site is currently in full operation with no plans for site closure. This closure plan has been designed to provide funding for an unforeseen closure at some point in the future. Bostik further anticipates RCRA closure by removal, or "clean closure", for the four hazardous waste fuel storage tanks, the polyester burner, and ancillary equipment from the hazardous waste fuel storage tanks to the oil heater. Once RCRA clean closure is verified, the oil heater may continue to be used for burning virgin natural gas.

Tank Maintenance/Repair History

T-9, T-1, and T-2 have not had any instances requiring maintenance or repair. The existing DT-1 is a replacement for the original day tank. This tank was installed in 2000. Tanks T-1 and T-2 were replaced in 2008 following poor results of a RCRA tank inspection conducted in 2007.

Spill History

In 1979 and again in 1984, polyester distillate was released to the environment in the area of the existing Struthers-Wells unit. These releases were caused by a failure in the pumping system and resulted in soil and groundwater contamination in the area. These releases were documented with the MA DEP and extensive excavation and removal efforts followed. Follow-up investigation by Bostik’s LSP (GEI Consultants) as part of Phase II of the overall site cleanup program determined that no further action was required. There have been no documented releases of hazardous waste associated with the regulated units since that time. The 2007 RCRA tank inspection that resulted in the need to replace T-1 and T-2 did not indicate that there had been any prior release of material.

1.5 Part A Status

Bostik’s Part A Application references only the portion of the property that involves the storage and on-site destruction of the polyester distillate waste by-product. This includes the Struthers-Wells polyester burner unit, two (2) 8,000 gallon above ground storage tanks, one (1) 950 gallon day tank, and one (1) 10,000 gallon above ground storage tank. The Part A Application does not reference any of the Satellite Hazardous Waste Accumulation areas or either of the Main Accumulation Areas.

A copy of the Part A Application is included as Section A of the RCRA Part B Permit Application.

1.6 Other Sources of Contamination

There are no other known sources of contamination that could potentially impact the characterization of potential future releases from the regulated units.

2.0 SITE CHARACTERIZATION WORK PLAN

2.1 Constituents of Concern (COCs)

COCs for the regulated units have been determined through extensive waste analysis records at the facility, as well as through profiling through licensed off-site hazardous waste disposal facilities. The specific COCs are discussed below. There are no virgin materials associated with this regulated unit and no other wastes generated at the facility are disposed of in this unit. There are no non-hazardous constituents present in the regulated unit at concentrations that could pose a risk to human health and the environment.

The polyester distillate waste stream is comprised of water and the following primary COCs:

Tetrahydrofuran	Methyl ethyl ketone
Xylene	Toluene
Methanol	Ethyl acetate

Although mostly water, this wastestream is considered hazardous due to ignitability and the presence of toluene and methyl ethyl ketone (D001, F003, F005, D018, D035). Wash solvent containing Methyl ethyl ketone and/or Toluene may also be transferred to the waste tanks when these washes cannot be reused in the processing of solvent based adhesives. Since this waste stream varies only slightly due to the production of a variety of polyester polymers, Bostik has created a generic MSDS sheet for the polyester distillate.

2.2 Potential Human Exposure Pathways

The following is a discussion of potential human health exposure pathways following closure activities at the regulated units:

<u>Ingestion of Soils/Structures</u>
The exposure of on-site workers to soil is a potential exposure pathway and soil will be evaluated if needed as discussed in Section 2.4. However, since clean closure is expected and it is anticipated that industrial activities will continue beyond the closure of regulated units, it is not anticipated that direct ingestion of contaminated soil or structures is a likely potential exposure pathway. In

addition, if necessary, following the completion of site remediation activities at the site, an Activity and Use Limitation will be incorporated into the property deed to ensure that the site will not be used for non-industrial activities in the future, which will limit potential exposure to humans.

Ingestion of Groundwater Contaminated Water

The groundwater on site is not used for drinking water and the site obtains all drinking water from the City of Peabody. There are no drinking water wells are located on the site it is 0.2 miles to the nearest off-site drinking water well. Where the groundwater depth is less than 15 feet there is a potential for direct exposure to construction workers and groundwater will be evaluated if needed as discussed in Section 2.4 below. However, since clean closure is expected and it is anticipated that industrial activities will continue beyond the closure of regulated units, it is not anticipated that direct ingestion of contaminated groundwater is a likely potential exposure pathway. Following the completion of site remediation activities at the site, if necessary, an Activity and Use Limitation will be incorporated into the property deed to ensure that the site will not be used to limit future site use to industrial-commercial activities in the future.

Inhalation of Indoor Air

Since the COCs at the site are VOCs, the potential for exposure of on-site workers to vapors in indoor air is considered a potential exposure pathway. However, since clean closure is expected and it is anticipated that industrial activities will continue beyond the closure of regulated units, it is not anticipated that inhalation of indoor air is a likely potential exposure pathway. If, during closure activities, subsurface soil contamination was discovered, indoor air inhalation would be evaluated as a potential pathway using the Worst Case Air Concentrations found in Attachment B of the State of Connecticut's Draft RCRA Closure Plan Guidance for Treatment, Storage, and Disposal Facilities, Container Storage Areas, and Tank Systems Guidance Document.

2.3 Identify Presence/Absence of Contamination Requiring Remediation

Regulated unit structures and soils will be assessed to determine whether contamination has been released by the regulated unit and requires remediation using the following steps:

- Collect chip samples from each containment structure. A statistically representative number of samples will be chosen randomly and judgmentally.
- Compare results to Media Closure Criteria (MCCs). Because future site activity is to be limited to industrial / commercial use and children are assumed not to be present, MCCs for this Plan will be based on the lower of MCP Method 1 S-2/GW-1 or S-2/GW-2 soil clean-up standards that are provided in 310 CMR 40.0000. Where no MCP Method 1 clean up standard exists, standards will be generated using MCP Method 2 per 310 CMR 40.0000. If greater than the MCC's, proceed to determining the extent of contamination described in the next section.
- Conduct structural integrity assessment of diked areas. The assessment will be conducted after a dry sweep of the diked areas but prior to full decontamination.
- Sample soil beneath cracks, joints, gaps, and/or deteriorating concrete areas or by coring through the containment structure or through the pavement adjacent to the containment structure. Samples will be collected by extending a sample boring to the mean seasonal

low groundwater level. Soil samples shall be taken at each soil horizon. and compared to MCCs.

- If sample results are greater than the MCCs, proceed to determining the extent of contamination described in the next section. If sample results are not greater than the MCCs, conclude that no releases by the regulated units have occurred and contamination requiring remediation is not present. This assessment will ensure that surface coatings have not concealed any structural defects.
- Boreholes will then be re-grouted before proceeding with further decontamination and closure.

2.4 Determining Extent of Contamination in Structure and Soils

Since clean closure is expected, it is not anticipated that contamination in soils would be found. If during closure activities, soil contamination is discovered, Bostik will develop a work plan for determining the three-dimensional extent of contamination using the following guideline:

- Establish an estimated perimeter or extent of contamination.
- Select a statistically representative number of samples outside an estimated perimeter.
- Sample and analyze the soils at the estimated perimeter.
- Sample borings should extend to the mean seasonal low groundwater level.
    - Samples should be taken at each soil horizon.
    - Each sample should be tested for the constituents of concern noted.
    - Final samples will be analyzed for both mass and TCLP.
    - Samples will be discrete with no compositing.
    - When sampling for organics in soil, samples will be taken from 6 inches below the surface to avoid bias due to volatilization.
- All site characteristic sampling will be conducted prior to decontamination or removal of containment structures.
- Compare each discrete sample result with the appropriate MCCs.
- If any sample result is in excess of the MCC, then move outward and/or deeper and resample.

The extent of the area requiring remediation is defined by the outermost or deepest set of sample results that contain constituents of concern at concentration levels at or below established MCCs. Structures and soils requiring remediation are those that lie within this sampling perimeter.

PART 2

RESULTS OF SITE CHARACTERIZATION PROGRAM & PROPOSED CLOSURE APPROACH

3.0 SITE CHARACTERIZATION SAMPLING AND ANALYSIS RESULTS

Since the site is currently in operation with no plan for complete closure in the near future, this section will be left blank until such time as sampling activities take place. In the final report, this section will include all site characterization sampling and analytical results including summary tables, laboratory reports, and chain of custody documentation.

All samples will be submitted to an approved laboratory and analyzed using EPA Method 8260B and ASTM Methods D 3695 and E 202 for the following primary constituents of the waste:

Tetrahydrofuran	Methyl ethyl ketone
Xylene	Toluene
Methanol	Ethyl acetate

Analytical detection limits will be provided for all results presented and all data will be expressed in the following units:

Inorganics		Organics	
Mass analysis of soil	mg/kg	Mass analysis of soil	mg/kg
Analysis of soil leachate	mg/L	Analysis of soil leachate	mg/L
Air	$\mu g/m^3$	Air	$\mu g/m^3$

4.0 PROPOSED CLOSURE APPROACH

4.1 Partial Closure

Partial closure of the unit may be necessary in situations where one or more of the individual components of the RCRA regulated unit must be replaced, but operation of the facility and the RCRA unit are desired to continue. In any instance of future partial closure, procedures outlined in this Plan will be followed. The paragraphs below outline the steps taken to partially close tanks T-1 and T-2.

Bostik requested and received approval for partial closure of the two bulk tanks identified as T-1 and T-2. This request was the result of a RCRA Tank Assessment conducted in late 2007. The RCRA tank assessment was conducted in response to EPA comments on Bostik's December 2006 Part B permit application. This internal tank assessment indicated that tank T-2 was not fit for continued use and that tank T-1 was compromised due to microbial induced corrosion of the interior of the tank bottom. It should be noted that neither of these tanks had exhibited any external signs of corrosion and were not in jeopardy of failure prior to removal. Since tanks T-9 and DT-1 passed the assessment and the polyester burner and associated piping remain in good working order, Bostik proposed to conduct a partial closure of the regulated unit by removal and replacement of the bulk storage tanks identified as T-1 and T-2. Two new tanks (also designated as T-1 and T-2) with capacities of 8,000 gallons each were installed in the exact location of the previous tanks. Following EPA approval of the partial closure plan, Tanks T-1 and T-2 were cleaned and removed using the procedures identified in Section 7.0. The basics steps implemented during the partial closure were as follows:

- Lower tank levels, to the extent practical, by burning in the polyester burner unit
- Remove residual liquid/sludge from tanks T-1 and T-2
- Blow residual distillate from pipes back to T-1 and T-2
- Disconnect piping from tanks
- Clean Tanks
- Remove tank rinseate
- Collect/analyze wipe samples to ensure tanks are clean
- Clean/remove rinseate/resample further if necessary
- Remove/recycle empty tanks
- Dispose of all hazardous waste at approved waste disposal facility.

Since DT-1, T-9, and the Struthers Wells burner unit remained in operation, no partial closure activities were planned for this equipment. Since the existing shared T-1/T-2 containment structure was to be used for the new tanks, no chip samples were proposed as part of this partial closure so as not to jeopardize the integrity of the containment structure. A soil boring was extended through the pavement immediately adjacent to the west wall of the T-1/T-2 containment area. The soil was analyzed according to procedures outlined in Section 2.3. No cracks were observed in the containment structure and the soil boring tests indicated that the subsurface soils had not been impacted. Bostik notified EPA of the results of this sampling so that decisions could be made regarding the next steps.

The plans and specifications for the replacement tanks as well as any revisions to the associated management plans (e.g., inspection plan, training plan, closure plan, contingency plan, etc.) were submitted as an update/revision to the permit application. Delivery and installation of the replacement tanks was completed between April and October 2008.

All expenses associated with this partial closure were paid directly by Bostik and not through any letter of credit or insurance agreement.

4.2 Clean Closure

Clean Closure will be proposed if:

- Surrounding and underlying soil has not been impacted by releases from the regulated unit, or,
- Surrounding and underlying soil that has been impacted can be removed or decontaminated within the 180-day closure period.

At this time, Bostik anticipates RCRA closure of these units will be accomplished by removal of all hazardous waste and waste residue so as to attain RCRA "clean closure." RCRA closure of the hazardous waste fuel tanks is designed to minimize the need for maintenance and eliminate the post-closure escape of hazardous waste to the extent necessary to protect human health and the environment. This standard will be achieved by disposal of all tank wastes by on-site combustion in the S-W burner unit, if possible, or otherwise by off-site disposal at a permitted facility. Decontamination procedures will be carried out once the hazardous waste inventory has been removed. Decontamination will include cleaning the interior of each tank, its associated piping/metering equipment and containment area, as described in Section 7.0.

4.3 Landfill Closure

Landfill Closure will be proposed if:

- Surrounding and underlying soil has been impacted by releases from the regulated unit and Bostik determines that removal and/or decontamination of the soil is not feasible.
- If soil is contaminated down to the seasonal low groundwater elevation then it is likely that groundwater has been impacted.

Bostik does not anticipate that this level of closure will be required for the regulated units.

5.0 DEPARTURES FROM SITE CHARACTERIZATION WORK PLAN

Any departures from this site characterization program during actual closure will be documented and submitted to EPA Region 1 as part of the closure certification report.

PART 3

RESULTS OF SITE CHARACTERIZATION PROGRAM & PROPOSED CLOSURE APPROACH

6.0 CLOSURE PERFORMANCE STANDARD

Bostik will close the facility in a manner that:

a. Minimizes the need for further maintenance, and
b. Controls minimizes or eliminates, to the extent necessary to protect human health and the environment, post-closure escape of hazardous waste, hazardous waste constituents, leachate, contaminated run-off, or hazardous waste decomposition products to the ground or surface waters or to the atmosphere, and
c. Complies with the closure requirements of this subpart, including, but not limited to, the requirements of 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.381, 264.404, and 264.1102.

7.0 REMOVAL/DISPOSAL/DECONTAMINATION OF WASTE, EQUIPMENT, STRUCTURES, AND SOIL

7.1 Removal of Hazardous Waste Inventory

It is anticipated that, prior to closure and decontamination of the each of the four hazardous waste fuel storage tanks, any waste distillate remaining in each tank will be pumped to the S-W burner unit and co-fired with natural gas. If burning of the waste fuel is not possible due to inoperability of the combustor, the contents of each tank will be removed and disposed off-site at a licensed Treatment Storage and Disposal facility (TSDF).

For the purpose of creating a worst-case cost scenario for this closure plan, it will be assumed that the entire contents of all four tanks will be disposed of off-site.

T-1	8,000 gallons
T-2	8,000 gallons
T-9	10,000 gallons
DT-1	950 gallons
Transfer Pipes	145 gallons
Total	27,095 gallons

Of this total, it will be assumed that 90% or 24,386 gallons of the tank contents will be disposed of as bulk liquid waste and 10 % or 2,710 gallons (approximately 50 drums) of the tank contents will be disposed of as drummed non-pumpable sludge. All liquid waste will be transported by tank truck for disposal at a licensed TSDF. All non-pumpable sludge waste will be transferred into drums and transported for disposal at a licensed TSDF.

Prior to beginning any decontamination procedures, any cracks or borings identified in the containment structure during the characterization phase will be sealed to prevent residues from being released to the subsurface soils.

The basic steps can be summarized as follows:

- Mobilize a 5,000 gallon vacuum tanker and driver to the site.
- Set up a safe and secure work area including a decontamination area.
- Remove the cover from the top of the tank.
- Secure the proper grounding equipment to the tanker.
- Place the vacuum hose in the tank and begin removing hazardous waste (4,800 gallons per load until empty).
- Residual sludge material from each tank will be pumped into 55-gallon drums.
- Transport and dispose of the waste to an approved facility.

7.2 Decontamination/Removal of Tanks, Associated Piping and Ancillary Equipment

The basic steps for decontamination of the tanks and associated piping by a third party contractor can be summarized as follows:

- Erect a polyethylene curtain around each tank contiguous with the inside of the containment structures.
- Using an air compressor, blow the distillate transfer piping back to the bulk tanks.
- Using a mild water and detergent solution, flush the piping back to the bulk tanks.
- Using an air compressor, blow the distillate transfer pipes back to tanks again.
- Using pipe cutters, remove piping in manageable sections and place in DOT-approved drums for offsite hazardous waste disposal.
- Remove the side manway from the tank.
- Wash down the interior of the tank with a solution of hot water (approximately 120°F) and a mild detergent, from outside the tank.
- Remove the decontamination rinseate from the tank using a vacuum tanker.
- Rinse each tank with water three times.
- Collect a rinseate sample to determine the effectiveness of decontamination.
- Enter tanks following confined space entry protocols.
- Wipe the interior of the tank dry using rags, placing rags in a DOT approved drum.
- Perform wipe sampling on the top, sidewalls, and floor of the interior of the tank.
- If wipe samples show contamination, repeat decontamination and wipe sampling steps.
- If wipe samples show no contamination, the tanks are ready for off-site disposal.
- Transport and dispose of rinseate and rag wastes at an approved facility.

The rinseate and wipe samples will be analyzed for the COCs presented in Section 2.1. The criteria for successful decontamination of each tank will be a non-detectable level of the parameters analyzed in water and on the wipe sample.

Once the tanks and associated piping have been appropriately cleaned, they can be removed and disposed off-site at an approved facility. The removal of tanks T-1 and T-2 will also require the removal of the catwalk that is above and connected to the top of both tanks. The basic steps for removal of the tanks, catwalk, and associated piping by a third party contractor can be summarized as follows:

- Set up proper fire protection equipment around the area.
- Using a cutting torch, dismantle the catwalk, railing and stairs.
- Load the pieces into a roll-off container for recycling.
- Mobilize a crane and two low bed trailers to the site.
- Using a crane, lift the tank out of the containment area onto the low bed trailers.
- Deliver tanks and associated metal to an approved metal recycler.

7.3 Decontamination and Removal of the Struthers-Wells Polyester Burner

Should Bostik decide to completely shut down the unit and not operate solely on natural gas, the residual waste fuel will be combusted or removed and the polyester burner will be fired at 50% to 80% of maximum load on natural gas for a 24 hour period to eliminate any potential hazardous waste fuel residue within the combustion chamber. Once the unit has been shut down and sufficiently cooled, Bostik will begin decontamination and removal of the equipment. The basic steps for decontamination and removal of the burner unit can be summarized as follows:

- Using a crane, remove the stack, the economizers, and the burner from the refractory.
- Remove and dispose of any ash (expected to be less than 1 kilogram) from the chamber at a licensed TSDF.
- Collect wipe samples from the combustion chamber bottom as well as the top and sidewall from behind the refractory.
- Load the unit (along with the refractory) into roll-off for disposal at an appropriate facility.

The rinseate and wipe samples will be analyzed for the COCs presented previously in Section 2.1. The criteria for successful decontamination of the unit are non-detectable levels of the parameters analyzed in the wipe, chip, or rinseate samples.

7.4 Decontamination of Containment Areas

When all equipment has been adequately decontaminated and removed from the containment area, the containment structure will be visually inspected to ensure no cracks or breaches of integrity are present. In the unlikely event that cracks or breaches are identified at the time of RCRA closure, Bostik will assess the extent of any cracks and will evaluate the likelihood of potential impacts to subsurface soils. Regardless of the condition of the containment structure, Bostik will core through the concrete containment structure or through the pavement adjacent to the containment structure and sample the subsurface soil. This will be done at each tank containment structure. Any borings through the containment structure will be filled prior to decontamination.

