CLOSURE PLAN - VOLUME I
FOR
TWO >90-DAY HAZARDOUS WASTE CONTAINER STORAGE AREAS
AND
TWO >90-DAY HAZARDOUS WASTE STORAGE TANKS

FORMER SYNTHETIC PRODUCTS COMPANY
375 BARNUM AVENUE CUT-OFF
STRATFORD, CONNECTICUT

CTD000844365

HRP #SPC-0002.RC

VOLUME I

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C JUNE 22, 1984 PART A APPLICATION REVISION (SYNTHETIC PRODUCTS COMPANY DIVISION OF PLASTIC SPECIALTIES AND TECHNOLOGIES)

D OCTOBER 3, 1986 PART A APPLICATION REVISION

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I US EPA ENFORCEMENT SUMMARY / CT DEP RCRA INSPECTION REPORTS

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CLOSURE PLAN - VOLUME 1

FORMER SYNTHETIC PRODUCTS COMPANY
375 BARNUM AVENUE CUT-OFF
STRATFORD, CONNECTICUT

CTD000844365

HRP #SPC-0002.RC

1.0 FACILITY INFORMATION

1.1 Background and History

Synthetic Products Company (Synthetic Products) formerly operated at 375 Barnum Avenue Cut-Off in Stratford, Connecticut (see Figure 1) as a manufacturer of inorganic liquid stabilizers for the flexible vinyl industry. Several owners occupied the facility at 375 Barnum Avenue beginning with Dart Industries.

According to the original Part A Application filed in November 1980 for the 375 Barnum Avenue Cut-Off facility, Dart Industries began methacrylate monomer manufacturing operations at the facility in June 1969. In April 1972, an explosion and fire at the Dart Industries facility damaged both the building at 375 Barnum Avenue Cut-Off and the neighboring facility building located at 301 Barnum Avenue Cut-Off. Miller Manufacturing occupied the 301 Barnum Avenue Cut-Off facility from 1947 until the time of the fire.

Following the fire in 1972, the building at 375 Barnum Avenue Cut-Off was rebuilt in 1973 on the original building foundation and floors. The building at 301 Barnum Avenue Cut-Off was torn down after the fire, and subsequently rebuilt in 1977. Dart Industries occupied both of these buildings after they were rebuilt. The 375 Barnum Avenue Cut-Off facility consists of one (1) facility building covering 8,485 square feet, set on approximately 0.6 acres. The 301 Barnum Avenue Cut-Off facility consists of one (1) facility building covering 7,420 square feet, set on approximately 0.3 acres. The neighboring properties include:

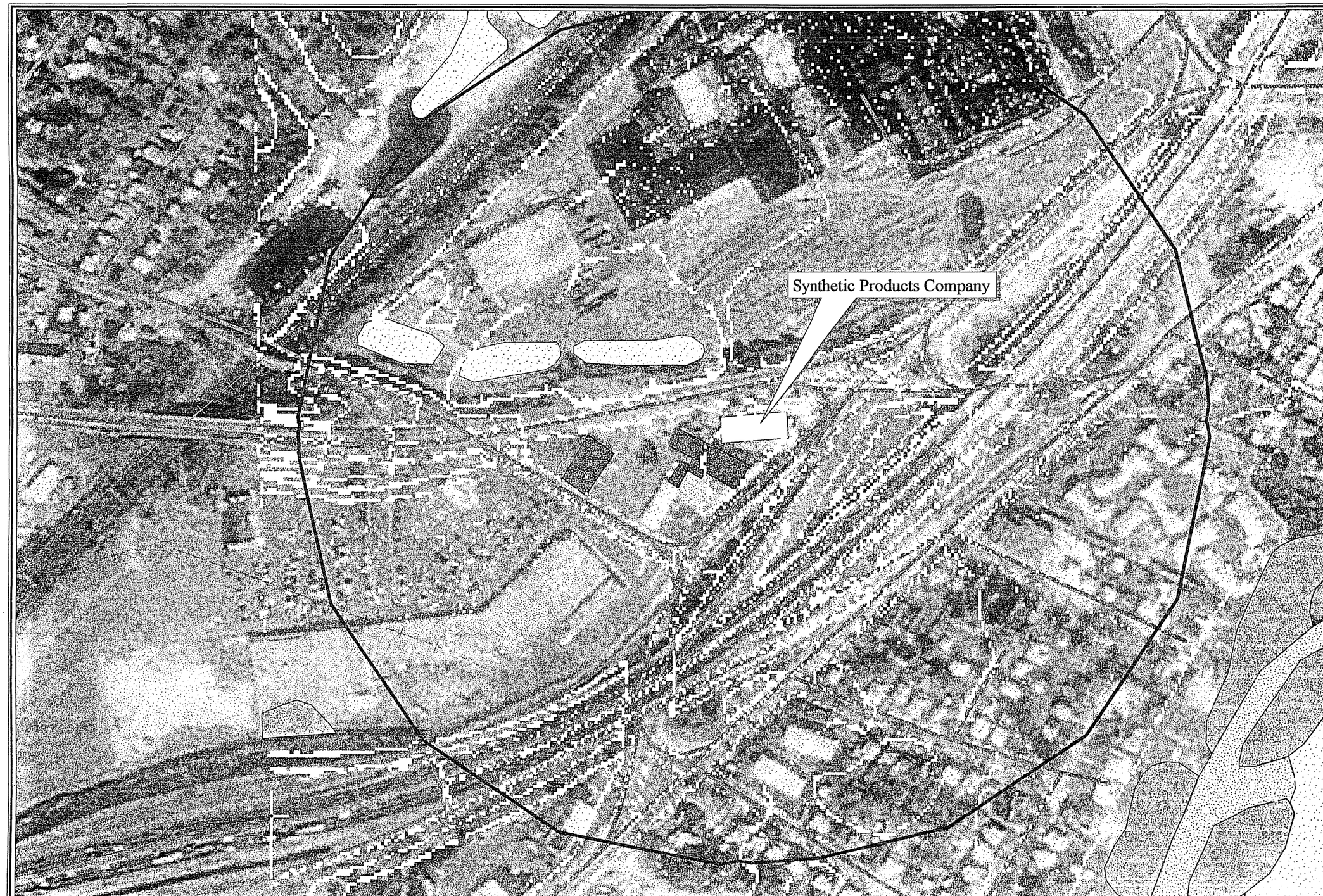
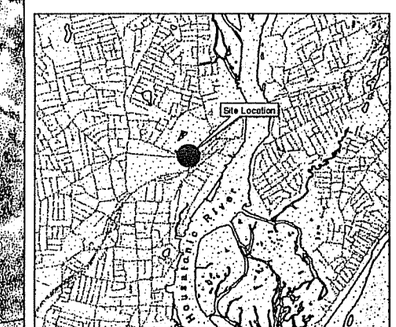


Figure 1. Site Location

Former Synthetic Products Company
375 Barnum Avenue
Stratford, CT

Railroads
USGS Roads
Buildings
Hydrographic Features
Flats
Island
Marsh
Sewage Pond
Water



100 0 100 200 Feet

1:3,000
Universal Transverse Mercator
North American Datum 1927

N
W E
S

HRP *Associates, Inc.*
Connecticut, New York & Massachusetts

HRP/***Spectrum***, Inc.
South Carolina

Date	Designed	File
07/07/99	JRW	d:\gis\svproj\sc0004 rc.spr

North:	Former Raymark Industries site (across Barnum Avenue Cut-Off)
South:	Ferry Boulevard
East:	Ferry Boulevard
West:	Hampford Research, Inc.; Veteran's of Foreign Wars

As discussed previously, Dart Industries manufactured organic liquid acrylates and methacrylates at 375 Barnum Avenue Cut-Off from June 1969 until June 1984. The reaction raw materials consisted of solvents (heptane, hexane, and toluene), acids, glycols, inhibitors, and sodium hydroxide. The final products included methacrylate esters, acrylate esters, and plasticizers. Wastes generated from the manufacturing reactions included alkaline washwaters from cleaning reactor vessels, pH-adjusted floor spills and rinsewaters, solvents (non-chlorinated), and solidified batch wastes (i.e. tank bottom solids, off-spec monomers and plasticizers).

Until 1979, the pH-adjusted floor spills and rinsewaters were discharged to an on-site septic tank and leach field. This discharge resulted in ground water contamination with volatile organics. Subsurface work was performed at the site, including ground water recovery and treatment, and the excavation and off-site disposal of approximately 3,000 cubic yards of contaminated soil. Container Storage Areas I and II were removed during excavation activities. At the present time, Kraft Foods, Inc. has requested a "no further action" determination from the CT-DEP for environmental investigation and remediation. Kraft Foods, Inc. has been responsible for the remediation associated with the septic system because of its ownership of Ware Chemical Company in the 1970's and early 1980's.

From June 1984 through October 1996, Synthetic Products Company manufactured stabilizers for the flexible vinyl industry. The stabilizers were synthesized through the reaction of powdered metal oxides with fatty acids. Two such reactions were cadmium oxide with tall oil acid, and zinc oxide with oleic acid. Other commonly used raw materials included calcium hydroxide, barium monohydrate, dibutyl tin oxide, and antimony oxide.

Following completion of the reaction, the resultant liquid stabilizer (product) would be passed through filter papers to remove unreacted impurities. Synthetic Products would then drum the spent filters along with

other solids (i.e. rags, gloves, speedi-dry with absorbed floor spills). The drummed solids were then covered and placed in the primary and secondary container storage areas (listed in the 1984 Part A) prior to off-site disposal as a D005 (barium-contaminated) and D006 (cadmium-contaminated) hazardous waste.

Reaction water was a by-product of the reaction of the metal oxides and fatty acids. The reaction water was generated by the reaction, and removed from the reaction vessel under vacuum condition as water vapor. The water vapor was hard-piped in steel piping to a 300 gallon stainless steel, intermediate storage tank. The water vapor would cool and condense in the intermediate storage tank. Once the tank was full, the reaction water was pumped through above-ground, stainless steel piping to the 5,000 gallon wastewater storage tank in the rear of the facility for storage prior to off-site disposal as a D005 and D006 hazardous waste.

Following filtration of the finished product, Synthetic Products personnel would clean the reaction vessel with "ink oil", a kerosene derivative. The cleaning was done through high-pressure spraying of the interior surface of the reaction vessel. All generated waste from the vessel cleaning was hard-piped to a 3,000 gallon carbon steel, intermediate holding tank. From the intermediate storage tank, Synthetic Products personnel would pump the reactor vessel cleaning wastewaters through above-ground steel piping to the 5,000 gallon stainless steel "organic" waste storage tank in the rear of the facility building. The "organic" waste would then be shipped off-site as a D005 and D006 hazardous waste.

Besides the reactor vessel cleaning wastewaters, the organic waste stream also received floor spills and waste generated from tote cleaning. Once totes of raw materials were emptied for use or returned empty from customers, Synthetic Products personnel would clean the totes with the same high-pressure "ink oil" spray used to clean the reaction vessels. The tote wash waters were then conveyed via floor trenching to one of two floor sumps. From the sumps, the tote wash waters were pumped through steel piping to the intermediate "organic" waste holding tank. These floor

trenches and sumps also received any floor spills that may have occurred during the course of the daily operations.

A detailed description of the manufacturing processes which generated hazardous waste, and how they changed over time, can be found in the CTDEP and EPA inspection reports provided in Appendix I.

Photographs of regulated units identified on-site prior to closure are located in Appendix J. Photographs include:

- primary container storage area
- secondary container storage area
- 300 gallon reaction water storage tank
- 3,000 gallon hazardous waste intermediate storage tank
- 5,000 gallon organic hazardous waste storage tank
- 5,000 gallon reaction water hazardous waste storage tank
- Front room trenches.

Historical photographs were not available for the following areas, which no longer exist:

- septic tank and associated leach field
- 1,200 gallon former reactor vessel (R-1)
- ancillary piping associated with the tank vessels
- Container Storage Areas I and II (identified on 1980 Part A Permit Application)

1.2 Review of Part A Permit Application

Three Part A Permit Applications were submitted for the former Synthetic Products facility. The dates of the Part A Permit Applications and stated design capacities are shown below:

- November 14, 1980 Part A - Two (2) outdoor container storage areas (referred to as Container Storage Areas I and II)

- June 22, 1984 Part A - Two (2) outdoor container storage areas (referred to as the Primary and Secondary Container Storage Areas. These areas are different than those listed in the 1980 Part A.)

- October 3, 1986 Part A
  - Two (2) outdoor container storage areas (same as 1984 Part A)
  - Two (2) 5,000 gallon tanks
  - Two (2) 1,500 gallon tanks

On November 14, 1980, a Part A Application for this site was filed with the United States Environmental Protection Agency (US EPA). At the time of the Part A filing, the facility operator was Dart Industries, and the facility manufactured acrylic monomers. On the Part A Application, Dart Industries identified two container storage areas (Process Code S01), with a total Process Design Capacity of 10,000 gallons. The waste types to be stored were listed as EPA Waste Codes D001 (ignitable) and D002 (corrosive). The total annual generation rates were listed as 60,000 pounds of D001 waste and 25,000 pounds of D002 waste. A copy of this Part A Application is included as Appendix A of this Closure Plan. These two storage areas, referred to as Container Storage Areas I and II, are not part of this Closure Plan. These areas were removed during subsurface excavations performed by Kraft as mentioned in Section 1.1. In November 1981, Dart Industries, Ware Chemical Division, merged with Synthetic Products Company to form Dart Industries, Synpro-Ware Division. A letter notifying the US EPA and Connecticut Department of Environmental Protection (CT-DEP) of this name change is included in Appendix B.

In 1984, Plastic Specialties and Technologies, Inc. purchased Dart Industries, Synpro-Ware Division. On June 22, 1984, a revised Part A Application was submitted for the facility under its new ownership and name: Synthetic Products Company Division of Plastic Specialties and Technologies. A copy of this revised Part A Application is included as Appendix C.

Under the June 22, 1984 Part A Application, Synthetic Products again identified two container storage areas (Primary and Secondary Container Storage Areas - Process Code S01), with a process design capacity of only 5,000 gallons. These two areas are different from Container Storage Areas I and II described earlier. The only waste type

listed for storage in the container storage areas was D006 (cadmium contaminated) hazardous waste, with an annual generation rate of 100,000 pounds.

These changes in generated waste types and generation rates reflect changes in the manufacturing operations that accompanied the sale of Synthetic Products to Plastic Specialties and Technologies. As mentioned above, the facility operations changed from acrylic monomer manufacturing to the manufacturing of stabilizers for the flexible vinyl industry.

On October 3, 1986, Synthetic Products submitted a second revision to the facility's Part A Application (see Appendix D). The Primary and Secondary Container Storage Areas remained the same as the June 22, 1984 Part A. In this revision, Synthetic Products added four (4) storage tanks (Process Code S02) to its inventory of regulated units. Additional tanks are shown on the figure associated with the 1986 Part A permit application, however these are reported to be process tanks, not RCRA regulated tanks. Besides storing cadmium-contaminated hazardous wastes, the container storage area and four tanks were also listed as handling barium-contaminated hazardous wastes (EPA Hazardous Waste Code D005). The waste generations were listed as follows:

EPA Hazardous Waste Codes	Type of Storage	Estimated Annual Quantity
D005, D006	Container	85,000 lbs.
D005, D006	Tank	40,000 gals.
D005, D006	Tank	180,000 gals.

Shortly after the second Part A revision, Synthetic Products modified its process for removal of reaction water from reactor vessels. This modification resulted in a decrease in the annual generation of reaction water from 180,000 gallons to approximately 40,000 gallons.

On May 16, 1988, the CT-DEP mailed a Part B Call Letter to Synthetic Products, requiring submission of a Part B Permit Application in order to retain interim status for its regulated hazardous waste storage

areas. In response to the Part B Call Letter, Synthetic Products submitted a request to withdraw its Part A Application, stating that the facility stored wastes for less than 90 days. Synthetic Products also requested a status change from a TSDF to a generator.

On August 1, 1988, (following receipt of the Part B Call Letter but prior to the request for a status change) Plastic Specialties and Technologies, Inc. sold the 375 Barnum Avenue Cut-Off establishment to Cookson America, Inc. This change in ownership was followed in October 1995 with the sale of controlling assets from Cookson to Ferro Corp. Operations at the 375 Barnum Avenue Cut-Off facility continued to be operated by Cookson under a tolling agreement with Ferro, until October 30, 1996, when the tolling agreement ended.

In order to gain release from liabilities associated with future activities at the Stratford facility, Cookson America established SPC Divestitures, Inc. in October 1995 to oversee and perform manufacturing and closure activities at the 375 Barnum Avenue Cut-Off facility.

1.3 Regulated Units Covered By This Closure Plan

Six (6) regulated units are covered by this Closure Plan.

- The Primary Container Storage Areas listed in the 1986 Part A Application.
- The Secondary Container Storage Area listed in the 1986 Part A.
- The 5,000 gallon wastewater storage tank that managed D005 and D006 wastes listed in the 1986 Part A. A 3,000 gallon intermediate reaction water tank which held wastes for less than 90 days is addressed in this Closure Plan since this tank is considered ancillary equipment for the 5,000 gallon wastewater tank.
- The 5,000 gallon organic waste tank listed in the 1986 Part A. The trenches and sumps located in the front room are also addressed in this Closure Plan since they were pumped into the organic waste storage tank.
- The 3,000 gallon intermediate waste storage tank.
- The 1,200 gallon former reaction vessel (R-1).

The 3,000 gallon intermediate wastewater tank and 1,200 gallon former reaction vessel were not listed on the 1986 Part A. Also, the two (2) 1,500 gallon tanks listed on the 1986 Part A are no longer on-site. It is unclear what the 1,500 gallon tanks were used for, or where they were located. Since all regulated units on-site are to be closed, a revised Part A will not be submitted.

1.4 State and Federal Regulations

In accordance with the Resource Conservation and Recovery Act (RCRA) regulations contained in 40 CFR Parts 265.111 through 265.115 (General Closure Requirements) and State of Connecticut Hazardous Waste Regulations Section 22a-449(c)-105, all owners and operators of hazardous waste facilities must close their facilities in a manner that:

- Minimizes the need for further maintenance;
- 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 water or to the atmosphere; and
- Complies with the closure requirements of 40 CFR 265 Subpart G including, but not limited to, the requirements of Sections 265.197, 265.228, 265.258, 265.280, 265.310, 265.351, 265.381,265.404, and 265.1102.

To expedite the review and approval process associated with the container storage area closure plans, and eliminate the need to revisit an approved closure plan (i.e. due to unexpected event), the CT-DEP has developed a draft RCRA Closure Plan Guidance document (dated November 1993). Under this guidance, the CT-DEP has proposed a three part process. Part one is a work plan which characterizes the nature and extent of any hazardous constituents released by the regulated unit(s). Part Two is a summary of site characterization results and the proposed closure option "clean closure" or "landfill closure". Part three will include the plan to close the regulated unit(s) "clean" or as a "landfill".

To comply with this guidance, HRP has outlined under this plan, the procedure for characterizing the extent of contamination, if any, associated

with the container storage area at Synthetic Products' Barnum Avenue facility located in Stratford, Connecticut (i.e. Part One - Work Plan). It is Synthetic Products' intent to close the regultaed units. Please note that Synthetic Products has completed this closure "at risk". Deviations from this Closure Plan will be documented in Volumes II and III of this Closure Plan.

1.5 Land Use/Topographic Features

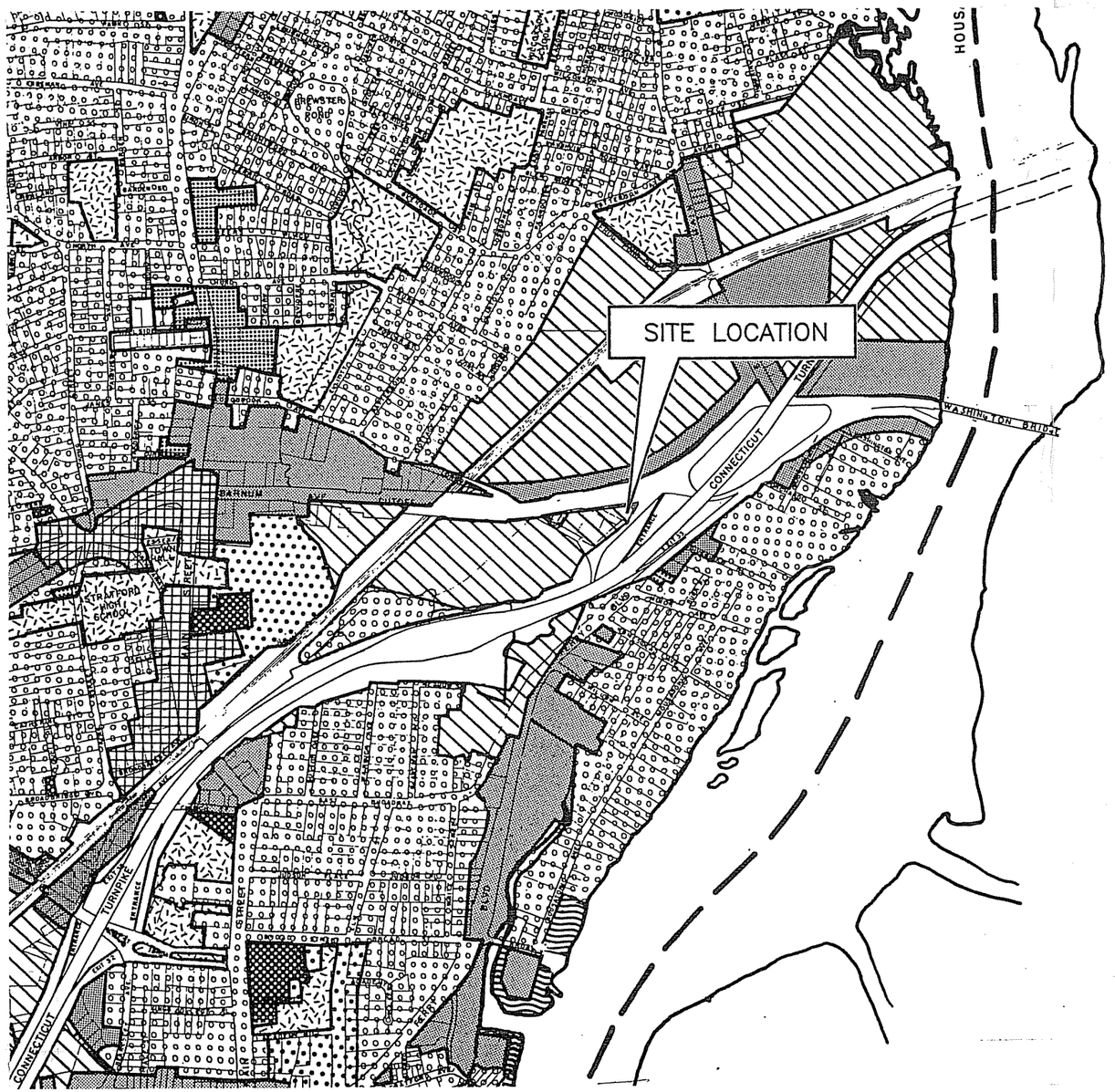
A copy of the U.S.G.S. topographic map depicting the site location and at least 1,000 feet around the site is provided as Figure 1. Figure 1 depicts the following features:

- Contours, with intervals of 10 feet;
- Map scale (1:24,000);
- Surface waterways: The closest surface waters to the site are Ferry Creek, approximately 1,000 feet southwest of the site; and the Housatonic River, approximately 1,300 feet to the southeast.
- North arrow;
- Facility buildings: 301 and 375 Barnum Avenue Cut-Off
- Major roadways: Barnum Avenue Cut-Off on the northern boundary. Connecticut Turnpike and Ferry Boulevard to the east and south. Connecticut Turnpike Interchange 33 to the east.

