UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
ONE CONGRESS STREET SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

MEMORANDUM

DATE: May 5, 2008

SUBJ: Bostik's Draft Partial Closure Plan for the Closure of Tanks T-1 and T-2 located in Middleton, MA.

FROM: Stephen Yee, Environmental Engineer
Office of Ecosystem Protection

TO: All Interested Parties

The attached draft Closure Plan dated March 2008 submitted by Bostik Inc. (Bostik) provides details regarding the procedures that will be implemented for the closure of Tanks T-1 and T-2 located at its Middleton, MA facility. The EPA has reviewed the procedures in this draft Closure Plan and has made a preliminary determination that the partial closure could be approved.

Bostik is currently in a Resource Conservation and Recovery Act (RCRA) permit application review process with the EPA for their Struthers-Wells Industrial Boiler and the tank system that provides the waste feed to the boiler. The two tanks (T-1 and T-2) that are being closed are part of the tank system that is under review by the EPA.

Bostik conducted an assessment of the tanks in late 2007 to determine their condition as part of the Part B permit application review process. The assessment indicated that the tanks (T-1 and T-2) were not fit for long term use. As a result, Bostik has elected to replace them with two new tanks of similar capacity.

Bostik informed the EPA of its intent to replace these two tanks as part of their March 17, 2008 submission of their revised Part B permit application. A formal notification of their intent to close these tanks was made to the EPA on April 28, 2008.

The closure of tanks T-1 and T-2 is expected to begin on May 9, 2008 prior to any formal approval from the EPA. Bostik has ordered two replacement tanks of similar capacity. The installation of these replacement tanks is expected to begin after the removal of the old tanks. The containment area for the tanks will be inspected and, if necessary, repaired prior to the installation of the new tanks.

Specific discussions on the steps that Bostik will utilize for the proposed partial closure can be found in Sections 4.1, 7.1, 7.2, 7.4, 7.7, 8.0, 9.0, 12.0, and Attachment I-2 of the attached draft Closure Plan.

This public announcement does not imply approval by the EPA of the partial closure described in the Plan. The purpose of this public notice is to solicit written comments concerning the closure of these two tanks.

Finally, the EPA may require modifications to this Closure Plan based on comments received during the 30 day public comment period. Bostik is proceeding with the closure with the understanding there may be modifications to the plan as the result of written comments received by the EPA.

If you have any questions regarding this closure and the draft Closure Plan, I can be reached at (617) 918-1197 or yee.steve@epa.gov.

CLOSURE PLAN

BOSTIK INC.
MIDDLETON, MA 01949

EPA ID# 001039767

MARCH 2008

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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 United States Environmental Protection Agency (EPA) and/or the Massachusetts Department of Environmental Protection (MA DEP) 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 industrial boiler 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, and web 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, 1, 37, and 9, respectively).

Liquid adhesives are manufactured in mixing vessels (churns) by combining 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).

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 Industrial Boiler under the RCRA Boiler and Industrial Furnace (BIF) regulation. Hazardous and non-hazardous wastes are generated from all processes and can be summarized as follows:

Churn Room Department

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 our 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. dr.	Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Solids (filtration, absorbents)	55 gal. dr.	Bld 24 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. dr.	Bld 24 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Curing Agents	55 gal. dr.	Bld 24 SAA/Bld 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 our 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. dr.	Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Solids (filtration, absorbents)	55 gal. dr.	Bld 9 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. dr.	Bld 9 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Vessel Cleanouts (non-hazardous)	55 gal. dr.	Bld 9 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. dr.	Bld 9 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Polyester Distillate	10,000 gal AST	Adjacent to Bld 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 our 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. dr.	Bld 9 SAA/Bld 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 our 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. dr.	Bld 9 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. dr.	Bld 9 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF

Polyester 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 our Main Accumulation Area located in Building 13. Bulk wastes are stored in three bulk aboveground storage tanks (T-1, T-2, DT-1). Off-spec resins are stored in roll-offs. Wastes generated from this process are summarized as follows:

Waste Type	Container Size	Storage Location	Disposal Method
Off-spec Resins (non-haz)	Bulk Bags	Resin Roll-offs	Off-Site Transfer to Licensed TSDF
Waste Oil Solids (absorbents)	55 gal. dr.	Bld 36 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. dr.	Bld 36 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. dr.	Bld 36 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Polyester Distillate	2- 8,800 gal AST's	Adjacent to Bld 39 (T-1/2)	Industrial Boiler
Polyester Distillate	950 gal AST	Adjacent to Bld 39 (DT-1)	Industrial Boiler
Polyester Distillate Solids	55 gal. dr.	Bld 36 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Polyamide Distillate (non-hazardous)	10,000 gal AST	Bld 42	Off-Site Transfer to Licensed TSDF

BIF Pump House – Building 27

Polyester distillate is pumped from T-1 and T-2 to the Struthers-Wells Industrial Boiler 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 our 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. dr.	Bld 36 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF

Polyamide Department (2 locations)

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 our 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. dr.	Bld 1 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. dr.	Bld 1 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Polyamide Distillate (non-hazardous)	10,000 gal AST	Bld 1	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 our 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-spec Products	55 gal. dr.	Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Solids (filtration, absorbents)	55 gal. dr.	Bld 37 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. dr.	Bld 37 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Vessel Cleanouts	55 gal. dr.	Bld 37 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. dr.	Bld 37 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Curing Agent	55 gal. dr.	Bld 37 SAA/Bld 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 our 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-spec Products (non-haz)	Bulk Bags	Resin Roll-offs	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. dr.	Bld 35 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil Solids (absorbents)	55 gal. dr.	Bld 35 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF

Research & Development Lab/Pilot Plant (2 locations)