The basic steps for decontamination and removal of containment areas can be summarized as follows:

- Pressure wash containment structure and sump until visibly clean with a hot water (approximately 120°F) and detergent solution.
- Following the detergent wash, rinse the containment area and sump three times with water.
- Collect a sample from the third rinse for laboratory analysis to determine the effectiveness of decontamination.
- Decontamination rinseate will be pumped from the containment area using the vacuum tanker.
- The containment structure floor will be squeeged to remove standing water.
- Collect a chip sample from the low point of each tank containment structure (generally the sump) and beneath the filter housing in the industrial boiler containment structure.
- If chip samples show contamination, repeat decontamination and chip sampling steps or send off-site for macroencapsulation at an approved facility.
- If chip samples show no contamination, the containment structures are ready for off-site disposal.
- Excavate concrete containment structures using jackhammers and a backhoe.
- Load onto roll-off for off-site disposal or recycling.

The rinseate and chip samples will be analyzed for the compounds on the COC list presented in Section 2.1. The criteria for successful decontamination of the containment structures are non-detectable levels of the parameters analyzed in water and chip samples.

7.5 Decontamination of CEM System

To decontaminate the continuous emission monitoring (CEM) System, the system will continue to operate while the combustor burns only natural gas at 50% to 80% capacity. Following the shutdown and cool down of the unit, ambient air will be drawn through the system for 24 hours. Since the CEM system is only exposed to exhaust stack gas, it is anticipated that this will be sufficient to eliminate the presence of any contamination.

7.6 Estimate of Volume of Decontamination Residues

It is estimated that 300-400 gallons of rinseate water will be generated during decontamination activities at each tank, containment area, and piping/metering equipment. It is estimated that an additional 100-200 gallons will be generated from pressure washing the polyester burner. Therefore, an estimated total of 3,800 gallons of rinseate used in the decontamination procedures will be collected, placed in containers and appropriately labeled. A representative sample of rinseate will be composited from the drums and sent for laboratory analysis for disposal purposes. Analytical results will be used to arrange for treatment/disposal of the rinseate at an appropriate, licensed facility. Absorbent materials, polyethylene sheeting, used personal protective equipment, etc. used during the decontamination procedures will be accumulated in an estimated 25 drums and disposed of at an appropriate, licensed facility.

7.7 Sampling and Analysis Methods to Confirm Decontamination

Wipe Samples (15)

Wipe samples will be obtained from the non-porous tank and boiler surfaces to determine decontamination effectiveness. The location of the wipe samples and the rationale for choosing the locations is explained in the following table:

Equipment	Location	Rationale
T-1	Bottom of tank interior	Constant liquid/sludge present
T-1	Sidewall of tank interior	Constant liquid/sludge present
T-1	Top of tank interior	Possibility of contact with waste
T-2	Bottom of tank interior	Constant liquid/sludge present
T-2	Sidewall of tank interior	Constant liquid/sludge present
T-2	Top of tank interior	Possibility of contact with waste
T-9	Bottom of tank interior	Constant liquid/sludge present
T-9	Sidewall of tank interior	Constant liquid/sludge present
T-9	Top of tank interior	Possibility of contact with waste
DT-1	Bottom of tank interior	Constant liquid/sludge present
DT-1	Sidewall of tank interior	Constant liquid/sludge present
DT-1	Top of tank interior	Possibility of contact with waste
S-W Unit	Bottom of Combustion Chamber	Potential pooling of waste fuel
S-W Unit	Sidewall of Combustion Chamber	Possible seepage through refractory
S-W Unit	Top of Combustion Chamber	Possible seepage through refractory

Wipe samples for flat surfaces will be collected according to the following procedure:

- A ½ square meter area on the each structure will be selected for testing,

- For analysis of constituents of concern, saturate a cotton gauze with:
  - Methanol for volatiles,
  - Water for methanol, and
  - Hexane-acetone mix (1:1) or methylene chloride for semivolatiles.

- The saturated gauze will be wiped over half the sampling area (1/4 square meter) repeatedly in the vertical direction, applying moderate pressure. The gauze will then be turned over and wiped repeatedly in the horizontal direction.

- Each gauze will be placed in a separate jar with a Teflon seal and submitted for laboratory analysis.

Chip Samples (5)

Chip samples will be obtained from the concrete containment structures. The location of the chip samples and the rationale for choosing the locations is explained in the following table:

Equipment	Location	Rationale
T-1 Dike	Bottom of containment sump	Low point of diked area
T-2 Dike	Bottom of containment sump	Low point of diked area
T-9 Dike	Bottom of containment sump	Low point of diked area
DT-1 Dike	Bottom of containment sump	Low point of diked area
S-W Burner Dike	Directly under filter housing	Likely area for leakage

Soil Boring Samples (8)

Soil boring samples will be obtained from beneath or adjacent to the concrete containment structures. Soil samples must be collected from each boring at each soil horizon. For the purpose of this closure plan, we will assume 2 samples per boring. The location of the borings and the rationale for choosing the locations is explained in the following table:

Equipment	Location	Rationale
T-1 Dike (2)	Inside or adjacent to containment structure	Ensure clean subsurface soils
T-2 Dike (2)	Inside or adjacent to containment structure	Ensure clean subsurface soils
T-9 Dike (2)	Inside or adjacent to containment structure	Ensure clean subsurface soils
DT-1 Dike (2)	Inside or adjacent to containment structure	Ensure clean subsurface soils

Rinseate Samples (9)

Following decontamination procedures, final rinseate samples will be obtained from the concrete containment structures. The location of the rinseate samples and the rationale for choosing the locations is explained in the following table:

Equipment	Location	Estimated Volume	Rationale
T-1 Tank	T-1 tank bottom	400 gal.	Verify tank decontamination
T-2 Tank	T-2 tank bottom	400 gal.	Verify tank decontamination
T-9 Tank	T-9 tank bottom	400 gal.	Verify tank decontamination
DT-1 Tank	DT-1 tank bottom	400 gal.	Verify tank decontamination
S-W Burner Unit	Unit containment area	200 gal.	Verify unit decontamination
T-1/T-2 Containment Area	T-1/2 containment area	400 gal.	Verify containment area decon
T-9 Containment Area	T-9 containment area	400 gal.	Verify containment area decon
DT-1 Containment Area	DT-1 containment area	400 gal.	Verify containment area decon
S-W Burner Containment Area	Unit containment area	400 gal.	Verify containment area decon

The rinseate, wipe, and chip samples will be analyzed for the compounds on the COC list presented in Section 2.1.

The criteria for successful decontamination of the containment structures are non-detectable levels of the parameters analyzed in the rinseate, wipe and chip samples unless another criteria is established as a closure plan variance by EPA.

8.0 REMOVAL OF TANK SYSTEMS

Once all hazardous waste has been removed and the tanks, piping and metering equipment, and containment structures have been decontaminated, the final disposition of the tank system components will be accomplished by:

- Removal and disposal of the four tanks (T-1, T-2, T-9 and DT-1) at a licensed metal recycling facility

- Removal and disposal of the Struthers Wells Burner Unit at a licensed recycling facility

- Removal of four containment structures (T-1/T-2, T-9, DT-1 and S-W Burner) at approved concrete recycling facility.

Although it is anticipated that the combustor and associated containment structure may in fact be left in place for continued operation firing natural gas, the removal of all tanks, equipment and containment structures will be estimated for the purpose of creating a worst case cost scenario for this closure plan.

9.0 QUALITY ASSURANCE AND QUALITY CONTROL PROCEDURES (QC/QC)

Before beginning closure activities, a meeting will be scheduled with the contractor and/or consultant to ensure that the individuals responsible for QA/QC in each organization are identified. At that time, anyone responsible for QA/QC activities will supply their qualifications for such a position.

Meetings with the QA/QC individuals from each organization will be scheduled for at least the following occasions:

- Prior to beginning closure activities
- Prior to completing closure activities
- Any time deviations from the approved closure plan are being considered.

The following position and organizations will be associated with the QA/QC for the partial closure:

Environmental Manager, Bostik, Inc.

- Authorized to make any decisions regarding the effective completion of this partial closure. Responsible for planning and scheduling all partial closure activities with the cleaning and removal contractor and ensuring that all QA/QC activities are handled appropriately.
- This person is qualified for this role through extensive experience with the permitted equipment as well as the applicable environmental regulations.

Project Manager, Cleaning and Removal Contractor

- Authorized to make any decisions regarding the effective completion of this partial closure. Responsible for working with Bostik to complete all partial closure activities (including all QA/QC activities) in a way that protects the environment and employee safety.
- This person is qualified for this role through extensive experience with the tank cleaning operations and hazardous waste sampling and disposal.

All sampling and analyses will be conducted in accordance with appropriate QA/QC procedures specified in the EPA document, Test Methods for Evaluation of Solid Waste, SW-846.

A chain of custody form will accompany any samples sent to approved laboratories for analysis. The chain of custody form will identify the samples contained in the sample cooler and be signed off by the sample collector indicating that they have transferred ownership of the samples to the transporter. Once received by the laboratory, the form will be signed accepting responsibility for the samples. The completed chain of custody will be retuned of Bostik as art of the final data package.

10.0 CLOSURE SCHEDULE

The proposed schedule for closure is provided in Table I-1. Bostik will notify the US EPA Regional Administrator and MA DEP at least 45 days prior to initiating final RCRA closure activities for the hazardous waste fuel storage tanks and the oil heater. All hazardous waste stored in the hazardous waste fuel storage tanks will be removed from storage, burned in the oil heater, or shipped off-site for disposal within 90 days after receiving the final volume of hazardous waste. Final closure will be completed within 180 days after receiving the final volume of hazardous waste at the hazardous waste fuel storage tanks and oil heater. Although it is not anticipated that any extensions will be required, it is possible that harsh winter conditions could delay remedial efforts. Final RCRA closure of the units is not anticipated until at least 2037.

11.0 FINANCIAL ASSURANCE/CLOSURE COST ESTIMATES

11.1 Closure Cost Estimate

The estimated costs to close the Bostik hazardous waste units are provided in Table I-2. The closure costs in this plan are based on standard contract labor and disposal pricing supplied by Triumvirate Environmental. RCRA closure activities include inventory removal and disposal off-site, decontamination, disposal of decontamination materials, sampling/analyses of rinseate, chip and wipe samples, and closure certification.

During the active life of the facility, Bostik will adjust the closure cost estimate for inflation within 60 days prior to the anniversary date of the establishment of the Letter of Credit. This adjustment may be made by recalculating the actual closure cost estimate in current dollars, or, by using an inflation factor derived from the most recent Implicit Price Deflator for Gross National Product published by the US Department of Commerce in it's *Survey of Current Business*. The adjustment will be calculated by dividing the latest published annual Deflator by the Deflator for the previous year and then multiplying this inflation factor by the closure cost estimate.

During the active life of the facility, Bostik will revise the closure cost estimate no later than 30 days after a revision has been made to the closure plan that increases the cost of the closure. A copy of the closure cost estimate will be kept on the site until closure is complete.

11.2 Financial Assurance

Bostik, Inc. has established a closure letter of credit and a Standby Trust as the financial mechanism for closure. A copy of the letter of credit and the Standby Trust is provided in Attachment I-3. This letter of credit and standby Trust will meet the requirements of 40 CFR 264.143 and will be updated as required following any changes to the cost estimate or facility/beneficiary contact information. Bostik will ensure that U.S. EPA and MA DEP receive an updated version of these agreements whenever such changes occur.

Bostik maintains liability coverage for sudden accidental occurrences in the amount of $8 Million per occurrence with an annual aggregate of $16 Million. A copy of this certificate of Liability Insurance is provided in attachment I-3.

12.0 CERTIFICATION OF CLOSURE

Within 60 days of completing closure activities, Bostik will submit a closure certification report to U.S. EPA and the MA DEP. This certification report will include the following information:

- Documentation of all closure activities including the identification of all project milestones, manifests, bills of lading, and final disposal facilities if they are not listed on these documents,

- Summary of all QA/QC data collected during closure,
- Photographic record of each milestone event identified in the plan,
- List of, and justification for, any departures from the approved closure plan,
- Verification sample results after decontamination or removal of equipment, structures, and/or soil,
- Certification statement by qualified Bostik personnel as well as an independent registered Professional Engineer that the facility was closed in accordance with identified milestones of the approved closure plan (tank cleaning, wipe samples analysis, tank/piping disposal).

If a clean closure is achieved for a portion of the regulated units, Bostik will submit a revised Part A permit application by deleting the closed regulated unit.

If a complete closure is achieved for the all regulated units at the facility, the Part A permit application will be withdrawn. This withdrawal request will be submitted with the closure certification report.

ATTACHMENT I-2

FINANCIAL ASSURANCE LETTER OF CREDIT

JPMorganChase

JPMorgan Chase Bank, N.A.
Global Trade Services
300 South Riverside Plaza
Mail Code IL1-0236
Chicago, IL 60606-0236

OCT 22, 2009
OUR L/C NO.: TPTS-703280

AMENDMENT NO.: 1

TO:
U.S. ENVIRONMENTAL PROTECTION
AGENCY, REGIONAL ADMINISTRATOR
(REFER TO LC TEXT FOR FULL DETAILS)
1 CONGRESS STREET, SUITE 1100
BOSTON, MA 02114-2023

APPLICANT:
BOSTIK, INC.
211 BOSTON STREET
MIDDLETON, MA 01949

IN ACCORDANCE WITH INSTRUCTIONS RECEIVED, THE ABOVE REFERENCED STANDBY LETTER OF CREDIT HAS BEEN AMENDED AS FOLLOWS:

RECEIVER'S REFERENCE: NONREF

L/C INCREASED BY: USD6,690.00

BENEFICIARY FULL NAME AND ADDRESS:
REGIONAL ADMINISTRATOR, MR. ROBERT VARNEY
EPA NEW ENGLAND - REGION 1
U.S. ENVIRONMENTAL PROTECTION AGENCY
1 CONGRESS STREET, SUITE 1100
BOSTON, MA 02114-2023

THE AVAILABLE AMOUNT OF THIS LETTER OF CREDIT AFTER GIVING EFFECT TO THIS AMENDMENT IS USD458,743.00.

ALL OTHER TERMS AND CONDITIONS OF THE CREDIT REMAIN UNCHANGED.

AUTHORIZED SIGNATURE

HENRY AVELINO
ASSISTANT VICE PRESIDENT

172844 Silvio Fernandez

From: Origin ID: MCFA (813) 432-6353
SILVIO FERNANDEZ
JPMORGAN CHASE BANK, N.A.
10420 HIGHLAND MANOR DRIVE
BLDG 2, 4TH FL.
TAMPA, FL 33610

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ATTN: ROBERT VARNEY, REG. ADM.
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BOSTON, MA 02114

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ATTACHMENT I-3

CERTIFICATE OF LIABILITY INSURANCE

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

1. Greenwich Insurance Company, the Insurer of Seaview House, 70 Seaview Avenue, Stamford, CT 06902-6040, hereby certifies that it has issued liability insurance covering bodily injury and property damage to Arkema, Inc, the Insured, of 2000 Market Street, Philadelphia, PA 19103 in connection with the Insured's obligation to demonstrate financial responsibility pursuant to 310 CMR 30.908. The coverage applies at EPA ID#MAD001039767, Bostik Findley, 211 Boston Street, Middletown, MA 01949 for sudden and nonsudden accidental occurrences. If coverage is for multiple facilities and the coverage is different for different facilities, indicate which facility(ies) are Insured for sudden accidental occurrences, which are Insured for nonsudden accidental occurrences, and which are Insured for both. The limits of liability are $8,000,000 each occurrence and $16,000,000 annual aggregate, exclusive of legal defense costs. The coverage is provided under policy number PEC0017720 issued on 12/31/04. The effective date of said policy is 12/31/04.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

   (a) Bankruptcy or insolvency of the Insured shall not relieve the Insurer of its obligations under the policy.

   (b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the Insured for any such payment made by the Insurer.

   (c) Whenever requested by the Department, the Insurer agrees to furnish to the Department a signed duplicate original of the policy and all endorsements.

   (d) Cancellation of the insurance, whether by the Insurer or the Insured, will be effective only upon written notice by certified mail and only after the expiration of sixty (60) days after a copy of such written notice is received by the Department, as shown by the return receipt.

   (e) Any other termination of the insurance will be effective only upon written notice by certified mail and only after the expiration of thirty (30) days after a copy of such written notice is received by the Department, as shown by the return receipt.

I hereby certify that the wording of this instrument is identical to the wording specified in 310 CMR 30.909(7) as in effect on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in the Commonwealth of Massachusetts.

_______________________ Date: 10/23/06

(Signature of Authorized Representative of Insurer)

Doug Stepenosky, AVP Authorized Representative of Greenwich Insurance Company

c/o XL Insurance
520 Eagleview Boulevard
P.O. Box 636
Exton, PA 19341-0636

Section J - Solid Waste Management Units

J.1 Characterization of SWMUs [40 CFR 270.14(d)(1)]

J.2 Releases [40 CFR 270.14(d)(2)]

Bostik's environmental remediation contractor, GEI Consultants of Winchester, MA, has prepared two recent documents that fully describe the status of past and present remediation efforts at the facility. **Attachment J-1** provides the table of contents and Executive Summary for the Phase V Status and Remedial Monitoring Report No. 11, dated November 6, 2006. **Attachment N-2** provides the Draft RCRA Corrective Action Environmental Indicator Forms sent to Mr. Frank Battaglia of U.S. EPA Region 1 on August 16, 2005.

ATTACHMENT J-1

GEI REPORT DATED NOVEMBER 6, 2006

GEI Consultants

Geotechnical
Environmental and
Water Resources
Engineering

Environmental Report

Phase V Status and Remedial Monitoring Report No. 11

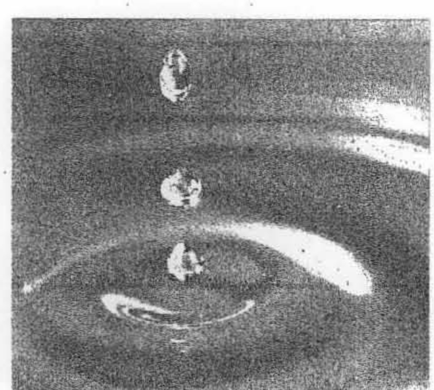
211 Boston Street, Middleton, MA
DEP RTN 3-1494

Submitted to:
Bostik, Inc.
211 Boston Street
Middleton, MA 01949

Submitted by:
GEI Consultants, Inc.
1021 Main Street
Winchester, MA 01890
781.721.4000

November 6, 2006

Project 01003



James R. Ash, P.E., LSP
Vice President

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PPK/JRA:jah
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Executive Summary

GEI prepared this report on behalf of Bostik, Inc. (Bostik) for the property located at 211 Boston Street, Middleton, Massachusetts (the Site). This report was prepared in accordance with the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000 and meets the requirements for a Phase V Status and Remedial Monitoring Report (Status Report) for a site that has achieved Remedy Operation Status (ROS) (310 CMR 40.0893) under the MCP. This report covers the period from April 1 through September 30, 2006 (Phase V Status and Remedial Monitoring Report No. 11).