Figure 2 depicts the local zoning and surrounding land uses. The Synthetic Products site is located in a Light Industrial District. The surrounding land uses are:

North:	Light Industrial and Retail/Commercial
South:	Light Industrial, Retail/Commercial, and One-Family Residential
East:	Retail/Commercial and One-Family Residential
West:	Light Industrial and Retail/Commercial

The site surface drainage patterns and storm drain locations are depicted on Figure 3.



LEGEND

One-Family Residence Districts, RS

- RS-1 Districts
- RS-2 Districts
- RS-3 Districts
- RS-4 Districts

Existing Institutional Uses

- Town Owned (Municipal) Property
- Church/Place of Worship

Light Industrial Districts, MA

- MA Districts

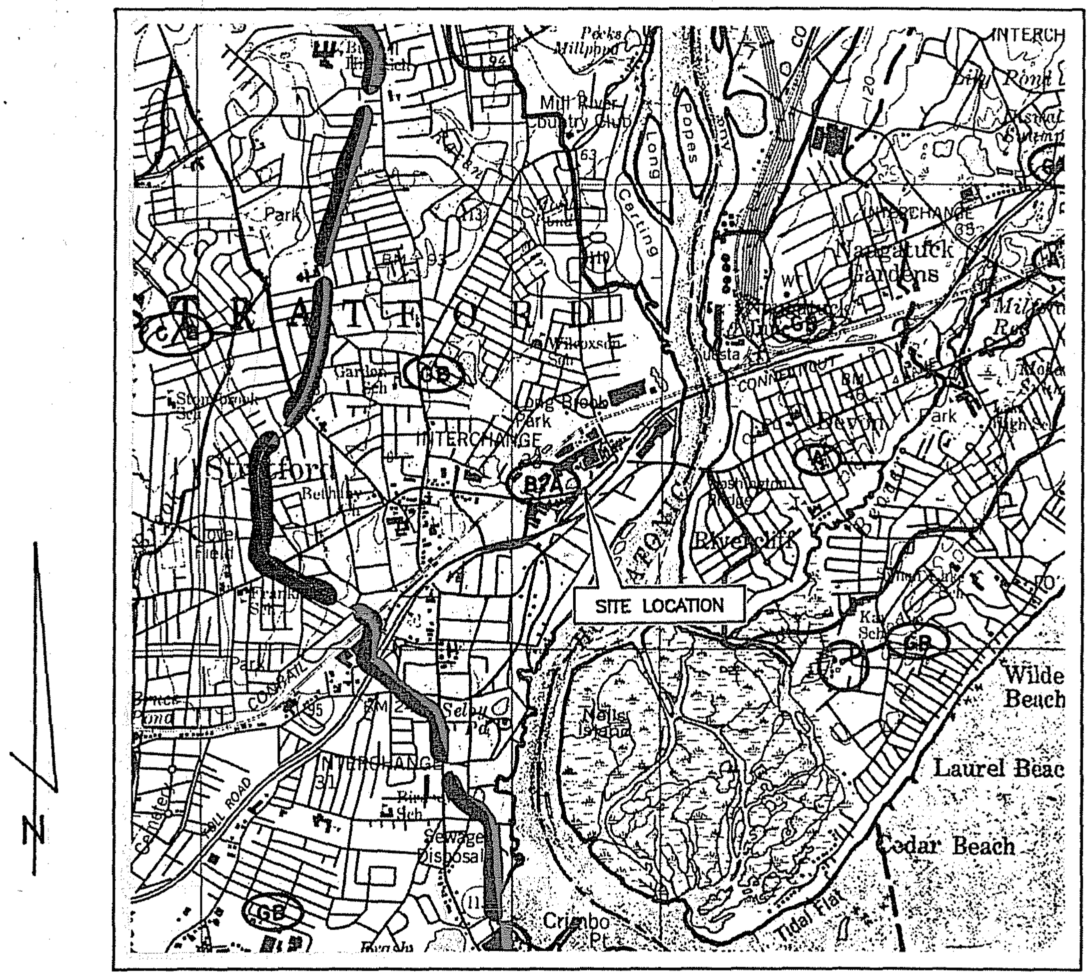
Retail Commercial Districts

- CA Districts
- CF Districts
- CNC Districts

0 500 1000 2000

SCALE: 1"=1000'

FIGURE 2
LOCAL ZONING
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC



SCALE 1 : 50000
1" = 4167'

1 .5 0 1 2 3 4 MILES

LEGEND

MAJOR DRAINAGE BOUNDARY

REGIONAL DRAINAGE BOUNDARY

PUBLIC WATER SUPPLY WATERSHED, EXISTING AND PROPOSED

PUBLIC WATER SUPPLY WELL

GROUNDWATER CLASSIFICATION BOUNDARY

SHELLFISH CLOSURE LINE

USGS 7.5 MINUTE QUADRANGLE BOUNDARY

UPSTREAM LIMIT OF SURFACE WATER CLASSIFICATION

FIGURE 4
GROUND WATER CLASSIFICATION
FORMER SYNTHETIC PRODUCTS COMPANY PLANT No. 2
375 BARNUM AVENUE CUT-OFF STRATFORD, CT.
HRP #SPC.0002.RC

KEY TO MAP

500-Year Flood Boundary	
100-Year Flood Boundary	
Zone Designations* With Date of Identification e.g., 12/2/74	ZONE B / ZONE A1 DATE / ZONE A5 DATE / ZONE B
100-Year Flood Boundary	
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

INITIAL IDENTIFICATION:
FEBRUARY 28, 1975

FLOOD HAZARD BOUNDARY MAP REVISIONS:
NONE

FLOOD INSURANCE RATE MAP EFFECTIVE:
JUNE 1, 1978

FLOOD INSURANCE RATE MAP REVISIONS:
August 1, 1980 - to reduce special flood hazard areas.
March 15, 1984 - to include the effects of wave action.

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

APPROXIMATE SCALE
500 0 500 FEET

FIGURE 5
LOCAL FLOOD ZONES
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

According to the Milford quadrangle topographic map, the site lies at an elevation of about 10 feet above mean sea level. the site topography is fairly level with little vertical relief. However, the land surface was noted to rise sharply to the street levels (Barnum Avenue Cut-Off, 5 feet, Ferry Boulevard and Interstate 95 related entrance ramp, 10 feet).

Ferry Creek flows north to south approximately 1,000 feet south of the site. Ferry Creek has received a class B/A surface water quality designation from CT DEP. Designated uses of a Class A surface water include a potential drinking water supply; fish and wildlife habitat; recreation; agricultural or industrial supply; and other uses including navigation.

The Housatonic River flows north to south about 4,000 feet east of the site. CT DEP has classified the surface water quality of the Housatonic River as SC/SB. Class SB surface water uses include a marine, shellfish and wildlife habitat; shellfish harvesting for transfer to a deportation plant or relay (transplant) to an approved area for purification prior to human consumption; recreation; industrial; and other uses including navigation.

No obvious wetland areas were evident during the site inspection or were identified on the municipal wetlands map.

The asphalt parking surface surrounding the structure slopes to one (1) catch basin on-site. This catch basin drains into the town of Stratford storm sewer system.

1.6 Ground Water Classification/Flood Plain

According to the water quality classification map for the Hudson, Housatonic River Basin, the ground waters underlying the Synthetic Products site are classified as "GB". According to the Connecticut "Water Quality Standards" adopted in January 1992, GB ground waters are known or may reasonably be presumed to be degraded due to a variety of pollution sources. GB ground waters are ground waters within highly urbanized areas or areas of intense industrial activity and where public water supply service is available. GB ground waters may not be suitable for direct human consumption due to waste discharges, spills or leaks of chemicals or land use impacts. The State's goal is to prevent further degradation of GB

ground waters by preventing any additional discharges which would cause irreversible contamination.

Ground water on site and downgradient from the site is not used for drinking water or other purposes. The primary direction of ground water is horizontal, based on previous hydrogeological investigations. Transport between the overburden and bedrock is expected to be minimal due to the minimal number or absence of fractures in the bedrock. Surface runoff is expected to have minimal influence on ground water because the facility and asphalt pavement create an impervious surface over a majority of the site.

The nearest surface water body is Ferry Creek, 1,000 feet southwest of the site. The site is expected to have minimal impact on the Ferry Creek due to the site's distance from the Creek and surrounding ground water classification.

According to the "Flood Insurance Rate Map for the Town of Stratford, Connecticut", prepared by the Flood Emergency Management Agency on March 15, 1984, the facility to be closed is located in an area of minimal flooding.

Figure 4 depicts the ground water classification in the vicinity of the facility, while Figure 5 is a map of the local flood zones.

1.7 Geology

1.7.1 Bedrock Geology

According to the "Bedrock Geologic Map of the Milford Quadrangle, Fairfield and New Haven Counties, Connecticut", prepared in 1965 by Crawford E. Fritts in cooperation with the State of Connecticut, the bedrock underlying the Synthetic Products site is Derby Hill Schist. Schist is a strongly to very strongly layered type of metamorphic rock. The Derby Hill Schist in the vicinity of the site is mainly medium- to fine-grained, thinly laminated, and greenish-gray to medium dark gray in color. The Derby Hill Schist in the vicinity of the site is composed mainly of quartz, muscovite, chlorite, and sodic plagioclase.

Based on previous hydrogeologic investigations performed in 1996 by Conastoga-Rovers & Associates (CRA), the depth to bedrock on the site ranges from 33 feet to 62 feet below mean sea level. This data was based on three soil borings.

Ground water elevations range from 3.13 to 3.33 feet above mean sea level, as stated in the CRA report. Ground water generally flows in a southerly direction on-site with a stagnant area at the northern portion of the site.

1.7.2 Surficial Geology

According to the "Surficial Geologic Map of the Milford Quadrangle, Connecticut", copyright 1967 by the State of Connecticut, the surficial material at the Synthetic Products site is artificial fill. Artificial fill consists of deposits made by human activities. The thickness of artificial fill is known or judged to be at least five feet.

CRA's 1996 report indicates that a layer of sand, gravel and silt was encountered for the initial four to ten feet below grade. The second surficial unit consists of a brown to gray medium sand with traces of gravel and cobbles. The thickness of this unit ranges from 35 to 65 feet.

1.7.3 Soil Survey

According to the Soil Survey of Fairfield County, Connecticut, published by the United States Department of Agriculture, Soil Conservation Service, and issued in February 1981, the soil underlying the site has been classified as "Urban Land". Urban Land consists of areas where urban structures cover more than 85 percent of the surface. Urban Land areas are commonly rectangular and range from 5 to 500 acres. Slopes range from 0 to 8 percent, but are dominantly less than 5 percent.

1.8 Surrounding Drinking Water Wells

Review of the Atlas of Public Water Supply Sources, dated 1982, indicated that there are no public drinking water wells within one mile of the site. Drinking water from the site and area within 1,000 feet of the site is

supplied by Bridgeport Hydraulic Company. The Hydrogeologic Data for the Lower Housatonic River Basin (Bulletin #20), for data collected through 1967, indicated that there has been 1 well installed in the same drainage divide as the site and within one mile of the site. This one well is listed as a domestic water withdrawal well, installed in 1966 and owned by J. DePhillips. The location of this 101-foot well is east of the Housatonic River (i.e. opposite side of the river from the site). This well is located greater than 1,000 feet from the site. It is believed that ground water underlying the Synthetic Products site will have no impact on this withdrawal well because the Housatonic River serves as a hydraulic divide between the two sites.

1.9 Wastewater Discharges

According to CT-DEP Water Bureau records, the Ware Chemical Company maintained various wastewater discharges from its operations. Sanitary wastewaters were directed to the municipal sanitary sewer. Reactor (non-contact) cooling waters were directed to a storm sewer at the site which discharges to Long Brook. Prior to 1979, the facility also utilized an on-site septic system for discharge of floor spills and floor wash waters. The discharge to the leaching field was pretreated for solvent removal and pH-adjustment. The remaining industrial wastewaters (i.e. from reactor cleaning) were reportedly discharged to an on-site storage tanker for off-site disposal.

The operation of the on-site septic system resulted in contamination of soil and ground water with volatile organics. Subsurface remediation has been performed at the site. This remediation included ground water recovery and treatment, followed by the excavation and off-site disposal of approximately 3,000 cubic yards of contaminated soil. Container Storage Areas I and II (listed in the 1980 Part A) were removed during excavation activities. At the present time, Kraft Foods, Inc. has requested a "no further action" determination from the CT-DEP for environmental investigation and remediation. Kraft Foods, Inc. has carried responsibility for the contamina

tion, along with Dart Industries, as a result of Kraft's acquisition of Ware Chemical Company, Division of Dart Industries.

In 1979, use of the on-site septic system and leach field ceased. Industrial process discharges were stored in tanks or 55 gallon drums for off-site disposal. It is reported that Synpro-Ware Company, Division of Dart and Kraft directed all wastewater discharges to a 4,300 gallon tanker stationed on-site for storage. This tanker was stationed outside the south wall of the 375 Barnum Avenue Cut-Off building.

After Plastics Specialties & Technologies purchased Synthetic Products Company in 1984 and began to manufacture liquid stabilizers at the site, the use of the storage tanker was discontinued. Synthetic Products began the practice of storing its generated wastewaters in two (2) indoor tanks, each with a nominal capacity of 5,000 gallons. These two indoor tanks are the same tanks for which Synthetic Products issued its revised Part A Application in October 1986 (see Appendix D). Synthetic Products maintained its non-contact cooling water discharge to Long Brook after the change to the manufacturing of liquid stabilizers.

1.10 Summary of Regulatory Events

Nine (9) RCRA inspections/records reviews have been conducted at the Former Synthetic Products Company. Inspection reports are included as Appendix I. A summary of the RCRA inspections/record reviews are tabulated below.

Date	Action	Agency	Enforcement
6/1/83	Inspection	CT DEP	
1/27/84	Record Review	CT DEP	
11/7/85	Record Review	CT DEP	
2/21/85	Inspection	CT DEP	NOV #193 for Class I "Other" Violations
4/1/86	Inspection	CT DEP	
7/28/88	Inspection	US EPA	
5/21/90	Inspection	CT DEP	
5/25/93	Inspection	CT DEP	
7/22/94	Inspection	CT DEP	

Although recordkeeping and procedural violations were noted in each inspection report, no enforcement actions related to spills or releases from regulated units were noted. CT DEP records of all on-site releases are summarized in the following table. It is not known if any of these releases occurred from the RCRA regulated units.

ON-SITE RELEASES			
Date	**Case Number**	**Description**	**Actions Taken**
8/31/91	913259	Approximately 4,200 gal. 63% epoxydized soybean oil was released to the ground.	Adsorption pads and speedi dry was utilized to control and clean-up the release.
1/13/93	93154	About 10 gal. of barium compound released to surface water.	None
12/11/90	4881	Barium carbonate was discharged to the ground as a result of an explosion. The total volume is unknown. About 50 gal. discharged to the storm sewer.	Hitchcock Environmental contained and removed about 100 gal.
3/4/87	299	About 100 gal. of a barium/zinc stabilizer was released due to failure of a transfer line.	The spill was contained and removed.
3/3/87	354	Approximately 100 gal. of naphthalene was released.	The release was sanded and removed.
12/5/86	1835	20 gal. of kerosene derivative "ink oil" released during container failure.	The spill was contained and removed.
1/3/85	05	About 50 gal. of wastewater containing cadmium, zinc, and barium was discharged during a tank overfill.	The wastewater was contained and removed.
7/12/83	---	An unknown volume of lead oxide and chemicals were released during a fire which involved a large part of the facility.	The release was contained and removed.
2/27/79	---	Hydroquinone and other chemicals discharged to storm sewer after capacity of 5,000 gal. holding tank was filled.	None reported.

2.0 DESCRIPTION OF REGULATED UNITS

2.1 Original Part A Application Areas

The original Part A Application listed four (4) regulated units: two (2) existing drum storage areas, one (1) future drum storage area, and the former septic system leaching field. Container Storage Areas I and II were listed as storage areas for drum storage of up to 10,000 gallons of hazardous waste. The largest individual drum stored was 55 gallons in capacity. The dimensions of storage area I were listed as 20 feet by 20 feet, while the dimensions of storage area II were listed as 20 feet by 25 feet. The waste types generated for storage were listed as D001 (ignitable), and D002 (corrosive). The annual generations of these two waste streams were listed as 60,000 pounds and 25,000 pounds, respectively. According to a written report of a CT-DEP inspection conducted on June 1, 1983, neither storage area was equipped with a berm or a completely impermeable base. Container Storage Areas I and II were removed during excavation of the septic tank and leachfield.

Storage area III was listed as a future storage area, measuring 30 feet by 25 feet. The use of this storage area was contingent upon the purchase of the neighboring parcel of land by Dart Industries. Following purchase of the parcel, however, Dart Industries transferred the parcel to another party who further developed the property by constructing a facility building on the location of the proposed storage area. Storage area III was therefore never used for hazardous waste storage.

No additional RCRA closure work is proposed in this Closure Plan for the four areas listed in the original Part A Application. In July and August 1990, approximately 3,000 tons of contaminated soil were excavated from the site and disposed of off-site. The excavated soil was reportedly removed from the ground surface to the ground water table between the building foundation of 375 Barnum Avenue Cut-Off and the building foundation of 301 Barnum Avenue Cut-Off. The excavation stretched to Ferry Boulevard in the easterly direction. Figure 6 depicts the approximate

limits of the excavation and the approximate locations of the regulated units.

As indicated on Figure 6, storage areas I and II as well as the leaching field were removed during the soil excavation activities. Since the bases of the two storage areas as well as the associated subsurface soils were removed, there are no structures or soils in the vicinity of these storage area remaining in place. Synthetic Products did not store hazardous waste in any of these storage areas after the soil excavation was performed.

Kraft Foods, Inc. (Kraft) has carried the responsibility of remediating the contamination that resulted from the leaching field. At the present time, Kraft has requested a "no further action" determination from the CT-DEP with respect to subsurface investigation and remediation. If the CT-DEP determines that additional investigation and/or remediation is required, then it will be Kraft's responsibility to proceed with the additional work. Closure of these storage areas is therefore not discussed any further in this Closure Report.

Synthetic Products ceased operations at this site in November 1996. Synthetic Products is no longer a business entity and intends to close all regulated waste management units on-site. No regulated units will remain open at the facility at the end of the closure process.

2.2 Primary Container Storage Area

The primary drum storage area (listed in the June 22, 1984 Part A) at the 375 Barnum Avenue Cut-Off facility is located outside the southeast corner of the facility building. This irregularly-shaped area is roofed and surrounded by a chain-link fence. The base of the area is unsealed concrete, and it is surrounded by a concrete secondary containment berm that is 5 inches high and 7 inches wide. This storage area was utilized by Synthetic Products to store D005 (barium-contaminated) and D006 (cadmium-contaminated) hazardous wastes. The annual combined generation rate for hazardous wastes stored in the primary container storage area was listed as 100,000 pounds.

BARNUM AVENUE CUT-OFF

6 PHOSPHITE TANK CONNECTIONS
EPOXY SOYA TANK CONNECTION
TALL OIL ACID TANK CONNECTION
NONYL PHENOL TANK CONNECTION
PHOSPHATE TANK CONNECTION
TRANSFER CONNECTIONS
UNDERGROUND STORAGE TANKS (VIRGIN MATERIALS)
DUMPSTER STORAGE (RUBBISH, PAPER, CARDBOARD, RECYCLABLE CANS & PLASTICS)
BITUMINOUS CONTAINMENT WITH 1.5' WIDE SLUICE GATE
NON-CONTACT COOLING WATER DISCHARGE LINE
ROOF DRAINS
CATCH BASIN WITH HINGED COVER
SANITARY SEWER EASEMENT
EMPTY TOTE BIN STORAGE AREA
BITUMINOUS
BUILDING 375
TRANSFORMER
OUTFALL 001
EMPTY DRUM STORAGE AREA
FORMER 5,000 GAL. ORGANIC HW STORAGE TANK
3,000 GAL. INTERMEDIATE STORAGE TANK FOR ORGANIC HW
KEYED VALVE TO DIRECT STORMWATER TO CATCH BASIN OR WASTE STORAGE TANK
PRIMARY HAZARDOUS WASTE CONTAINER STORAGE AREA (ROOFED AND BERMED)
EMPTY DRUM STORAGE
300 GAL. REACTION WATER STORAGE TANK
DRAIN
FORMER 5,000 GAL. HW REACTION WATER STORAGE TANK
EMPTY TOTE BIN STORAGE AREA
PROPANE TANK
8,000 GAL. #2 FUEL OIL TANK WITH METAL CONTAINMENT STRUCTURE AND ROOF EQUIPPED WITH DRAIN VALVE
BITUMINOUS
AIR COMPRESSOR
HOLDING TANK FOR BOILER BLOWDOWN
PROCESS TANKS
FORMER DRUM STORAGE AREA I
BUILDING 301
APPROXIMATE PROPERTY LINE
CONCRETE CONTAINMENT
APPROX. LOCATION OF FORMER LEACHING FIELD
FORMER SECONDARY HAZARDOUS WASTE CONTAINER STORAGE AREA (ROOFED AND BERMED)
MANHOLES (PART OF FORMER GROUND WATER TREATMENT SYSTEM)
PROPOSED FUTURE DRUM STORAGE AREA III (NEVER USED)
FORMER DRUM STORAGE AREA II
SCRUBBER FOR ON-SITE GROUND WATER TREATMENT SYSTEM (NOT IN SERVICE)
LOADING DOCK (ENCLOSED)

LEGEND

⊙ MANHOLE

APPROXIMATE LIMITS OF SOIL EXCAVATION TO GROUND WATER TABLE (1990)

30 0 15 30
APPROXIMATE SCALE
(1' = 30')

FIGURE 6
ORIGINAL PART A REGULATED UNITS AND LIMITS OF EXCAVATION
FORMER SYNTHETIC PRODUCTS COMPANY
PLANT No. 2
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

HRP
ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871

SPC002RC\FIGURE6 (M)

The vast majority of the hazardous wastes stored in the primary container storage area were non-flowing solid wastes. Spent product filters and floor sweepings were the main waste components. It should be noted that the contaminant for this area was also utilized by Synthetic Products as part of the building's secondary containment for the two 5,000 gallon hazardous waste storage tanks, prior to installation of a secondary containment dike around the tanks. There have been no reported tank spills or ruptures which were large enough to migrate to this storage area. Two construction joints in the floor of the primary container storage area can be seen in the photographs located in Appendix J. No staining was observed.