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. dr.	Bld 39 SAA/Bld 30 MAA	Off-Site Transfer to Licensed TSDF
Solvent Adhesive Liquids	55 gal. dr.	Bld 29 SAA/Bld 30 MAA	Off-Site Transfer to Licensed TSDF
Polyester Distillate	55 gal. dr.	Bld 29 SAA/Bld 30 MAA	Off-Site Transfer to Licensed TSDF
Polyamide Distillate (non-hazardous)	55 gal. dr.	Bld 29 SAA/Bld 30 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil	55 gal. dr.	Bld 29 SAA/Bld 30 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil Solids (absorbents)	55 gal. dr.	Bld 29 SAA/Bld 30 MAA	Off-Site Transfer to Licensed TSDF
Waste Curing Agent	55 gal. dr.	Bld 29 SAA/Bld 30 MAA	Off-Site Transfer to Licensed TSDF

Maintenance Department

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 our 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. dr.	Bld 35 SAA/Bld 13 MAA	Off-Site Transfer to Licensed TSDF
Waste Oil Solids (absorbents)	55 gal. dr.	Bld 35 SAA/Bld 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 part 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 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 Bld 30	Receives storm water runoff from Blds 29 and 30 roads and parking lot
3	Stream, west of Bld 35	Receives storm water runoff from road and paved area between Blds 34, 35, 41, and 42
4	Stream, northwest of Bld 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 BIF regulation, 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 # 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 8,800 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	15' x 10' od	8,800	1992	5/16" CS	30'x 16'x3.7' 10" thick	Concrete Dike
T-2	15' x 10' od	8,800	1992	5/16" CS	Same as above	Concrete Dike

T-9	18' x 10' od	10,000	1988	3/16" 304 SS	30"x15'x3.5' 10" thick	Concrete Dike
DT-1	7.5' x 5' od	950	2000	¼" CS	11'x11.5'x1.5' 8" thick	Concrete Dike
Boiler	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. The T-9, DT-1, and industrial boiler containment structures were re-coated in April/May of 2007.

Ancillary Equipment

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 to prevent pressure buildup during the introduction of process vapors and liquids. This pressure device is set to release at 6 psi. T-9 is equipped with level measurement instrumentation 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 to prevent pressure buildup during the introduction of process vapors and liquids. This pressure device is set to release at 0.5 psi. DT-1 is equipped with level measurement instrumentation that automatically pumps (via carbon steel piping) the contents to T-1 or T-2 when the level in DT-1 reaches 75%. The pump automatically shuts off when the level in DT-1 reaches 25%. 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 industrial boiler by pumps located in Bldg 27. T-1 and T-2 are interconnected to allow their levels to equalize by a carbon steel pipe. T-1 and T-2 are equipped with a pressure relief device to prevent pressure buildup during the introduction of process vapors and liquids. This pressure device is set to release at 0.5 psi. T-1 and T-2 are also fitted with conservation vents designed to vent at 0.5 psi. T-1 and T-2 are equipped with level measurement instrumentation 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 industrial boiler 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 industrial boiler.

In total, there is roughly 1,086 linear feet of piping associated with transporting polyester distillate to the regulated tanks and industrial boiler. 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 is preparing for a partial closure of T-1 and T-2 as a result of a failed RCRA tank inspection. This partial closure involves the removal and replacement of these tanks. The site is currently in full operation with no plans for site closure. This closure plan is designed to prepare for the partial closure and 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 industrial boiler, 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. T-1 and T-2 are scheduled for replacement 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 industrial boiler. 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 is required. There have been no documented releases of hazardous waste associated with the regulated units since that time. The RCRA tank inspection that resulted in the need to replace T-1 and T-2 did not result in any 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 our polyester distillate waste by-product. This includes the Struthers-Wells Industrial Boiler, (2) 8,800 gallon above ground storage tanks, (1) 950 gallon day tank, and (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 (COC's)

COC's 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 COC's:

Tetrahydrofuran	Butanediol
Xylene	Methyl ethyl ketone
Methanol	Toluene
Ethylene glycol	Ethyl acetate

Although mostly water, this wastestream is considered hazardous for 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:

Ingestion of Soils/Structures

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 (MCC's). Because future site use is to be limited to industrial commercial 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 standards exist, 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 pavement adjacent to the containment structure. Samples will be collected by extending a sample boring through the containment structure to the mean seasonal low groundwater level. Soil samples shall be taken at each soil horizon. and compared to MCC's.
- If sample results are greater than the MCC's, proceed to determining the extent of contamination described in the next section. If sample results are not greater than the MCC's, 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 MCC's. 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 (SW-846 Method 8015B) for the following primary constituents of the waste:

Tetrahydyofuran	Butanediol
Xylene	Methyl ethyl ketone
Methanol	Toluene
Ethylene Glycol	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	mg/m3	Air	mg/m3

4.0 PROPOSED CLOSURE APPROACH

4.1 Partial Closure

Partial closure of the unit may be necessary in situations where the components of the RCRA regulated unit must be replaced, but operation of Bostik and the unit are desired to continue.

Bostik is currently requesting approval for a partial closure of the two bulk tanks identified as T-1 and T-2. This request is the result of a RCRA Tank Assessment conducted in late 2007. This 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 tank T-1 was compromised due to microbial induced corrosion of the interior of the tank bottoms. It should be noted that neither of these tanks showed any external signs of corrosion and are not in jeopardy of failure before they can be removed. Since tanks T-9 and DT-1 passed the assessment and the industrial boiler and associated piping remain in good working order, Bostik is proposing 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 (T-3 and T-4), identical in size to T-1 and T-2, will be installed in the exact location of the previous tanks. Following approval of this partial closure from EPA, Tanks T-1 and T-2 will be cleaned and removed using the procedures identified in Section 7.0 and the specific procedures included in Attachment I-2. It is estimated that as much as 20 feet of piping will be cleaned and removed during this partial closure. Much

of this piping will be reused in the installation of the new tanks but some smaller percentage of piping (possibly 5 – 10 feet) may need to be tested and either recycled or disposed off-site.