The operation, maintenance, and monitoring (OMM) of remediation systems at the Site, and plans for future remediation activities, are summarized below by Site area. Phase V Status Report No. 12 will document operation of the remediation systems between October 1, 2006 and March 31, 2007, and will be submitted to the Massachusetts Department of Environmental Protection (DEP) by April 30, 2007.

The Old Tank Farm Area (OTFA) (Area 2)

Decreases in groundwater contaminant concentrations in the OTFA allowed: (1) Shutdown of the majority of the groundwater extraction (GWE) wells in November 2001; (2) Shutdown of all the GWE wells in September 2002; and (3) Shutdown of the soil vapor extraction and air sparging (SVE/AS) system in the OTFA in October 2002. Contaminants attributable to the OTFA have not been detected in the Ipswich River since shutdown of the systems.

We re-started the SVE/AS system around monitoring well MW503 in November 2003 because an increase in groundwater contaminant concentrations was measured in the well. In June 2006, we stopped air sparging (AS) around MW503, but continued performing SVE. We made this change so that AS could be focused on the Building 9 Area. In November 2003, we began purging groundwater from monitoring well MW503 on a regular basis to increase groundwater flow in the vicinity of the well. We stopped regular purging of well MW503 in December 2004 so that we could evaluate post-pumping conditions.

Groundwater monitoring data show that over the past three years contaminant concentrations in the OTFA have generally decreased or remained stable at levels approaching background conditions. At well MW503, contaminant concentrations were slightly lower during sampling in June 2006 and higher in September 2006.

We plan to stop performing SVE in the area of well MW503 so that SVE can be further focused on the Building 9 Area. Groundwater sampling will continue to be performed in the OTFA to document changes in contaminant concentrations.

The Building 9 Area (Area 6)

We have been operating an SVE/AS system in the Building 9 Area since November 2000. Contaminant concentrations in groundwater throughout most of the Building 9 Area have steadily decreased since SVE/AS began. Contaminants in groundwater do not appear to be migrating from the Building 9 Area to the OTFA. There was an increase in groundwater contaminant concentrations at five locations in the Building 9 Area during the recent monitoring period. These increases may be associated with seasonal variability.

The effluent from the SVE system was discharged without treatment because contaminant concentrations in the influent and effluent of the SVE system have been below the criteria established for treating the effluent.

We will continue to operate the SVE/AS system during the upcoming OMM period, and we will continue to perform groundwater sampling in the Building 9 Area to document changes in contaminant concentrations.

The Building 1 Area (Area 8)

Eight separate-phase hydrocarbon (SPH) recovery wells are located in the Building 1 Area. We performed oil recovery manually using a bailer and automatically using a belt skimmer. The belt skimmer is movable and has been operated in three different SPH recovery wells to date (RW3, RW5, and RW6).

During this monitoring period, we detected oil in recovery wells RW1, RW5, RW6, RW7, and RW8. Thicknesses ranged from 0.01 to 4.48 feet. We recovered approximately 13 gallons of oil during the recent monitoring period. During gauging from April through July 2006, a measurable thickness of oil was only observed in recovery wells RW1 and RW5. The absence of oil in most of the wells during this period may be the result of the oil recovery efforts or seasonal variability.

Monthly gauging of the SPH recovery wells is planned. Oil will be recovered using a bailer and the belt skimmer as warranted. The belt skimmer will be rotated from well to well as oil recovery rates warrant.

ATTACHMENT J-2

GEI SUBMITTAL DATED AUGUST 16, 2005

August 16, 2005
Project 01003

Geotechnical
Environmental and
Water Resources
Engineering

Mr. Frank Battaglia
U.S. EPA Region 1
One Congress Street, Suite 1100
Boston, MA 02114-2023

Dear Mr. Battaglia:

Re: **Draft RCRA Corrective Action Environmental Indicator Forms**
Bostik Findley, Inc.
211 Boston Street
Middleton, MA
MAD001039767

On behalf of our client, Bostik Findley, Inc. (Bostik), GEI is submitting the enclosed draft Documentation of Environmental Indicator (EI) Determination forms for "Current Human Exposures Under Control" and "Migration of Contaminated Groundwater Under Control." This submittal is an update to draft forms that were originally provided to you in 2000. Site figures are enclosed.

As indicated on these forms, it is our opinion that "Current Human Exposures Under Control" and "Migration of Contaminated Groundwater Under Control" has been achieved as a result of remediation that has been conducted at the subject property under the Massachusetts Contingency Plan (MCP; 310 CMR 40.0000).

Please call me at 781.721.4018 if you have any questions.

Sincerely,

GEI CONSULTANTS, INC.

James R. Ash, P.E., LSP
Vice President

JRA:lek
Enclosures
M:\PROJECT\2001\01003\Draft EI Submittal ltr.doc

www.geiconsultants.com

GEI Consultants, Inc.
1021 Main Street, Winchester, Massachusetts 01890-1970
781.721.4000 fax: 781.721.4073

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).

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)?

	Yes	No	?	Rationale / Key Contaminants
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.

3. Are there complete pathways between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential Human Receptors (Under Current Conditions)

Contaminated Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	N	N	N	N			N
Air (indoors)	N	Y	N				
Soil (surface, e.g., <2 ft)	N	Y	N	Y	Y	N	N
~~Surface Water~~							
Sediment	Y	N			Y	Y	Y
Soil (subsurface e.g., >2 ft)				Y			N
Air (outdoors)	N	Y	N	Y	Y		

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 Bostik (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.)

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 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.

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 <u>and</u> 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):

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) ____________________ Date ____________
(print) ____________________
(title) ____________________

Supervisor (signature) ____________________ Date ____________
(print) ____________________
(title) ____________________
(EPA Region or State) ____________________

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.

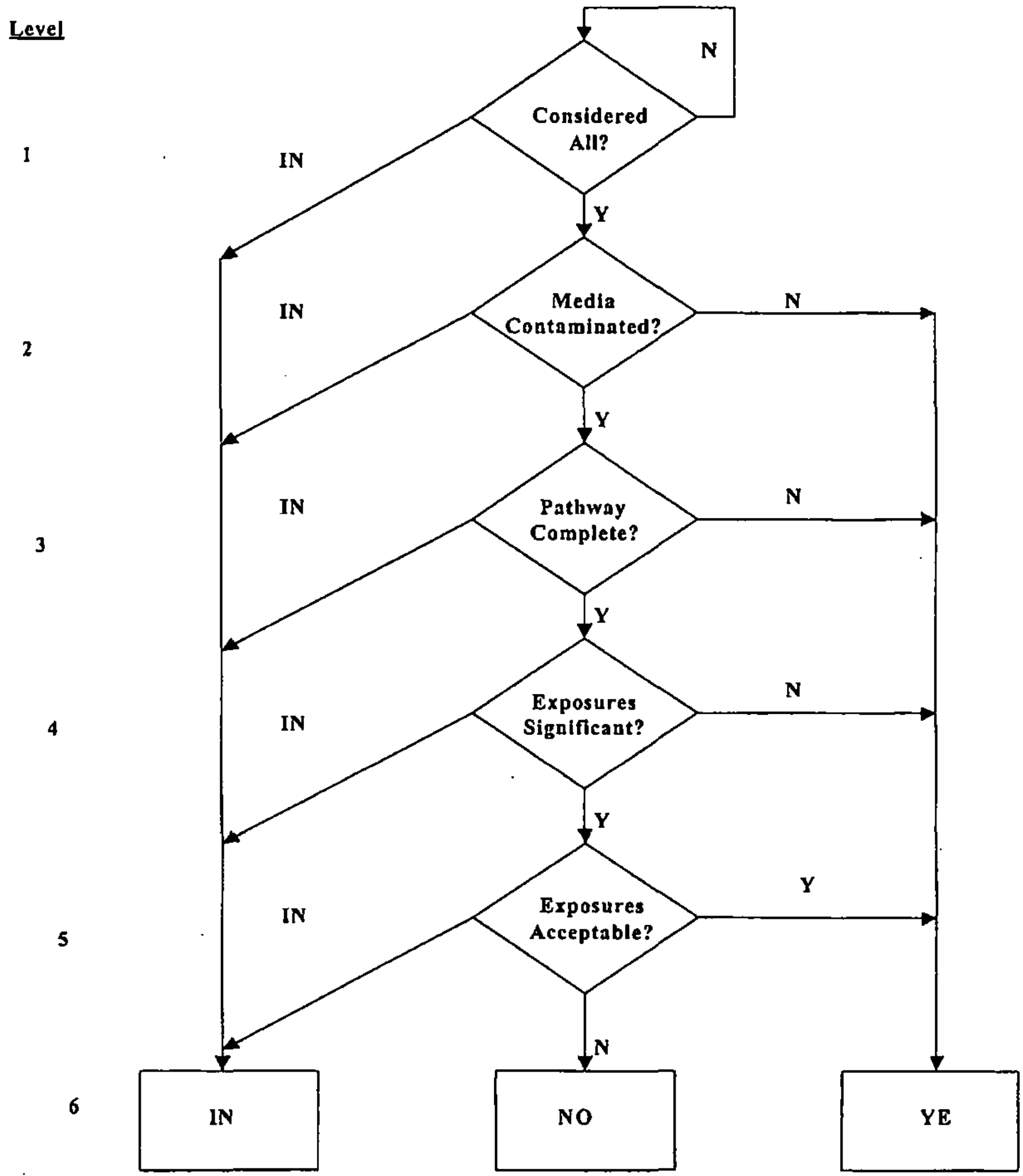
Contact telephone and e-mail numbers

(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)



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).

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).

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.

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).

5. Is the discharge of "contaminated" groundwater into surface water likely to be "**insignificant**" (i.e., the maximum concentration[3] 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 concentration[3] of <u>key</u> 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 concentration[3] of <u>each</u> 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 concentrations[3] 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.

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 implemented[4])?

_____ 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.

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).

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) ____________ Date ____________
(print) ____________
(title) ____________

Supervisor (signature) ____________ Date ____________
(print) ____________
(title) ____________
(EPA Region or State) ____________

Locations where References may be found:

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

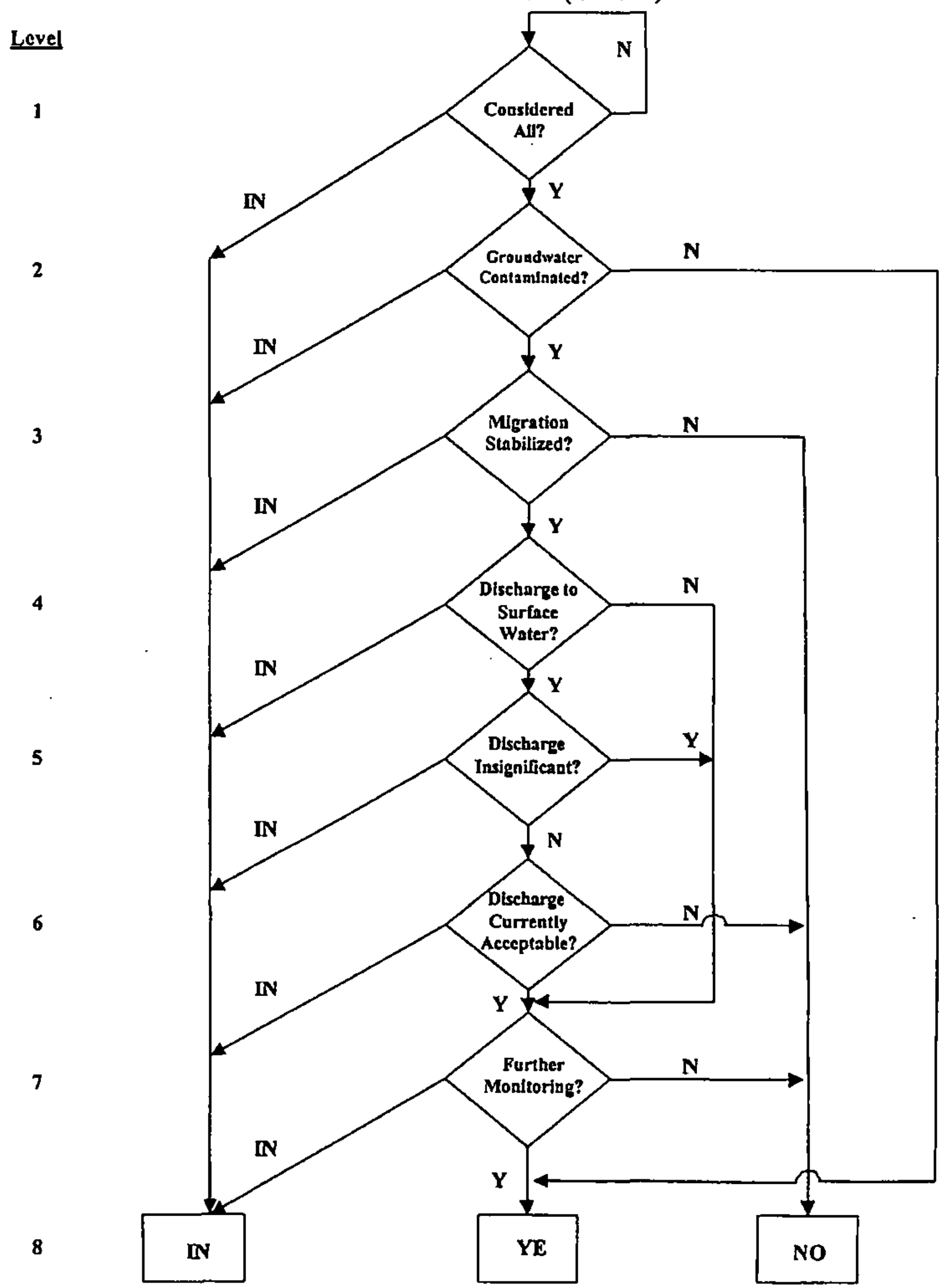
Ref #2 available at:
GEI Consultants, Inc.
1021 Main Street
Winchester, MA 01890

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)



// Signed 2/5/99 //

MEMORANDUM

SUBJECT: Interim-Final Guidance for RCRA Corrective Action Environmental Indicators

FROM: Elizabeth Cotsworth, Acting Director
Office of Solid Waste

TO: RCRA Senior Policy Managers
Regions I-X

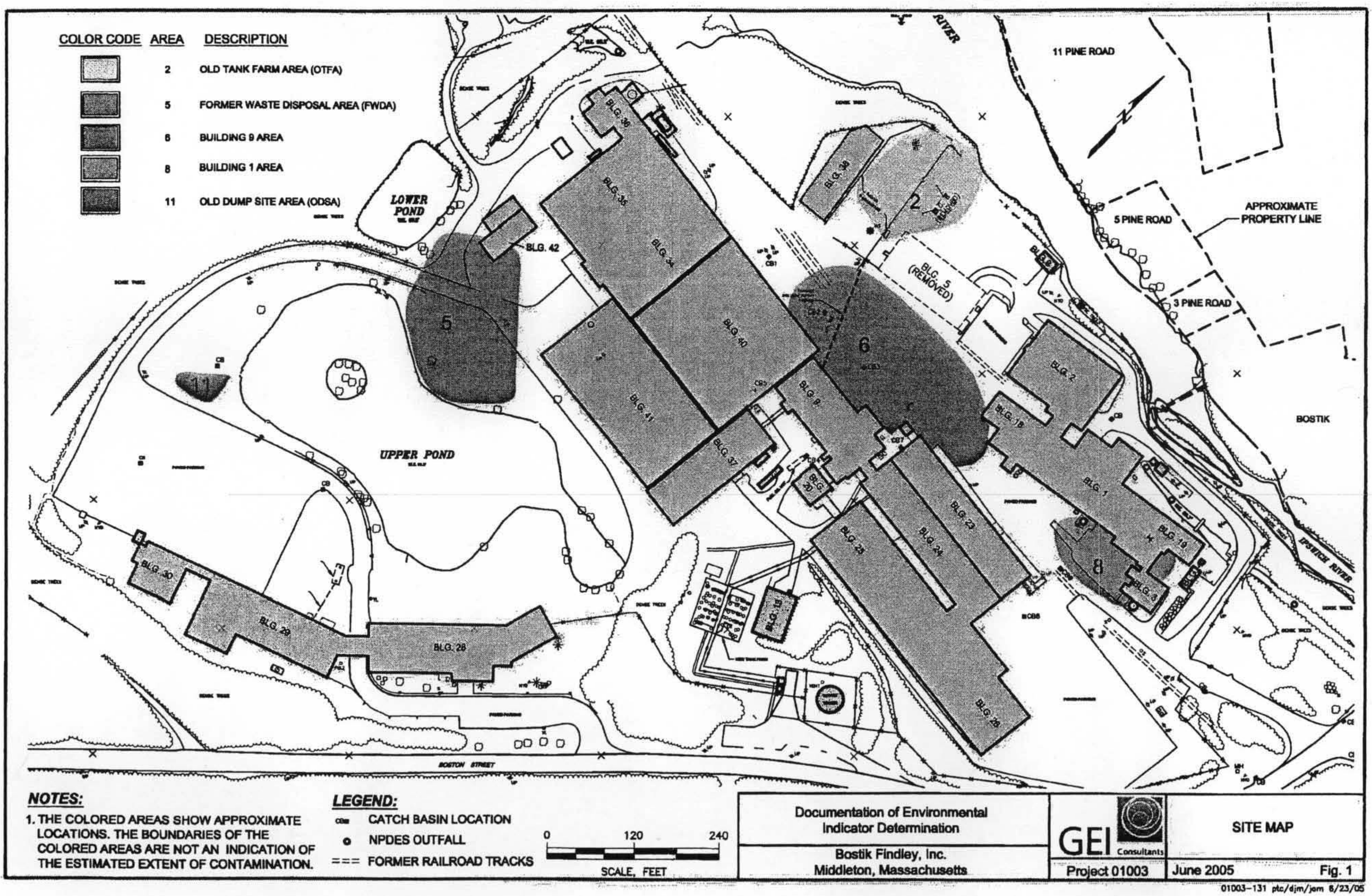
The RCRA corrective action program and achievement of its Government Performance Results Act (GPRA) goals are of highest priority for the national RCRA program. The RCRA program is using two Environmental Indicators (EI) to measure program performance for GPRA purposes: (1) Current Human Exposures Under Control (CA725), and (2) Migration of Contaminated Groundwater Under Control (CA750).

With this memorandum I am transmitting revised guidance on how to determine if a facility has met the RCRA corrective action Environmental Indicators (EI). This Interim-Final guidance will replace the existing EI guidance (from 1994 and 1995) and will remain the working guidance for at least one year. The Interim-Final guidance is similar to the earlier guidance but has been modified to facilitate more consistent determinations (across regions and states) and to be more explicit with regard to the minimum level of documentation required to ensure that the determinations will be verifiable.