2.3 Intermediate Organic Waste Storage Tank

The Synthetic Products facility was equipped with a 3,000 gallon intermediate storage tank for its organic wastes. This storage tank, located in the reaction room at the facility, became a regulated unit when Synthetic Products filed its revised Part A Application on October 3, 1986. The volume of this tank was reported as 1,500 gallons on the 1986 Part A. This filing resulted from a CT-DEP inspection conducted on April 1, 1986.

The intermediate storage tank was constructed of carbon steel, and is approximately 8 feet in diameter and 8.5 feet high. The tank is set in a steel support structure, which suspends the tank above the facility floor. The tank is surrounded by a two foot high dike on three sides, and by the southern wall of the facility building on the fourth side. The dike was constructed in 1995 to provide secondary containment for the tank. The secondary containment berm was constructed of concrete block, with the cores filled with mortar. The blocks were anchored into the existing floor. The surface of the secondary containment area was coated with an epoxy. It is unknown when the epoxy coating was applied. Some staining on the epoxy coating is shown in the photographs located in Appendix J. No cracks were observed. No secondary containment for the 3,000 gallon intermediate holding tank was provided prior to construction of the berm in 1995.

The organic wastes stored in this intermediate storage tank were generated primarily through cleaning activities. The floor of the reaction room was equipped with collection trenches that led to two different sumps. The volume of the floor trenches and associated sumps was 570 gallons. The trenches and sumps primarily collected floor spills of raw materials, and floor washing waters. Two sump pumps pumped the collected wastewaters to the intermediate storage tank. The intermediate storage tank also received waste "ink oil" (a kerosene derivative) from the cleaning of reactor vessels and storage totes. The waste ink oil was hard-piped from the cleaning operations to the intermediate storage tank.

From the intermediate storage tank, the organic waste (waste codes D005 and D006) was pumped through steel piping to the 5,000 gallon organic waste storage tank in the facility's storage room. All of the steel piping was above ground and contained by the facility building.

The following information was not available because the 3,000 gallon intermediate tank has been removed and historical records were unavailable:

- Scale drawing of the tank system (including process flow);
- Ancillary equipment directly connected to the tank or secondary containment structure;
- Maintenance, repair, and replacement history;
- Age of the tank system; and
- Spill information associated with the tank.

2.4 Former 1,200 Gallon Waste Storage Tank/Reactor R-1

Synthetic Products utilized a former 1,200 gallon reactor vessel (reactor R-1) as an intermediate hazardous waste storage tank from 1986 until 1994. In 1994, Synthetic Products converted the stainless steel "tank" back into an active reactor vessel. At the time of the conversion, no tank decontamination activities were documented. No RCRA closure work was performed. It is not known if this tank was one of the two 1,500 gallon tanks listed on the 1986 Part A.

Following the purchase of Synthetic Products by Ferro in 1995, reactor R-1 was removed from the 375 Barnum Avenue Cut-Off facility for use by Ferro. The current location of this tank is not known. Under this Closure Plan, it is therefore not possible to conduct closure (i.e. wipe)

sampling of the reactor vessel surfaces to ensure that no hazardous waste residues remain. Sampling of the concrete floor underlying the former location of reactor R-1 will be conducted, however, to verify that no hazardous waste residues remain at the facility.

No secondary containment was provided for the 1,200 gallon tank throughout its entire service life. An impervious epoxy coating was applied to the floor beneath the 1,200 gallon tank. However, the date on which this coating was applied and its current condition is unknown.

The following information was not available because the 1,200 gallon waste storage tank has been removed and historical records were unavailable:

- Scale drawing of the tank system (including process flow);
- Ancillary equipment directly connected to the tank or secondary containment structure;
- Maintenance, repair, and replacement history;
- Age of the tank system; and
- Spill information associated with the tank.

2.5 300 Gallon Reaction Water Storage Tank

Synthetic Products utilized a 300 gallon stainless steel tank for the collection and intermediate storage of reaction water. This above-ground tank was constructed of stainless steel. The reaction water, a by-product of the stabilizer-producing reactions, was drawn out of the reactor vessels under vacuum conditions and pumped to the 300 gallon tank following condensation of the water vapor. From the 300 gallon tank, the reactor water was hard-piped to the 5,000 gallon wastewater storage tank in the facility's storage room. All piping associated to 300 gallon tank was above-ground.

In 1995 secondary containment was constructed around this tank. The containment berm was constructed of masonry block, 24 inches high. The block cores were filled with mortar during construction and anchored into the floor. The surface of the secondary containment area was coated with an epoxy during its installation in 1995. The epoxy coating is peeling as shown in the photographs attached in Appendix J. Some staining is also shown in the photographs.

Synthetic Products never listed this tank on any Part A Application revision because this tank was never used to store hazardous waste for longer than 90 days. Each batch reaction performed at the Synthetic Products facility generated a minimum of 300 pounds, or 36 gallons, of reaction water. Synthetic Products used to perform at least two batch reactions per day, meaning that the 300 gallon tank would have to be emptied at least one time for every five days of production.

The 300 gallon reaction water storage tank was not a >90 day hazardous waste storage unit. This tank will be addressed under this Closure Plan, however, because it is considered ancillary equipment associated with the 5,000 gallon reaction water storage tank (see Section 2.7).

The following information was not available because the 300 gallon reaction water storage tank has been removed and historical records were unavailable:

- Scale drawing of the tank system (including process flow);
- Ancillary equipment directly connected to the tank or secondary containment structure;
- Maintenance, repair, and replacement history;
- Age of the tank system; and
- Spill information associated with the tank.

2.6 5,000 Gallon Organic Waste Storage Tank

One of the regulated units included on Synthetic Products' October 3, 1986 revision to its Part A Application was a 5,000 gallon tank for storage of D005 and D006 organic hazardous waste. This storage tank, located in the tank storage area in the southeast portion of the facility building, was constructed of stainless steel. The tank was set in a structural steel cradle approximately two feet above the building floor surface.

Until 1995, secondary containment for this tank was provided solely by the facility building, including the bermed primary drum storage area (see Section 2.2). In early 1995, however, a secondary containment dike was constructed around this tank, plus three other tanks in its vicinity. These other three tanks held the hazardous waste reaction water, "Phosphite 14"

(an antioxidant/polymer stabilizer), and epoxidized soybean oil. The dike was constructed of concrete masonry units. Following construction, the dike floor was coated with an epoxy and the inner walls of the containment area were painted with a chemical compatible paint. Some staining of the floor was noted in the photographs provided in Appendix J.

The following information was not available because the 5,000 gallon organic waste storage tank has been removed and historical records were unavailable:

- Scale drawing of the tank system (including process flow);
- Ancillary equipment directly connected to the tank or secondary containment structure;
- Maintenance, repair, and replacement history;
- Age of the tank system; and
- Spill information associated with the tank.

2.7 5,000 Gallon Reaction Water Storage Tank

A second regulated unit included on Synthetic Products' October 3, 1986 revision to its Part A Application was a 5,000 gallon tank for storing D005 and D006 hazardous waste reaction water generated by the stabilizer production. The stainless steel tank is located adjacent to the 5,000 gallon organic waste storage tank discussed in Section 2.6. This storage tank received the reaction water from the 300 gallon intermediate storage tank described in Section 2.5.

The following information was not available because the 5,000 gallon reaction water storage tank has been removed and historical records were unavailable:

- Scale drawing of the tank system (including process flow);
- Ancillary equipment directly connected to the tank or secondary containment structure;
- Maintenance, repair, and replacement history;
- Age of the tank system; and
- Spill information associated with the tank.

2.8 Ancillary Piping

Ancillary piping connecting the reactor vessels to the 300 gallon reaction water storage tank, 3,000 gallon intermediate organic waste storage tank, 5,000 gallon organic waste storage tank, and 5,000 gallon

reaction water storage tank was constructed of stainless steel. Portable pump and flexible hose was used to transfer waste from the 3,000 gallon intermediate storage tank to the 5,000 gallon organic waste storage tank. All ancillary piping was above ground. However, no provisions were made for secondary containment of the piping. Since ancillary piping was removed from the site, it will not be addressed in this Closure Plan.

2.9 Secondary Drum Storage Area

The secondary drum storage area (listed in the June 22, 1984 Part A) at the Synthetic Products facility is located outside the northeast corner of 301 Barnum Avenue Cut-Off. This storage area was mainly utilized by Synthetic Products as an overflow area for the primary drum storage area (see Section 2.2). This storage area has an asphalt base and containment berm. No cracks were noted in the base, however minor staining can be seen in the photographs provided in Appendix J. The containment berm, constructed of asphalt, was approximately six (6) inches high. The date at which the secondary containment berm was added is not known. A roof shields the area from precipitation, and there is a chain-link fence around the area for security. The wastes stored in this area were the same as those stored in the primary drum storage area.

2.10 Collection Trenches and Sumps

As mentioned in Section 2.3, floor spills and floor washing waste-waters were collected in two sets of floor trenches and two associated floor sumps in the reaction room at the Synthetic Products facility. From the sumps, these generated wastewaters were pumped to the 3,000 gallon intermediate organic waste storage tank. The layout of the trenches and sumps is depicted on Figure 7.

According to facility operating records, all but a 22′ section of the trenches were coated in 1988 with a high performance polymer system known as STONCLAD GS. The STONCLAD GS system is ¼" thick, and is composed of an epoxy primer and a mortar system. During an inspection of the trenches and sumps conducted by HRP Associates personnel in May

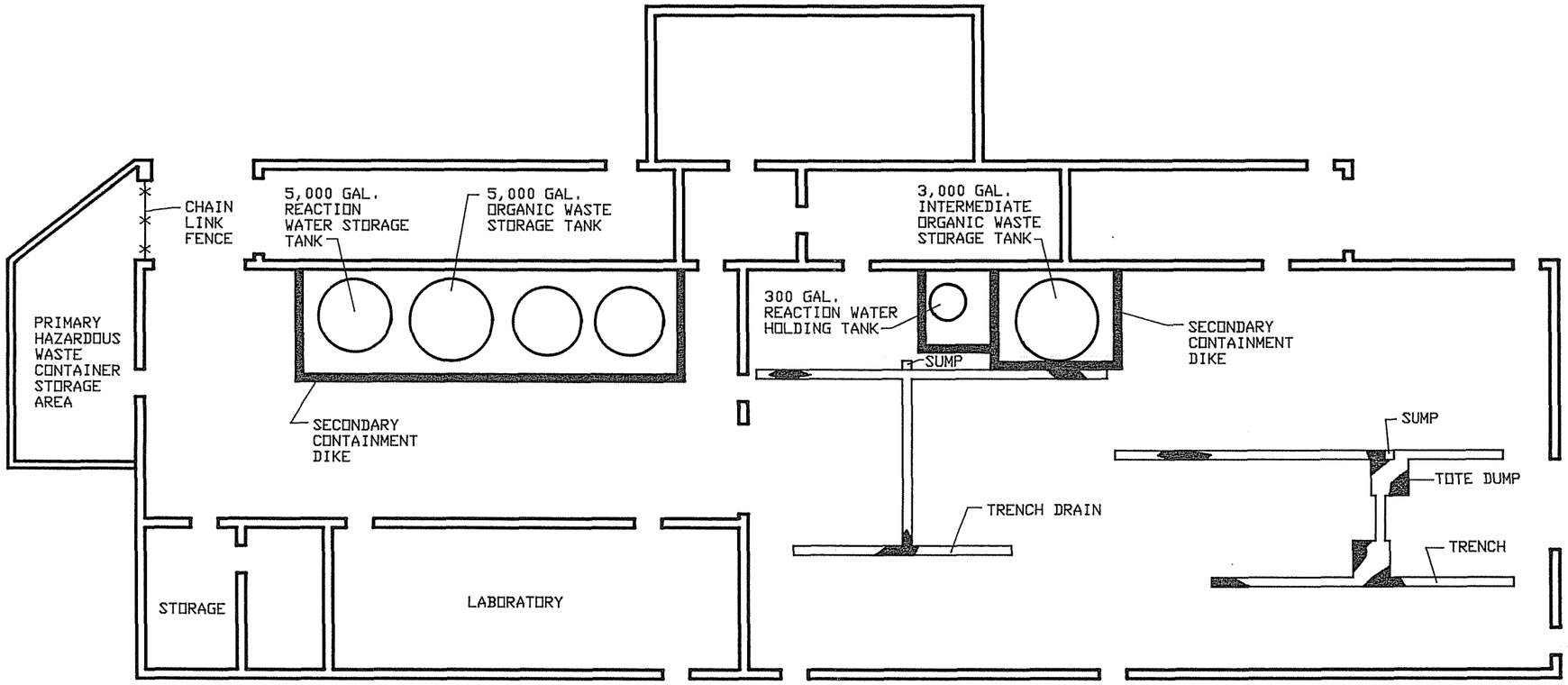


FIGURE 7
LAYOUT OF FLOOR
TRENCHES AND SUMPS
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

15 0 15
APPROXIMATE SCALE
(1' = 15')

SPC002RC\FIGURE7 (M)

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1994, the physical condition of the STONCLAD GS system was noted to be very good. At the time of this inspection, however, it was noted that neither of the collection sumps nor the trench in the vicinity of the two tote dumps were coated with the STONCLAD GS system. These two areas were apparently left uncoated.

Although the floor trenches and sump are not RCRA-regulated for >90 storage of hazardous waste, they are still considered ancillary equipment associated with the 5,000 gallon organic waste storage tank. Closure of the trenches, and sumps must therefore be completed under this Closure Plan.

2.11 Anticipated Closure-Derived Waste Generation

Summarized in Table 1 are the types and volumes of wastes expected to be generated from closure of both the primary and the secondary hazardous waste container storage areas, 5,000 gallon organic waste tank, 5,000 gallon wastewater storage tank, the 300 gallon reaction water tank, and 3,000 intermediate storage tank, assuming a "worst case" scenario. The worst case scenario would be that the concrete floor of the primary storage area and the asphalt base of the secondary storage area require removal, and that the subsoils associated with each area have been contaminated to a depth of the seasonal low ground water table. This summary also includes removal of the concrete secondary containment dike around the two >90 day storage tanks, and scrapping of the tanks.

TABLE 1
Anticipated Closure-Derived Waste Generation

Former Synthetic Products Company
375 Barnum Avenue Cut-Off
Stratford, Connecticut
CTD000844365

Waste Type	Estimated Generation Rate
Decontamination Washwaters	275 gallons [(5) 55 gallon drums]
Scrap Concrete	12 cubic yards
Asphalt	5 cubic yards
Contaminated Soil[1]	28 cubic yards
Spent Sandblast Media and Concrete Dust	30 tons
Scrap Metal from Tanks	60 yd^3

[1] The volume of contaminated soil, if any, can only be estimated until the degree and extent evaluations are completed. This estimate assumes that all contamination is confined to the top one foot of soil below the primary container storage area floor and the secondary container storage area asphalt.

3.0 SITE CHARACTERIZATION WORK PLAN

The site characterization work plan describes the steps that will be taken to determine the extent of contamination, if any, associated with the regulated storage units to be closed at the 301 and 375 Barnum Avenue Cut-Off facility. The objectives of the site characterization are to:

1. Determine the nature of the wastes, i.e. constituents of concern (COC), associated with each storage areas (see Section 3.1);

2. Identify all potential human exposure pathways associated with the regulated units (see Section 3.2);

3. Determine Media Closure Criteria (MCC) for each constituent of concern (see Section 3.3);

4. Identify contamination associated with each storage area (see Section 3.4); and

5. Determine appropriate methods for sampling and analysis (Section 3.5).

The remaining Sections (3.6 through 3.12) describe the procedures for decontaminating equipment, sample preservation, etc. which are to be followed during implementation of the site characterization work plan.

Photographs will be taken during the closure process to document the work conducted on-site.

3.1 Chemical Characterization of the Regulated Storage Units

Chemical characterization of the regulated storage units consists of identifying the COC's and conducting 40 CFR 264 Appendix IX sampling of the regulated units. Each of these tasks is described below.

3.1.1 Identification of Constituents of Concern

A preliminary list of COC's for both the container storage areas and the tank storage areas operated by Synthetic Products, presented in Table 2, was compiled from the following sources:

- Comparison of the materials used on-site with hazardous constituents listed under 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX. Documentation of materials used on site is contained in CT DEP inspection reports (see Appendix I); and

- Review of waste material profile sheets for wastes stored in the regulated units (see Appendix E).

TABLE 2 Preliminary Constituents of Concern Hazardous Waste Container and Tank Storage Areas Former Synthetic Products Company 375 Barnum Avenue Cut-Off Stratford, Connecticut CTD000844365
Antimony Arsenic Barium Cadmium Chromium, Total Lead Tin Zinc Acetone Dioctyl Phthalate Maleic Anhydride Phenol Total Petroleum Hydrocarbons

Identification of any additional COC's for the container storage area, which were not identified using the sources listed above, will be identified via an Appendix IX sampling procedure (see Section 3.1.2). If any additional constituents are identified in the Appendix IX sampling analysis, then these constituents will be added to the COC list (i.e. Table 2).

The possibility of other sources (non-RCRA regulated) of soil and ground water contamination does exist at this site. The potential exists for releases from process tanks used on site.

Used oil, which is regulated by the CT DEP, was not reported to be managed in the regulated areas undergoing closure.

3.1.2 Appendix IX Sampling

Appendix IX sampling of the primary hazardous waste container storage area and of the organic and reaction water storage

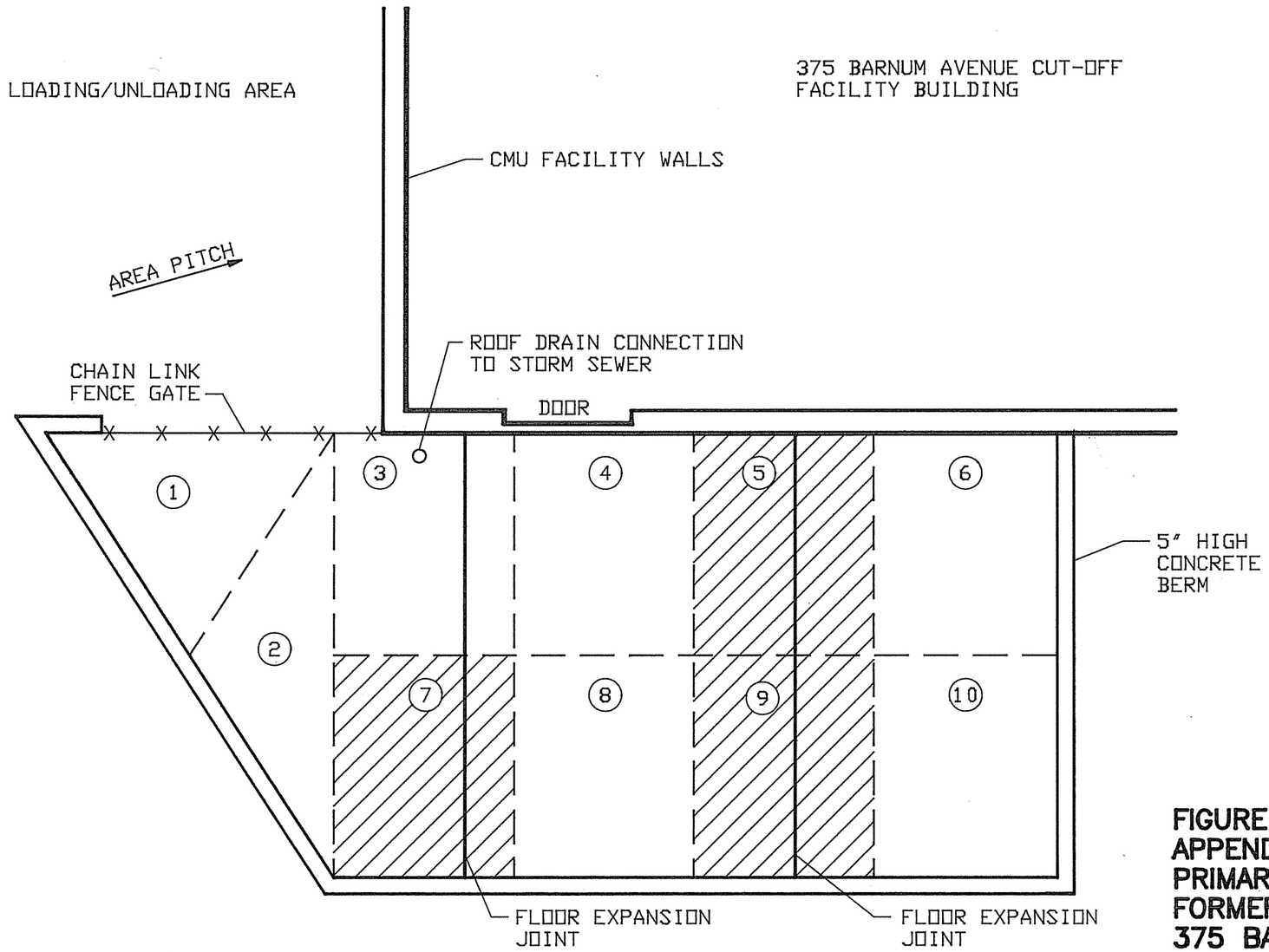
tanks' area will be conducted to identify any additional constituents of concern not already listed in Table 2. Concrete chip samples will be collected from the floor of the primary container storage area and the floor of the secondary containment area for the organic and reaction water storage tanks. Appendix IX sampling will not be conducted at the secondary container storage area because of anticipated interferences from the bituminous asphalt surface. This area was used as an overflow area for the primary container storage area, therefore the chance for historical releases is expected to be minimal. Each set of concrete chip samples (2 total) will be submitted to a State-certified laboratory for analysis of the 40 CFR Part 264 Appendix IX constituents. A composite sample will be collected from each area for analysis of metal and semi-volatile Appendix IX constituents, while one selected discrete sample will be collected from each area for analysis of volatile constituents. A description of the sampling procedures is provided below:

Step 1a: Divide the primary drum storage area floor, a quadrangle covering approximately 353 ft^2, into a grid. Selection of the grid interval is based on the following equation:

$$Interval = \frac{\left(\frac{Area}{2}\right)^{\frac{1}{2}}}{2}$$

The calculated maximum interval is 6.64 ft. The rectangular portion of the storage area will be divided into a grid consisting of eight (8) subsections, each measuring 6.60 ft. by 5.50 ft. and covering 36.3 ft^2. The triangular portion of the storage area will be divided into two (2) smaller triangles, each covering less than 36.3 ft^2. Figure 8 depicts the numbered grids.