The basics steps can be summarized as follows:

- Lower tank levels, to the extent practical, by burning in Industrial Boiler
- 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 Industrial Boiler will remain in operation, no partial closure activities are planned for this equipment. Since the existing shared T-1/T-2 containment structure will be used for the new tanks, no chip samples are proposed as part of this partial closure. A soil boring will be extended through the pavement immediately adjacent to the west wall of the T-1/T-2 containment area. The soil will be analyzed according to procedures outlined in Section 2.3. If any cracks are observed in the containment structure, the area will be sampled (core or chip samples) to determine if the subsurface soils have been impacted. Bostik will immediately notify EPA of the results of this sampling so a decision can be made regarding 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.) will be submitted as an update/revision to the permit application. A schedule for delivery and installation of the replacement tanks will be provided when the tank order has been finalized. Prior to installing the new tanks, the containment area will be inspected and recoated with Sikagard 62 Epoxy coating if the existing coating is not in good condition.

All expenses associated with this partial closure will be paid 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 oil heater, 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 industrial boiler and co-fired with natural gas. If burning of the waste fuel is not possible due to inoperability of the industrial boiler, 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	8,800 gallons
T-2	8,800 gallons
T-9	10,000 gallons
DT-1	950 gallons
Transfer Pipes	145 gallons
Total	28,695 gallons

Of this total, it will be assumed that 90% or 25,826 gallons of the tank contents will be disposed of as bulk liquid waste and 10 % or 2,869 gallons (approximately 54 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 Norlite Corporation in Cohoes, New York, or another similar, licensed TSDF. All non-pumpable sludge waste will be transferred into drums and transported for disposal at Ross Incineration in Grafton, Ohio, or another similar, 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.

A specific procedure detailing the process of emptying Tanks T-1 and T-2 is included in Attachment I-2. 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 specific procedure for decontamination of the tanks and associated piping is included in Attachment I-2, but 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.
- Take wipe samples of pipe sections.
- If wipe samples show contamination, load piping in roll-off for marcoencapsulation at an approved facility.
- If wipe samples show no contamination, load piping in roll-off for off-site recycling.
- 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 COC's 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 T1 and T2 will also require the

removal of the catwalk that is above and connected to the top of both tanks. The specific procedure for removal of the tanks, catwalk, and associated piping is included in Attachment I-2, but 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 Industrial Boiler

Following the combustion or removal of the hazardous waste fuel, the industrial boiler 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 industrial boiler has shut down and sufficiently cooled, Bostik will begin decontamination and removal of the industrial boiler. The specific procedure for decontamination and removal of the industrial boiler is included in Attachment I-2, but 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 industrial boiler (with refractory) into roll-off for disposal at an appropriate facility.

The rinseate and wipe samples will be analyzed for the COC's presented in Section 2.1. The criteria for successful decontamination of the industrial boiler 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 specific procedure for decontamination and removal of containment areas is included in Attachment I-2, but 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 CEM System, the CEM system will continue to operate while the boiler burns only natural gas at 50% to 80% capacity. Following the shutdown and cool down of the industrial boiler, 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 industrial boiler. 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 Norlite Corporation in Cohoes, New York, or another 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 Ross Incineration in Grafton, Ohio, or another appropriate, licensed facility.

7.7 Sampling and Analysis Methods to Confirm Decontamination

Wipe Samples (78)

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
Piping (63)	Interior of each pipe section	Determine decontamination complete
Industrial Boiler	Bottom of Combustion Chamber	Potential pooling of waste fuel
Industrial Boiler	Sidewall of Combustion Chamber	Possible seepage through refractory
Industrial Boiler	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,
    - Hexane-acetone mix (1:1) or methylene chloride for semi-volatiles,
    - Dilute nitric acid (1:4 nitric acid to deionized water) for metals,
- 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.
- The procedure will be repeated with the nitric acid saturated gauze on the other half of the sampling area.
- For pipe samples, reach as far into the end of the pipe and, pressing the guaze firmly with the fingertips, wipe the interior of the pipe in a clockwise direction, for a complete circle. Then wipe the interior in a counter-clockwise direction back to the starting point. Repeat on the opposite end of the pipe with another section of gauze.
- 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
Struthers Wells 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)

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
System Piping (no sample, see wipe sampling above)	Blown back to each tank	400 gal.	Verify pipe decontamination
Industrial Boiler	Boiler containment area	200 gal.	Verify boiler 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
Industrial Boiler Containment Area	Boiler 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.

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, DT-1) at a licensed metal recycling facility
- Removal and disposal of the Struthers Wells Industrial Boiler at a licensed recycling facility
- Removal of four containment structures (T-1/T-2, T-9, DT-1, Industrial Boiler) at approved concrete recycling facility.

Although it is anticipated that the Industrial Boiler and it's 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:

HSEQ 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

Triumvirate Environmental and ensuring that all QA/QC activities are handled appropriately.
- This person is qualified for this role through extensive with the permitted equipment as well as environmental regulations.

Project Manager, Triumvirate Environmental
- 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 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 anticipated in 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 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 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.

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 - June 2007

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				
Preparation of Certification of Closure Report	1	plan	$47,500	$47,500
			Subtotal:	**$47,500**
Project Contingency (10%)				**$41,096**
TOTAL ESTIMATED COST OF CLOSURE:				**$452,053**

Cost Estimate 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 8015B
Toluene	SW-846 Method 8015B
Xylenes	SW-846 Method 8015B
Methyl Ethyl Ketone	SW-846 Method 8015B
Methanol	SW-846 Method 8015B
Ethyl acetate	SW-846 Method 8015B
Ethylene glycol	SW-846 Method 8015B
Doiethylene glycol	SW-846 Method 8015B