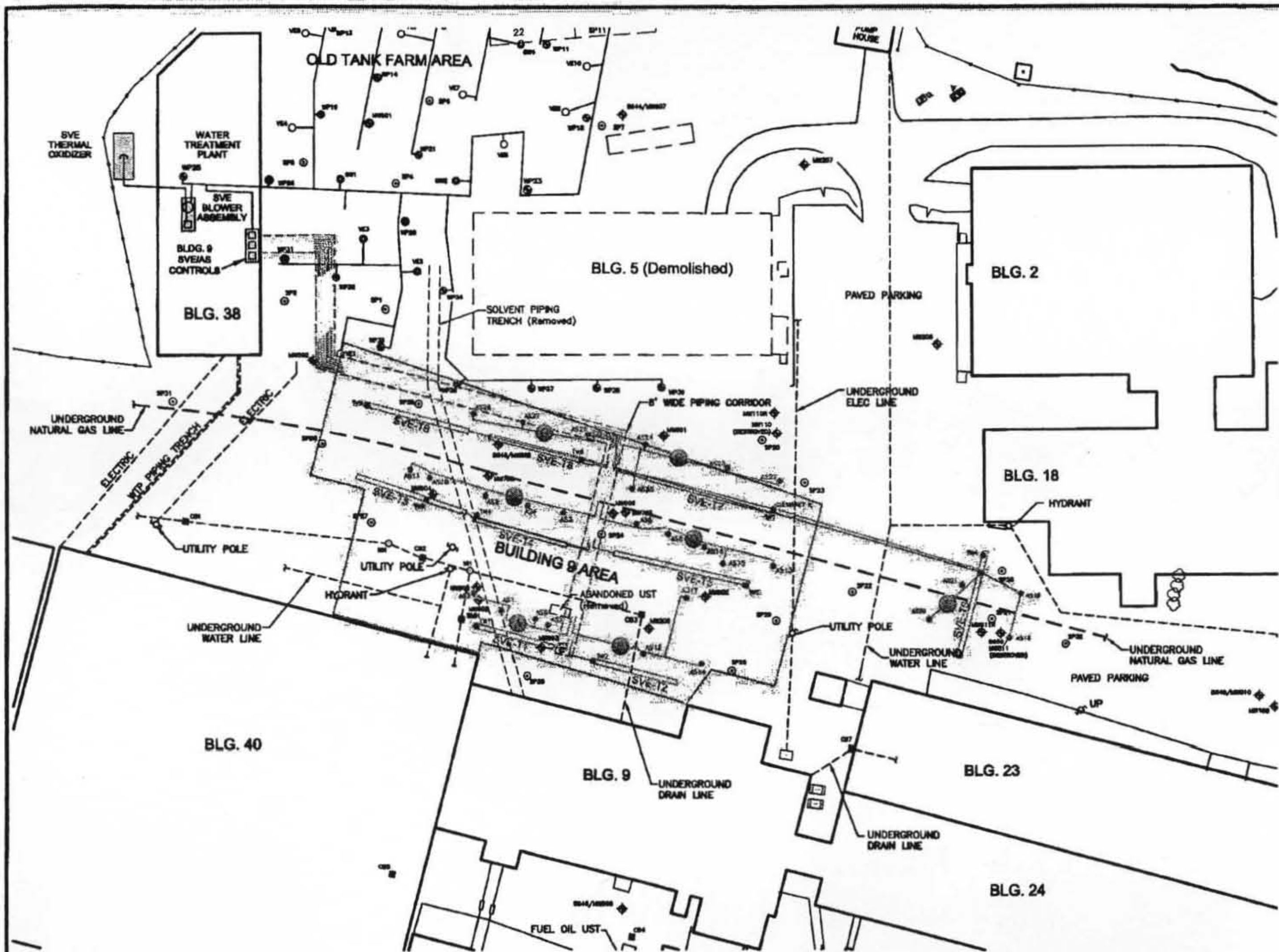
This guidance has been developed with the cooperation and input of representatives from all ten EPA regions and at least one state from each region. The guidance is in the form of questions to be answered in making an EI determination. The questions and answer options express the minimum criteria for EI determinations and are not to be modified for regional, state or site-specific conditions. The "Rationale" portion of the forms can be filled in to explain unique situations to any length necessary. While the signed hard-copies of these forms should reside in the facility's administrative files, these forms should also be kept in electronic format that can be posted on an "EI database" web site to be developed by the Office of Solid Waste in the near future. The "EI database" will help communicate successes and provide examples for overcoming barriers to progress.

Thank you for your assistance with this important effort. If you have any questions, please call Bob Hall or Henry Schuver of my staff at (703) 308-8432 or 308-8656 respectively.

Attachment



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)
LOWER POND
UPPER POND
RIVER
11 PINE ROAD
5 PINE ROAD
3 PINE ROAD
APPROXIMATE PROPERTY LINE
BOSTIK
IPSWICH RIVER
BOSTON STREET
BLG. 36
BLG. 35
BLG. 34
BLG. 42
BLG. 40
BLG. 41
BLG. 37
BLG. 39
BLG. 5 (REMOVED)
BLG. 2
BLG. 18
BLG. 1
BLG. 19
BLG. 3
BLG. 9
BLG. 20
BLG. 23
BLG. 24
BLG. 25
BLG. 26
BLG. 15
BLG. 30
BLG. 29
BLG. 28
2
5
6
8
11
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
0 120 240
SCALE, FEET
Documentation of Environmental Indicator Determination
Bostik Findley, Inc.
Middleton, Massachusetts
GEI Consultants
Project 01003
June 2005
SITE MAP
Fig. 1
01003-131 ptc/djm/jom 6/23/05



LEGEND:

- AREA OF 20-MIL HDPE LINER
- AIR SPARGING POINT AND CONNECTING PIPING
- AIR SPARGING TRUNK LINE LABEL
- SVE TRENCH, ASSOCIATED TRENCH WELL, AND CONNECTING PIPING
- SVE TRENCH LABEL
- PIPING CORRIDOR 8' WIDE
- CLEANOUT PIPE FOR SVE LINE
- MONITORING WELL
- BLDG. 9 AREA SOIL PROBE AIR SAMPLING POINT
- OLD TANK FARM AREA GROUNDWATER EXTRACTION WELL
- OLD TANK FARM AREA GROUNDWATER EXTRACTION WELL CONNECTED TO SVE SYSTEM
- OLD TANK FARM AREA 2-INCH MONITORING WELL CONNECTED TO SVE SYSTEM
- OLD TANK FARM AREA 6-IN. DIA. VAPOR EXTRACTION WELL
- OLD TANK FARM AREA 2-IN. DIA. VAPOR EXTRACTION WELL
- OLD TANK FARM AREA SOIL PROBE FOR VACUUM MONITORING

0 50 100
SCALE, FEET

Documentation of Environmental Indicator Determination	GEI Consultants	BUILDING 9 AREA 6
Bostik Findley, Inc. Middleton, Massachusetts	Project 01003	June 2005 Fig. 2

01003-130 djm/ptc/jom 6/23/05

Section K - Other Federal Laws

K.1 Other Federal Laws [40 CFR 270.14(b)(20) and 270.3]

40 CFR Part 270.3 requires consideration of federal laws that may apply to the issuance of permits under the RCRA rules. Bostik, Inc.'s Middleton, MA facility is in compliance with the following laws:

<u>The Wild and Scenic Rivers Act. (16 U.S.C. 1273 et seq.)</u> Section 7 of the Act prohibits the Regional administrator from assisting by license or otherwise the construction of any water resources project that would have a direct, adverse effect on the values for which a national wild and scenic river was established. This permit application does not call for construction of a water resources project. Therefore, further consideration of this law is not required.

<u>The National Historic Preservation Act of 1966. (16 U.S.C. 470 et seq.)</u> Section 106 of the Act and implementing regulations (36 CFR Part 800) require the Regional Administrator, before issuing a license to adopt measures when feasible to mitigate potential adverse effects of the licensed activity and properties listed or eligible for listing in the National Register of Historic Places. The Act's requirements are to be implemented in cooperation with State Historic Preservation Officers and upon notice to, and when appropriate, in consultation with the Advisory Council on Historic Preservation. Since the activities covered in this permit application do not call for further construction, land development, or infringement on historical places, no impact from the operation of the industrial boiler or associated storage tanks will be incurred. Therefore, further consideration of this law is not required.

<u>The Endangered Species Act. (16 U.S.C. 1531 et seq.)</u> Section 7 of the Act and implementing regulations (50 CFR Part 402) require the Regional Administrator to ensure, in consultation with the Secretary of the Interior or Commerce, that any action authorized by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or adversely affect its critical habitat. **Attachment K-1** provides correspondence from the Massachusetts Division of Fisheries & Wildlife, Natural Heritage & Endangered Species Program (NHESP) indicating that **"At this time the site is not mapped as Priority or Estimated Habitat and the NHESP does not have any rare species concerns associated with this site"**. In addition, the activities covered in this permit application do not call for further construction or land development which may impact endangered species. Therefore, further consideration of this law is not required.

<u>The Coastal Zone Management Act. (16 U.S.C. 1451 et seq.)</u> Section 307(c) of the Act and implementing regulations (15 CFR Part 930) prohibit EPA from issuing a permit for an activity affecting land or water use in the coastal zone until the applicant certifies that the proposed activity complies with the State Coastal Zone Management program, and the State or its designated agency concurs with the certification (or the Secretary of Commerce overrides the State's nonconcurrence). This permit application does not call for further construction or land development affecting land or water use in the coastal zone. Therefore, further consideration of this law is not required.

The Fish and Wildlife Coordination Act. (16 U.S.C. 661 et seq) The Act requires that the Regional Administrator, before issuing a permit proposing or authorizing the impoundment, diversion, or other control or modification of any body of water, consult with the appropriate State agency exercising jurisdiction over wildlife resources to conserve those resources. The activities covered in this permit application do not call for construction of a water resources project, nor for the impoundment, diversion, or other control or modification of any body of water. Therefore, further consideration of this law is not required.

ATTACHMENT K-1

CORRESPONDENCE FROM THE MASSACHUSETTS DIVISION OF FISHERIES AND WILDLIFE

Commonwealth of Massachusetts

Division of Fisheries & Wildlife

MassWildlife

Wayne F. MacCallum, *Director*

October 20, 2006

Andrea Desilets
ENSR
2 Technology Park Drive
Westford, MA 01886

RECEIVED
OCT 23 2006
By

Re: 211 Boston Street
Middleton, MA
NHESP Tracking Number: 06-20570

Dear Ms. Desilets,

Thank you for contacting the Natural Heritage and Endangered Species Program ("NHESP") of the MA Division of Fisheries & Wildlife for information regarding state-protected rare species in the vicinity of the site identified above.

At this time the site is not mapped as Priority or Estimated Habitat and the NHESP does not have any rare species concerns associated with this site.

This evaluation is based on the most recent information available in the NHESP database, which is constantly being expanded and updated through ongoing research and inventory. Should your site plans change, or new rare species information become available, this evaluation may be reconsidered. Please note that this determination addresses only the matter of **rare** wildlife habitat and does not pertain to other wildlife habitat issues that may be pertinent to the proposed project.

If you have any questions regarding this review please call Rebecca Skowron, Endangered Species Review Assistant, at ext. 148.

Sincerely,

Thomas W. French

Thomas W. French, Ph.D.
Assistant Director

www.masswildlife.org

Division of Fisheries and Wildlife
Field Headquarters, North Drive, Westborough, MA 01581 (508) 792-7270 Fax (508) 792-7275
An Agency of the Department of Fish and Game

MESA Information Request Form

Please complete this form to request site-specific information from the Natural Heritage & Endangered Species Program (Please submit only one project per request form).

Please include a check for $50.00 made out to the Natural Heritage & Endangered Species Fund.*

Requestor Information

Name: Andrea Desilets

Affiliation: ENSR

Address: 2 Technology Park Drive

City: Westford State: MA Zip Code: 01886

Daytime Phone: 978-589-3000 Ext. 3579

Project Information

Project or Site Name: Bostik

Location: 211 Boston Street USGS Quad: Reading

Name of Landowner or Project Proponent: Bostik, Inc.

Acreage of the Property: 63 acres

Description of Proposed Project and Current Site Conditions: (If necessary attach additional sheet)

No new work proposed at site. The facility's RCRA Part B application is being updated. There will be no new construction or buildings.

- ☐ Will this project be reviewed as a Notice of Intent by the local Conservation Commission?
- ☒ Will this project be undergoing MEPA review for reasons other than rare species?
- ☒ Have you enclosed the required copy of a USGS topographic map in the scale 1:24,000 or 1:25,000 (not copy reduced) with the site location clearly marked and centered on the copy page? (Copies of Natural Heritage Atlas pages are not accepted)

Please mail this completed form and topographic map to:

Regulatory Review
Natural Heritage and Endangered Species Program
MA Division of Fisheries and Wildlife
North Drive, Rte. 135
Westborough, MA 01581

Questions regarding this form should be directed to (508) 792-7270 ext. 154

Persons requesting information will receive a written response within 30 days of receipt of all information required. Please do not ask for an expedited review. *If you are requesting information for habitat management or conservation purposes and you are a non-profit conservation group, government agency or working with a government agency please fill out a Data Release Form.

July 2005

Section L - Part B Certification

[40 CFR 270.11]

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision according to a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Daniel F. Welch

Health Safety Environment & Quality Manager

High Performance Polymer Division

Bostik, Inc. – Middleton, MA

Section M - Subpart AA Process Vents

[40 CFR 270.14(a); 264.1030; and 264.1031]

The Bostik facility does not have any process vents associated with distillation, fractionation, thin-film evaporation, solvent evaporation, or air or steam stripping operations that manage hazardous waste subject to 40 CFR 270 permitting requirements. Therefore, the requirements of 40 CFR 264 Subpart AA do not apply to the Bostik facility.

Section N - Subpart BB Equipment Leaks

N.1 Applicability and Definitions [40 CFR 270.14(a); 270.25; 264.1031; 264.1050; and 264.1051]

N.1.1 Applicability

This subpart applies to equipment (other than tanks and containers) that contains or contacts hazardous waste streams with organic concentrations of at least 10 percent by weight. The equipment that is subject to the requirements of this subpart will be clearly marked and readily distinguishable from other equipment. A Master Tag list of all equipment subject to Subpart BB is contained in **Attachment N-1**.

N.1.2 Definition of Equipment

- Valve
- Pump
- Compressor
- Pressure Relief Device
- **Closed-vent system** means a system that is not open to the atmosphere and that is composed of piping connections, and, if necessary, flow inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device.
- **Connector** means flanged, screwed, welded, or other jointed pipe fittings used to connect two pipelines or a pipeline and a piece of equipment. For the purposes or reporting and recordkeeping, connector means flanged fittings that are not covered by insulation or other materials that prevent location of the fittings.
- **A leak** is indicated by an instrument reading of greater than or equal to 10,000 ppm organics using Reference Method 21 (40 CFR Part 60).
- **No detectable emissions** is defined by an instrument reading of < 500 ppm organics above background level using Reference Method 21 (40 CFR Part 60).
- **In light liquid service** means that the piece of equipment contains or contacts a waste stream where the vapor pressure of one or more of the organic components in the stream is greater than 0.3 kilopascals (kPa) at 20°C, the total concentration of the pure organic components having a vapor pressure greater 0.3 kPa at 20°C is equal to or greater than 20 percent by weight, and the fluid is a liquid at operating temperatures.

- **In Heavy liquid service** means that the piece of equipment is not in gas/vapor service or in light liquid service.

- **In Situ Sampling Systems** means non-extractive samplers or in-line samplers.

- **Open-ended Valve or line** means any valve, except pressure relief valves, having one side of the valve seat in contact with hazardous waste and open side open to the atmosphere, either directly or through open piping.

- **Sampling connection system** means an assembly of equipment within a process or waste management unit used during periods of representative operation to take samples of the process or waste fluid. Equipment used to take non-routine grab samples is not considered a sampling connection system.

N.1.3 Equipment in Vacuum Service or Less Than 300 Hours Service

Equipment in vacuum service or equipment that contains or contacts hazardous waste with an organic concentration of at least 10 percent by weight for a period of less than 300 hours per calendar year is excluded from this subpart. The Leak Detection Monitoring Log presented in Attachment N-1 identifies the components that are in service less than 300 hours.

N.2 Monitoring [40 CFR 270.25(d); 264.1052; 264.1059; and 264.1063]

N.2.1 Monthly Monitoring of Leaks

Bostik will monitor each pump in light liquid service monthly to detect leaks by Reference Method 21 (40 CFR Part 60), except as described in N.2.5. Results of the monthly monitoring will be recorded on the Leak Detection Monitoring Log.

N.2.2 Visual Inspection of Pump Seal

Bostik will visually inspect each pump in light liquid service each calendar week for indications of liquid dripping from the pump seal. Weekly visual inspections will be documented on the BIF Daily Inspection Form included previously in Section F (Table F-1).

N.2.3 Leak Detection

Bostik will ensure that monthly monitoring is performed while the pumps are operating. Any instrument reading of 10,000 ppm or greater will be considered a leak. In addition, any dripping discovered during a visual inspection will be considered a “leak”.

N.2.4 Leak Repair as Soon as Practicable

When a leak is detected, Bostik will repair the leak as soon as practicable, but no later than 15 calendar days after is detected, except as provided in Section N.9 (Delay of Repairs). A first attempt at repair will be made no later than 5 calendar days after it is detected, except as provided in Section N.9. When a leak is detected, the date and time of the repair attempts will be recorded on the Leak Repair Form, included in Attachment N-1.

N.2.5 Specific Exemptions

Bostik does not currently operate any dual mechanism seal pumps. This exception is therefore not applicable. Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from these requirements provided that:

- each dual mechanical seal is operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure, or,
- is equipped with a barrier fluid degassing reservoir that is connected by a closed vent system to a control device, or,
- is equipped with a system that purges the barrier fluid into a hazardous waste stream with no detectable emissions to the atmosphere.

The barrier fluid must not be a hazardous waste with organic concentrations 10 percent or greater by weight. Each barrier fluid system must be equipped with a sensor that will detect failure of the seal system, the barrier system, or both. Each pump must be checked by visual inspection, each calendar week, for indications of liquids dripping from the pump seals. Each sensor must be checked daily or be equipped with an audible alarm that must be checked monthly to ensure that it is functioning properly.

Bostik currently has no pumps designated for no detectable emissions. Any pump that is designated for no detectable emissions is exempt from monthly monitoring and weekly visual inspections provided it meets the following:

- has no externally actuated shaft penetrating the pump housing,
- operates with no detectable emissions, and
- is monitored for no detectable emissions initially upon designation and annually.

N.3 Barriers [40 CFR 270.14(a); 270.25(d); 264.1053; and 264.1059]

Since Bostik does not operate compressors associated with this hazardous waste stream or process, this section is not applicable.

N.4 Pressure Relief Devices [40 CFR 270.25(d) and 264.1054]

Bostik does not currently operate any pressure relief devices except on storage tanks covered under Subpart CC. Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by Reference Method 21 (40 CFR Part 60).

After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after each pressure release, except as provided in Section N.9.

Within 5 calendar days of the pressure release, the pressure relief device will be monitored to confirm the condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by Reference Method 21 (40 CFR Part 60).

Any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage from the pressure device to a control device is exempt from these requirements.

N.5 Sampling [40 CFR 270.25(d); 264.1055; and 264.1060]

N.5.1 Sampling Connecting Systems

Each sampling connection system shall be equipped with a closed-purge, closed loop, or closed-vent system. This system shall collect the sample purge for return to the process or for routing to the appropriate treatment system. Bostik will collect the purged process fluid via a closed purge and recycle it back to the process to be burned. Gases displaced during filling of the sample container are not required to be collected or captured.