Step 1b: Using the same equation as Step 1a, determine the grid interval for the secondary containment area of the two hazardous waste tanks. The dimensions of the containment area are 41 ft. by 12 ft. With an area of 492 ft^2, the calculated maximum interval is 7.84 ft. A 6.83 ft. by 6.0 ft. grid was selected, yielding 12 grid rectangles. Figure 9 depicts the numbered grids.



LEGEND

5 RANDOMLY SELECTED SAMPLING GRID

4 0 2 4
APPROXIMATE SCALE
(1" = 4')

FIGURE 8
APPENDIX IX SAMPLE LOCATIONS
PRIMARY CONTAINER STORAGE AREA
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

SPC002RC\FIGURE8 (M)

HRP
ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871

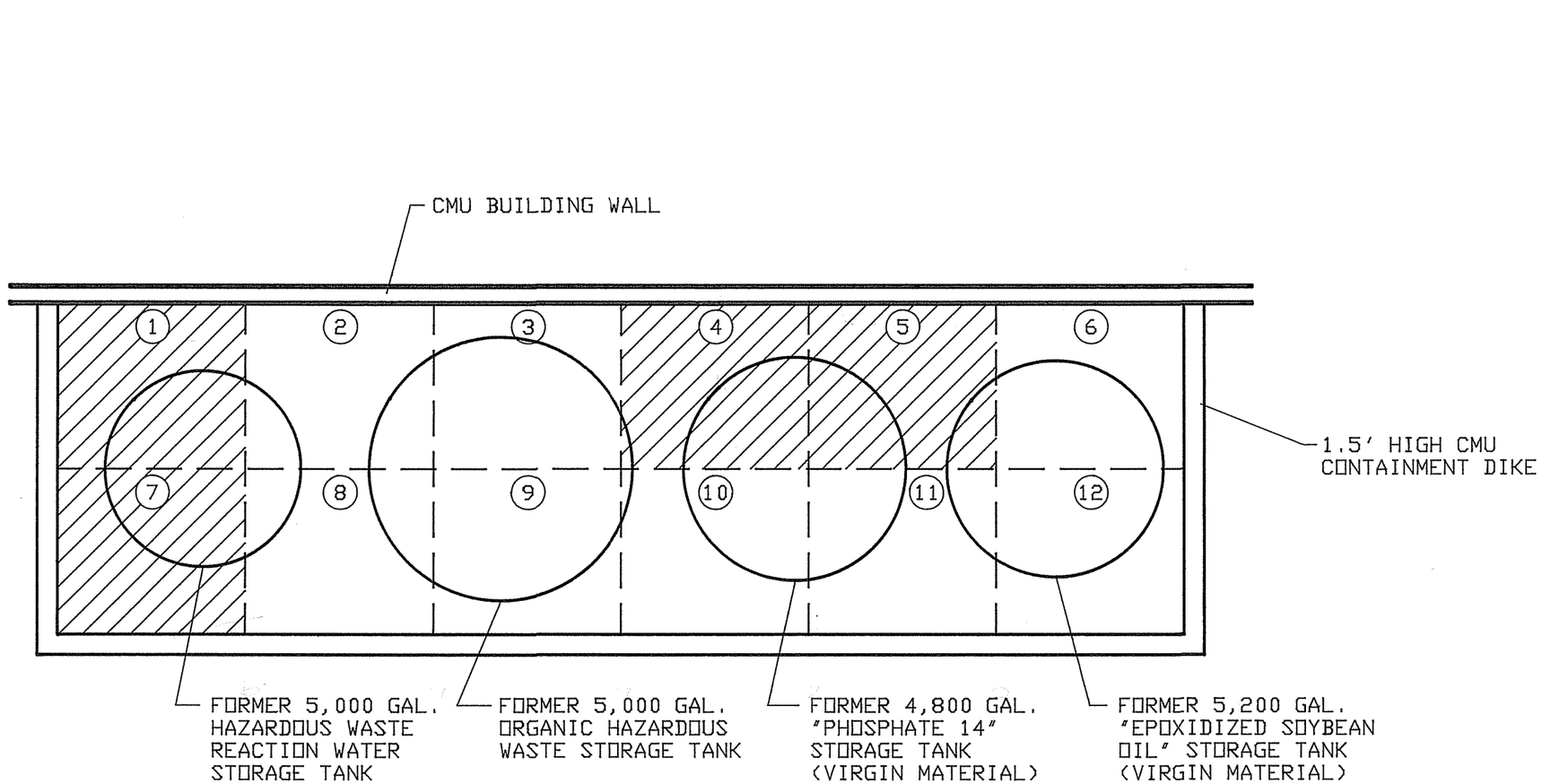


FIGURE 9
APPENDIX IX SAMPLE LOCATIONS
TANK CONTAINMENT AREA
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

LEGEND

1 RANDOMLY SELECTED SAMPLING GRID

5 0 5
APPROXIMATE SCALE
(1' = 5')

SPC002RC\FIGURE9 (M)

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Step 2: Using a random number generator, select three sampling sites for the primary drum storage area and four from the tank containment area. One additional sampling site from each area will be located in the area exhibiting the greatest visible contamination and not selected via the random number generator. A random number generator gave the following grid numbers for the primary drum storage area:

0.469 x 10 = 4.69, grid number 5
0.829 x 10 = 8.29, grid number 9
0.655 x 10 = 6.55, grid number 7

A random number generator gave the following grid numbers for the tank containment area:

0.571 x 12 = 6.85, grid number 7
0.325 x 12 = 3.90, grid number 4
0.069 x 12 = 0.828, grid number 1
0.405 x 12 = 4.86, grid number 5

The randomly selected grid points are also shown on Figures 8 and 9.

Step 3: From the center of each selected site in each storage area, a hammer and hand chisel or an electric rotohammer will be used to collect a concrete chip sample.

Step 4: Select and sample at least one additional sampling grid from each of the two storage areas, based upon judgmental sampling criteria (i.e. staining). Additional samples may be collected if severe staining or degraded concrete is encountered. No more than three (3) judgmental samples should be collected due to the small surface area of the storage area and relatively good condition of this concrete surface.

Step 5: Place the sample collected from each sampling point into two 8 oz. jars: one jar is filled to the top and sealed for analysis of volatiles (if that grid square is selected; see Step 7 below), and one jar is half-filled for headspace analysis.

Step 6: The hand chisel or rotohammer bit will be decontaminated between sampling points, as outlined in Section 3.5.3.

Step 7: To determine the sampling site for volatile constituents (via EPA Method 8240) a portable Gas Chromatograph (GC) will be utilized. Headspace analysis of the fifteen half-

full jars collected from the sample points (i.e. 7 from the primary drum storage area, 8 from the tank storage area) will be analyzed and the one sample from each individual storage area exhibiting the highest headspace contamination will be selected. The matching full jars will be submitted to the laboratory, while the contents of the remaining seven full jars will be returned to their respective storage areas.

Step 8: The contents of the half-full jars from each individual storage area will be thoroughly composited (mixed) and placed into another 8 oz. jar (full jar). The two resultant composite samples will be submitted for analysis of metals, inorganics and semi-volatile constituents. Any excess material will be returned to the appropriate storage area.

Any additional contaminants detected from the Appendix IX sampling will be added to the list on Table 2.

3.2 Potential Exposure Pathways

Potential human exposure to chemical contaminants can occur through three (3) pathways: ingestion, inhalation, and dermal (skin) contact. To determine the possible exposure pathways for this site, both present and future exposure scenarios must be evaluated. Under present conditions, the possible exposure pathways to be evaluated for the indoor tank storage areas are dermal contact and inhalation. Since the inhalation pathway is limited to inside the facility building, dermal contact is the only possible exposure pathway associated with the primary and secondary drum storage areas, under present conditions. Ingestion by the hand to mouth route at this industrial facility is not a reasonable exposure scenario.

To determine the future exposure pathways, it has been assumed that the use of this site would be residential, representing the worst case exposure scenario. Based on this assumption, the most probable exposure would be ingestion of ground water contaminated by either subsurface soil leachate or concrete leachate, direct ingestion of the soil or concrete (children under the age of six) and dermal contact. The inhalation pathway would also be reasonable if some or all of the indoor tank storage areas remained in place in an enclosed area.

The dermal contact pathway are not available for most constituents, the health and environmental based standards for ingestion and inhalation will be used to determine when the goal of clean closure is achieved for each of the hazardous waste storage areas.

3.3 Media Closure Criteria

Media closure criteria (clean standards) must be developed for each of the COCs on Table 2 using the following hierarchy (from Attachment D of CTDEP RCRA Closure Plan Guidance, November 1993):

A. The most stringent MCC obtained from: a) Maximum Contaminant Levels (MCLs) from EPA; b) State of Connecticut Department of Health Services (DOHS) Drinking Water Standards; c) State of Connecticut DOHS Action levels; or d) Numeric Clean-Up Criteria promulgated in the Connecticut Remediation Standard Regulations.

B. Calculated Media Closure Criteria.

C. Hazard Limiting Values from Section 22a-174-29 of Connecticut's Air Pollution Control Regulations (for air only).

D. Background levels of the contaminants (for metals only).

E. Lowest analytical detection levels.

Based on the hierarchy listed above, the Media Closure Criteria (MCC) for each COC has been developed for the soil ingestion pathway, and the water ingestion pathway. The Media Closure Criteria for each regulated unit are presented under Table 3. Also included on Table 3 are the minimum detection limits for each COC.

3.3.1 Ingestion Closure Criteria

The direct exposure and water ingestion MCC's for tin and maleic anhydride have been calculated utilizing equations, published risk assessment data, and default values stipulated in the state of Connecticut Remediation Standard Regulations (RSR). MCC calculations are contained in Appendix F. The equation applied to direct exposure is for a non-carcinogenic substance in a residential setting. To calculate the clean closure standards via the water ingestion pathway, the equation, published risk assessment

TABLE 3

Constituents of Concern and Ingestion Closure Criteria - Hazardous Waste Container and Tank Storage Areas

Former Synthetic Products Company
375 Barnum Avenue Cut-Off
Stratford, Connecticut

Parameter	Media Closure Criteria					
	Direct Exposure - Soil and Concrete (mg/kg)	Detection Limit (mg/kg)	Water Ingestion - Concrete (mg/l)	Detection Limit (mg/l)	Water Ingestion - Soil (mg/l)	Detection Limit (mg/l)
Antimony	27[1]	10	0.006[2]	0.005	0.06[3]	0.005
Arsenic	10[1]	1.0	0.05[2]	0.05	0.5[3]	0.05
Barium	4,700[1]	5.0	1.0[2]	0.5	10.0[3]	0.5
Cadmium	34[1]	0.5	0.005[2]	0.005	0.05[3]	0.005
Chromium, Total	3,900[1]	0.5	0.05[2]	0.05	0.5[3]	0.05
Lead	500[1]	0.5	0.015[2]	0.010	0.15[3]	0.01
Tin	465,000[4]	20	4.2[4]	0.5	42[5]	0.5
Zinc	20,000[1]	1.0	5[2]	0.05	50[3]	0.05
Acetone	500[1]	0.100	14[2] mg/kg	0.100 mg/kg	140[3] mg/kg	0.100 mg/kg
Dioctyl Phthalate	1,000[1]	0.100	2[2] mg/kg	0.100 mg/kg	20[3] mg/kg	0.100 mg/kg
Maleic Anhydride	77,500[4]	See Note 6	0.70[4]	See Note 6	7.0[5]	See Note 6
Phenol	1,000[1]	0.100	80[2] mg/kg	0.100 mg/kg	800[3] mg/kg	0.100 mg/kg
Total Petroleum Hydrocarbons	500[1]	50	500[2] mg/kg	50 mg/kg	2,500[3] mg/kg	50 mg/kg

[1]Direct Exposure Criteria for Residential Soils, CT Remediation Standard Regulations, January 30, 1996
[2]Pollutant Mobility Criteria for GA/GAA Ground Water Areas, CT Remediation Standard Regulations, January 30, 1996
[3]Pollutant Mobility Criteria for GB Ground Water Areas, CT Remediation Standard Regulations, January 30, 1996
[4]Calculated Standard, see Appendix F.
[5]*Standard Equals 10X the Standard for Concrete*
[6]Minimum Detection Level will be determined by testing lab at time of analysis

HRP Associates, Inc.

data, and default values for calculating GA ground water protection criteria were utilized.

The calculated water ingestion standard applies to all structures (i.e. concrete floors) at the Synthetic Products facility to be closed. Because ground water underlying the Synthetic Products site are classified GB, the clean closure standards for tin and maleic anhydride in the site soils are ten time their respective calculated water ingestion standards.

3.3.2 Inhalation Pathway

In order to certify clean closure, the inhalation pathway will also be evaluated relative to the hazardous waste container storage area. The theoretical concentration of each volatile and semi-volatile constituent will be calculated as follows:

(a) Calculate the inhalation pathway calculated value (IPCV) for each volatile and semi-volatile constituent detected in each storage area using the following equation:

$$IPCV = \frac{C \times P}{V} \ (mg/m^3)$$

Where,

P(kg)	=	Total mass of the building walls and floor
C (mg/kg)	=	Average constituent concentration from concrete or soil samples
V (m^3)	=	Volume of air in the interior storage area

(b) Compare the IPCV for each constituent to the applicable health-based standard listed (to be provided in Volume II).

3.3.3 Dermal Closure Criteria

On February 9, 1998, HRP submitted to the Connecticut Department of Public Health (CDPH) risk-based calculations for dermal exposure at a metal finishing company located in Connecticut. Based on CDPH's review of these risk-based calculations, they

concluded that "dermal calculations, by themselves, may be useful to compare the oral-based vs. dermal-based soil targets; however, a full risk assessment to evaluate the acceptability of a specific clean-up target normally involves summing risks across exposure pathways". Therefore, since the Connecticut RSR direct exposure criteria and equations were developed to protect human health under "direct exposure" conditions, HRP proposes that the dermal exposure pathway be addressed through the Connecticut RSR residential direct exposure criteria listed under Section 3.3.1 of this Closure Plan. Although the Connecticut RSR direct exposure criterion were developed primarily by direct ingestion calculations, they do include factors for dermal exposure.

3.4 Identification of Contamination Associated with the Regulated Units

3.4.1 Surfaces of Storage Tanks

Both of the 5,000 gallon hazardous waste storage tanks at the Synthetic Products facility are owned by SPC Divestitures. At the present time, SPC Divestitures intends to recycle the storage tanks through a scrap metal dealer. If this is done, then SPC Divestitures is only required to decontaminate the tanks until all visual indicators of contamination are removed. If SPC Divestitures decides to re-use or sell the tanks, then the tanks must be decontaminated so that the results of wipe sampling verify that the tanks are "clean". In order to demonstrate that neither tank has been contaminated from past storage operations, and that both tanks are defined as "clean" tanks, the following procedure will be followed if SPC Divestitures decides to re-use or sell the tanks:

Step 1: Remove and properly dispose of any residual wastes within the 5,000 gallon above-ground storage tanks at a permitted hazardous waste facility.

Step 2: To remove any hazardous waste constituents, a high pressure steam cleaner or power washer will be used to clean the tank.

Step 3: The cleaning water generated in Step 2 will be collected using a wet vacuum and placed in 55 gallon drums or removed via a vacuum truck. The decontamination rinseate will be sampled and analyzed as described in Section 3.6 to determine its disposition location (manage as a hazardous or non-hazardous waste).

Step 4: A total of four (4) wipe samples will be collected (see Section 3.5.4) from both the inside and outside surface of each tank. The samples will be submitted to a State-certified laboratory for analysis of the COCs listed in Table 2 and any additional COC detected in the 40 CFR 264 Appendix IX analysis (see Section 3.1.2) by mass analysis only. A TCLP extraction cannot be performed on wipe samples.

Step 5: Laboratory detection limits will be used as the closure criteria for wipe samples. If any of the results from the analysis conducted under Step 4 detect a COC above its laboratory detection limit, then SPC Divestitures will either repeat Steps 2 through 4 to determine if the closure criteria can be met or dispose of the organic waste and reaction water storage tanks at a permitted facility. Any additional sampling will be limited to the samples which exhibit concentrations above the laboratory detection limits and will be analyzed for only those COCs which exceeded their laboratory detection limits.

The organic waste and reaction water storage tanks will be defined as being "clean" when each wipe sample exhibits that all of the COCs are at or below the established laboratory detection limits.

It is important to note that the 300 gallon intermediate reaction water storage tank and the 3,000 gallon intermediate organic waste tank will also be handled in the same manner as the two >90 day hazardous waste storage tanks.

3.4.2 Subsurface Contamination

To determine if the soil located beneath the concrete bases of the primary container storage area, the tank storage area, and the reaction room floor trenches and sumps have been affected by the operation of the regulated units, the following procedures will be followed:

Step 1: The concrete bases will be inspected for cracks, gaps or other surface damage or features which may have allowed migration of wastes to the subgrade. The location of each crack, gap or other surface damage will be noted on a scale drawing. If no cracks, gaps or surface damage is observed in either floor area, proceed to Section 3.4.3. Subsurface soil samples will still be collected from each sump, regardless of the condition of each sump at the time of inspection.

Step 2: One soil sample will be collected from directly beneath each suspect area identified under Step 1. One soil sample will also be collected from directly beneath each of the two floor sumps in the reaction room, regardless of the sumps' condition. A four inch diameter concrete core drill will be used to reach the subsurface.

Note: The secondary container storage area contains an asphalt base. This area will be discussed in Section 3.4.3.

Step 3: A soil sample will be collected from each suspect area in accordance with the procedures described in Section 3.5.2. If process stone is encountered directly beneath the concrete bases, a hand auger will be used to remove the process stone until the soil horizon is reached.

Step 4: Soil samples collected under Step 3 will be submitted to a State-certified laboratory for analysis of cadmium via SPLP. For each soil sample with a detected cadmium level below the 0.005 mg/l MCC, the testing laboratory will complete analysis of the soil sample for the remaining COCs listed under Table 2. Each soil sample will be analyzed by both mass and SPLP analysis.

Step 5: For each soil sample that exhibits a COC above its closure criteria, a second sample will be collected one (1) foot below the original sampling location. Each soil sample will be analyzed for each COC that was exceeded only.

Step 6: Step 5 will be repeated a maximum of three (3) times to determine the extent of vertical contamination, if any, beneath the concrete floor. Based on previous hydrogeologic studies performed by Conastoga-Rovers & Associates, it is anticipated that ground water will be encountered at four (4) feet below grade. If the closure criteria for all COCs still cannot be met at this point, SPC Divestitures, Inc. will either continue the sampling procedure described in Step 5 until the mean seasonal low ground

water elevation has been reached or request a meeting with the CT-DEP to discuss closure options.

Step 7: Upon completion of the soil sampling events, the concrete holes will be filled with clean soil and capped with concrete. The concrete cores, if possible, will be reused to cap the holes.

The extent of soil contamination, if any, beneath the concrete bases will be defined when the concentration of each COC within each sample is at or below its closure criteria listed under Table 3.

3.4.3 Concrete Surface Contamination - Primary

To determine if the concrete surfaces of the primary hazardous waste container storage area, the tanks storage area, and the reaction room floor trenches and sumps have been affected by the operation of the regulated units, the following procedure will be followed:

Step 1: To remove any hazardous constituents which may have contaminated the concrete surfaces, abrasive blasting to remove the top ¼" to ½" of the concrete surface will be performed.

Step 2: The spent blasting abrasive and resultant concrete dust generated in Step 1 will be collected using a vacuum system and placed in 55-gallon drums or into roll-offs. The containerized material will be sampled and analyzed as described in Section 3.7 to determine its disposition location (i.e., manage as a hazardous or non-hazardous waste).

Step 3a: A total of four (4) concrete chip samples will be collected from the concrete surface of the primary drum storage area using the sampling procedures described under Section 3.5.3. Three of the four sampling locations will be determined by dividing the storage area into 10 subsections, numbering each subsection and then selecting the sampling locations with a random number generator. A random number generator gave the following grid numbers:

0.757 x 10 = 7.57, grid number 8
0.341 x 10 = 3.41, grid number 4
0.080 x 10 = 0.80, grid number 1

The randomly selected grid points are shown on Figure 10. The fourth sampling location will be located in the area of suspected highest concentra-tion (e.g. stained concrete). Each sample will first be analyzed for cadmium via SPLP. For each concrete chip sample with a detected cadmium level below the 0.005 mg/l MCC, the testing laboratory will complete analysis of the concrete chip sample for the remaining COCs listed under Table 2 by both mass and TCLP or SPLP.

Step 3b: A total of five (5) concrete chip samples will be collected from the floor of the tank secondary containment structure using the sampling procedures described under Section 3.5.3. Four of the five sampling locations will be determined by dividing the storage area into 12 subsections, numbering each subsection and then selecting the sampling locations with a random number generator. A random number generator gave the following grid numbers:

0.854 x 12 = 10.25, grid number 11
0.373 x 12 = 4.48, grid number 5
0.175 x 12 = 2.10, grid number 3
0.495 x 12 = 5.94, grid number 6

The randomly selected grid points are shown on Figure 11. The fifth sampling location will be located in the area of suspected highest concentration (e.g. stained concrete). Each sample will fist be analyzed for cadmium via SPLP. For each concrete chip sample with a detected cadmium level below the 0.005 mg/l MCC, the testing laboratory will complete analysis of the concrete chip sample for the remaining COCs listed under Table 2 by both mass and TCLP or SPLP.