Product Data Sheet
Edition 7.2003
Identification no. 601
Sikagard 62

Sikagard® 62

High-build, protective, solvent-free, colored epoxy coating

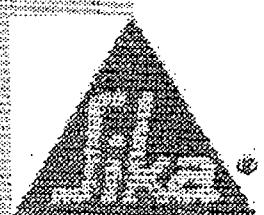
Description	Sikagard 62 is a 2-component, 100% solids, moisture-tolerant epoxy resin. It produces a high-build, protective, dampproofing and waterproofing vapor-barrier system.
Where to Use	Use as a high build, corrosion-resistant, protective coating, as a protective lining for secondary containment structures or as a seamless flooring system.
Advantages	▪ Exceptional tensile strength. ▪ Good chemical resistance for long-term protection. ▪ Convenient A:B = 1:1 mixing ratio. ▪ Easy, paint-like viscosity. ▪ Available in 3 standard colors: gray, red, and tan. Special color matches available upon request. ▪ Excellent bonding to all common structural substrates. ▪ Super abrasion resistance for long-term wear. ▪ Sikagard 62 gray, after cure, is approved for contact with potable water. ▪ Material is USDA certifiable.
Coverage	Approximately 150-250 sq. ft./gal. depending on condition of substrate.
Packaging	4 gal. units; 1 qt. units, 12/case.

How to Use

Surface Preparation	Surface must be clean and sound. It may be dry or damp, but free of standing water. Remove dust, laitance, grease, curing compounds, impregnations, waxes and any other contaminants. **Preparation Work: Concrete** - Should be cleaned and prepared to achieve a laitance and contaminant free, open textured surface by blastcleaning or equivalent mechanical means. **Steel** - Should be cleaned and prepared thoroughly by blastcleaning.
Mixing	Pre-mix each component. Proportion equal parts by volume of Components 'A' and 'B' into a clean mixing container. Mix with a low-speed (400-600 rpm) drill using a Sika paddle for 3 minutes, until uniform in color.
Application	Apply coating using high-quality roller, brush or spray. Two coats are recommended. Apply second coat as soon as the first coat is tack-free and the traffic of application will not damage the first coat. The

Typical Data *(Material and curing conditions @ 73°F (23°C) and 50% R.H.)*

Shelf Life	2 years in original, unopened containers.
Storage Conditions	Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F (18°-24°C) before using.
Color	Gray, red, tan.
Mixing Ratio	Component 'A' : Component 'B'=1:1 by volume.
Viscosity (Mixed)	Approximately 3,500 cps.
Pot Life	Approximately 35 to 40 minutes. (60 gram mass).
Tack-Free Time	Approximately 4 hours.
Open Time	Light foot traffic: 5-7 hours. Rubber-wheel traffic: 8-10 hours.
Immersion and Chemical Exposure	Minimum cure: 3 days.
Tensile Properties (ASTM D-638)	
14 day	Tensile Strength 5,400 psi (37.3 MPa)
	Elongation at Break 2.7 %
Abrasion (ASTM D-1044) (Taber Abrader)	
7 day	Weight loss, 1,000 cycles (H-22 wheel, 1,000 gm weight) 0.61 gm
Abrasion Resistance (ASTM D-968)	
14 day	Abrasion Coefficient 51 liters/mil.
Adhesion (ASTM D-3359)	
1 day	Adhesion Classification 4A
Water Absorption (ASTM D-570)	
7 day	(24 hour immersion) 0.1%



second coat, however, must be applied within 48 hours since a longer delay will require additional surface preparation.

Do not spray with slip resistant granules mixed into the coating. For use as a seamless flooring system, consult Technical Service.

Limitations

- Minimum substrate and ambient temperature for application 50°F (10°C).
- Do not apply over wet, glistening surface.
- Material is a vapor barrier after cure.
- Do not apply to porous surfaces exhibiting moisture-vapor transmission during the application. Consult Technical Service.
- Minimum age of concrete prior to application is 21-28 days, depending on curing and drying conditions.
- Do not apply to exterior, on-grade substrates.
- Use oven-dried aggregate only.
- Do not thin with solvents.
- Color may alter due to variations in lighting and/or UV exposure.
- On 'green or 'damp' concrete, EpoCem can be used as a pore filler to reduce vapor drive and potential osmotic blistering.

Caution

Component 'A' - Irritant; Sensitizer - Contains epoxy resin. Can cause sensitization after prolonged or repeated contact. Skin and eye irritant. Vapors may cause respiratory irritation. Use only with adequate ventilation. Use of safety goggles and chemical resistant gloves is recommended. In case of high vapor concentrations, use an appropriate NIOSH approved respirator. Remove contaminated clothing.

Component 'B' - Sensitizer - Contains amines. Contact with eyes or skin may cause severe burns. Can cause sensitization after prolonged or repeated contact. Skin and eye irritant. Vapors may cause respiratory irritation. Use only with adequate ventilation. Use of safety goggles and chemical resistant gloves is recommended. In case of high vapor concentrations, use an appropriate NIOSH approved respirator. Remove contaminated clothing.

First Aid

Eyes: Hold eyelids apart and flush thoroughly with water for 15 minutes. **Skin:** Remove contaminated clothing. Wash skin thoroughly for 15 minutes with soap and water. **Inhalation:** Remove person to fresh air. **Ingestion:** Do not induce vomiting.

In all cases, contact a physician immediately if symptoms persist.

Clean Up

Ventilate area. Confine spill. Collect with absorbent material. Dispose of in accordance with current, applicable local, state and federal regulations. Uncured material can be removed with approved solvent. Cured material can only be removed mechanically.