N.5.2 Sampling System Exemptions

Bostik does not currently operate any In situ sampling systems and sampling systems without purges. This exemption is therefore not applicable.

N.6 Valves [40 CFR 270.25(d) and 264.1056]

N.6.1 Open-Ended Valves or Lines

Bostik will ensure that each open ended valve or line is equipped with a cap, blind flange, plug, or a second valve. The cap, blind flange, plug, or second valve will seal the open end at all times except during operations requiring waste stream flow through the open-ended valve or line. Open-ended valves or lines are not required to be monitored.

Bostik does not currently operate any double block and bleed systems associated with the hazardous waste process. When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with the first paragraph of this section at all other times.

N.6.2 Second Valve

Bostik does not currently operate any open ended lines equipped with a second valve. Each open ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the hazardous waste stream end is closed before the second valve is closed.

N.7 Monitoring Schedules [40 CFR 270.25(d); 264.1057; 264.1058; and 264.1061-1063]

Valves must be monitored monthly to detect "leaks". If an instrument reading of 10,000 ppm or greater is measured, a leak is detected, using Reference Method 21 (40 CFR Part 60). If a leak is detected, the valve shall be monitored monthly until a leak is not detected for two successive months. Results of this monitoring will be recorded on the Leak Detection Monitoring Log.

If a leak is not detected in two consecutive months, the valve may be monitored the first month of each succeeding quarter, beginning with the next quarter, until a leak is detected.

Any valve that is designated for “no detectable emissions”, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the monthly/quarterly monitoring provided the valve:

- Has no external actuating mechanism in contact with the waste stream
- Is operated with emissions less than 500 ppm above background, and
- Is monitored for no detectable emissions initially upon designation and annually, and
- At other times requested by the Regional Administrator.

Exemptions are also made for valves that are "unsafe to monitor" or "difficult to monitor". Bostik currently operates 3 valves that could be considered “difficult to monitor”. At a minimum, difficult to monitor valves will be monitored annually.

N.8 Leak Detection [40 CFR 270.25(d); 264.1058; 264.1059; and 264.1063]

N.8.1 Monitoring

Bostik does not operate pumps and valves in heavy liquid service or pressure relief devices in light or heavy liquid service.

Bostik will conduct leak detection monitoring procedures on flanges and other connectors in compliance with Reference Method 21 (40 CFR Part 60). Flanges and other connectors are required to be monitored for "leaks" within 5 days if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method. Results of this monitoring will be recorded on the Leak Detection Monitoring Log.

Bostik will use a detection instrument to conduct leak detection procedures that meets the performance criteria of Reference Method 21 (40 CFR Part 60). This detection instrument will be calibrated before each use by the procedures specified in Reference Method 21 (40 CFR Part 60).

N.8.2 Leak Detection

General monitoring procedures are listed below.

- Place the probe inlet at the surface of the component interface.
- Move the probe along the interface periphery while observing the instrument readout.
- If an increased meter reading is indicated, sample that part of the interface until the maximum meter reading is obtained and leave the probe inlet in that position for approximately two times the response time.
- If the maximum reading is greater than or equal to 10,000 ppm, a "leak" in the component has been identified. A maximum reading of less than 10,000 ppm indicates a component does not "leak".

N.8.3 Leak Repair as Soon as Practicable

When a leak is detected from a piece of equipment covered under this subpart, Bostik will conduct repairs as soon as practicable, but not later than 15 calendar days after it was detected, unless an exception is allowed as discussed in Section N.9. The component will have a visible, weatherproof identifier that indicates the equipment ID number, the date evidence of a potential leak was found, and the date the leak was detected by monitoring. The identification will be removed, with the exception of valves, when the repair is completed. The identification on valves may only be removed after two consecutive months of monitoring with no “leaks”.

Bostik will ensure that a first attempt at repairing the leak is made within 5 days of detection by completing a Leak Repair Form and submitting it immediately to the Maintenance Department.

The leak repair form contains the following information:

- Inspector’s identification;
- Component type, ID #, and location;
- The date evidence of a potential leak (visual, olfactory, etc.) was found;
- The date the leak was detected ;
- The dates of each attempt to repair the leak and the repair methods applied in each attempt to repair the leak;
- Monitoring results after the repair attempt. The letter “P” for pass will be indicated for an instrument reading less than 10,000 ppm and the letter “F” for fail will be indicated for an instrument reading greater than or equal to 10,000 ppm.

- Whether or not the repair was completed within 15 calendar days and the reason for any delay, if required;

- Documentation supporting the delay of repair of a valve (see Section N.9);

- The signature of the owner/operator whose decision it was that repair could not be effected without a hazardous waste management unit shutdown;

- The expected date of repair of the leak if not repaired within fifteen days; and the successful repair date.

A sample form is included in Attachment N-1.

N.8.4 Inaccessible or Ceramic Lined Connections

Since Bostik has no inaccessible or ceramic lined connectors, this exemption is not applicable.

N.9 Delay of Repairs [40 CFR 270.25(d) and 264.1059]

Repair delays on equipment for which leaks have been detected are allowed if the criteria presented in the following are met:

- If the repair is technically infeasible without a hazardous waste unit shutdown. In such a case, repair of this equipment shall occur before the end of the next shutdown.

- If the equipment is isolated from and does not continue to contain or contact hazardous waste with organic concentrations ≥10 percent by weight. The repair must be completed prior to returning the equipment to the service of hazardous waste with organic concentrations ≥10 percent by weight.

- Valve repairs may be delayed if the emissions of purged material resulting from immediate repair of the valve would be greater than the emissions resulting from the delay. Also, the purged material must be collected and destroyed, or recovered by a control device, when the repair is effected.

- Pump repairs may be delayed if the repair requires the use of a dual mechanical seal system that includes a barrier fluid system and if the repair is completed as soon as practicable, but no later than six months after the leak is detected.

Delay of repair beyond a hazardous waste management unit shutdown will be allowed for a valve if:

- valve assembly replacement is necessary, and

- valve assembly supplies have been depleted, and

- valve assembly supplies had been sufficiently stocked before the supplies were depleted.

Delay beyond the next shutdown is not allowed unless shutdown occurs sooner than 6 months after the first shutdown.

N.10 Closed Vent Systems [40 CFR 270.25(e); 264.1033; and 264.1060]

The section is not applicable to Bostik since leaks from pumps under Subpart BB are not collected and vented to the control device. The control device is in place to control emissions from tanks under Subpart CC.

N.11 Alternative Monitoring Programs [40 CFR 270.25(e) and 264.1061]

This section is not applicable since Bostik does not wish to implement the alternative standards allowing 2% of valves to leak.

N.12 Alternative Work Practices [40 CFR 270.25(e) and 264.1062]

This section is not applicable since Bostik does not wish to reduce the monthly monitoring requirement under this alternative standard.

N.13 Recordkeeping Requirements [40 CFR 270.25(a)-(c); 264.1064; and 264.1065]

Records required by this air quality program will be maintained on the forms described in the following subsections and kept in the facility operating record. Examples of these forms are presented in Attachment N-1. The required monitoring records for each piece of equipment are maintained in an excel spreadsheet. Each monitoring location has a unique identification tag. There are currently over 200 tags identifying covered components. An example of the excel spreadsheet is provided in Attachment N-1.

N.13.1 Semiannual Report

A semiannual report will only be required if "leaks" are not repaired within the time frame specified in Section N.2, or if a control device exceeds or operates outside of the design specifications for more than 24 hours. The semiannual report will provide the following information:

- The facility EPA ID number, name, and address;
- For each month during the semiannual reporting period, the equipment identification number of each valve, pump, or compressor which was not repaired in the required time frame;
- Dates of hazardous waste management unit shutdowns during the semiannual period; and
- Dates when the control device exceeded or operated outside of the design specifications, as indicated by control device monitoring, and was not corrected within 24 hours. The duration, cause, and corrective measures for each exceedance shall also be reported.

If no exceedances occur during a semi-annual period, no report will be filed.

N.13.2 Implementation Schedule

This section is not applicable.

N.13.3 Performance Test Plan

This section is not applicable.

Table N-1 Monitoring Schedule

Equipment Type	Monitoring Frequency	Monitoring Category
Pumps in light liquid service not designated for "no detectable emissions"	Monthly monitoring, and Weekly visual	"Leak" Detection
Pumps in light liquid service designated for "no detectable emissions"	Annual monitoring	"No Detectable Emissions"
Pressure relief devices in gas/vapor service	Monitored after each pressure release event	"No Detectable Emissions"
Valves in gas/vapor or light liquid service not designated for "no detectable emissions"	Monthly monitoring, or Quarterly monitoring (if no "leak" detected for 2 consecutive months)	"Leak" Detection
Valves in gas/vapor or light liquid service designated for "no detectable emissions"	Annual monitoring	"No Detectable Emissions"
Pumps and valves in heavy liquid service; Pressure relief devices in light liquid service; and Flanges and other connectors	Monitored (within 5 days) after discovering a potential leak with sensory evidence	"Leak" Detection
Closed Vent Systems	Annually	"No Detectable Emissions"

ATTACHMENT N-1

EXAMPLE RECORDKEEPING FORMS AND LEAK DETECTION MONITORING LOG

SAMPLE – FOR ILLUSTRATION PURPOSES ONLY

"LEAK" REPAIR FORM

Inspector's Name______________________ Inspector's Signature________________________

Component Type____

Component Identification Number_______________________________

Component Location____

Date Potential "Leak" Found (visible, olfactory, etc.)________________________

Date "Leak" was Detected______________________________________

Note: All leaks must be repaired within 15 days and the first attempt at repair must take place within 5 days.

Date of Each Repair Attempt	**Method of Repair Attempt (include work order number)**	**Monitor Results after Repair Attempt (Pass or Fail)**

Was the "Leak" Repaired in < 15 Days? Yes No

Successful Repair Date______________________________________

Reason For Delay of Repair___________________________________

____

____

Expected Date of Repair______________________________________

Owner/Operator Signature_____________________________________

SAMPLE – FOR ILLUSTRATION PURPOSES ONLY

Designation of "No Detectable Emissions" Form
Initial, Annual, & Return to Service Monitoring

Date of Test____________________

Component Location____

Component Identification Number____

Component Type____

Background Level ________________

Maximum Instrument Reading ________________

Arithmetic Difference ________________ Pass Fail

Date of Test____________________

Component Location____

Component Identification Number____

Component Type____

Background Level ________________

Maximum Instrument Reading ________________

Arithmetic Difference ________________ Pass Fail

The above components, in meeting all applicable requirements of 40 CFR 264.1057(f-h), are designated for "no detectable emissions".

Owner/Operator
Name and Signature: ____

Date: ____________________________

BIF Subpart BB

Leak Detection Monitoring Log

Inspector's Name: Benjamin Perez

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-001	Struthers Wells Boiler	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-002	Struthers Wells Boiler	Reducer Bushing	1" x 3/4 "	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-003	Struthers Wells Boiler	Tee	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-004	Struthers Wells Boiler	Tee	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-005	Struthers Wells Boiler	Reducer Bushing	1" x 3/4 "	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-006	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-007	Struthers Wells Boiler	Coupling	3/4" x 1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-008	Struthers Wells Boiler	Reducer Bushing	1/2" x 1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-009	Struthers Wells Boiler	Ball Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-010	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-011	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-012	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-013	Struthers Wells Boiler	Tee	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-014	Struthers Wells Boiler	Reducer Bushing	1/2" x 3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-015	Struthers Wells Boiler	Pressure Gauge	3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-016	Struthers Wells Boiler	Motorized Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-017	Struthers Wells Boiler	Ball Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-018	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-019	Struthers Wells Boiler	Tee	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-020	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-021	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-022	Struthers Wells Boiler	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-023	Struthers Wells Boiler	Filter Basket	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-024	Struthers Wells Boiler	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-025	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-026	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-027	Struthers Wells Boiler	Tee	/4 x 3/4 x 1/	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-028	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-029	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-030	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-031	Struthers Wells Boiler	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-032	Struthers Wells Boiler	Filter Basket	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-033	Struthers Wells Boiler	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-034	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-035	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-036	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-037	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-038	Struthers Wells Boiler	Tee	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-039	Struthers Wells Boiler	Reducer Bushing	1/2" x 7/16"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-040	Struthers Wells Boiler	Ball Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-041	Struthers Wells Boiler	Motorized Valve	7/16"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-042	Struthers Wells Boiler	Coupling	7/16" x 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-043	Struthers Wells Boiler	Tee	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-044	Struthers Wells Boiler	Ball Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-045	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-046	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-047	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-048	Struthers Wells Boiler	Elbow – 45	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-049	Struthers Wells Boiler	Coupling	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-050	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-051	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-052	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-053	Struthers Wells Boiler	Union	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-054	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-055	Struthers Wells Boiler	Tee	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-056	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-057	Struthers Wells Boiler	Reducer Bushing	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-058	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-059	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-060	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-061	Struthers Wells Boiler	Reducer Bushing	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-062	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-063	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-064	Struthers Wells Boiler	Coupling	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-065	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-066	Struthers Wells Boiler	Elbow – 45	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-067	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-068	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-069	Struthers Wells Boiler	Flange	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-070	Struthers Wells Boiler	Flange	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-071	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-072	Struthers Wells Boiler	Union	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-073	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-074	Struthers Wells Boiler	Elbow – 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-075	Struthers Wells Boiler	Coupling	1/2" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-076	Struthers Wells Boiler	Coupling	3/4" x 1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-077	Struthers Wells Boiler	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-078	Struthers Wells Boiler	Reducer Bushing	1" x 3"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-079	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-080	Struthers Wells Boiler	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-081	Struthers Wells Boiler	Elbow – 90	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-082	Struthers Wells Boiler	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-083	Struthers Wells Boiler	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-084	Struthers Wells Boiler	Solenoid Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-085	Struthers Wells Boiler	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-086	Struthers Wells Boiler	Elbow - Street 90	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-087	Struthers Wells Boiler	Reducer Bushing	3/8" x 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-088	Struthers Wells Boiler	Ball Valve	3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-089	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-090	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-091	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-092	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-093	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-094	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-095	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-096	Struthers Wells Boiler	Reducer Bushing	3/8" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-097	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-098	Struthers Wells Boiler	Reducer Bushing	3/8" x 3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-099	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-100	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-101	Struthers Wells Boiler	Reducer Bushing	1/2" x 3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-102	Struthers Wells Boiler	Flange	4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-103	Struthers Wells Boiler	Reducer Bushing	3/8" x 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-104	Struthers Wells Boiler	Ball Valve	3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-105	Struthers Wells Boiler	Elbow – 90	3/8"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-106	Struthers Wells Boiler	Coupling	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-107	Struthers Wells Boiler	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-108	Struthers Wells Boiler	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-109	Struthers Wells Boiler	Coupling	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-110	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-111	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-112	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-113	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-114	Struthers Wells Boiler	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-115	Struthers Wells Boiler	Flange	2" x 4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-116	Building 27	Flange	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-117	Building 27	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-118	Building 27	Elbow – 90	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-119	Building 27	Flange	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-120	Building 27	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-121	Building 27	End Cap	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-122	Building 27	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-123	Building 27	End Cap	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-124	Building 27	Tee	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-125	Building 27	Ball Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-126	Building 27	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-127	Building 27	Reducer Bushing	1" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-128	Building 27	Union	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-129	Building 27	Diaphragm Pump	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-130	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-131	Building 27	Filter Basket	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-132	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-133	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-134	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-135	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-136	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-137	Building 27	Globe Valve	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-138	Building 27	End Cap	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-139	Building 27	Globe Valve	1"	No	6.3 ppm	No	2/8/2008	Method 21	No	No
BB-140	Building 27	Reducer Bushing	1" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-141	Building 27	Union	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-142	Building 27	Diaphragm Pump	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-143	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-144	Building 27	Filter Basket	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-145	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-146	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-147	Building 27	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-148	Building 27	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-149	T2	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-150	T2	Flange - Fire Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-151	T2	Flange - Fire Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-152	T2	Reducer Bushing	2" x 3"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-153	T2	Temp. Gauge	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-154	T2	Globe Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-155	T2	End Cap	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-156	T2	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-157	T2	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-158	T2	Hose Connector - Male	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-159	T1	Globe Valve	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-160	T1	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-161	T1	Flange	1 1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-162	T1	Reducer Bushing	2" x 3"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-163	T1	Temp. Gauge	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-164	T1	Globe Valve	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-165	T1	End Cap	1/2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-166	T1	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-167	T1	Hose Connector - Female	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-168	Day Tank	Sight Glass	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-169	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-170	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-171	Day Tank	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-172	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-173	Day Tank	Tee	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-174	Day Tank	Tee	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-175	Day Tank	Tee	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-176	Day Tank	Reducer Bushing	3/4" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-177	Day Tank	Ball Valve	3/4"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-178	Day Tank	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-179	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-180	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-181	Day Tank	Diaphragm Pump	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-182	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-183	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-184	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-185	Day Tank	Tee	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-186	Day Tank	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-187	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-188	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-189	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No

Tag #	Location	Equipment Description	Size	Visible Leaker?	Instrument Reading	Leak >= 10,000 PPM Detected?	Date Tested	Method of Compliance	Difficult to Monitor?	In service < than 300hrs?
BB-190	Day Tank	Diaphragm Pump	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-191	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-192	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-193	Day Tank	Elbow – 90	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-194	Day Tank	Elbow – 45	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-195	Day Tank	Elbow – 45	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-196	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-197	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-198	Day Tank	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-199	Day Tank	Globe Valve	1 1/2" x 2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-200	Day Tank	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-201	Day Tank	Fire Valve	2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-202	Day Tank	Elbow - 90	2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-203	Day Tank	Reducer Bushing	1 1/2" x 2"	No	0 ppm	No	2/8/2008	Method 21	Yes	No
BB-204	Blg. 9 Dike	Ball Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-205	Blg. 9 Dike	Flange	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-206	Blg. 9 Dike	Flange	1" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-207	Blg. 9 Dike	Ball Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-208	Blg. 9 Dike	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-209	Blg. 9 Dike	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-210	Blg. 9 Dike	Filter Basket	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-211	Blg. 9 Dike	Diaphragm Pump	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-212	Blg. 9 Dike	Flange	1"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-213	Blg. 9 Dike	Flange	1" x 2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-214	Blg. 9 Dike	Flange	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-215	Blg. 9 Dike	Ball Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-216	Blg. 9 Dike	Globe Valve	2"	No	0 ppm	No	2/8/2008	Method 21	No	No
BB-217	Blg. 9 , 1st Flr. South	Ball Valve	2"	No	14.5 ppm	No	2/8/2008	Method 21	No	No
BB-218	Blg. 9, 2nd Flr. West	Ball Valve	2"	No	7 ppm	No	2/8/2008	Method 21	No	No

Section O - Subpart CC Air Emission Standards

O.1 Applicability and Definitions [40 CFR 270.14(a); 270.27; and 264.1080(a)-(d)]

The requirements of this subpart apply to owners and operators of facilities that treat, store or dispose of hazardous waste in tanks, surface impoundments or containers subject to either Subpart I, J, or K of 40 CFR 264.1 with the exceptions listed below and in Section O.2.