Step 3c: The floor trenches and sumps at the Synthetic Products facility were utilized in the conveyance of floor spills, floor washing waters, and tote washing waters to the 3,000 gallon intermediate organic waste holding tank. The surfaces of the trenches and sumps therefore came into contact with the organic waste and require decontamination with confirmatory sampling. A total of fourteen (14) concrete chip samples will be collected from the floor trenches and sumps in the facility's reaction room using the sampling procedures described under Section 3.5.3. One sample will be collected from the base of each sump (2 total), plus one sample will be collected from the base of each tote dump (2 total). The remaining ten samples will be collected from the bases of the floor trenches, no

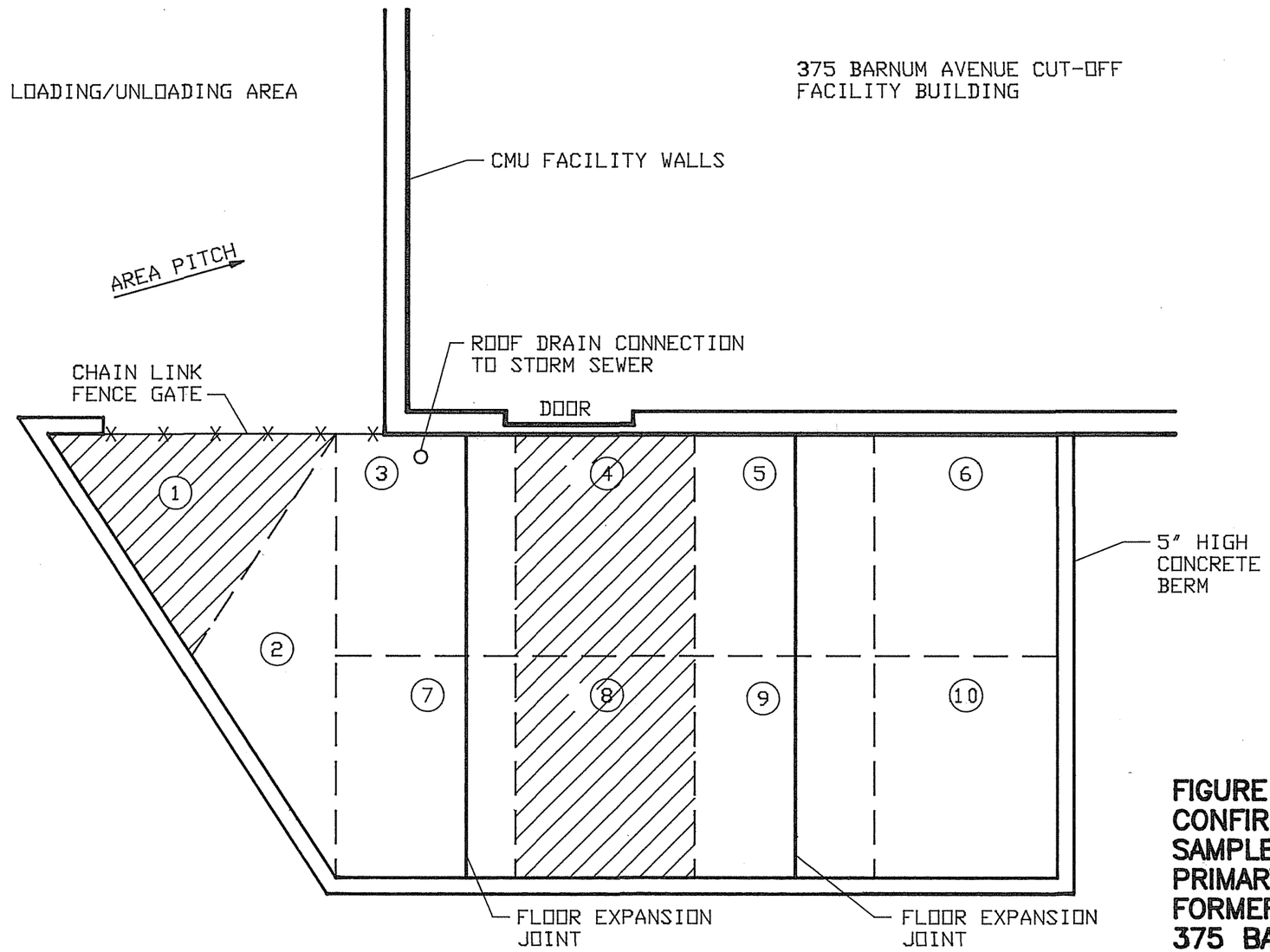

FIGURE 10
CONFIRMATORY CONCRETE SAMPLE LOCATIONS
PRIMARY CONTAINER STORAGE AREA
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

LEGEND

(4) RANDOMLY SELECTED SAMPLING GRID

4 0 2 4
APPROXIMATE SCALE
(1" = 4')

SPC002RC\FIGURE10 (M)

HRP
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167 New Britain Avenue
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FAX: (860) 793-6871

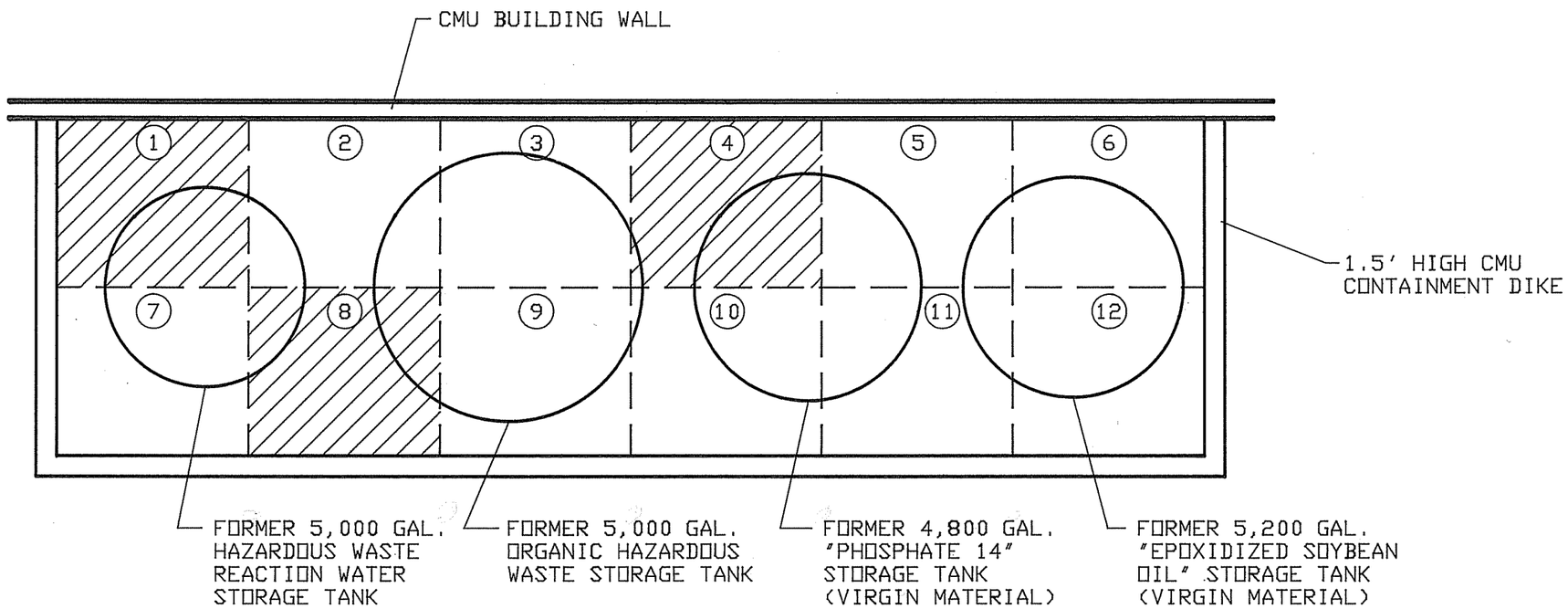

FIGURE 11
CONFIRMATORY CONCRETE SAMPLE LOCATIONS
TANK CONTAINMENT AREA
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

LEGEND

1 RANDOMLY SELECTED SAMPLING GRID

5 0 5
APPROXIMATE SCALE
(1" = 5')

SPC002RC\FIGURE11 (M)

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FAX: (860) 793-6871

more than 20 feet apart. All sample locations will be judgementally selected, and will be collected from areas exhibiting visual signs of contamination (i.e., stains, corrosion, etc.). Preliminary sample locations are depicted on Figure 12.

Each sample will first be analyzed for cadmium via SPLP. For each concrete chip sample with a detected cadmium level below the 0.005 mg/l MCC, the testing laboratory will complete analysis of the concrete chip sample for the remaining COCs listed under Table 2 by both mass and TCLP or SPLP.

Step 4: If COCs are detected above their closure criteria in any of the concrete samples, SPC Divestitures will either repeat decontamination (i.e. power wash or abrasive blast) of the affected area to determine if the closure criteria can be met, or remove the required section(s) of the concrete and dispose of it at a licensed facility.

The concrete floor will be defined as being clean when the concentration of each COC within each sample is at or below its closure criteria listed under Table 3. It must be noted that concrete chip sampling of the concrete secondary containment wall surrounding the tank storage area will not be performed to determine whether the structure surrounding the tank storage area can remain in place. SPC Divestitures is not proposing to leave the containment walls in place following closure because the containment walls will have to be demolished to remove the tanks from the area. Sampling of the concrete secondary containment wall will be performed, however, to determine proper off-site disposal following demolition (see Section 3.7).

3.4.4 Surface Contamination - Secondary Container Storage Area

Due to interferences associated with the analysis of asphalt, SPC Divestitures will not attempt to decontaminate and sample the asphalt base of the secondary hazardous waste container storage area. Instead, SPC Divestitures proposes to remove all asphalt from the storage area shown on Figure 3, including its secondary containment berm.

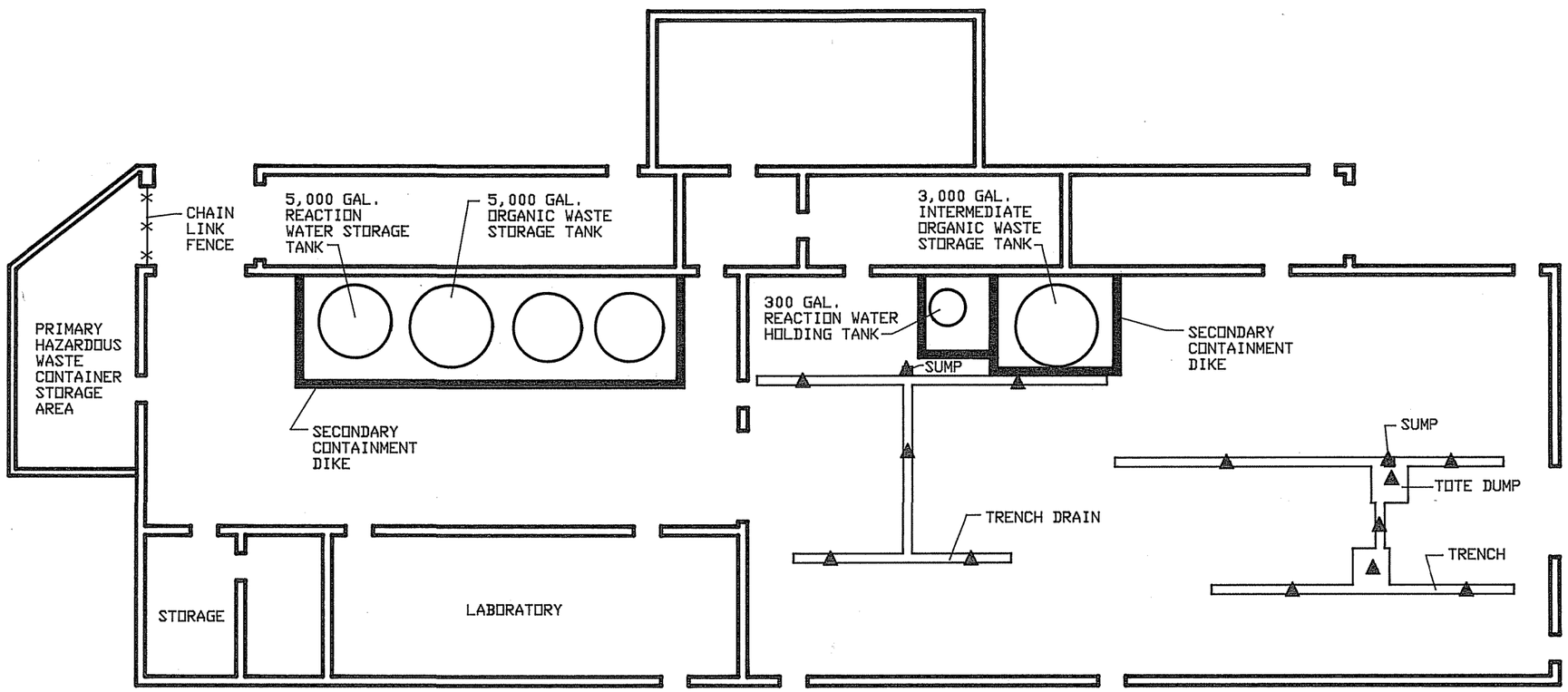

FIGURE 12
CONFIRMATORY CONCRETE SAMPLE LOCATIONS – FLOOR TRENCHES AND SUMPS
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

15 0 15
APPROXIMATE SCALE
(1' = 15')

SPC002RC\FIGURE12 (M)

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FAX: (860) 793-6871

Following removal of the asphalt from the secondary hazardous waste container storage area, SPC Divestitures will proceed with the removal of any subsurface soil contamination identified through the sampling described in Section 3.4.6, as well as lateral soil contamination identified through the sampling described in Section 3.4.8.

3.4.5 Subsurface Contamination - Secondary Container Storage Area

To determine if the soil located beneath the asphalt base of the secondary hazardous waste container storage area has been affected by the operation of this regulated unit, the following procedure will be followed:

Step 1: The asphalt will be inspected for cracks, gaps or other surface damage which may have allowed migration of wastes to the subgrade. The location of each crack, gap or other surface damage will be noted on a scale drawing. If no cracks, gaps or surface damage is observed, proceed to Section 3.4.7.

Step 2: One soil sample will be collected directly beneath each suspect area identified under Step 1. An electric roto-hammer and chisel bit will be used to reach the subsurface.

Step 3: A soil sample will be collected from each suspect area in accordance with the procedures described in Section 3.5.2. If process stone is encountered directly beneath the asphalt, a hand auger will be used to remove the process stone until the soil horizon is reached. If there is no process stone, then the soil sample will be collected from the soil interval 6" to 12" below the asphalt.

Step 4: To determine if the ingestion risk-based standards have been met, the soil samples will first be analyzed for cadmium via SPLP. If the detected cadmium level is below the 0.05 mg/l MCC, then the soil sample will be analyzed via mass and TCLP or SPLP analysis for the remaining COCs listed under Table 2.

Step 5: For each soil sample that exhibits a COC above its closure criteria, a second sample will be collected one (1) foot below the original sampling location. Each soil sample will be analyzed for each COC that was exceeded only.

Step 6: Step 5 will be repeated a maximum of three (3) times to determine the extent of vertical contamination, if any, beneath the concrete floor. If the closure criteria for all COCs still cannot be met at this point, SPC Divestitures, Inc. will either continue the sampling procedure described in Step 5 or request a meeting with the CT-DEP to discuss closure options.

Step 7: Upon completion of the soil sampling events, the holes will be backfilled with clean soil and capped with asphalt cold-patch.

The extent of soil contamination, if any, beneath the asphalt base will be defined when the concentration of each COC within each sample is at or below its closure criteria listed under Table 3.

3.4.6 Lateral Soil Sampling - Primary and Secondary Drum Storage Areas

To determine if lateral soil contamination has occurred from the primary and secondary hazardous waste container storage areas, soil samples will be collected from outside the perimeter of both regulated units. The following procedure will be followed to collect the samples:

Step 1: One soil sample will be collected every 15 feet around the perimeter of each storage area. The locations are depicted on Figure 13. The soil samples will be collected at the 0" to 6" horizon in accordance with the procedures described in Section 3.5.1.

Step 2: To determine if the ingestion risk-based standards have been met, the soil samples will be first analyzed for cadmium via SPLP. If the detected cadmium levels are below the 0.05 mg/l MCC, then the soil sample will be analyzed via mass and TCLP or SPLP analysis for the remaining COCs listed under Table 2.

Step 3: If any soil sample exhibits a COC above its closure criteria, additional soil samples will be collected. To determine horizontal extent of contamination, soil samples will be collected at the 0" to 6" horizon, two feet perpendicular from the original sampling location.

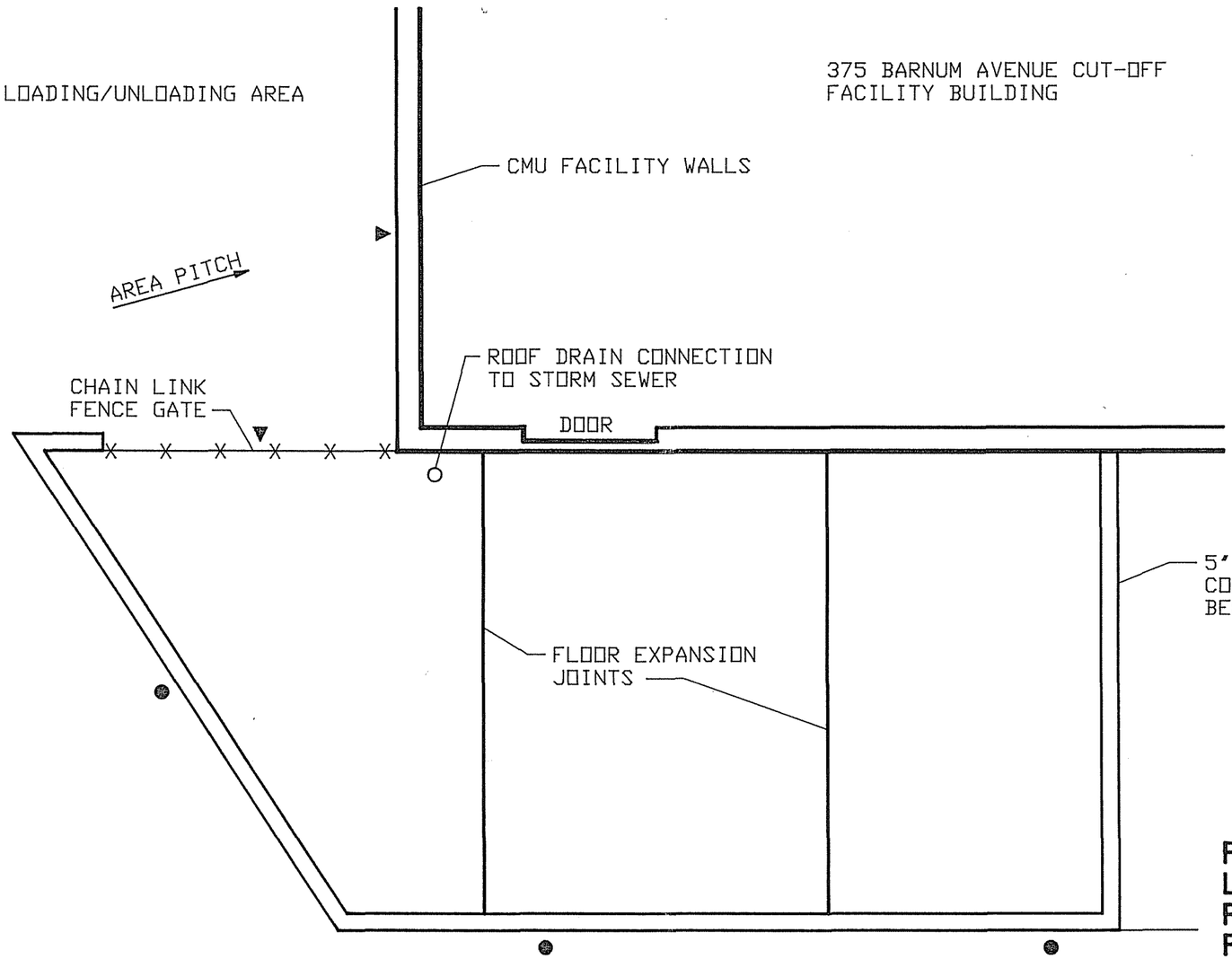

FIGURE 13
LATERAL SAMPLE LOCATIONS
PRIMARY CONTAINER STORAGE AREA
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

LEGEND

▲ LATERAL CONCRETE CHIP SAMPLE

● LATERAL SOIL SAMPLE

4 0 2 4

APPROXIMATE SCALE
(1" = 4')

SPC002RC\FIGURE13 (M)

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FAX: (860) 793-6871

To determine vertical extent of contamination, a soil sample will be collected at the 12" to 18" horizon, directly beneath the original sampling location. Each soil sample will be analyzed for only those parameters which were exceeded in the original soil sample. The sampling procedures described in Section 3.5.1 will be followed.

Step 4: The sampling procedure described in Step 3 will be repeated, if necessary, a maximum of three (3) times. Based on previous hydrogeologic studies performed by Conastoga-Rovers & Associates, it is anticipated that ground water will be encountered at four (4) feet below grade. If the closure criteria for all COCs still cannot be met at this point, SPC Divestitures, Inc. will either continue the sampling procedure described in Step 3 to determine the extent of contamination until the mean seasonal low ground water elevation has been reached or request a meeting with the CT-DEP to discuss closure options.

The extent of any lateral soil contamination associated with the primary and secondary hazardous waste container storage areas will be defined when the concentration of each COC within each sample is at or below its closure criteria listed under Table 3.