Chemical Resistance

Specimen: Two Coats - 10 mils Total
Cured 10 days
Substrate: asbestos cement

Chemical	Test Temp.	Storage Time and Evaluation				
		1 Day	1 Month	2 Months	6 Months	12 Months
Water	75°F (24°C)	A	A	A	A	A
	100°F (38°C)	A	A	A	A	A
	140°F (60°C)	A	A	A	A, C	A, D
Sodium Chloride Solution (Saturated)	75°F (24°F)	A	A	A	A	A
	100°F (38°C)	A	A	A	A	A
Sodium Hydroxide 30%	75°F (24°C)	A	A	A	A	A
Cement Water (Saturated)	75°F (24°C)	A	A	A	A	A
Detergent Solution (5% Ajax)	75°F (24°C)	A	A	A	A	A
	140°F (60°C)	A	A	A	A, D	A, D
Hydrochloric Acid 10%	75°F (24°C)	A	A	A	A	A
Sulfuric Acid 10%	75°F (24°C)	A	A	A	B	B
Oxalic Acid 10%	75°F (24°C)	A	A, D	A, D	A, D	A, D
Citric Acid 10%	75°F (24°C)	A	A, D	A, D	A, D	A, D
Fuel Oil (Home Heating)	75°F (24°C)	A	A	A	A	A, D
Gasoline (Unleaded)	75°F (24°C)	A	A	A	A	A, D
Iso-Octane	75°F (24°C)	A	A	A	A	A, D
Toluol	75°F (24°C)	A	A	A	A	A, D
Silage	75°F (24°C)	A	A	A, D	A, D	B, D
Synthetic Silage	75°F (24°C)	A	A	B, D	B, D	B, D
Ethyl Alcohol	75°F (24°C)	A	C	-	-	-

A: Resistant in permanent contact
B: Temporary resistance
C: Destroyed
D: Discolored

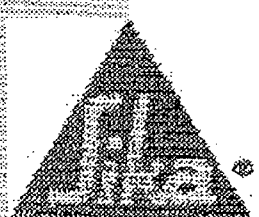
KEEP CONTAINER TIGHTLY CLOSED
NOT FOR INTERNAL CONSUMPTION

KEEP OUT OF REACH OF CHILDREN
FOR INDUSTRIAL USE ONLY

CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Technical Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor.

NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.



Visit our website at www.sikaconstruction.com **1-800-933-SIKA NATIONWIDE**

Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: 800-933-7452
Fax: 201-933-6225

Sika Canada Inc.
601 Delmar Avenue
Pointe Claire
Quebec H9R 4A6
Phone: 514-697-2610
Fax: 514-694-2792

Sika Mexicana S.A. de C.V.
Carretera Libre Celaya Km. 8.5
Corregidora, Queretaro
C.P. 76920 A.P. 138
Phone: 52 42 25 0122
Fax: 52 42 25 0537

MATERIAL SAFETY DATA SHEET

HAZARD RATINGS HMIS
Health 2
Flammability 3
Reactivity 1
PPE X

BOSTIK FINDLEY

1 CHEMICAL PRODUCT & COMPANY IDENTIFICATION

Product POLYESTER DISTILLATE

CAS # Mixture

Generic Description Solvent Based Mixture

Manufacturer BOSTIK FINDLEY, INC.
211 Boston Street
Middleton , MA 01949 USA

24 Hour Emergency Assistance
Phone: 1-800-227-0332

General Assistance
Phone: 1-978-777-0100

MSDS Assistance
Phone: 1-978-777-0100

2 COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS Number	Percentage
DIETHYLENE GLYCOL	111-46-6	1 - 5
METHYL ALCOHOL	67-56-1	7 - 13
TETRAHYDROFURAN	109-99-9	10 - 30
ETHYLENE GLYCOL	107-21-1	5 - 10
TEREPHTHALIC ACID, DIMETHYL ESTER	120-61-6	1 - 5
XYLENE	1330-20-7	1 - 5
Non-hazardous and other ingredients below reportable levels	Proprietary	Balance

3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Liquid and vapors are flammable. Contact may cause skin and eye irritation. Mist may cause nose and throat irritation. Ingestion will cause nausea, vomiting, pain, upset stomach, and diarrhea.

POTENTIAL HEALTH EFFECTS

SKIN CONTACT: This product may cause irritation to the skin.

EYE CONTACT: Liquid or vapors may irritate the eyes. Prolonged or repeated contact may worsen irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

INHALATION: This product may cause irritation to the respiratory system. Excessive inhalation of this material causes headache, dizziness, nausea and incoordination.

INGESTION: No hazard known at this time.

TARGET ORGANS

Respiratory System. Eyes. Skin. Central Nervous System. Gastrointestinal Tract. Lungs. Kidneys and Liver.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Signs and symptoms of overexposure to this product include headache, irritation of upper respiratory tract, asthmatic symptoms, chest tightness, breathing difficulty, coughing, eye irritation, skin irritation, diarrhea.

4 FIRST AID MEASURES

SKIN

Remove contaminated clothing to prevent further skin exposure and dispose of properly. In situations involving considerable skin contact, place the contaminated person in a deluge shower for at least 15 minutes. For minor exposures, wash thoroughly with soap and clean water. Get medical attention if irritation persists.

EYE

In case of contact, immediately flush eyes with large amounts of water, continuing to flush for 15 minutes. If irritation persists get medical attention.

INHALATION

Move person to non-contaminated air. If the affected person is not breathing, apply artificial respiration. Call a physician if symptoms develop or persist.

INGESTION

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration.

NOTES TO PHYSICIAN

Treat symptomatically and supportively. Contact Bostik Findley to determine whether any additional information is available.

5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Use dry chemical, carbon dioxide, or foam. Use water spray on large fires. Use water to cool fire-exposed containers and to protect personnel. Do not direct a solid stream of water or foam into hot, burning pools; this may result in frothing and increase fire intensity.

BASIC FIRE FIGHTING PROCEDURES

Empty containers may retain product residue including Flammable or Explosive vapors. Do not cut, drill, grind, or weld near full, partially full, or empty product containers.

DUST EXPLOSION HAZARD

None Known

SENSITIVITY TO MECHANICAL IMPACT

None Known

SENSITIVITY TO STATIC DISCHARGE

Sparks generated by static discharge may ignite this product or its vapors.

UNUSUAL FIRE & EXPLOSION HAZARDS

Be careful when using water. If water is used in firefighting, the area must be flooded with water; this product contains Methyl Alcohol, and Tetrahydrofuran which are fully water soluble solvents and can burn in very dilute solutions in water.