The requirements of this subpart do not apply to the following:

- A waste management unit that holds waste placed in the unit before December 6, 1996, and in which no hazardous waste is added on or after December 6, 1996.
- Containers with a design capacity less than or equal to 0.1 cubic meters, (about 26 gallons)
- A tank in which an owner or operator has stopped adding hazardous waste and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan.
- A surface impoundment in which an owner or operator has stopped adding hazardous waste (except to implement an approved closure plan) and the owner or operator has begun implementing or completed closure pursuant to an approved closure plan.
- A waste management unit that is used solely for on-site treatment or storage of hazardous waste that is placed in the unit as a result of implementing remedial activities required under the corrective action authorities of RCRA, CERCLA authorities, or similar Federal or State authorities.
- A waste management unit that is used solely for the management of radioactive mixed waste in accordance with all applicable regulations under the authority of the Atomic Energy Act and the Nuclear Waste Policy Act.
- A hazardous waste management unit that the owner or operator certifies is equipped with and operating air emission controls in accordance with the requirements of an applicable Clean Air Act regulation codified under part 60, 61, or 63.
- Tanks with process vents as defined in 40 CFR 264.1031 (Subpart AA).

Since Bostik does not fall under any of the exceptions listed above, this subsection is applicable.

Some terms used to describe compliance with this subpart can be defined as follows:

- **Cover** means a device or system that is placed on or over a hazardous waste such that the entire waste surface area is enclosed and sealed to reduce air emissions to the atmosphere. Examples of covers include a fixed roof installed on a tank, a lid installed on a drum and an enclosure in which an open container is placed during waste treatment.

- **Fixed Roof** means a rigid cover that is installed in a stationary position so that it does not move with the fluctuations in the level of the hazardous waste placed in a tank.

- **In Light Material Service** means managing a material for which both of the following conditions apply: The vapor pressure of one or more of the organic constituents in the material is greater than 0.3 kilopascals (2.25 mm Hg) at 20°C (68°F); and the total concentration of the pure organic constituents having a vapor pressure greater than 0.3 kPa at 20°C is equal to or greater than 20 percent by weight.

O.2 List of Exempt Units [40 CFR 270.14(a); 270.27; and 264.1082(c)]

A tank, surface impoundment, or container is exempt from standards specified in 264.1084 through 264.1087 of this subpart, as applicable, provided the waste management unit is one of the following:

O.2.1 Hazardous Waste with Volatile Organic Concentration of Less Than 500 ppmw

Bostik does not currently operate tanks, surface impoundments, or containers for which all hazardous waste entering the unit has an average volatile organic concentration at the point of waste origination of less than 500 ppm by weight. This exemption is therefore not applicable.

O.2.2 Reduced by Organic Destruction or Removal Process

Bostik does not currently reduce the organic content of the hazardous waste entering the waste management unit by an organic destruction or Removal process. This exemption is therefore not applicable.

O.2.3 Tanks used for Biological Treatment

Bostik does not currently utilize tanks for biological treatment of hazardous waste. This exemption is therefore not applicable.

O.2.4 Hazardous Waste meets Applicable Organic Concentration Limits

Bostik does not currently utilize tanks for which hazardous waste placed in the unit meets the numerical concentration limits for organic hazardous constituents as specified in 40 CFR 268.40 or treat the organic constituents by the treatment technology established by EPA for the waste in 40 CFR 268.42(a). This exemption is therefore not applicable.

O.2.5 Tank within Enclosure Vented to Control Device

Bostik does not currently operate any tanks that are located within an enclosure vented to a control device. This exemption is therefore not applicable.

O.3 Waste Determination Procedures [40 CFR 270.14(a); 270.27; 264.1083 and 264.1084]

Since Bostik does not claim any of the exemptions listed in the previous section, waste determination procedures are not applicable.

O.4 Tank Controls [40 CFR 270.14(a); 270.27; and 264.1084(b)(1),(2)]

Bostik has four hazardous waste storage tanks; T-1 and T-2 each have an 8,000 gallon capacity; T-9 has a 10,000 gallon capacity and DT-1 has a capacity of 950 gallons. Since each of Bostik's hazardous waste storage tanks have a capacity of less than 75 m^3 (20,000 gallons), the maximum organic vapor pressure limit for the tank is 76.6 kilopascal (kPa), and, since waste stabilization does not occur in the tanks, Tank Level 1 Controls are applicable.

O.5 Tank Conditions [40 CFR 270.14(a); 270.27; and 264.1084(b)(1)]

O.5.1 Conditions for Hazardous Waste

Bostik will ensure that the hazardous waste in the tanks shall meet the following requirements:

O.5.1.1 Maximum Organic Vapor Pressure

Bostik will ensure that the hazardous waste in the tank has a maximum organic vapor pressure that is less than the maximum organic vapor pressure limit for the tanks design capacity. Since each of Bostik's four hazardous waste storage tanks have a capacity less than 75 m^3 (~20,000 gallons), the maximum organic vapor pressure limit for the tank is 76.6 kPa. Bostik's polyester distillate waste stream has a vapor pressure of roughly 7.8 kPa, well below each tanks design capacity. This vapor pressure was determined by using our internal MSDS system and knowledge of the distillate components to calculate a theoretical vapor pressure of 58 mm Hg, which was then converted to kPa. Bostik will ensure that a new maximum vapor pressure determination will be performed whenever changes to the hazardous waste managed in the tanks could potentially cause the maximum organic vapor pressure to increase to a level that that is equal or greater than the maximum organic vapor pressure limit for the tank design capacity. Bostik's waste stream varies very little since wastes are generated from only the polymerization process areas. Wastes are not accepted from other departments within the plant or from outside the company.

O.5.1.2 Tanks Not Heated

Bostik does not heat hazardous waste in the tank to a temperature that is greater than the temperature at which the maximum organic vapor pressure of the hazardous waste is determined. Bostik does not heat the hazardous waste tanks. All hazardous waste storage tanks are steel tanks that are located outside and are not equipped with any steam or electrical heating systems.

O.5.1.3 No Stabilization in tanks

Bostik does not treat the hazardous waste in tanks using a stabilization process so this section is not applicable.

O.5.2 Maximum Organic Vapor Pressure Determination

Bostik will determine the maximum organic vapor pressure for the polyester distillate waste stream initially and whenever changes to the waste stream managed in the tank could potentially cause the maximum organic vapor pressure to increase to a level that is equal to or greater than the maximum organic vapor pressure limit for the tank design capacity. Since Bostik's waste has a very low vapor pressure and varies little over time, it is unlikely additional testing will be warranted.

O.5.2.1 Tank Level 1 – Fixed Roof and Closure Devices

Bostik tanks are all equipped with a fixed roof that is integral to the tanks structural design and forms a continuous barrier over the entire surface area of the hazardous waste tank. There are no visible cracks, holes, gaps, or other open spaces between the interface of the roof edge and the tank wall.

T-1, T-2, T-9 and DT-1 have man ways equipped with a closure device designed to operate such that when the closure device is secured in the closed position there are no visible cracks, holes, gaps, or other spaces between the perimeter of the opening and the closure of the device.

T-1, T-2, T-9 and DT-1 are vented by a closed vent system to a control device that destroys organics in the waste stream. The primary source of vapor destruction will be the Struthers Wells Industrial Boiler while the Enclosed Flare will remain in service as a backup in case the industrial boiler is not operational for any reason.

O.5.2.2 Tank Level 2 – Fixed Roof with Internal Floating Roof or External Floating Roof

Not applicable.

O.5.2.3 Tank Level 2 -Tank Vented through Closed Vent System

Not applicable.

O.5.3 Tank Level 2 - Pressure Tank

Not applicable.

O.5.4 Tank Level 2 - Tank Located inside an Enclosure

Not applicable.

O.5.5 Tank Level 1

As an owner operator of Level 1 Tanks, Bostik will:

O.5.5.1 Determine Maximum Organic Vapor Pressure

Bostik will determine the maximum organic vapor pressure for the Polyester Distillate waste stream initially and whenever changes to the waste stream managed in the tank could potentially cause the maximum organic vapor pressure to increase to a level that is equal to or greater than the maximum organic vapor pressure limit for the tank design capacity. Since Bostik's waste has a very low vapor pressure and varies little over time, it is unlikely additional testing will be warranted.

O.5.5.2 Fixed Roof Installed and each Closure Device Secured

Except as provided below, Bostik's tanks are all equipped with a fixed roof that is integral to the tanks structural design and forms a continuous barrier over the entire surface area of the hazardous waste tank. There are no visible cracks, holes, gaps, or other open spaces between the interface of the roof edge and the tank wall.

Opening of closure devices is allowed at the following times:

- To provide access to the tank for performing routine inspection, maintenance, or other activities needed for normal operations. Examples of such activities include those items when a worker needs to open a hatch to maintain or repair equipment. Following completion of the activity, the tank will be promptly secured.

- To remove accumulated sludge or other residues from the bottom of the tank.

Bostik's T-1, T-2, and T-9 tanks are vented to the process header through a two way conservation vents to the vapor header that brings the vapors to the Struthers Wells Industrial Boiler or the Enclosed Flare. Should any of the conservation vents become blocked on the vapor header side (vacuum side), the other side of the conservation vent (pressure side) will release vapors to the external environment. These devices are designed to operate with no detectable organic emissions when the system is functioning normally and the conservation vent is secured in the closed position. The settings at which these devices open will be established to ensure that the device remains in the closed position whenever the tank internal pressure is within the internal pressure operating range determined by the manufacturer recommendations or other requirements for the safe handling of ignitable materials. The DT-1 tank is directly vented to the vapor header passing through a flame arrestor but no conservation vent.

Opening of a safety device is allowed at any time conditions require doing so to avoid an unsafe condition.

O.5.5.3 Inspection of Air Emission Control Equipment

Bostik will visually inspect the fixed roof and its closure devices to check for defects that could result in air pollutant emissions. Defects include, but are not limited to, visible cracks, holes, or gaps in the roof sections or between the roof and the tank wall; broken, cracked, or otherwise damaged seals or gaskets on closure devices; and broken or missing hatches, access covers, caps, or other closure devices. Bostik will conduct these visual inspections us part of the daily BIF inspection using the BIF Daily Inspection Form previously included in Section F.

In the event that a defect is detected, Bostik will make first efforts at repair of the defect no later than 5 calendar days after detection, and the repair will be completed as soon as possible but no later than 45 calendar days after detection with the following exception.

Repair of a defect may be delayed beyond 45 calendar days if Bostik determines that repair of the defect requires empting or temporary removal form service of the tank and no alternative tank capacity is available at the site to accept the hazardous waste normally managed in the tank. In this case, Bostik will repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank stops operation. At that time, repair of the defect will be completed before the process resumes operation.

Bostik will maintain record of these inspections in accordance with Section O.14.

O.5.6 Tank Level 2

O.5.6.1 Fixed Roof Tank with Internal Floating Roof

Not applicable.

O.5.6.2 Tank with External Floating Roof

Not applicable.

O.5.6.3 Tank vented through Closed Vent System to Control Device

Not applicable.

O.5.6.4 Pressure Tank

Not applicable.

O.5.6.5 Tank Located inside an Enclosure

Not applicable.

O.5.6.6 Continuous Hard Piping

Not applicable.

O.6 Tank Covers [40 CFR 270.14(a); 270.27; and 264.1085(b),(d)]

Since Bostik does not operate surface impoundments, this section is not applicable.

O.7 Tank Venting [40 CFR 270.14(a); 270.27; and 264.1085(c)(1)]

Since Bostik does not operate surface impoundments, this section is not applicable.

O.8 Level 1 Standards [40 CFR 270.14(a); 270.27; and 264.1086(b)(1)]

Bostik uses 55 gallon drums to accumulate and store hazardous waste at the facility. Wastes accumulated in drums are primarily transferred to off-site disposal facilities, although occasionally polyester distillate accumulated by our Pilot Plant is stored in drums before being pumped to T-9.

Since these drums have a design capacity greater than 0.1 m^3 and less than 0.46 m^3, Bostik will control emissions from these containers in accordance with Container Level 1 standards.

O.9 Containers [40 CFR 270.27(a)(2)]

Bostik stores hazardous waste in drums in the Main Accumulation Areas (MAA's) located in the plant (Building 13) and Pilot Plant (Building 30). All drums used by Bostik are DOT rated so that our products can be safely transported to our customers.

O.10 Container Covers and Closure Devices [40 CFR 270.14(a); 270.27; and 264.1086(c)(3),(4)]

Bostik ensures that the covers of all drums storing hazardous waste in our Main Accumulation Area (MAA) are kept secure at all times and all bungs are tightened to prevent leakage of liquids or vapors. Drums used for satellite hazardous waste accumulation are opened only during filling activities and then are immediately closed.

Bostik does not receive hazardous waste from outside the plant either from customers or other Bostik locations, therefore, the requirement to conduct an initial inspection within 24 hours of receiving the waste is not applicable.

MAA and SAA inspections are conducted on a weekly basis looking for leaking drums and other issues identified in the MAA and SAA inspection forms previously mentioned and included in Attachment F-2.

Since all drummed hazardous waste containers remain on the Bostik property for no more than 90 days, the requirement to re-inspect the containers after 1 year is not applicable.

O.11 Closed Vent Systems [40 CFR 270.14(a); 270.27; and 264.1087(a)]

O.11.1 Standards that Apply

O.11.2 Closed Vent System Requirements

Bostik will ensure that closed vent systems meet the following requirements:

O.11.2.1 Routing of Gases, Vapors and Fumes to Control Device

Bostik will route the vapors emitted from the hazardous waste in the tanks to a control device that meets the requirements of Section O.12. The primary route for vapors emitted from the hazardous waste tanks will be to the Struthers Wells Industrial Boiler. The secondary route for vapors emitted from the hazardous waste tanks will be to the Enclosed Flare. The secondary route will only be used when the primary route is shut down for maintenance.

O.11.2.2 Design and Operation

The closed vent system will be designed and operated in accordance with 40 CFR 264.1033(k) of this subpart which stipulates that a closed vent system shall be designed to operate with no detectable emissions, as indicated by an instrument reading of less than 500 ppmv above background as determined by Reference Method 21, and by visual inspections. Compliance with this requirement will be demonstrated annually using the Leak Detection Monitoring Log included in **Attachment O-2**.

O.11.2.3 Bypass Devices

Not Applicable. Since Low legs drains, high point bleeds, analyzer vents, open ended valves or lines, spring loaded pressure relief valves, and other fittings used for safety purposes are not considered to be bypass devices, there are no bypass devices in the current system. If at any point in the future a bypass device is added to the existing system that could be used to divert the vapor stream to the atmosphere before entering the control device, Bostik will ensure that each bypass device is equipped with either a seal or locking device.

The seal or locking device is used, the device will be placed on the mechanism by which the bypass device position is controlled (i.e., valve handle, damper lever) when the bypass device is in the closed position. This will ensure that the bypass device cannot be opened without breaking the seal or removing the lock. These seals or lock mechanisms would be inspected monthly to verify that the bypass mechanism is maintained in the closed position.

O.12 Control Devices [40 CFR 270.27(a)(5) and 264.1087(c)(1)]

O.12.1 Control Devices Required

The control device must meet one of the following requirements identified in O.12.1.1 or O.12.1.2.

O.12.1.1 Control Device Designed to Reduce Total Organic Content by at least 95 Percent

A control device must be designed and operated to reduce the total organic content of the inlet vapor stream vented to the control device by at least 95 percent by weight. Bostik conducted a compliance test on the enclosed flare in September 1998 (see **Attachment O-1**) and demonstrated that the destruction and removal efficiency (DRE) of this unit for non-methane hydrocarbons was 99.43%. Additionally, the BIF unit will be required to meet a DRE of at least 99.99% for a principal organic constituent in the waste. Thus, either of the control devices to be used for process vapors will easily meet the 95% requirement.

O.12.1.2 Enclosed Combustion Device

The control device must be an enclosed combustion device designed and operated in accordance with 40 CFR 264.1033(c) which stipulates that:

- An enclosed combustion device shall be designed and operated to reduce organic emissions vented to it by 95 weight percent or greater; to achieve a total organic compound concentration of 20 ppmv, expressed as the sum of the actual compounds, not carbon equivalents, on a dry basis corrected to 3 percent oxygen; or

- To provide minimum residence time of 0.50 seconds at a minimum temperature of 760°C.

- If a boiler or process heater is used as the control device, then the vent stream shall be introduced into the flame zone of the boiler or process heater.

Both the polyester burner and the enclosed flare comply with these requirements.

O.12.1.3 Flare

The flare must be designed and operated in accordance with 40 CFR 264.1033(d) which stipulates:

- A flare shall be designed and operated with no visible emissions as determined by Reference Method 22 (40 CFR Part 60) except for periods not to exceed a total of 5 minutes during any 2 consecutive hours.

- A flare shall be operated with a flame present at all times, as determined by the following methods:

    - Installation, calibration, and maintenance of a flow indicator that records vent stream flow from each process vent to the control device at least every hour.

    - A heat sensing monitoring device equipped with a continuous recorder that indicates ignition of the pilot flame.

    - Inspect the readings from each monitoring device at least once each operating day to check control device operation and, if necessary, immediately implement the corrective measures necessary to ensure the control device operates in compliance with the requirements of this section. Bostik will conduct these daily inspections using the BIF Daily Inspection Form previously included in Section F of this permit application.

- A flare shall be used only if the net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scf) or greater if the flare is non-assisted. Since Bostik's enclosed flare is assisted by natural gas, this is not applicable.

- A steam-assisted or non-assisted flare shall be designed for and operated with an exit velocity less than 18.3 m/s (60 fps). Since Bostik's enclosed flare is assisted by natural gas, this is not applicable.

Bostik's Enclosed Flare complies with these requirements.

O.12.2 Closed Vent System and Control Device Operating Requirements

Bostik will ensure that the following requirements for operators of closed vent systems and control devices are complied with:

- Periods of planned routine maintenance of the control device, during which the control device does not meet the specifications of this sections, will not exceed 240 hours per year.

- The specification and requirements of this section for control devices do not apply during periods of routine maintenance.

- The specification and requirements of this section for control devices do not apply during a control device system malfunction.

- The owner/operator will demonstrate compliance with the planned routine maintenance requirements by recording the information specified in Section O.14.

O.12.3 Carbon Adsorption Systems

Since Bostik does not operate carbon adsorption systems, this section is not applicable.

O.12.4 Control Device Operation and Maintenance of Other Control Devices

Since Bostik does not operate a control device other than a thermal vapor incinerator, flare, boiler, process heater, condenser, or carbon adsorption system, this section is not applicable.

O.12.5 Control Device Performance Requirements

An owner/operator must demonstrate that a control device achieves the performance requirements specified in O.12.1.1 and O.12.1.2 using either a performance test or a design analysis, except for the following:

- A Flare;

- A boiler or process heater with a design heat input capacity of 44 megawatts or greater;

- A boiler or process heater into which the vent stream is introduced with the primary fuel;

- A boiler or industrial furnace burning hazardous waste for which the owner or operator has been issued a final permit under 40 CFR part 270 and has designed and operates the unit in accordance with the requirements of 40 CFR part 266 subpart H; or

- A boiler or industrial furnace burning hazardous waste for which the owner or operator has designed and operates in accordance with the interim status requirements of 40 CFR part 266 subpart H.