3.4.7 Lateral Concrete Sampling - Tank Storage Area

As mentioned in Sections 2.3 and 2.6, the secondary containment dike for the two 5,000 gallon hazardous waste storage tanks was constructed in 1995. Prior to construction of the dike, Synthetic Products relied on the facility building to provide secondary containment in the event of a tank spill or leak. Although there have been no reported hazardous waste spills or tank leaks, lateral concrete chip sampling of the floor outside of the containment dike must be performed to verify that the floor has not been affected by the operation of the tanks. The following procedure will be followed to collect the samples:

Step 1: One concrete chip sample will be collected every 20 feet around the perimeter of the storage area. The sample locations are depicted on Figure 14. The concrete chip samples will be collected in accordance with the procedures described in Section 3.5.3.

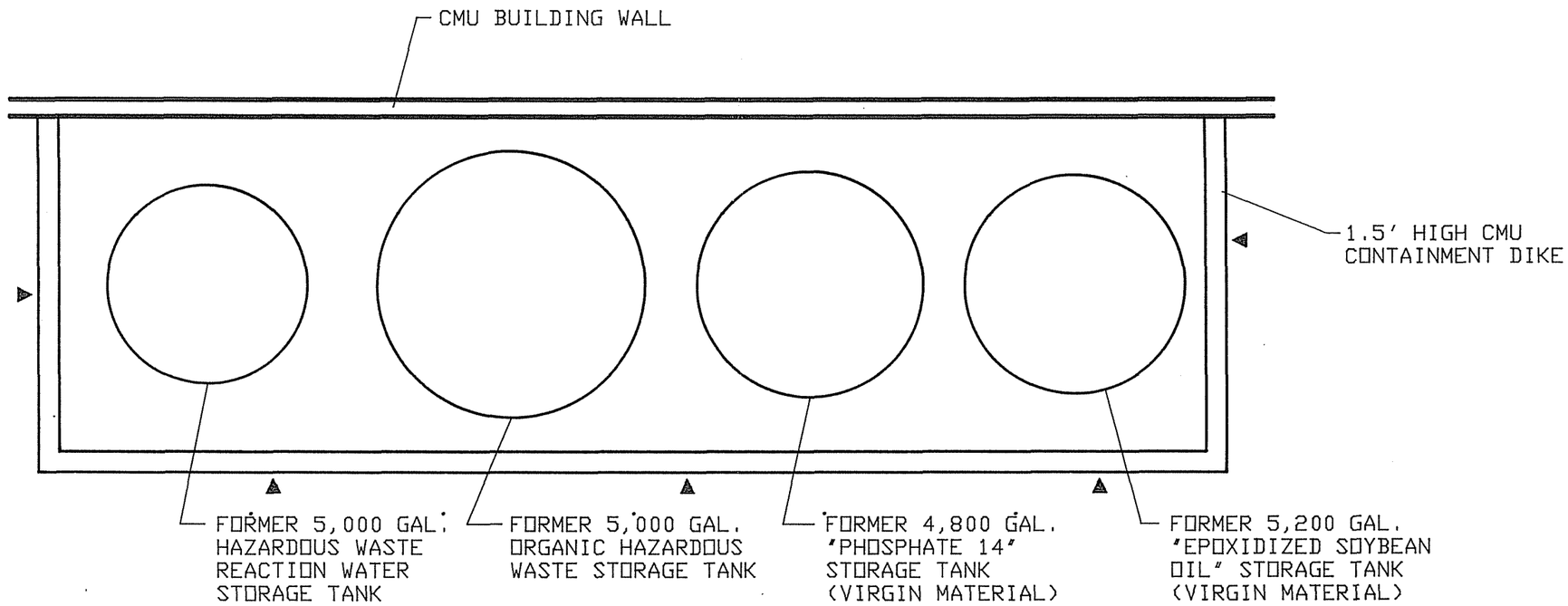

FIGURE 14
LATERAL CONCRETE SAMPLE LOCATIONS
TANK CONTAINMENT AREA
FORMER SYNTHETIC PRODUCTS CO.
375 BARNUM AVENUE CUT-OFF
STRATFORD, CT.
HRP #SPC.0002.RC

LEGEND

▲ LATERAL CONCRETE CHIP SAMPLE

5 0 5

APPROXIMATE SCALE
(1" = 5')

SPC002RC\FIGURE14 (M)

HRP
ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(860) 793-6899
FAX: (860) 793-6871

Step 2: To determine if the ingestion risk-based standards have been met, the concrete chip samples will first be analyzed for cadmium via SPLP. If the detected cadmium levels are below the 0.005 mg/l MCC, then the concrete chip samples will be analyzed via mass and TCLP or SPLP analysis for the remaining COC's listed under Table 2.

Step 3: If COC's are detected above their clean closure criteria in any of the concrete samples, SPC Divestitures will either decontaminate (i.e., power wash or abrasive blast) the affected area and re-sample to determine if the closure criteria can be met, or remove the required section(s) of the concrete floor and disposal of it at a licensed facility.

The concrete floor will be defined as being clean in the lateral direction when the concentration of each COC within each lateral sample is at or below its closure criteria listed under Table 3.

3.4.8 Lateral/Subsurface Soil Contamination - Secondary Container Storage Area

As discussed in Section 2.1, Kraft has performed excavation and off-site disposal of previously detected soil contamination at the Synthetic Products facility. Included in this excavation work was the removal of the majority of soil downgradient of the secondary hazardous waste container storage area as shown in Figure 3. In order to complete RCRA closure of this regulated unit, however, lateral soils downgradient of the regulated unit which were not removed must be evaluated.

To determine if lateral soil contamination has occurred from the secondary hazardous waste container storage area, the following procedure will be followed:

Step 1: The asphalt between the limits of the secondary container storage area and the limits of the soil excavation will be inspected for cracks, gaps or other surface damage which may have allowed migration of wastes to the subgrade. The location of each crack, gap or other surface damage will be noted on a scale drawing. If no cracks, gaps or surface damage is observed, then soil sampling will not be required.

Step 2: One soil sample will be collected directly beneath each suspect area identified under Step 1. An electric roto-

hammer and chisel bit will be used to reach the subsurface.

Step 3: A soil sample will be collected from each suspect area in accordance with the procedures described in Section 3.5.2. If process stone is encountered directly beneath the asphalt, a hand auger will be used to remove the process stone until the soil horizon is reached. If there is no process stone, then the soil sample will be collected from the soil interval 6" to 12" below the asphalt.

Step 4: To determine if the ingestion risk-based standards have been met, the soil samples will first be analyzed for cadmium via SPLP. If the detected cadmium level is below the 0.05 mg/l MCC, then the soil sample will be analyzed via mass and TCLP or SPLP analysis for the remaining COCs listed under Table 2.

Step 5: For each soil sample which exhibits a COC above its closure criteria, additional soil samples will be collected. To determine horizontal extent of contamina-tion, a soil sample will be collected at the 0" to 6" horizon, two feet perpendicular from the original sampling location.

To determine vertical extent of contamination, a soil sample will be collected at the 12" to 18" horizon, directly beneath the original sampling location. Each soil sample will be analyzed for only those para-meters which were exceeded in the original soil sample. The sampling procedures described in Section 3.5.2 will be followed.

Step 6: The sampling procedure described in Step 3 will be repeated, if necessary, a maximum of three (3) times. If the closure criteria for all COCs still cannot be met at this point, SPC Divestitures, Inc. will either continue the sampling procedure described in Step 3 to determine the extent of contamination or request a meeting with the CT-DEP to discuss closure options.

The extent of any lateral soil contamination associated with the secondary hazardous waste container storage area will be defined when the concentration of each COC within each sample is at or below its closure criteria listed under Table 3.

3.5 Methods for Sampling and Analysis

The procedures described in this section will be used to sample and analyze the various media:

- Lateral Soil Sampling (Section 3.5.1)
- Subsurface Soil Sampling (Section 3.5.2)
- Surface Concrete Sampling (Section 3.5.3)
- Tank Wipe Sampling (Section 3.5.4)

3.5.1 Lateral Soil Sampling

To determine if lateral soil contamination has occurred from the primary hazardous waste container storage area, the procedures described below will be followed:

Step 1: Locate sampling locations from Figure 13.

Step 2: Using a trowel or soil auger, core down to a depth of six (6) inches.

Step 3: Collect at least a 200 gram soil sample from each sampling location.

Step 4: To prevent cross contamination between sampling points, the sampling equipment will be decontaminated before and after each sample as follows:

- wash with a suitable laboratory soap (alconox);
- rinse with tap water;
- rinse with deionized water;
- rinse with 1:4 solution of nitric acid:deionized water;
- rinse with deionized water;
- rinse with hexane; and
- air dry.

Step 5: Store soil samples in plastic or glass jars (see Section 3.8) with teflon seals and place on ice for storage prior to delivery to the laboratory.

Step 6: Submit samples to a State-certified laboratory for analysis. All samples will be accompanied with a chain of custody (see Appendix G).

Step 7: Calculate the mean, variance and number of samples as described in Chapter 9 of Test Methods of Evaluating Solid Wastes for Random Sampling. If necessary, repeat Steps

2 through 6 until sufficient number of samples have been collected.

The soil samples will be analyzed for all parameters shown on Table 2, plus any additional parameters identified through the Appendix IX analysis. The samples will be preserved, pre-treated, and analyzed per the methods described in Sections 3.8 and 3.9.

3.5.2 Subsurface Soil Sampling

To determine if wastes have migrated to the subsurface soil located beneath the primary container storage area, the tank storage area, the secondary container storage area, or the reaction room floor trenches and sumps via cracks, gaps or other surface damage, soil samples, if required, will be collected in the following manner:

Step 1: Following removal of the concrete core, or asphalt base, and any process stone, use a soil auger to core down a depth of six inches.

Step 2: Collect at least a 200 gram soil sample from each sampling location.

Step 3: To prevent cross contamination between sampling points, sampling equipment will be decontaminated before and after each sample as follows:

- wash with a suitable laboratory soap (alconox);
- rinse with tap water;
- rinse with deionized water;
- rinse with 1:4 solution of nitric acid:deionized water;
- rinse with deionized water;
- rinse with hexane; and
- air dry.

Step 4: Store soil samples in glass or plastic jars (see Section 3.8) with teflon seals and place on ice for storage prior to delivery to the laboratory.

Step 5: Submit samples to a State-certified laboratory for analysis. All samples will be accompanied with a chain of custody (see Appendix G).

The soil samples will be analyzed for all parameters shown on Table 2, plus any additional parameters identified through the

Appendix IX analysis. The samples will be preserved, pre-treated, and analyzed per the methods described in Sections 3.8 and 3.9.

3.5.3 Surface Concrete Sampling

To determine if the concrete surfaces associated with the primary container storage area, 300 gallon reaction water intermediate storage area, 3,000 gallon intermediate holding tank, and 1,200 gallon former reactor vessel (R-1), and the floor trenches and sumps have been affected by operation of the storage areas, surface concrete samples will be collected in the following manner:

Step 1: Locate sampling locations from Figures 8, 9, 10, 11, 12, 13, and 14.

Step 2: Collect at least a 200 gram concrete chip sample from the center of each sampling section using a hammer and chisel, or an electric rotohammer.

Step 3: To prevent cross contamination between sampling points, sampling equipment will be decontaminated before and after each sample as follows:

- wash with a suitable laboratory soap (alconox);
- rinse with tap water;
- rinse with deionized water;
- rinse with 1:4 solution of nitric acid:deionized water;
- rinse with deionized water;
- rinse with hexane; and
- air dry.

Step 4: Store concrete chip samples in glass or plastic jars (see Section 3.8) with teflon seals and place on ice for storage prior to delivery to the laboratory.

Step 5: Submit samples to a State-certified laboratory for analysis. All samples will be accompanied with a chain of custody (see Appendix G).

Step 6: Calculate the mean, variance and number of samples as described in Chapter 9 of Test Methods of Evaluating Solid Wastes for Random Sampling. If necessary, repeat Steps 2 through 5 until sufficient number of samples have been collected.

The concrete samples will be analyzed for all parameters shown on Table 2, plus any additional parameters identified through the Appendix IX analysis. The samples will be preserved, pre-treated and analyzed per the methods described in Sections 3.8 and 3.9.

3.5.4 Tank Wipe Sampling

To determine if the closure performance standards have been met for the two 5,000 gallon hazardous waste storage tanks, plus their associated intermediate storage tanks, wipe samples will be collected from two discrete locations inside and outside (1 each side) of each storage tank (i.e., 8 samples total). Field and trip blank samples will be utilized for quality assurance/quality control. The tank wipe samples will be collected in the following manner:

Step 1: Mark off three 0.5 m^2 areas at each discrete sampling location with a 0.5 m^2 template. Magnets or other means are to be used to secure the template to the tank wall. Sampling areas are to be located in the areas exhibiting the greatest visual contamination.

Step 2: Prior to sampling, a sterile gauze pad will be dipped in a dilute nitric acid solution (1:4 acid to water) with plastic tweezers for analysis of metals. Using chemical resistant gloves to protect hands, wipe the saturated gauze over half of the first templated sampling area marked off in Step 1 repeatedly in the vertical direction applying moderate pressure. Turn the gauze over and wipe repeatedly in the horizontal direction over the second half of the first templated area. Repeat the procedure on the other two templated areas at each discrete sample area with the gauze pads prepared for volatiles and semi-volatiles. Instead of nitric acid, utilize ethanol or methanol for volatile COC's; and 1:1 hexane:acetone, or methylene chloride for semi-volatiles. The gauze pads will then be placed in separate wide mouth sample jars equipped with teflon caps.

Step 3: Submit wipe samples to a certified laboratory with a chain-of-custody (see Appendix G).

The field blanks will be collected in the same manner as the tank samples except the wipes will be exposed to the atmosphere only and immediately transferred to the sample jars. The trip blanks will consist of wipe samples collected in the same manner as the

tank samples that are transported to the site and sent to the laboratory without being opened.

3.6 Wash Waters/Equipment Decontamination Wastewaters Sampling

All of the wash waters and the decontamination wastewaters generated during the closure proceedings will be collected and stored in 55-gallon drums and/or a vacuum truck. Wastewater samples will be collected from the drums and/or vacuum truck and analyzed for the eight (8) RCRA metals, halogenated volatile organics via EPA Method 8010, aromatic volatile organics via EPA Method 8020, TPH, and pH to determine if the wastewater must be disposed of as a hazardous waste or as a Connecticut regulated waste (i.e. non-hazardous). If any of these constituents are detected at levels which exceed the characteristic hazardous waste limits, the wastewaters will be disposed of as hazardous waste. If the levels are below the hazardous waste limits, these wastewaters will be disposed of as Connecticut regulated waste.

3.7 Waste Concrete and Concrete Dust/Blasting Media Sampling

As discussed in Section 3.4.2, SPC Divestitures intends to decontaminate the concrete floors of the facility building through abrasive blasting. The blasting will result in the generation of concrete dust and spent blasting media (if non-recyclable blasting media are utilized). All of this generated waste will be collected and stored in 55 gallon drums or roll-offs. Discrete samples for waste characterization will be collected at the rate of one sample per every 20 drums or one sample per roll-off, with a minimum of one sample per room or area (i.e., reaction room, storage room, primary drum storage area) that is decontaminated.

Each collected sample will be submitted to a State-certified environmental testing laboratory for analysis of the eight RCRA metals via TCLP, halogenated volatile organics via EPA Method 8010, aromatic volatile organics via EPA Method 8020, and TPH. If any of these constituents are detected at levels which exceed the characteristic hazardous waste levels (except TPH), then the waste material will be disposed of as a RCRA hazardous waste. If the detected levels are below the hazardous waste levels, then the waste will be disposed of as Connecticut-regulated waste.

3.8 Sample Containers and Preservation

The various samples (concrete, soil, and rinseate) collected under this plan will be placed into the appropriate container and preserved as shown on Table 4.

3.9 Analytical Procedures

The various samples will be collected and stored as described above and in previous sections. Upon delivery to the State-certified laboratory, the samples will be analyzed for the appropriate parameters as discussed in the preceding sections. Due to the sample matrices (solids such as concrete), and pathways of concern, some samples must be pre-treated prior to analysis by the appropriate method for a given parameter. The recommended preparation methods for the various samples are presented in Table 5. The recommended analytical methods for the identified hazardous constituents are included in Table 6.

TABLE 4

Sample Collection/Preservation Requirements

Former Synthetic Products Company
375 Barnum Avenue Cut-Off
Stratford, Connecticut

Sample Type (sample size)	Parameter	Container	Preservation	Holding Time
Concrete (400 g)	Appendix IX Constituents	Glass[1]	Cool to 4°C	6 months (non-volatiles) 14 days[2] (organics) 14 days (volatiles)
Concrete or Soil (200 g)	Metals Organics Volatiles TPH	Glass Glass Glass[1] Glass[1]	Cool to 4°C Cool to 4°C Cool to 4°C Cool to 4°C	6 months 14 days[2] 14 days 14 days
Rinseate (2080 ml)	Metals Volatiles TPH	Plastic Glass[1] Glass[1]	Cool to 4°C Cool to 4°C Cool to 4°C	6 months 14 days 14 days
Wipes	Metals Organics Volatiles TPH	Plastic Glass Glass[1] Glass[1]	Cool to 4°C Cool to 4°C Cool to 4°C Cool to 4°C	6 months 14 days 14 days 14 days

[1]With teflon seal.

[2]Until extraction, 40 days after extraction.

TABLE 5

Laboratory Sample Preparation Methods[1]

Former Synthetic Products Company
375 Barnum Avenue Cut-Off
Stratford, Connecticut

Recommended Preparation Methods

Sample	Parameter	Mass Analysis	Leachability	Description
Concrete	Metals	3050	NA	Appendix IX Sampling
Concrete	Volatile Organics	5030	NA	Appendix IX Sampling
Concrete or Soil	Metals	3050	SPLP[2]	Lateral Soil Sampling, Subsurface Soil Sampling & Concrete Surface Sampling
Concrete or Soil	Volatile Organics	5030	TCLP[3]	Lateral Soil Sampling, Subsurface Soil Sampling & Concrete Surface Sampling
Concrete or Soil	Semi-Volatile Organics & Phthalate Esters	3550A	TCLP[3]	Lateral Soil Sampling, Subsurface Soil Sampling & Concrete Surface Sampling
Rinseate	Metals	3050	N/A	Disposal Determination
Wipes	Metals	3050	N/A	Tank Disposal Determination
Wipes	Semi-Volatile Organics	3550A	N/A	Tank Disposal Determination
Wipes	Volatile Organics	5030	N/A	Tank Disposal Determination

[1]Test Methods for the Evaluation of Solid Waste Physical/Chemical Methods, EPA Sw-846, 3rd Edition, November, 1986.

[2]Synthetic Precipitation Leaching Procedure

[3]Toxicity Characteristic Leaching Procedure, March 29, 1990 Federal Register

TABLE 6

Recommended Analytical Methods[1]

Former Synthetic Products Company
375 Barnum Avenue Cut-Off
Stratford, Connecticut

Parameter	EPA Method[2]
Antimony	7040/7041
Arsenic	7060/7061
Barium	7080/7081
Cadmium	7130/7131
Chromium (Total)	7190/7191
Lead	7420/7421
Tin	7870
Zinc	7950/7951
Acetone	8240
Dioctyl Phthalate	8060/8061/8250/8270
Phenol	8040/8250/8270
Maleic Anhydride	See Note 3
Total Petroleum Hydrocarbons	418.1

[1]Test Methods for the Evaluation of Solid Waste Physical/Chemical Methods, EPA SW-846, 3rd Edition, November, 1986 unless otherwise noted.

[2]When analyzing a sample, the most appropriate analytical method for a particular constituent will be chosen when a choice is listed.

[3]There is no EPA Method for the analysis of maleic anhydride. The laboratory will perform the analysis via Gas Chromatograph/Flame Ionization Detector to determine the presence and level of this compound.

3.10 Field Quality Assurance/Quality Control Program

To monitor the field sampling activities, certain QA/QC activities must be performed to ensure the accuracy and validity of samples collected and the corresponding results.

During closure activities, equipment blanks will be utilized when performing soil sampling in accordance with Sections 3.5.1 and 3.5.2, and concrete chip sampling in accordance with Section 3.5.3. Equipment blanks will consist of deionized water that is transported to the site, opened in the field, poured through or over the sampling device, collected in a sample container and submitted to the environmental testing laboratory for analysis.

In addition to equipment blanks, other QA/QC samples will be collected such as trip blanks, field blanks and matrix spike/matrix spike duplicate (MS/MSD) samples. Please refer to page 2-4 of HRP's SOPs for environmental investigations located in Appendix H for further details.

3.11 Personal Protection

All personnel involved in the inspection, sampling, decontamination, and removal activities will have been trained with respect to the applicable provisions of the Occupational Health and Safety Act. To ensure the safety of the site workers, appropriate personal protection equipment will be utilized as required for the site activity in progress. Recommended personal protection levels for the different site activities are shown on Table 7 The appropriate personal protective equipment for the different levels of protection is shown on Table 8.

3.12 Equipment Decontamination

To carry out the closure activities outlined in this closure plan the following equipment may be utilized:

- Shovels
- Steam jenny
- 55-gallon drums
- Squeegees
- Concrete core drill
- Hammer and chisel
- Air purification respirators (if necessary)
- Jackhammer
- Excavator (if necessary)
- Roll-off (if necessary)

TABLE 7

Recommended Levels of Personal Protection

Former Synthetic Products Company
375 Barnum Avenue Cut-Off
Stratford, Connecticut

Activity	Personnel	Recommended Level of Protection
Sampling of Soil and Concrete - Indoor Areas	All Personnel	Level D (Level C)
Sampling of Soil and Concrete - Outdoor Storage Areas	All Personnel	Level D (Level C)
Decontamination of Hazardous Waste Storage Tanks	Cleaning Personnel	Level B
Decontamination of Hazardous Waste Storage Tanks	Support Personnel	Level C (Level B)
Decontamination of the Concrete Floor - Indoor Areas	All Personnel	Level C (Level B)
Decontamination of the Concrete Floor - Outdoor Areas	All Personnel	Level D (Level C)
Excavation of Soil/Concrete - Indoor Areas	All Personnel	Level D (Level C)
Excavation of Soil/Concrete/Asphalt - Outdoor Areas	All Personnel	Level D (Level C)

Criteria for upgrading to the contingent level of personal protection are as follows:

<u>Indoor Areas</u>

Level D - Level C: Ambient air reading in the breathing zone above background readings.

Level C - Level B: Ambient air reading for O_2 level in the breathing zone.