FIRE FIGHTING EQUIPMENT/INSTRUCTIONS

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Flash Point 50 F (10 C) Cleveland Open Cup

6 ACCIDENTAL RELEASE MEASURES

EMERGENCY ACTION

Evacuate the area promptly and keep upwind of the spilled material. Isolate the spill area to prevent people from entering. Wear appropriate protective equipment and clothing during clean-up.

CONTAINMENT

Stop discharge if safe to do so. Stop material from contaminating soil or from entering sewers or water streams. Cover spills with non-flammable absorbent and place in closed chemical waste containers.

7 HANDLING & STORAGE

For Commercial Use Only - Not Packaged or Labeled for Home Use!

HANDLING

Keep this product from heat, sparks, or open flame. Avoid getting this material into contact with your skin and eyes. Avoid breathing vapors or mists of this product.

STORAGE

Keep the container tightly closed and in a cool, well-ventilated place. Do not handle or store near an open flame, heat or other sources of ignition.

EMPTY CONTAINER PRECAUTION

Attention! Follow label warnings even after container is emptied since empty containers may retain product residues. Do not reuse empty container without professional cleaning for food, clothing, or products for human or animal consumption, or where skin contact can occur.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product. Additional area ventilation or local exhaust may be required to maintain air concentrations below recommended exposure limits. Explosion proof exhaust ventilation should be used.

EYE PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Wear safety glasses; chemical goggles (if splashing is possible).

SKIN PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Impervious gloves should be used at all times when handling this product. Recommended gloves include rubber, neoprene, nitrile or viton. Use of protective coveralls and long sleeves is recommended.

RESPIRATORY PROTECTION: PERSONAL PROTECTION EQUIPMENT (PPE)

Avoid breathing vapor and/or mists. If airborne concentrations are above the applicable exposure limits, use NIOSH approved respiratory protection. High airborne concentrations may necessitate the use of self-contained breathing apparatus (SCBA) or a supplied air respirator.

GENERAL

Eyewash fountains and emergency showers should be readily available. Use good industrial hygiene practices in handling this material.

EXPOSURE LIMITS

ACGIH 2000 - Time Weighted Averages		
METHYL ALCOHOL	67-56-1	200 ppm TWA
TETRAHYDROFURAN	109-99-9	200 ppm TWA
XYLENES (O-, M-, P- ISOMERS)	1330-20-7	100 ppm TWA
OSHA - Vacated PELs - Ceiling Limits		
ETHYLENE GLYCOL	107-21-1	C 50 ppm; C 125 mg/m3
OSHA - Vacated PELs - Time Weighted Averages		
METHYL ALCOHOL	67-56-1	200 ppm TWA; 260 mg/m3 TWA
TETRAHYDROFURAN	109-99-9	200 ppm TWA; 590 mg/m3 TWA
XYLENES (O-, M-, P- ISOMERS)	1330-20-7	100 ppm TWA; 435 mg/m3 TWA

9 PHYSICAL & CHEMICAL PROPERTIES

Boiling Point	148 - 388 F (64 - 198 C)
Vapor Pressure	58 mm Hg
Vapor Density	1.7 Air= 1
Solubility in Water	82.1 %
Target Solids	19.9 %
pH	N/A
Density	0.98 g/cc
Odor Threshold	N/D
Octanol/Water Coefficient	N/D
Odor	Solvent
Color	Yellow-White
Physical State	Liquid
Freeze Protect	No

10 STABILITY & REACTIVITY

STABILITY/INCOMPATABILITY

Stable under normal conditions.

HAZARDOUS REACTIONS/DECOMPOSITION PRODUCTS

Unknown due to the complex nature of this material. Fumes from complete or incomplete combustion may include carbon dioxide, carbon monoxide, water vapor, oxides of nitrogen and a wide variety of innocuous or toxic fumes. Para Dioxane may also be produced.

HAZARDOUS POLYMERIZATION

Can occur with cationic catalyst.

CONDITIONS TO AVOID

Keep away from sources of ignition. Avoid contact with Strong Oxidizers, Oxidizers, Perchlorates, Alkalis, Bleaches, and Hypochlorites.

11 TOXICOLOGICAL INFORMATION

LD50

NIOSH - Selected LD50s and LC50s

DIETHYLENE GLYCOL	111-46-6	Oral LD50 Rat : 12565 mg/kg; Oral LD50 Mouse : 23700 mg/kg; Dermal LD50 Rabbit : 11890 mg/kg
ETHYLENE GLYCOL	107-21-1	Inhalation LC50 Rat : 10876 mg/kg; Oral LD50 Rat : 4700 mg/kg; Oral LD50 Mouse : 5500 mg/kg; Dermal LD50 Rabbit : 9530 uL/kg
METHYL ALCOHOL	67-56-1	Inhalation LC50 Rat : 64000 ppm/4H; Oral LD50 Rat : 5628 mg/kg; Oral LD50 Mouse : 7300 mg/kg; Dermal LD50 Rabbit : 15800 mg/kg
TEREPHTHALIC ACID, DIMETHYL ESTER	120-61-6	Oral LD50 Rat : >3200 mg/kg
TETRAHYDROFURAN	109-99-9	Inhalation LC50 Rat : 21000 ppm/3H; Oral LD50 Rat : 1650 mg/kg
XYLENES (O-, M-, P- ISOMERS)	1330-20-7	Inhalation LC50 Rat : 5000 ppm/4H; Oral LD50 Rat : 4300 mg/kg; Dermal LD50 Rabbit : >1700 mg/kg

12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

Organic solvents produce slight to moderate toxicity to aquatic life. Insufficient data exists to evaluate the effect on plants, birds or land animals.

13 DISPOSAL CONSIDERATIONS

We make no guarantee or warranty of any kind that the use or disposal of this product complies with all local, state, or federal laws. It is also the obligation of each user of the product mentioned herein to determine and comply with the requirements of all applicable statutes.

WASTE DISPOSAL

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations. Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes.

D001 Characteristic Ignitable Waste

14 TRANSPORT INFORMATION

COMMENTS

This product is regulated as a hazardous material by the DOT.