Since Bostik’s primary control device is an industrial boiler operating under interim status and the secondary control device is a flare meeting the requirements of 40 CFR 264.1033(c), this section is not applicable.

O.12.6 Performance Test

If the Regional Administrator does not agree on a demonstration of control device performance using a design analysis then the disagreement will be resolved using results of a performance test performed by the owner/operator. The Regional Administrator may choose to have an authorized representative observe the performance test.

O.12.7 Inspection and Monitoring of Control Device

Bostik will inspect and monitor the closed vent system and control device in accordance with procedures specified in 40 CFR 264.1033(f)(2) and 40 CFR 264.1033(l). The reading from each monitoring device required by 40 CFR 264.1033(f)(2) shall be inspected at least once each operating day to check control device operation. Any necessary corrective measures shall be immediately implemented to ensure the control device is operated in compliance with the requirement of this section. Bostik will conduct these daily inspections using the BIF Daily Inspection and CEM Daily Inspection forms previously included in Section F of this permit application.

O.13 Inspections [40 CFR 270.27 and 264.1088]

- Bostik will inspect and monitor air emission control equipment used to comply with this subpart in accordance with the applicable requirements specified in 40 CFR 264.1084 through 40 CFR 264.1087. These inspections can be summarized as follows:

- Daily inspections of the closed vent system and control device to check control device operation using the previously referenced inspection forms.

- Monthly inspections of seals or lock mechanisms to verify that bypass mechanisms are maintained in the closed position using the BIF Daily Inspection Form.

- Daily inspections of the tanks fixed roof and closure devices to check for defects that could result in air pollutant emissions using the BIF Daily Inspection Form.

O.14 Recordkeeping Requirements [40 CFR 270.27; and 264.1089]

O.14.1 Reporting Requirements

Bostik will maintain records required by this section for a minimum of 3 years. Bostik will maintain air emission control equipment design documentation until the air emission control equipment is replaced or otherwise no longer in service.

For each tank using air emission control in accordance with 40 CFR 264.1084 of this subpart, Bostik shall record:

- A unique tank identification number. Bostik's tanks are identified as T-1, T-2, T-9, and DT-1.

- A record of each inspection including: the date the inspection was conducted and, for each defect detected, the location of the defect, the date of the defect, the date of the detection, the corrective action taken to repair the defect, the reason for any delay of the repair, and the date the completion of the repair is expected.

For each tank using a fixed roof to comply with Tank Level 1 control requirement, records will be maintained for the determination of the maximum organic vapor pressure in the tank including, the date and time the samples were collected, that analysis method used, and the analysis results.

Documentation for the closed vent system and control device includes:

- A certification that is signed by an authorized Bostik representative that the control device is designed to operate at the performance level documented by a design analysis or by performance tests
- A description of the planned routine maintenance that is anticipated to be performed for the control device during the next 6 month period. This description shall include the type of maintenance necessary, planned frequency of maintenance, and lengths of maintenance periods.
- A description of the planned routine maintenance that was performed for the control device during the previous 6 month period. This description shall include the type of maintenance performed and the total number of hours during those 6 months that the control device did not meet the requirements of 40 CFR 264.1087(c)(1).
- Unexpected control device system malfunctions that would require the control device to not meet the requirements of 40 CFR 264.1087(c)(1) including the occurrence and duration of each malfunction, the duration during each malfunction when vapors are vented while the control device is not functioning properly, and actions taken to restore malfunctioning control devices.

O.14.1.1 Noncomplinace Reports for Exempted Units

Since Bostik does not manage hazardous waste in tanks exempted from using air emission controls under 40 CFR 264.1082(c), the section is not applicable.

O.14.1.2 Noncompliance Reports of Level 1 Controlled Tanks

Bostik will submit a written report to the Regional Administrator within 15 days of becoming aware of each occurrence when hazardous waste managed in the tank is in noncompliance with the conditions specified in 40 CFR 264.1084(b), Tank Level 1 Controls. Examples of such noncompliance's would include managing waste in the tanks with a maximum organic vapor pressure which is greater than the tank's design limit, waste heated above a temperature at which the maximum organic vapor pressure of the waste is determined, the waste is treated using a stabilization process, the tanks and closure devices do not form a continuous barrier. The written report will include the EPA identification number, facility name and address, a description of the noncompliance event and the cause, the dates of noncompliance, and the actions taken to correct the noncompliance and prevent recurrence of the noncompliance. The report will be signed and dated by an authorized representative of Bostik.

O.14.1.3 Semi-Annual Written Report

Bostik will submit to the Regional Administrator a semi-annual report that describes each occurrence during the previous 6 month period when the Struthers Wells Industrial Boiler operated continuously for 24 hours or longer in noncompliance with the applicable values defined in 40 CFR 264.1035(c)(4) or the Enclosed Flare operated with visible emissions for 5 minutes or longer in a 2 hour period.

The written report will include the EPA identification number, facility name and address, and an explanation why the control device could not be returned to compliance within 24 hours, and actions taken to correct noncompliance. The report will be signed and dated by an authorized representative of Bostik.

A semiannual report is not required for a 6 month period during which all control devices subject to this subpart are operated such that:

- There were no periods of 24 hours or longer where a control device operated continuously in noncompliance with applicable operating values; and
- The enclosed flare was not operated with visible emissions for 5 minutes or longer in a 2 hour period.

O.14.2 Emission Control Plan

Bostik will use Sections N and O of this Part B Permit Application as an emission control plan for both Method 21 in 40 CFR Part 60, Appendix A and control device methods.

O.14.3 Subpart CC Implementation Plan

No applicable.

Table O-1 Tanks Subject to Subpart CC Controls

Subpart CC Information	Units	Tank T-1	Tank T-2	Tank T-9	Tank DT-1
Capacity	gallons	8,800	8,800	10,000	950
	m^3	33.3	33.3	37.9	3.6
Heated?	--	No	No	No	No
Max. Vapor Pressure	kPa	76.6	76.6	76.6	76.6
Control Requirement	--	Level 1	Level 1	Level 1	Level 1

ATTACHMENT O-1

ENCLOSED FLARE NMOC DESTRUCTION EFFICIENCY EMISSIONS TEST REPORT

Bostik

October 28, 1998

MADEP
Northeast Regional Office
Bureau of Waste Prevention
205 Lowell Street
Wilmington, MA 01887
Attn: Permit Chief

Re: Comprehensive Plan Approval MBR-97-IND-055
Emissions Compliance Test Report

To Whom It May Concern,

Attached please find two copies of the emissions compliance test report for Bostik's enclosed flare. As you are aware the test was conducted by ENSR Consulting & Engineering on September 1, 1998.

If you have any questions or concerns regarding this submission, please do not hesitate to contact me directly by phone at (978) 750-7402 or by email at welchd@bostik.com.

Sincerely,

Daniel F. Welch
Environmental Affairs Manager

Bostik, Inc.

Middleton, MA

Enclosed Flare NMOC Destruction Efficiency Emissions Test Report

ENSR

October 1998

Document Number 0963-013-400

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1.0 INTRODUCTION

1.1 Program Overview

ENSR was retained by Bostik, Inc. to conduct a Non-Methane Organic Compound (NMOC) Destruction Efficiency (DE) compliance test program on a enclosed flare control device at their Middleton, MA facility. The purpose of the test program was to determine if the control device is meeting the required destruction efficiency of greater than 99%. This compliance testing was required by Condition E5 of the Massachusetts Department of Environmental Protection (MADEP) Plan Approval for the flare (Approval No. MBR-97-IND-055) dated March 5, 1998. A summary of the parties involved with the test program are presented in Table 1-1.

1.2 Program Scope

During the test program, ENSR conducted simultaneous NMTHC measurements at both the inlet and outlet of the enclosed flare for three test periods while the reactor vessels were mixing or venting to the enclosed flare. Each test run was preceded and followed by flow measurements at the inlet and outlet test locations. The installed inlet flow meter accuracy was verified through the three test runs conducted. The average flows during each test period were used in conjunction with NMTHC measurements to calculate inlet and outlet NMTHC emissions on a mass basis (lbs/hr). The inlet and outlet NMTHC mass emissions were then used to calculate the NMTHC DE of the enclosed flare. The unit is required to meet a NMTHC DE of >99.0%.

1.3 Test Report Organizational Overview

The remainder of this Test Report is divided into five sections. Section 2 summarizes and discusses the results of the test program. Section 3 of this document provides a facility description. A description of the flue gas monitoring procedures is provided in Section 4. Section 5 describes the data reduction process, while Section 6 addresses the quality assurance/quality control aspects of the program. Appendix A-C contain the field data sheets, process information and the certificates of analysis for the calibration gases utilized, respectively.

TABLE 1-1
Test Program Information Summary - Bostik, Inc.

Facility Information	
Facility Name:	Bostik, Inc.
Facility Address:	211 Boston St. Middleton, MA 01949
Facility Contact:	Mr. Dan Welch/Mr. Jim Harlow
Title:	Co-Project Managers
Phone:	(978) 750-7402/7466
Source Information	
Equipment:	Enclosed Flare
Test Conditions:	Normal Operation
Make:	NAO
Model No.:	HVTO-45
Test Firm Information	
Test Organization:	ENSR
Address:	35 Nagog Park Acton, MA 01720
Contact:	Mr. Robert Sicard/Mr. David Moll
Title:	Field Project Manager/Project Manager
Phone:	(978) 635-9500 x3560/3508

2.0 SUMMARY AND DISCUSSION OF RESULTS

The following sections summarize and discuss the results of the program.

2.1 Summary of Results

Three test runs were completed on September 1, 1998 to quantify the destruction efficiency of the enclosed flare unit. Inlet and outlet TNMHC concentrations in conjunction with flow measurements were conducted. The resultant inlet and outlet lb/hr emission rates were used to calculate destruction efficiency for each test run. Table 2-1 presents the results of the program. Also included is a comparison of the inlet flow measurements compared to the facilities installed flow meter.

2.2 Discussion of Results

As indicated by the results, the enclosed flare achieved a destruction efficiency greater than the required 99% limit. The unit should be considered to be in compliance with Condition E5 of the MA DEP Plan Approval.

Hydrocarbon measurements were made on a propane basis and the methane results were derived from tedlar bag samples analyzed on a field GC/FID Byron monitor. Methane concentrations were converted to propane and were subtracted from the total non-methane results which were used to quantify overall destruction efficiencies. However, the outlet methane concentrations were found to be neglible (0.2 - 0.3ppm). Methane evaluations at the inlet were not conducted as indicated in the approved test protocol. All ENSR field data can be found in Appendix A of this test report.

Table 2-1 Summary of Results
Enclosed Flare Destruction Efficiency

Run Number	Inlet THC ppmw	Inlet Flow wscfm	Inlet THC lb/hr	Outlet THC ppmw	Outlet Flow wscfm	Outlet THC lb/hr	Destruction Efficiency %
1	4302	323.6	9.53	2.49	5444.0	0.09	99.03
2	7189	323.5	15.92	1.87	5216.7	0.07	99.58
3	8800	323.6	19.50	1.70	5330.6	0.06	99.68
Average	**6763.7**	**323.6**	**14.98**	**2.02**	**5330.4**	**0.07**	**99.43**

Plant Inlet Flow Meter Accuracy Evaluation Results

Run Number	Plant Flow acfm	Inlet Flow acfm	Percent Error %
1	311	313	0.64
2	311	312	0.32
3	309	313	1.28
Average	**310**	**313**	**0.75**

3.0 FACILITY DESCRIPTION

Bostik Incorporated, located in Middleton, MA, currently operates four reactor trains for polyester production. The reactor trains consist of first and second stage reaction vessels where product from the first stage reactor vessels is transferred to the second stage reactor vessels. The final product is then dumped into teflon lined pans for further processing. During transfer from the first to second stage reactor, the second stage reactor vessel is evacuated and the first is pressurized with nitrogen. The product batch is transferred through this evacuation and pressurization process. The vapors from the vessels are vented by use of a blower to the enclosed flare. All vessel vapors combine into a main header where flow is measured. The main header also allows air to be drawn in when no vapors are coming from the vessels. The vapors or fresh air are drawn through a knock out tank (removes entrained liquids) by the blower which delivers gases to four burners in the enclosed flare. The enclosed flare is operational at all times and burns natural gas along with fresh air or vapors from the reactor vessels. The natural gas feed into the unit is dependent upon the temperature control of the enclosed flare chamber.

Due to the nature of the polyester production process and the enclosed flare operations, the time periods at which each vessel is venting to the flare represent the periods from which maximum loading is achieved. Each vessel takes approximately 15 minutes to complete the product transfer and vessel venting process. Approximately 2 batches of product per reactor train are processed over a 24 hour period. Destruction efficiency was determined for three 1-hour periods which included product transfer periods and non product transfer periods.

4.0 SAMPLING AND ANALYSIS PROGRAM

4.1 General Overview

The enclosed flare underwent testing to determine NMHC destruction efficiency. This test program involved measurement of total hydrocarbon's (Method 25A inlet and outlet), bag sampling for methane analysis (Method 18 outlet only as no methane was expected at the inlet), flow (Methods 1 and 2, inlet and outlet), moisture (Method 4 outlet, wet bulb/dry bulb inlet only), and fixed gases (O_2 and CO_2, Method 3, inlet and outlet). Total hydrocarbons were measured as propane due to the high concentrations observed during preliminary testing. Methane concentrations for each run at the outlet were quantified through collection and analysis of a tedlar bag sample. The methane results after conversion to propane were then subtracted from the total hydrocarbon values, if necessary, for the resultant NMHC concentrations. The following sections outline the sampling locations, monitoring schedule and process operating conditions which played a critical role during this test program.

4.2 Sample Locations

Testing was conducted in the four inch pipe at the inlet and at the 18 foot level of the enclosed flare. A schematic depicting the enclosed flare layout with respect to the inlet and outlet sample locations in presented in Figure 4-1. The following subsections describe both the inlet and outlet test locations in detail.

4.2.1 Inlet

The inlet sampling location was comprised of one sampling port placed in the four inch pipe at the inlet before the blower fan in the main header pipe. The test port was utilized for NMTHC concentration and flow measurements. The inlet test location is greater than 8 equivalent diameters downstream and 10 equivalent diameters upstream from the nearest point of pollution rate change. The inlet sample point was centered within the six inch pipe.

4.2.2 Outlet

The outlet sampling location was comprised of two sampling ports placed 90° to each other in a horizontal plane at the 18ft level of the enclosed flare. Each of the two ports was traversed at 8 sample points during each velocity test run (total of 16 points), while NMTHC and moisture monitoring was conducted using each of the two test ports, respectively. The outlet test location is 4.14 equivalent diameters downstream and 1.15 equivalent diameters upstream from the flare burner tips. A schematic of the traverse points for the outlet test location is presented in Figure 4-2.

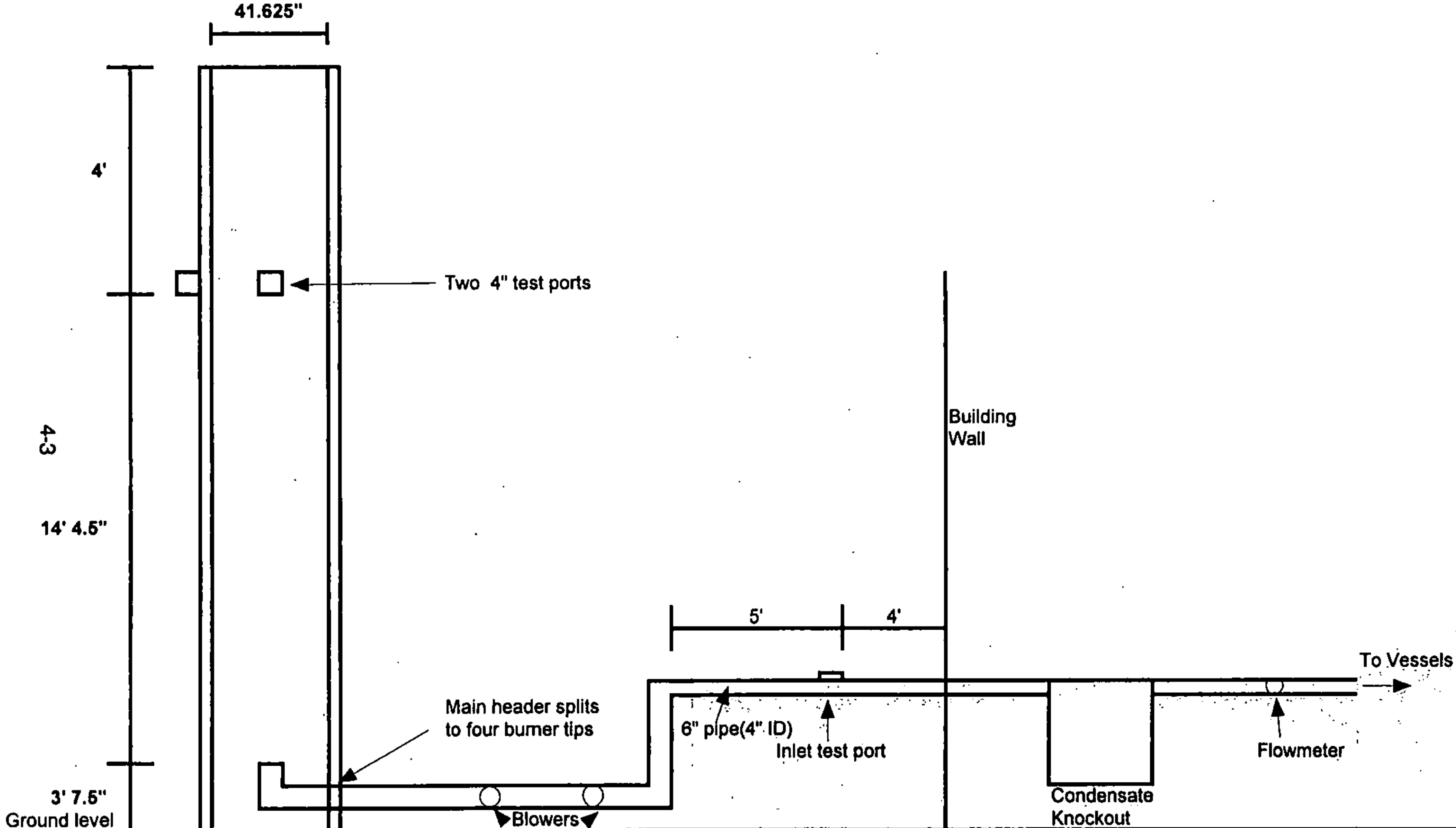
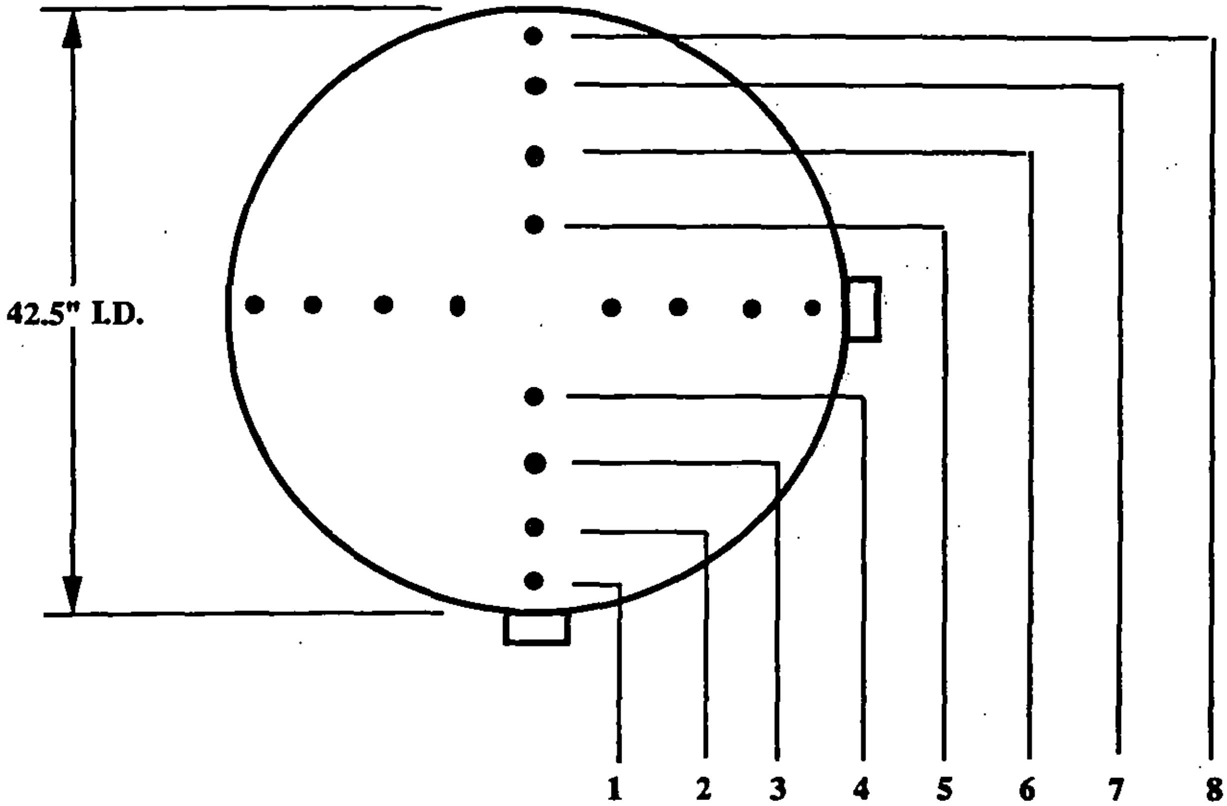