<u>Outdoor Area</u>

Level D - Level C: Ambient air reading in the breathing zone above background readings

TABLE 8 Personal Protective Equipment Former Synthetic Products Company 375 Barnum Avenue Cut-Off Stratford, Connecticut	
Level	**Equipment**
D	Work Clothes Work Boots Gloves Safety Glasses Hard Hat
C	Full-Face Air Purifying Respirator Chemical-Resistant Clothing Chemical-Resistant Gloves Chemical-Resistant Boots Hard Hat
B	Full-Face Air Supplied Respirator Chemical-Resistant Clothing Chemical-Resistant Gloves Chemical-Resistant Boots Hard Hat

Prior to placing this equipment back into service, the procedure outlined below will be followed to remove any residue.

Step 1: All decontamination procedures will be performed in an area located away from any floor drains, floor trenches, catch basins, etc. To prevent any runoff from these areas, a 4-6 mil piece of plastic will be elevated 6-8 inches using sandbags or bags of absorbent material stationed around the decontamination area.

Step 2: Equipment will be first cleaned using brushes and brooms to remove any visible residue.

Step 3: All residue (solid) collected from this operation will be placed in appropriate DOT containers for off-site disposal at a permitted hazardous waste facility.

Step 4: To remove any residue remaining on the equipment, the following washing procedure will be followed:

A. Equipment such as shovels will be washed and rinsed over an open 55-gallon drum. A laboratory soap, containing the active ingredient trisodium phosphate will be used in the washing operation.

B. The wash and rinse waters will be collected in the 55-gallon drum for off-site disposal at a licensed facility (see Section 3.6 for sampling procedure).

C. Any spillage from this operation will be absorbed with an absorbent (e.g. speedi-dry or sand) that is incinerable unless reaction with spilled material is possible) and shoveled in a 55-gallon drum for off-site disposal at a licensed facility.

Step 5: All disposable safety equipment such as coveralls, gloves, etc., will be collected in an appropriate DOT container and disposed of off-site at a permitted hazardous waste facility.

Sampling and analysis of equipment after decontamination is not considered necessary. Rather, a visual examination verifying removal of all stains should be sufficient to ensure that all contaminants are removed. Photographs of the cleaned equipment will be taken and provided in the closure certification report to document that the decontamination process was completed.

All decontamination work will be performed using qualified personnel. Qualified personnel will be required to be trained regarding the hazards of

the substances which they may be exposed to and in the proper use of personal protective equipment prior to the start of decontaminating activities.

3.13 Findings Report

At the completion of the tasks described in this Work Plan, HRP Associates, Inc. will prepare Closure Plan Volume 2: Findings Report to summarize the site characterization data and the proposed closure option (clean or landfill) for each hazardous waste storage area.

4.0 CLOSURE COST ESTIMATE

Both 40 CFR 265.142 and Section 22a-449(c)-105(d) require that the owner or operator of an interim-status hazardous waste facility develop a detailed written estimate of the costs of closing the facility in accordance with the Closure Plan. The closure cost estimate must be kept current by annual adjustments for inflation. The closure cost estimate must also be adjusted within 30 days after any revision to the Closure Plan which increases the cost of closure.

Presented in Table 9 are the estimated costs to SPC Divestitures, Inc. to execute the work described in this Closure Plan - Volume I. It must be noted that these estimated closure costs do not include costs for post-closure care of the 375 Barnum Avenue Cut-Off facility. If post-closure care is determined to be necessary following the completion of closure activities, then the post-closure cost estimate will be developed at that time.

TABLE 9

Estimated Closure Costs for Two >90 Day Hazardous Waste Container Storage Areas and Two >90 Day Hazardous Waste Storage Tanks

Former Synthetic Products Company
375 Barnum Avenue Cut-Off
Stratford, Connecticut

Closure Activity	Cost Estimate
1. Appendix IX Sample Collection	$ 765.00
Appendix IX Sample Analysis (2 samples)	$ 2,500.00
Task 1 Subtotal	$ 3,265.00
2. Decontaminate (Sandblast) Indoor Floor and Collect Confirmatory and Lateral Concrete Chip Samples	$ 9,200.00
Analysis of 30 Confirmatory Concrete Chip Samples:	
- 8 Metals Via Mass Analysis	$ 4,800.00
- 8 Metals Via SPLP	$ 7,050.00
- Acetone Via EPA Method 8240	$ 5,700.00
- Semi-Volatiles and Phthalates Via EPA method 8270	$ 18,750.00
- TPH via EPA Method 418.1	$ 2,100.00
Task 2 Subtotal	$ 38,400.00
3. Collection of Subsurface Soil Samples (Assumed at 14 locations)	$ 1,580.00
Analysis of 14 Subsurface Soil Samples for Metal COC's Via Mass and SPLP, for Remaining COC's Via Mass Analysis	$ 17,920.00
Task 3 Subtotal	$ 19,500.00
4. Collection of Lateral Soil Samples	Included under Task 3
Analysis of 3 Lateral Soil Samples for Metal COC's Via Mass and SPLP, for Remaining COC's Via Mass Analysis	$ 3,840.00
Task 4 Subtotal	$ 3,840.00
5. Decontamination of Storage Tanks and Collection of Wipe Samples	$ 1,000.00
Analysis of 10 Wipe Samples for all COC's via Mass Analysis	$ 10,450.00
Task 5 Subtotal	$ 11,450.00
*6. Excavation of 12 yd^3 of Concrete, 5 yd^3 of Asphalt, and 28 yd^3 of Soil, Backfill with Structural Backfill, and Repair Asphalt	$ 3,750.00*
Load, Transport and Dispose of All Excavated Materials and Sandblasting Wastes as Hazardous Waste	$ 11,750.00*
Task 6 Subtotal	$ 15,500.00
Total to Complete Tasks 1 Through 6	$ 91,955.00
+25% Contingency	$ 22,990.00
Total Estimated Closure Cost	$ **114,945.00**

*Note: Quantities of wastes generated and excavation required are dependent upon the findings of the Work Plan sampling.

APPENDIX A

NOVEMBER 14, 1980 PART APPLICATION
(DART INDUSTRIES)

Please print or type in the unshaded ar[illegible] nly
(fill-in areas are spaced for elite type, i.e., 12 char[illegible] s/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F C T D 0 0 0 8 4 4 3 6 5 D

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

EPA: A notification of Hazardous Waste activity form was submitted for this facility under the name of WARE CHEMICAL DIVISION OF DART INDUSTRIES. We would prefer to refer to the facility as DART INDUSTRIES INC. As is done herein.

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	MARK 'X' NO	MARK 'X' FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)		X	
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP DART INDUSTRIES, INC

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 GRONDINE LEO MGR ENGINEERING	203 377 2232

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 PO BOX 262

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 STRATFORD.	CT	06497

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 375 BARNUM AVE CUTOFF

B. COUNTY NAME

FAIRFIELD

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 STRATFORD	CT	06497	

CTD000844365

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VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
2869 (specify) Organic Chemicals, Misc.	C 7 (specify)
C. THIRD	**D. FOURTH**
(specify)	C 7 (specify)

VIII. OPERATOR INFORMATION

A. NAME: DART INDUSTRIES INC

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☒ NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC (other than federal or state)
O = OTHER (specify)

P (specify)

D. PHONE (area code & no.): C A 203 377 2232

E. STREET OR P.O. BOX: PO BOX 262

F. CITY OR TOWN: STRATFORD

G. STATE: CT

H. ZIP CODE: 06497

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): T N	D. PSD (Air Emissions from Proposed Sources): C 9 T P
B. UIC (Underground Injection of Fluids): T U	E. OTHER (specify): C 9 T (specify)
C. RCRA (Hazardous Wastes): T R	E. OTHER (specify): C 9 T (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Synthesis of organic liquid acrylates and methacrylates for sale.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
J. C. Phifer, President Chemical Specialties	J. C. Phifer	11/14/80

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only (fill–in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

U.S. ENVIRONMENTAL PROTECTION AGENCY
HAZARDOUS WASTE PERMIT APPLICATION
Consolidated Permits Program
(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

F | C T D 0 0 0 8 4 4 3 6 5 | T/A C 1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

C 8 — YR. 69 MO. 06 DAY 11 — FOR EXISTING FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

[ ] 2. NEW FACILITY *(Complete item below.)*

YR. ___ MO. ___ DAY ___ — FOR NEW FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS

[ ] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.
1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C | DUP | T/A C 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S 0 1	10,000	G		7				
2					8				
3					9				
4					10				

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*														
F	C	T	D	0	0	0	8	4	4	3	6	5		6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*.

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
41 11 050	073 07 010

VIII. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
E See attached sheet.	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
See attached sheet.		

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
J. C. Phifer, President Chemical Specialties	X J. C. Phifer	11/14/80

CONTINUE ON PAGE 5

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)		FOR OFFICIAL USE ONLY	
W C T D 0 0 0 8 4 4 3 6 5	T/A C 1	W DUP	T/A C 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	D 0 0 1	60,000	P	S 0 1	
2	D 0 0 2	25,000	P	S 0 1	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR DESCRIBING OTHER PROCESSES (code "T04" FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

CTD000844365

IV. DESCRIPTION OF HAZARDOUS WASTES

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

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

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

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

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

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non—listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non—listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

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

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

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

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2				included with above

 CONTINUE ON PAGE 3

VIII. Facility Owner
(Refer to Facility Drawings)

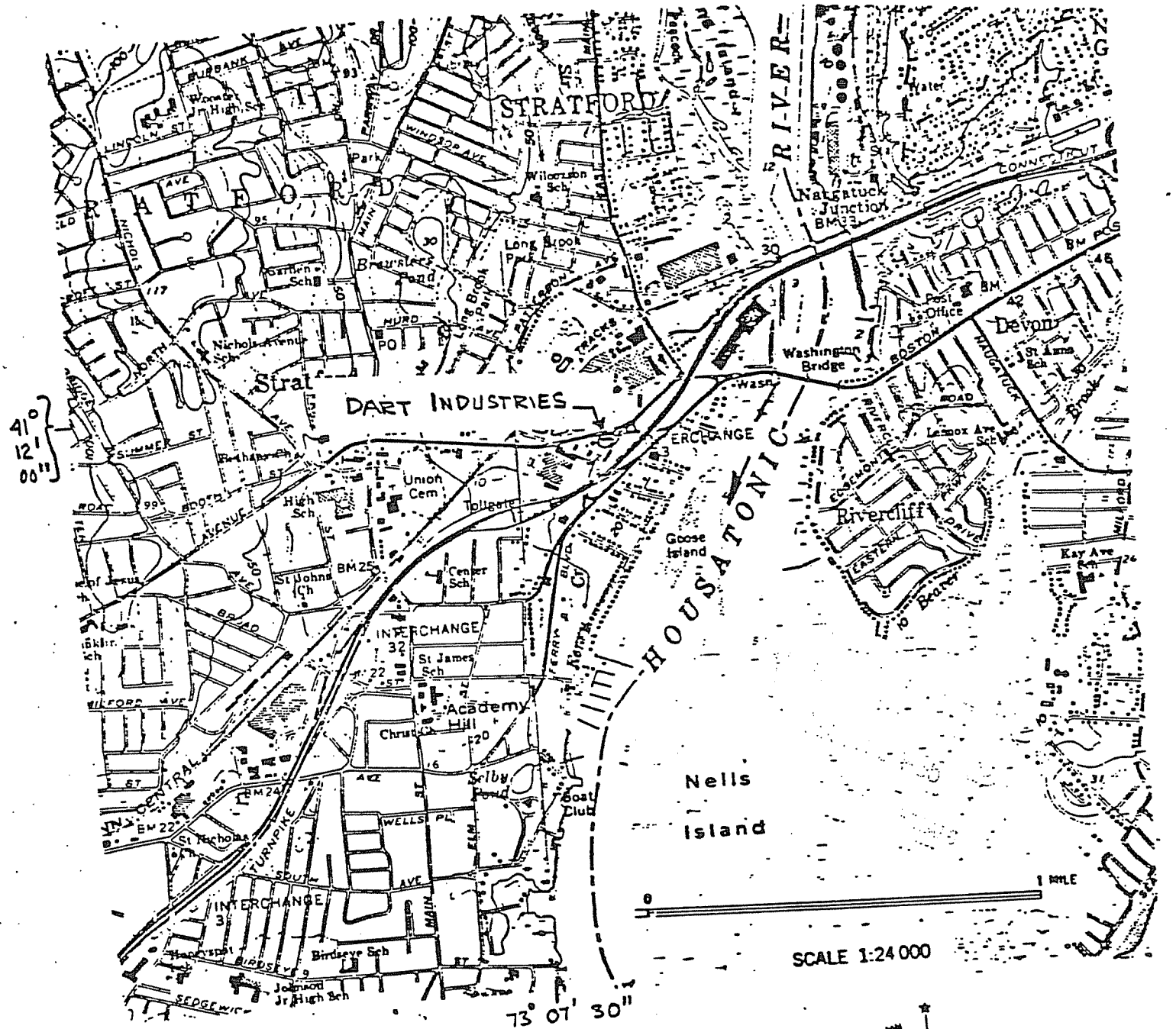
Parcel	Legal Owner
A.*	Dart Industries Inc. P. O. Box 262 Stratford, CT 06497 (203)377-2232
B.	Harry Tickey 91 Pinewood Trail Nichols, CT 06611 (203) 378-0538
C.	Tom Mc Kiff 8 Parkway Terrace Milford, CT 06460 (203)878-3270

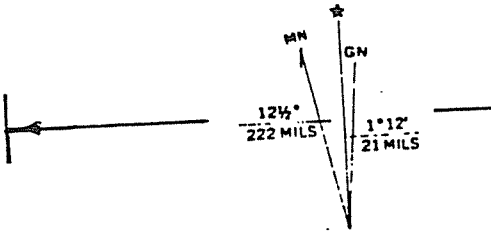
IX. Owner Certification

Parcel	Signature
A.*	J. C. Phifer J. C. Phifer
B.	Owner not available for signature Harry Tickey
C.	Owner not available for signature Tom Mc Kiff

* Dart Industries is presently negotiating to acquire this parcel. It will become an integral part of the facility, if and when negotiations are complete.

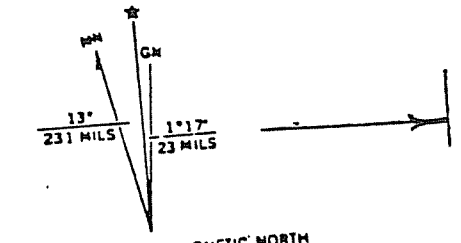
DART INDUSTRIES
375 BARNUM AVE.
STRATFORD, CT
CTD000844365





UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

USGS MAP BRIDGEPORT, CT



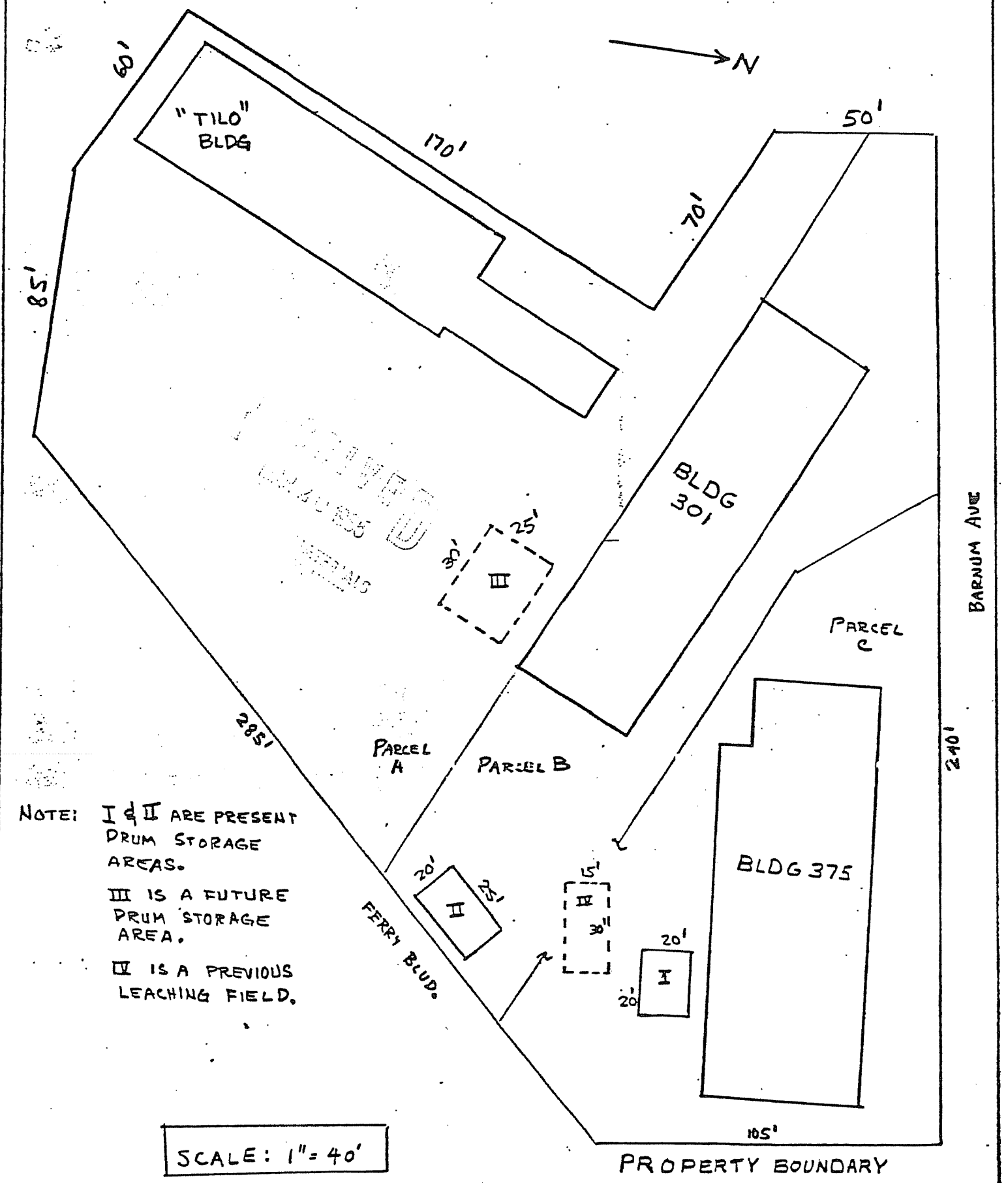
UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

USGS MAP MILFORD, CT

LOCATION MAP - DART INDUSTRIES

BARNUM AVE. FACILITY STRATFORD, CONNECTICUT CTD000844365

V. FACILITY DRAWING (see [illegible])

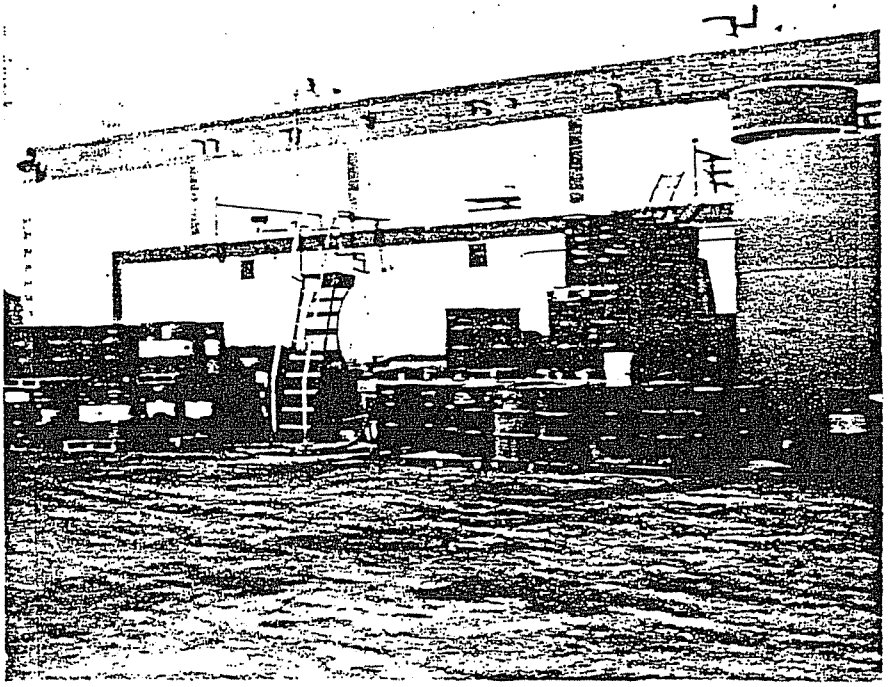


NOTE: I & II ARE PRESENT DRUM STORAGE AREAS.

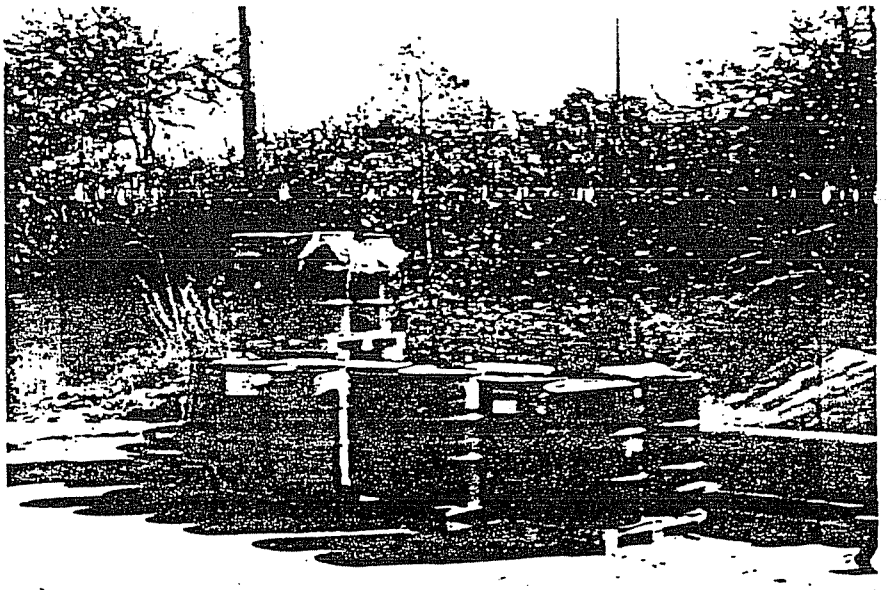
III IS A FUTURE DRUM STORAGE AREA.

IV IS A PREVIOUS LEACHING FIELD.