Proper Shipping Name Flammable Liquid

15 REGULATORY INFORMATION

This MSDS is prepared and distributed pursuant to the Federal Hazard Communication Standard, 29 CFR 1910.1200.

FEDERAL REGULATIONS

All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA - Hazardous Substances and their Reportable Quantities

ETHYLENE GLYCOL	107-21-1	final RQ = 5000 pounds (2270 kg)
METHYL ALCOHOL	67-56-1	final RQ = 100 pounds (45.4 kg)
TETRAHYDROFURAN	109-99-9	final RQ = 1000 pounds (454 kg)
XYLENES (O-, M-, P- ISOMERS)	1330-20-7	final RQ = 100 pounds (45.4 kg)

Based on an evaluation of the components used, this product does contain hazardous ingredients identified as per 29 CFR 1910.1200.

STATE REGULATIONS

If this product contains any ingredients listed under California Proposition 65, they will be noted below:

INTERNATIONAL REGULATIONS

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and contains all the information required by the Controlled Products Regulations.

SARA 302 EXTREMELY HAZARDOUS SUBSTANCES

Not Regulated

SARA 311/312 HAZARD CATEGORIES

Immediate Hazard	Yes
Delayed Hazard	No
Fire Hazard	Yes
Pressure Hazard	No
Reactivity Hazard	No

SARA 313 TOXIC CHEMICALS

Component	CAS Number	Percentage
METHYL ALCOHOL	67-56-1	7 - 13
XYLENE	1330-20-7	1 - 5

16 OTHER INFORMATION

DISCLAIMER

The data in this MSDS has been compiled from publicly available sources. This data relates only to the designated product and not to the use of said product in combination with other materials. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards which exist. Responsibility for proper precautions and safe use of the product lies with the user. All data in this MSDS is typical of the product as a whole, and does not represent any individual lot or batch, therefore, Bostik Findley, Inc. makes no warranty about the accuracy of the data herein and assumes no liability for the use of such data. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.

ATTACHMENT I-2
TEI PROCEDURES for BOSTIK CLOSURE PLAN

PROCEDURE FOR ENTERING, CLEANING, AND REMOVAL OF PRODUCT FROM TANKS # T-1, T-2, T-9 AND DT-1

- TEI will develop a Health and Safety Plan (including Confined space Entry procedures) with all the necessary requirements set forth in OSHA, RCRA, NFPA, and DOT regulations. The Health and Safety Plan will be completed by TEI prior to the start of work.
- TEI will prepare a job summary report for your files. This report will include a copy of the Health and Safety Plan, and daily job sheets covering all materials, labor, and equipment.

PRODUCT REMOVAL (estimated 2 days)

- TEI will prepare a job summary report for your files. This report will include a copy of the Health and Safety Plan, and daily job sheets covering all materials, labor, and equipment.
- Mobilize a one-man field service crew to the site.
- Mobilize a 5,000 gallon vacuum tanker and driver to the site.
- Set up a safe and secure work area including a decontamination area.
- Perform an on-site safety meeting covering all of the possible related safety issues.
- 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 the first load of product (4,800 gallons).
- Complete the required paperwork for transport and job paperwork.
- Transport and dispose of the waste to an approved facility.
- The field service crew and multiple 5,000 gallon tankers will continue loading product onto the tanker trucks until all four tanks (T1, T2, DT1, T9) are emptied of product (estimated 90% of tank volume is 25,826 gallons).
- Residual sludge material from each tank will be pumped into 55-gallon drums.
- The tanks and will remain connected to the piping so that any residual product in the piping may be flushed back into the tanks as described below.

TANK DECONTAMINATION (estimated 4 days)

- Mobilize a two-man field service crew to the site.
- A polyethylene curtain will be erected around each tank contiguous with the interior surfaces of the containment structure.
- Remove the side manway from the tank.
- Wash down the interior of the tank from outside the tank, using a 3,500 psi pressure washer and a solution of hot water (approximately 120F) and a mild detergent.
- The rinseate will be removed using the vacuum tanker.
- Using an explosion proof blower purge any remaining vapors in the tank until level C PPE entry levels can be met.
- TEI will use a four-gas meter to evaluate the atmosphere in the tank. An Industrial Scientific TMX-410 Multi Gas Meter will be used to obtain the continuous 02, C02, and LEL readings. These readings will be taken 2-8' from inside the opening. The meter undergoes bi-monthly calibration and will be calibrated immediately before the start of the project.

- Under confined space entry protocols, the entrant will enter into the tank in level C PPE.
- After the detergent wash is completed, each tank will be rinsed with water three times.
- On the third rinse, a rinsate sample will be collected to determine the effectiveness of the decontamination.
- Wipe the interior of the tank dry using rags.
- Remove the rags and place into a DOT approved container for disposal.
- Perform wipe sampling on the top, side walls and floor of the interior of the tank.
- Wait for analytical results.
- If the analytical results come back negative for contamination it is now safe to remove the tank.
- Complete the required paperwork for transport and job paperwork.
- Transport and dispose of the waste to an approved facility.
- The rinsate sample and wipe samples will be analyzed for the following primary constituents of the waste:
    - Tetrahydrofuran SW-846 Method 8015B
    - Toluene SW-846 Method 8015B
    - Xylenes SW-846 Method 8015B
    - Methyl Ethyl Ketone SW-846 Method 8015B
    - Methanol SW-846 Method 8015B
    - Ethyl acetate SW-846 Method 8015B
    - Ethylene Glycol SW-846 Method 8015B
    - Butanediol SW-846 Method 8015B
- The criteria for successful decontamination of each tank will be a non-detectable level of the parameters analyzed in the rinsate and wipe samples.
- If the analysis shows the presence of contaminants, the decontamination and sampling procedures will be repeated

Tank Removal

Catwalk & Piping Removal

- Mobilize a three-man field service crew to the site.
- Set up a safe and secure work area including a decontamination area.
- Perform an on-site safety meeting covering all of the possible related safety issues.
- Using proper hand tools disconnect any piping that feeds into the tank.
- Set up proper fire protection equipment around the area.
- Inspect surface of catwork. If contamination present follow the wipe sampling protocols list above.
- Clean contaminated surfaces.
- Using a cutting torch, dismantle the catwalk, railings & stairs.
- Load the pieces into a roll off container for recycling.
- Complete the required paperwork, job sheets.