Figure 4 -1 Enclosed Flare Layout



Traverse Pt.	Distance % of Diameter	Actual Distance (inches)
1	3.2	1.4
2	10.5	4.5
3	19.4	8.2
4	32.3	13.7
5	67.7	28.8
6	80.6	34.3
7	89.5	38.0
8	96.8	41.1

FIGURE 4-2

Enclosed Flare Outlet Sample Points

4.3 Monitoring Strategy and Duration

Three one hour test periods were performed while the vessel reactors were transferring or mixing product and venting to the enclosed flare. The three test runs were subsequently averaged to determine a single value for destruction efficiency. These values were then compared to the facilities respective operating limits to determine the units compliance status. The specific test procedures and methodologies employed during the conduct of this test program are detailed below.

4.3.1 THC Measurements

A portable CEMS was used to monitor THC concentrations on a wet basis. Both THC analyzers were housed in our continuous emission monitoring trailer with heated sample lines run to the inlet and outlet test locations. The sample delivery system consisted of an instack stainless steel instack "raked probe". The probe was attached to a three-way valve assembly for delivery of calibration gases to the system. The sample gas was then extracted through the sample probe and heated sample lines directly to the respective THC analyzers.

The output signals from each analyzer were then recorded using a Strawberry Tree, Workbench for Windows Data Acquisition System (DAS). The DAS stored the collected data in engineering units and provide 1-minute averages based upon 60 readings per minute.

For the outlet sample location a "raked" probe was used which was constructed to sample at 17, 50, and 83 percent of the stack diameter on a continuous basis. The 3/8 inch stainless steel inlet probe was centered within the four inch pipe and secured by a sealed 2 inch normal pipe thread tap.

4.3.2 Flow Measurements

Volumetric flow rate was determined at the inlet and outlet test location utilizing EPA Method 2, 40 CFR 60, Appendix A, "Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)". In this procedure, gas stream differential pressure is measured with a Type S pitot tube and inclined water manometer. Stack gas temperature is measured concurrent with velocity head measurements. This data is used in conjunction with fixed gas and moisture data to calculate stack gas volumetric flow rate.

Inlet flow data was also recorded from the installed flow meter to verify the accuracy of the device. Inlet wet bulb/dry bulb measurements were utilized for moisture determinations which were utilized to convert acfm flow data into wscfm flow data.

4.3.3 Moisture Determination

Flue gas moisture was determined during each test period at the outlet test location using the approximation method described in Section 3, of EPA Method 4, 40 CFR 60, Appendix A. Wet bulb/dry bulb readings were taken at the inlet location for moisture determinations.

4.3.4 Methane/Fixed Gas Determinations

During each test run an integrated bag sample was collected from the outlet test location. No bag sample was collected at the inlet as no methane was expected to be present in the effluent stream. O2 and CO2 concentrations were measured continuously at the inlet and outlet test locations utilizing EPA Method 3A, 40 CFR 60, Appendix A. The tedlar bag samples was analyzed for methane content utilizing a Byron GC/FID instrument. Methane determinations from the outlet integrated bag samples were converted to propane, and if necessary subtracted from the THC measurements to arrive at the NMTHC concentrations.

4.4 Process Operating Data

The facility recorded all pertinent production data during the test program. This data was used to document representative operating conditions during each test period.

5.0 DATA REDUCTION

5.1 Overview

After completion of the field program all data was reduced and quality control checks were performed. The primary data reduction equations used for this program are detailed below.

5.2 Data Reduction

During this test program NMHCs were calculated on a mass basis (lb/hr) at both the inlet and outlet test locations. This enabled calculation of both NMHC destruction efficiencies and emission rates. Calculations pertinent to this test program are detailed in the following subsections.

5.2.1 Flow Calculations

Volumetric flowrates were calculated as follows:

- $QS_{wet} = \frac{(528)(VS)(A)(PS)}{(29.92)(144)(TS+460)}$
- $VS = (5130)\ (C_p)\ (delP)^{1/2}\ (TS+460)^{1/2}\ [(PS)(MW)]^{-1/2}$
- $MW = (MWD)(MD)+(18)(1\text{-}MD)$
- $MWD = (\%CO_2\ (0.44)) + (\%O_2(0.32)) + (\%CO+\%N_2\ (0.28))$
- $MD = \frac{100 - \%H_2O}{100}$
- $A = (\pi)\ (radius)^2$
- PS = Barometric Pressure (in. Hg) + Stack Static Pressure (in. Hg)

Where:
QS_{wet} = Volumetric flowrate (scfm)
VS = Gas Velocity (ft/sec)

MW = Molecular weight of wet stack gas (g/mole)
MWD = Molecular weight of dry gas
MD = Mole fraction of dry gas
A = Stack Area (sq in)
PS = Stack Pressure (in Hg)
C_p = pilot tube coefficient
delP = average velocity head (in H_2O)
TS = average gas temp. (°F)

5.2.2 Emission Rate Calculation (lb/hr)

NMHC emission rates (as propane) at both the inlet and outlet locations was calculated as follows:

- Emission Rate (lb/hr) = $\frac{(C_{out})(QS_{out})(MW)(60)}{(\text{Gas Constant})(10^6)}$

Where:
C_{out} = NMHC concentration at the outlet sample location measured on a wet basis in ppm
QS_{out} = wet volumetric flowrate measured at the outlet sample location corrected to STP (scfm)
MW = molecular weight of NMHC compounds as propane (44)
Gas Constant = 385.6 ft^3/lb. mol

5.2.3 Destruction Efficiency

Destruction efficiency was calculated as follows:

- Destruction Efficiency (%) = $[[(lb/hr_{inlet})-(lb/hr_{outlet})]/(lb/hr_{inlet})](100)$

6.0 QUALITY ASSURANCE/QUALITY CONTROL

6.1 Overview

During the monitoring phase of the program, a strict quality assurance/quality control (QA/QC) program was adhered to. The QA/QC aspects of the program are discussed below.

6.2 CEM QA

ENSR conducted all testing in accordance with accepted EPA Methods. Specific QA/QC procedures are detailed in the following subsections.

6.2.1 Leak Check Procedures

Prior to conducting the test program, the ENSR CEMS was leak checked. Following the initial leak check the calibration error and drift criteria as specified in EPA Method 25A, 40 CFR 60, Appendix A served as a continuous integrity check. If drift criteria were not met during a test run, the test run would have been voided (This did not occur).

6.2.2 Calibration

Prior to the initiation of testing, ENSR's THC analyzers were calibrated through the entire sampling system using ultra high pure air and three upscale calibration gases certified in accordance with EPA Protocol 1 procedures. This procedure was repeated prior to and following each sampling test run. This enabled the determination of calibration drift during each test period.

Results of instrument calibration error and calibration drift are presented in Appendix A. Calibration gas certification documentation was available on-site prior to the start of testing and is also presented in the Appendix C.

6.2.3 Response Time

In accordance with the applicable EPA Methods, the system response time was determined prior to testing. The results of the upscale and downscale response time tests for this program were used to ensure that once monitoring commenced that the instrumentation had reached stable conditions for recording of data.

6.3 Flow and Moisture QA

The sampling equipment associated with this program was calibrated prior to and following field use. All calibrations are performed in accordance with EPA procedures specified in 40 CFR 60, and manufacturers' specifications.

- Thermocouples. The Type K thermocouples are calibrated against ASTM mercury in glass thermometers at two points. The first point is in an ice bath and the second at the boiling point of water.

- Pitot Tube. The "S" type stainless steel pitot tubes are designed to meet geometric configurations as defined in EPA Method 2.

ATTACHMENT O-2

SUBPART CC LEAK DETECTION MONITORING LOG

Bostik Middleton
Subpart CC Leak Detection Monitoring Log

All monitoring done in accordance with EPA Method 21.
A component is determined to be leaking either visually or by detection of VOC's > 500 ppmv above background.

Equipment ID	Location	Equipment Description	Size (in.)	Visible Leaker	Instrument Reading (ppm)	Leak Detected?	Date Tested
CC-001	Struthers-Wells	Pheumatic Valve	3.5	No	0	No	3/12/2008
CC-002	Struthers-Wells	Flow Meter	3.5	No	0	No	3/12/2008
CC-003	Building 36	Flange	3.5	No	0	No	3/12/2008
CC-004	Building 36	KO Pot Tank Flange to S-W	3.5	No	0	No	3/12/2008
CC-005	Building 36	KO Pot Cover	24	No	0	No	3/12/2008
CC-006	Building 36	KO Pot top back flange	1.5	No	0	No	3/12/2008
CC-007	Building 36	KO Pot middle back flange	1.5	No	0	No	3/12/2008
CC-008	Building 36	KO Pot bottom back flange	1.5	No	0	No	3/12/2008
CC-009	Building 36	KO Pot top level meter flange	1.5 to 1	No	0	No	3/12/2008
CC-010	Building 36	Union to drum	1	No	0	No	3/12/2008
CC-011	Building 36	Elbow	1	No	0	No	3/12/2008
CC-012	Building 36	Elbow	1	No	0	No	3/12/2008
CC-013	Building 36	Elbow	1	No	0	No	3/12/2008
CC-014	Building 36	Union to drum	1	No	0	No	3/12/2008
CC-015	Building 36	Valve to drum	1	No	0	No	3/12/2008
CC-016	Building 36	Sight Glass top flange	0.75	No	0	No	3/12/2008
CC-017	Building 36	Sight Glass top valve	0.75	No	0	No	3/12/2008
CC-018	Building 36	Sight Glass bottom flange	0.75	No	0	No	3/12/2008
CC-019	Building 36	Sight Glass bottom valve	0.75	No	0	No	3/12/2008
CC-020	Building 36	KO Pot bottom level meter flange	1.5	No	0	No	3/12/2008
CC-021	Building 36	KO Pot bottom flange to pump	1.5 to 1	No	0	No	3/12/2008
CC-022	Building 36	KO Pot bottom valve to pump	1	No	0	No	3/12/2008
CC-023	Building 36	KO Pot Flange from Tanks	3.5	No	0	No	3/12/2008
CC-024	Building 36	Flange	4	No	0	No	3/12/2008
CC-025	Building 36	Flange	4	No	0	No	3/12/2008
CC-026	Day Tank	Flange	4	No	0	No	3/12/2008
CC-027	Day Tank	End Cap	2	No	0	No	3/12/2008
CC-028	Day Tank	Flange	4	No	0	No	3/12/2008
CC-029	Day Tank	Flange	4	No	0	No	3/12/2008
CC-030	Day Tank	Flange	4	No	0	No	3/12/2008
CC-031	Steam Generator	Flange	4 to 6	No	0	No	3/12/2008
CC-032	Steam Generator	Redcuer	6 to 2	No	0	No	3/12/2008
CC-033	Steam Generator	Tee	2	No	0	No	3/12/2008
CC-034	Steam Generator	Elbow to drain	2	No	0	No	3/12/2008
CC-035	Steam Generator	Valve	2	No	0	No	3/12/2008
CC-036	Steam Generator	End Cap	2	No	0	No	3/12/2008
CC-037	T-1	End Cap	6	No	0	No	3/12/2008
CC-038	T-1	Reducer	6 to 2	No	0	No	3/12/2008
CC-039	T-1	Elbow	2	No	0	No	3/12/2008
CC-040	T-1	Conservation Vent Flange	2	No	0	No	3/12/2008
CC-041	T-1	Flame Arrestor	2	No	0	No	3/12/2008
CC-042	T-1	Tank Flange	2	No	0	No	3/12/2008
CC-043	T-2	Reducer	6 to 2	No	0	No	3/12/2008
CC-044	T-2	Elbow	2	No	0	No	3/12/2008
CC-045	T-2	Conservation Vent Flange	2	No	0	No	3/12/2008
CC-046	T-2	Flame Arrestor	2	No	0	No	3/12/2008
CC-047	T-2	Tank Flange	2	No	0	No	3/12/2008
CC-048	T-2	End Cap	6	No	0	No	3/12/2008
CC-049	Building 25	End Cap	6	No	0	No	3/12/2008
CC-050	Building 40 East	Reducer	6 to 2	No	0	No	3/12/2008
CC-051	Building 40 East	Valve	2	No	0	No	3/12/2008

Bostik Middleton
Subpart CC Leak Detection Monitoring Log

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Equipment ID	Location	Equipment Description	Size (in.)	Visible Leaker	Instrument Reading (ppm)	Leak Detected?	Date Tested
CC-052	Building 40 East	End Cap	2	No	0	No	3/12/2008
CC-053	Building 9 West	End Cap	6	No	0	No	3/12/2008
CC-054	Building 9 behind R8	End Cap	6	No	0	No	3/12/2008
CC-055	T-9 Roof	Conservation Vent Flange	4	No	0	No	3/12/2008
CC-056	T-9 Roof	Flame Arrestor	4	No	0	No	3/12/2008
CC-057	T-9 Roof	Flange	4	No	0	No	3/12/2008
CC-058	T-9 Roof	Flange	4	No	0	No	3/12/2008
CC-059	T-9 above tank	Flange	4	No	0	No	3/12/2008
CC-060	T-9 above tank	Flange	4	No	0	No	3/12/2008
CC-061	T-9 above tank	Ball valve	4	No	0	No	3/12/2008
CC-062	T-9 above tank	Tee	4	No	0	No	3/12/2008
CC-063	T-9 above tank	Enc Cap	2	No	0	No	3/12/2008
CC-064	T-9 above tank	Tank Flange	4	No	0	No	3/12/2008
CC-065	Building 20 Roof	End Cap	6	No	0	No	3/12/2008
CC-066	Building 20 Roof	Conservation Vent Flange	2	No	0	No	3/12/2008
CC-067	Building 20 Roof	Reducer	6 to 2	No	0	No	3/12/2008
CC-068	Building 20 Roof	Flame Arrestor Flange	6	No	0	No	3/12/2008
CC-069	Building 20 Roof	Flame Arrestor Flange	6	No	0	No	3/12/2008
CC-070	Building 20 Inside	Flange	6	No	0	No	3/12/2008
CC-071	Building 20 Inside	Flange	6	No	0	No	3/12/2008
CC-072	Building 20 Inside	Reducer	6 to 3	No	0	No	3/12/2008
CC-073	Building 20 Inside	Condensor Top	3	No	0	No	3/12/2008
CC-074	Building 20 Inside	Condensor Bottom	3	No	0	No	3/12/2008
CC-075	Building 20 Inside	Reducer	3 to 6	No	0	No	3/12/2008
CC-076	Building 20 Inside	Collection Tank Flange	6	No	0	No	3/12/2008
CC-077	Building 20 Inside	Flange from Collection Tank	4	No	0	No	3/12/2008
CC-078	Enclosed Flare	Valve	4	No	0	No	3/12/2008
CC-079	Enclosed Flare	Butterfly Valve	4	No	0	No	3/12/2008
CC-080	Enclosed Flare	Flame Arrestor	4	No	0	No	3/12/2008
CC-081	Enclosed Flare	Valve	4	No	0	No	3/12/2008
CC-082	Enclosed Flare	Conservation Valve	4	No	0	No	3/12/2008
CC-083	Enclosed Flare	Blower Valve	4	No	0	No	3/12/2008
CC-084	Enclosed Flare	Blower Flange	4	No	0	No	3/12/2008
CC-085	Enclosed Flare	Blower Flange	4	No	0	No	3/12/2008
CC-086	Enclosed Flare	Back Flow Preventer	4	No	0	No	3/12/2008
CC-087	Enclosed Flare	Valve	4	No	0	No	3/12/2008
CC-088	Enclosed Flare	Valve	4	No	0	No	3/12/2008
CC-089	Enclosed Flare	Tee	3	No	0	No	3/12/2008
CC-090	Enclosed Flare	Elbow	3	No	0	No	3/12/2008
CC-091	Enclosed Flare	Elbow	3	No	0	No	3/12/2008
CC-092	Enclosed Flare	Drain Valve	3	No	0	No	3/12/2008
CC-093	Enclosed Flare	Flange	3	No	0	No	3/12/2008
CC-094	Enclosed Flare	Back Flow Prev Valve	3	No	0	No	3/12/2008
CC-095	Enclosed Flare	Back Flow Preventer	3	No	0	No	3/12/2008
CC-096	Enclosed Flare	Valve	4	No	0	No	3/12/2008
CC-097	Enclosed Flare	End Cap	4	No	0	No	3/12/2008
CC-098	Enclosed Flare	Valve	4	No	0	No	3/12/2008
CC-099	Enclosed Flare	Flame Arrestor	4	No	0	No	3/12/2008
CC-100	Enclosed Flare	Valve	4	No	0	No	3/12/2008