Tank removal

- Acquire the proper permits from the Fire Department.
- Mobilize a one-man field service crew to the site.
- Mobilize a crane with an operator to the site.
- Mobilize two low bed trailers with two drivers to the site.

- Set up a safe and secure work area including a decontamination area.
- Perform an on-site safety meeting covering all of the possible related safety issues.
- Set the crane up in a safe place.
- Connect to the tank & lift the tank out of the containment area.
- The Fire Department Inspector will inspect the tank and provide us with the proper paperwork to transport the tank to the approved tank yard.
- Load the tank on to the low bed trailer to be delivered to the approved tank yard.
- Complete the required paperwork, job sheets.

Sampling procedure

- Mobilize a one-man field service crew to the site.
- Mobilize a geo-probe truck and operator to the site.
- Set up a safe and secure work area including a decontamination area.
- Perform an on-site safety meeting covering all of the possible related safety issues.
- Set up the sampling equipment and geo-probe.
- Using the DEP sampling method for concrete, TEI will drill into the concrete pad in specific areas and collect the dust produced to provide samples for analysis.
- Using a geo-probe, drill through the concrete pad to the mean seasonal groundwater gradient (3 – 10 ft) and extract a boring sample.
- Send the soil and concrete samples out for analysis for the primary constituents of the waste stream:
    - Tetrahydrofuran SW-846 Method 8015B
    - Toluene SW-846 Method 8015B
    - Xylenes SW-846 Method 8015B
    - Methyl Ethyl Ketone SW-846 Method 8015B
    - Methanol SW-846 Method 8015B
    - Ethyl acetate SW-846 Method 8015B
    - Ethylene Glycol SW-846 Method 8015B
    - Butanediol SW-846 Method 8015B
- It is expected that each boring sample will have two soil gradients that will each need to be sampled.
- Complete the required paperwork, job sheets.

PROCEDURE FOR DRAINING, CLEANING, AND REMOVAL OF THE ASSOCIATED PIPING TO THE TANK SYSTEM.

- TEI will develop a Health and Safety Plan with all the necessary requirements set forth in OSHA, RCRA, NFPA, and DOT regulations. The Health and Safety Plan will be completed by TEI prior to the start of work.
- TEI will prepare a job summary report for your files. This report will include a copy of the Health and Safety Plan, and daily job sheets covering all materials, labor, and equipment.

Pipe flushing (to be completed prior to decontamination of T1 and T2)

- Mobilize a three-man field service crew with an air compressor to the site.
- Mobilize a 5,000 gallon vacuum truck and driver to the site.
- Set up a safe and secure work area including a decontamination area.
- Perform an on-site safety meeting covering all of the possible related safety issues.
- Secure the proper grounding equipment to the vacuum truck.

- From one end of the pipe, connect the air line to each individual line to blow the remaining solvent to the bulk storage tanks.
- Capture the solvent in tanks.
- Each line will then be flushed with a mild water and detergent solution.
- Each line will then be blown clear again with compressed air.
- Leave the lines open ended to air dry.
- The residual and the detergent wash will be collected from the tanks using the vacuum tanker.
- Complete the required paperwork, job sheets.
- Transport and dispose of the waste to an approved facility.

Pipe Removal

- Mobilize a four-man field service crew with an aerial lift to the site.
- Set up a safe and secure work area including a decontamination area.
- Perform an on-site safety meeting covering all of the possible related safety issues.
- Using pipe cutters, remove the piping in manageable sections.
- Take wipe samples of the piping and send for analysis.
- If analytical shows contaminants, the pipe material will be moved into the concrete containment area and decontaminated until clean.
- Load the piping into the roll off container.
- Complete the required paperwork for transportation and job paperwork.
- Transport and dispose of the waste to an approved facility.

PROCEDURE FOR CLEANING, AND REMOVAL OF THE STRUTHER'S WELL BOILER

- TEI will develop a Health and Safety Plan with all the necessary requirements set forth in OSHA, RCRA, NFPA, and DOT regulations. The Health and Safety Plan will be completed by TEI prior to the start of work.
- TEI will prepare a job summary report for your files. This report will include a copy of the Health and Safety Plan, and daily job sheets covering all materials, labor, and equipment.

Dismantling of Boiler

- Mobilize a two-man field service crew to the site.
- Set up a safe and secure work area including a decontamination area.
- Perform an on-site safety meeting covering all of the possible related safety issues.
- Mobilize a crane with an operator to the site.
- Utilizing the crane, remove the stack, the economizers and the burner from the refractory.
- Sample the side, top and bottom of the boiler behind the refractory bricks.
- The boiler will be loaded into the roll-off container for disposal at an appropriate facility.

PROCEDURE FOR DECONTAMINATION AND REMOVAL OF CONCRETE CONTAINMENT AREAS

- Mobilize a two-man field service crew to the site.
- Mobilize a 5,000 gallon tanker truck and operator to the site.

- Using a 3,500 psi pressure washer and a solution of water (approximately 120 f) and a mild detergent, pressure wash the interior of the containment area until visually clean.
- Following the detergent, each containment area and sump will be rinsed three times.
- The wash and rinse water will be removed with the vacuum tanker.
- The interior of the containment areas will be squeeged to remove standing water.
- A sample from the final rinse as well as a chip sample from the concrete will be removed and sent for analysis on the primary constituents of the waste stream.
- Provided the analytical is clean, the concrete containment areas will be dismantled using jackhammers and backhoe equipment. The material will be loaded into a roll-off container for disposal.
- If the analytical shows contaminants, the material will be sent for macroencapsulation disposal.