DART INDUSTRIES BARNUM AVE. FACILITY CTD000844365

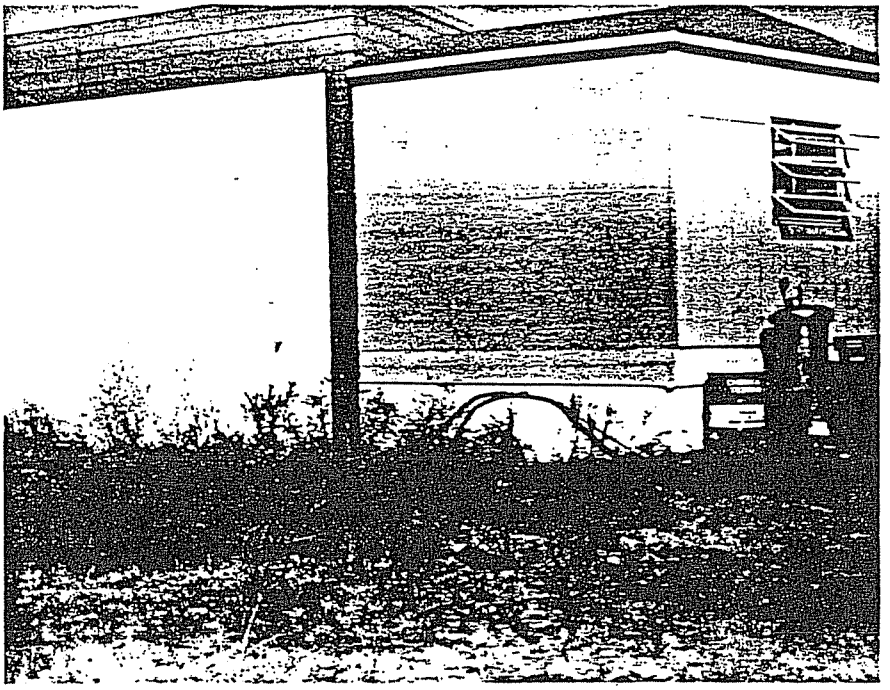


PRESENT DRUM STORAGE AREA I NOV. 3, 1980



PRESENT DRUM STORAGE AREA II NOV. 3, 1980

DART INDUSTRIES BARNUM AVE FACILITY CTD008443365



AREA III FUTURE DRUM STORAGE

NOV. 3, 1980

APPENDIX B

LETTER NOTIFYING CT-DEP AND USEPA OF NAME CHANGE (DART INDUSTRIES, WARE CHEMICAL DIVISION TO DART INDUSTRIES, SYNPRO-WARE DIVISION)

SYNPRO-WARE A DART & KRAFT COMPANY

P.O. Box 262
Stratford, Connecticut 06497
203/377-5550 TWX 710-453-0738

Response By EPA

December 22, 1982

Ms. Cindy Gilder
EPA Region 1
JFK Federal Building
Waste Management Div.
Boston, MA 02203

Dear Ms. Gilder:

As per our conversation on December 21, 1982, this letter is to inform EPA of our name change from Dart Industries, Ware Chemical Division to: NAME

Dart Industries Synpro-Ware Division

with operations at:

1525 Stratford Avenue
Stratford, Connecticut
CTD001179688

and

375 Barnum Avenue Cut-off
Stratford, Connecticut
CTD000844365.

Very truly yours,

Leo Grondine
Director of Engineering

LG:lag

cc: Mr. George Dews
Connecticut DEP

Mr. C. W. Fletcher
Synthetic Products

RECEIVED
DEC 30 1982
HAZARDOUS MATERIALS
MANAGEMENT UNIT

APPENDIX C

JUNE 22, 1984 PART A APPLICATION REVISION (SYNTHETIC PRODUCTS COMPANY DIVISION OF PLASTIC SPECIALTIES AND TECHNOLOGIES)

Please print or type in the unshaded areas only
(fill—in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program
(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER: F C T D 0 0 0 8 4 4 3 6 5 D

LABEL ITEMS

I. EPA I.D. NUMBER: CTD 000844365

III. FACILITY NAME: SYNTHETIC PRODUCTS COMPANY
DIVISION OF PLASTICS SPECIALTIES & TECHNOLOGIES

V. FACILITY MAILING ADDRESS: P.O. BOX 262
STRATFORD, CONNECTICUT 06497

VI. FACILITY LOCATION: 375 BARNUM AVENUE CUT-OFF
STRATFORD, CONNECTICUT 06497

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill—in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill—in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed Item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold—faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	MARK 'X' NO	MARK 'X' FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in discharges to **waters of the U.S.** *other than those described in A or B above*? (FORM 2C)		X	
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		X
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP SYNTHETIC PRODUCTS CO. DIVISION PS & T

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 GRONDINE LEO DIR. OP.	203 377 5550

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX: 3 P. O. BOX 262

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 STRATFORD	CT	06497

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER: 5 375 BARNUM AVENUE CUT-OFF

B. COUNTY NAME: FAIRFIELD

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 STRATFORD	CT	06497	

CTD 000844365

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VII. SIC CODES (4-digit, in order of priority)

A. FIRST	B. SECOND
2819 (specify) Inorganic Chemicals-Stabilizers	(specify)
C. THIRD	**D. FOURTH**
(specify)	(specify)

VIII. OPERATOR INFORMATION

A. NAME: SYNTHETIC PRODUCTS CO. DIVISION PS & T

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☒ NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC (other than federal or state)
O = OTHER (specify)

P (specify)

D. PHONE (area code & no.): A 203 377 5550

E. STREET OR P.O. BOX: P. O. BOX 262

F. CITY OR TOWN: STRATFORD

G. STATE: CT

H. ZIP CODE: 06497

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☒ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): N	D. PSD (Air Emissions from Proposed Sources): 8 P
B. UIC (Underground Injection of Fluids): U	E. OTHER (specify): 9 (specify)
C. RCRA (Hazardous Wastes): R	E. OTHER (specify): 9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS (provide a brief description)

Synthesis of inorganic liquid stabilizers for sale.

XIII. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
Charles W. Fletcher, Vice President Synthetic Products Company	Charles W Fletcher	6-22-84

COMMENTS FOR OFFICIAL USE ONLY

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

EPA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

S												T/A	C
F	C	T	D	0	0	0	8	4	4	3	6	5	1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS
23	24 - 29	

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

C 8 — YR. 6 9 — MO. 0 6 — DAY 1 1

FOR EXISTING FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

[ ] 2. NEW FACILITY *(Complete item below.)*

YR. — MO. — DAY

FOR NEW FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[X] 1. FACILITY HAS INTERIM STATUS

[X] 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C).*

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.
1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR: GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below):* A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

S		T/A	C
C	DUP		1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
1	S 0 1	5,000	G		7				
2					8				
3					9				
4					10				

Continued from the front.

CTD000844365

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

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

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

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

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

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

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: *For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item III* to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non—listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate **all** the processes that will be used to store, treat, and/or dispose of all the non—listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: *If a code is not listed for a process that will be used, describe the process in the space provided on the form.*

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

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

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

LINE NO.	A. EPA HAZARD. WASTE NO (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2				*included with above*

Continued from page 2.
NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)		FOR OFFICIAL USE ONLY	
W C T D 0 0 0 8 4 4 3 6 5	T/A C 1	W DUP	T/A C 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

W ASTE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	D 0 0 6	100,000	P	S 0 1	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

CONTINUE ON REVERS

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

F	C	T	D	0	0	0	8	4	4	3	6	5		6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
41 11 050	073 07 010

VIII. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
E SEE ATTACHED SHEET.	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
SEE ATTACHED SHEET.		

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

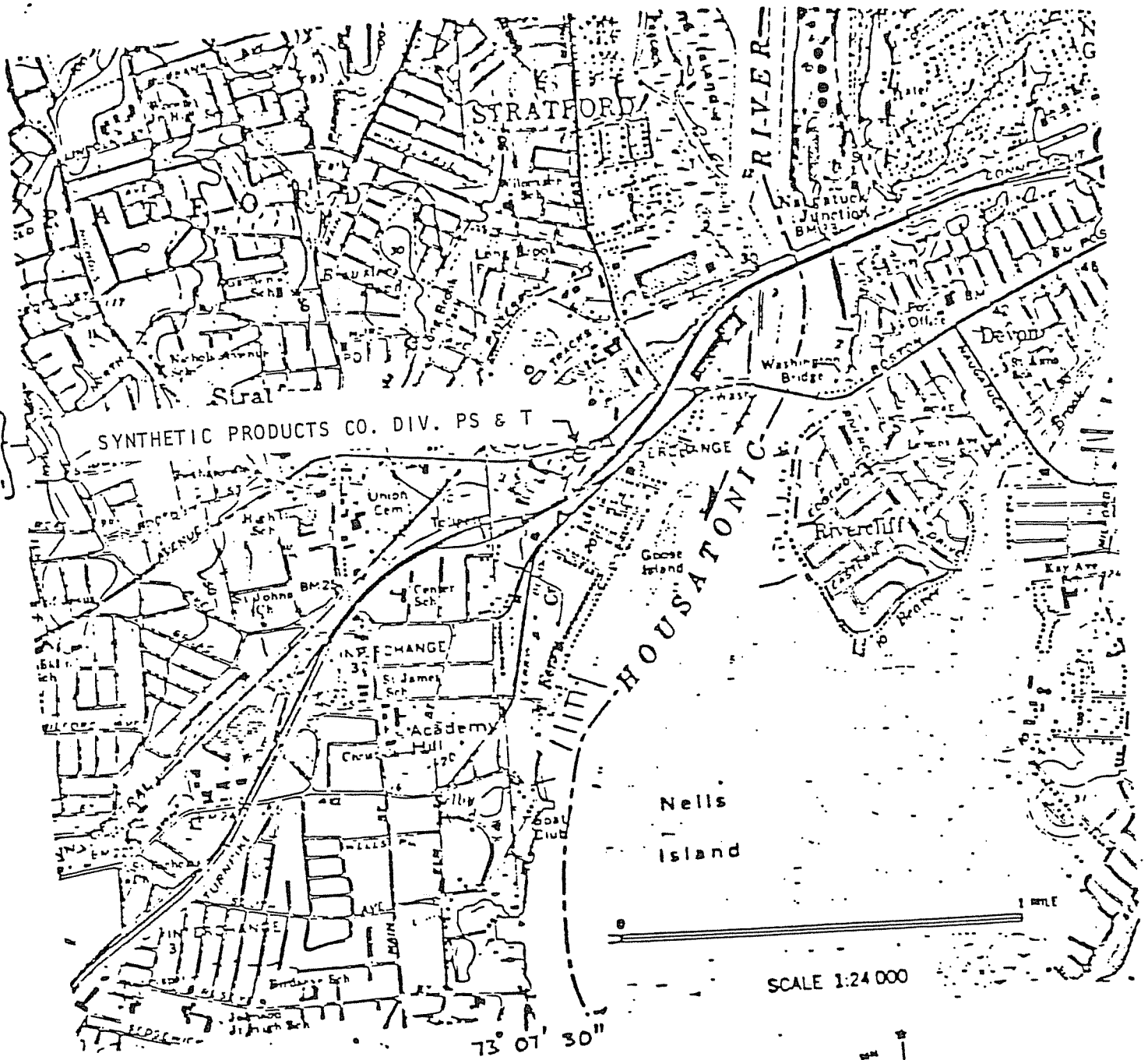
A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
Charles W. Fletcher, Vice President	[illegible]	6-22-84

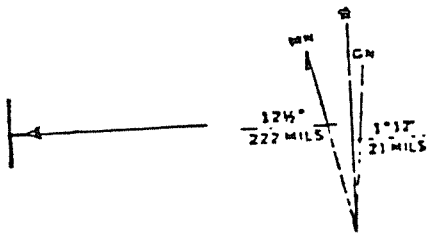
VIII FACILITY OWNER (Refer to drawing)

Parcel	Legal Owner
A.	Harry Tickey 91 Pinewood Trail Nichols, CT 06611 (203) 378-0538
B.	Tom McKiff 8 Parkway Terrace Milford, CT 06460 (203) 878-3270

IX OWNER CERTIFICATION

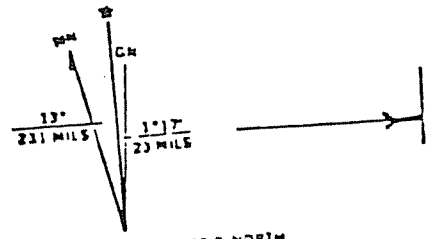
Parcel	
A.	Not available for signature Harry Tickey
B.	Not available for signature Tom McKiff





UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

USGS MAP BRIDGEPORT, CT



UTM GRID AND 1971 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

USGS MAP MILFORD, CT

LOCATION MAP - SYNTHETIC PRODUCTS CO. DIV. PS & T

BARNUM AVE. FACILITY STRATFORD, CONNECTICUT CTD000844365

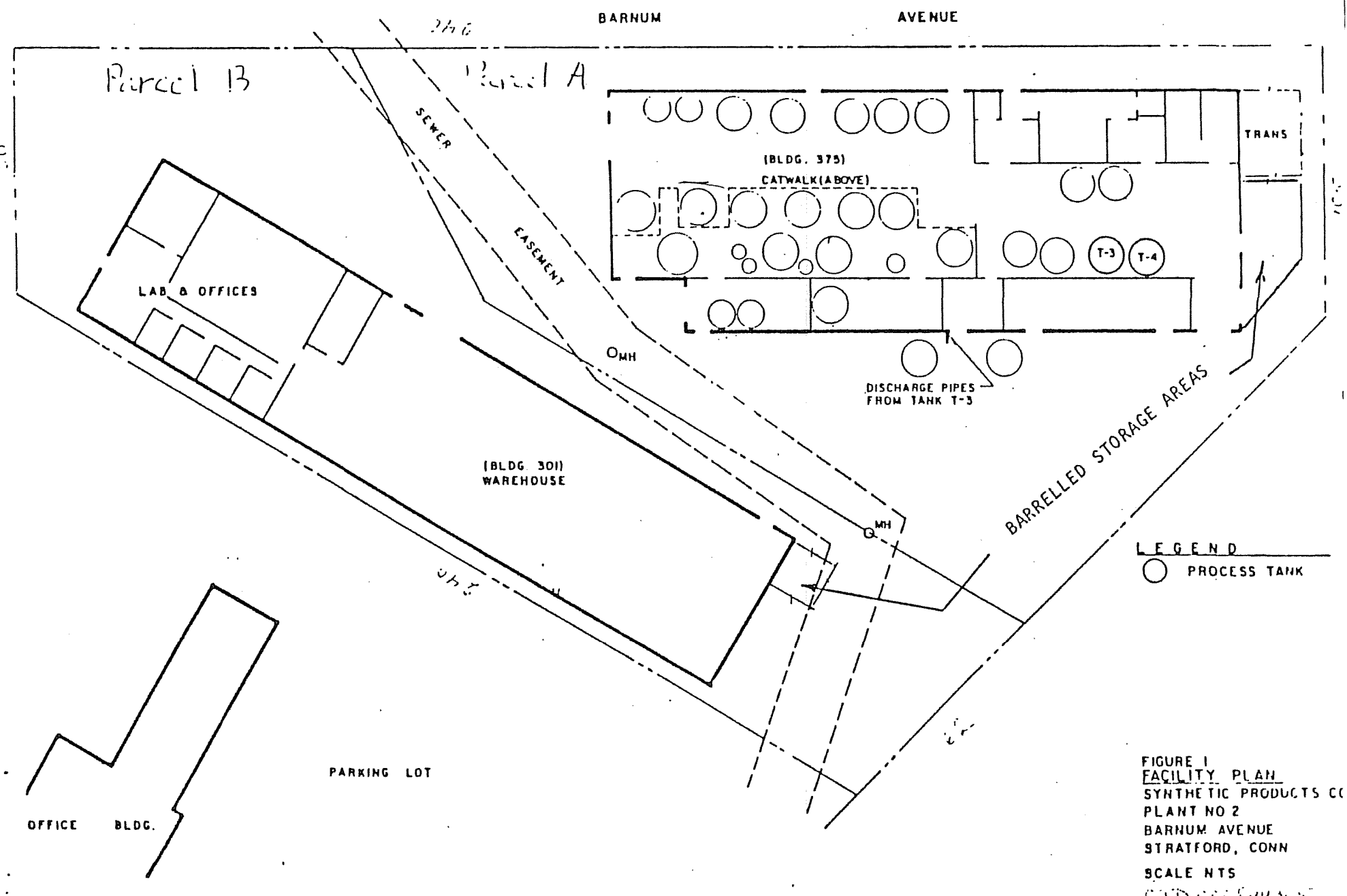
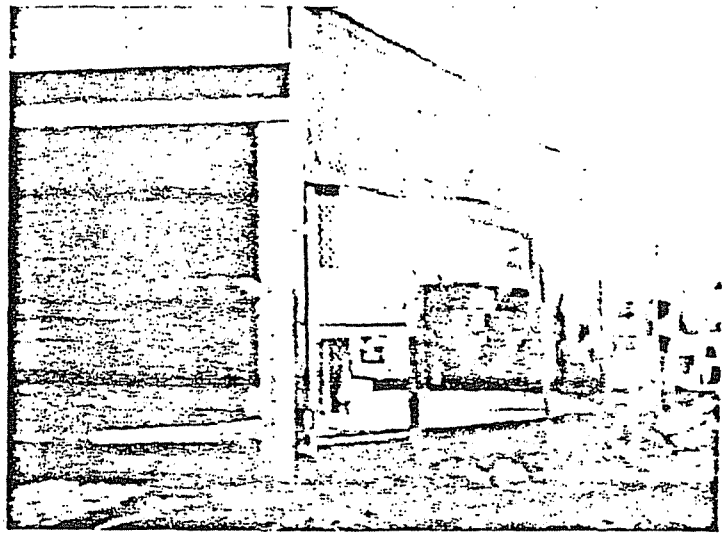
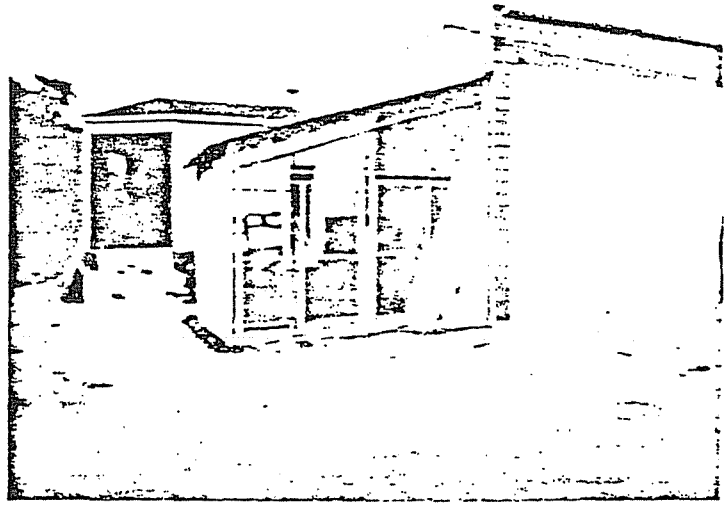


FIGURE I
FACILITY PLAN
SYNTHETIC PRODUCTS CO
PLANT NO 2
BARNUM AVENUE
STRATFORD, CONN
SCALE NTS

V. FACILITY DRAWING (see page 4)



STORAGE AREA PARCEL A



STORAGE AREA PARCEL B

SYNTHETIC PRODUCTS COMPANY
DIV. PLASTIC SPECIALTIES & TECHNOLOGIES
6/22/84

CTD000844365

APPENDIX D

OCTOBER 3, 1986 PART A APPLICATION REVISION

(fill-in areas are spaced for elite type, i.e., 12 cl ters/inch). Form Approved OMB No. 158-S0000.

FORM 3 RCRA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

S												T/A	C
F	C	T	D	0	0	0	8	4	4	3	6	5	1

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS
23	24 - 29	

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)* 71

FOR EXISTING FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

C	YR.	MO.	DAY
8	6 9	0 6	1 1
15	73 74	75 76	77 78

[ ] 2. NEW FACILITY *(Complete item below.)* 71

FOR NEW FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY
73 74	75 76	77 78

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[X] 1. FACILITY HAS INTERIM STATUS 72

[ ] 2. FACILITY HAS A RCRA PERMIT 73

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

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

1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

S		T/A	C
C	D U P		1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
	16 - 18	19 - 27	28	29 - 32		16 - 18	19 - 27	28	29 -
X-1	S 0 2	600	G		5	S 0 2	1,500	G	
X-2	T 0 3	20	E		6				
1	S 0 1	5,000	G		7				
2	S 0 2	5,000	G		8				
3	S 0 2	5,000	G		9				
4	S 0 2	1,500	G		10				

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES C OR DESCRIBING OTHER PROCESSES *(code "T0* FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

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

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

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

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

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

D. **PROCESSES**

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non—listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non—listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

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

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

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

LINE NO.	A. EPA HAZARD. WASTE NO (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K 0 5 4	900	P	T 0 3 D 8 0	
X-2	D 0 0 2	400	P	T 0 3 D 8 0	
X-3	D 0 0 1	100	P	T 0 3 D 8 0	
X-4	D 0 0 2				*included with above*

 CONTINUE ON PAGE 3

Continued from page 2.
NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W C T D 0 0 0 8 4 4 3 6 5 T/A C 1	W DUP T/A C 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	D006	85,000	P	S01	
2	D005				Included in above
3	D006	40,000	G	S02	
4	D005				Included in above
5	D006	180,000	G	S02	
6	D005				Included in above
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 1.

EPA I.D. NO. *(enter from page 1)*														
S												T/A	C	
F	C	T	D	0	0	0	8	4	4	3	6	5		6
1	2											13	14	15

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*.

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
41 11 050 (65–66, 67–68, 69–71)	073 07 010 (72–74, 75–76, 77–79)

VIII. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
C E SEE ATTACHED SHEET. (13–14, 15–55)	(56–58) – (59–61) – (62–65)

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
C F (13–14, 15–43)	C G (15–16, 17–40)	(41–42)	(47–51)

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
SEE ATTACHED SHEET.		

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
Charles W. Fletcher, Vice President	Charles W Fletcher	10/3/86

 CONTINUE ON PAGE 5

VIII FACILITY OWNER (Refer to drawing)

Parcel	Legal Owner
A.	Harry Tickey 91 Pinewood Trail Nichols, CT 06611 (203) 378-0538
B.	Tom McKiff 8 Parkway Terrace Milford, CT 06460 (203) 878-3270

IX OWNER CERTIFICATION

Parcel	
A.	Not available for signature Harry Tickey
B.	Not available for signature Tom McKiff

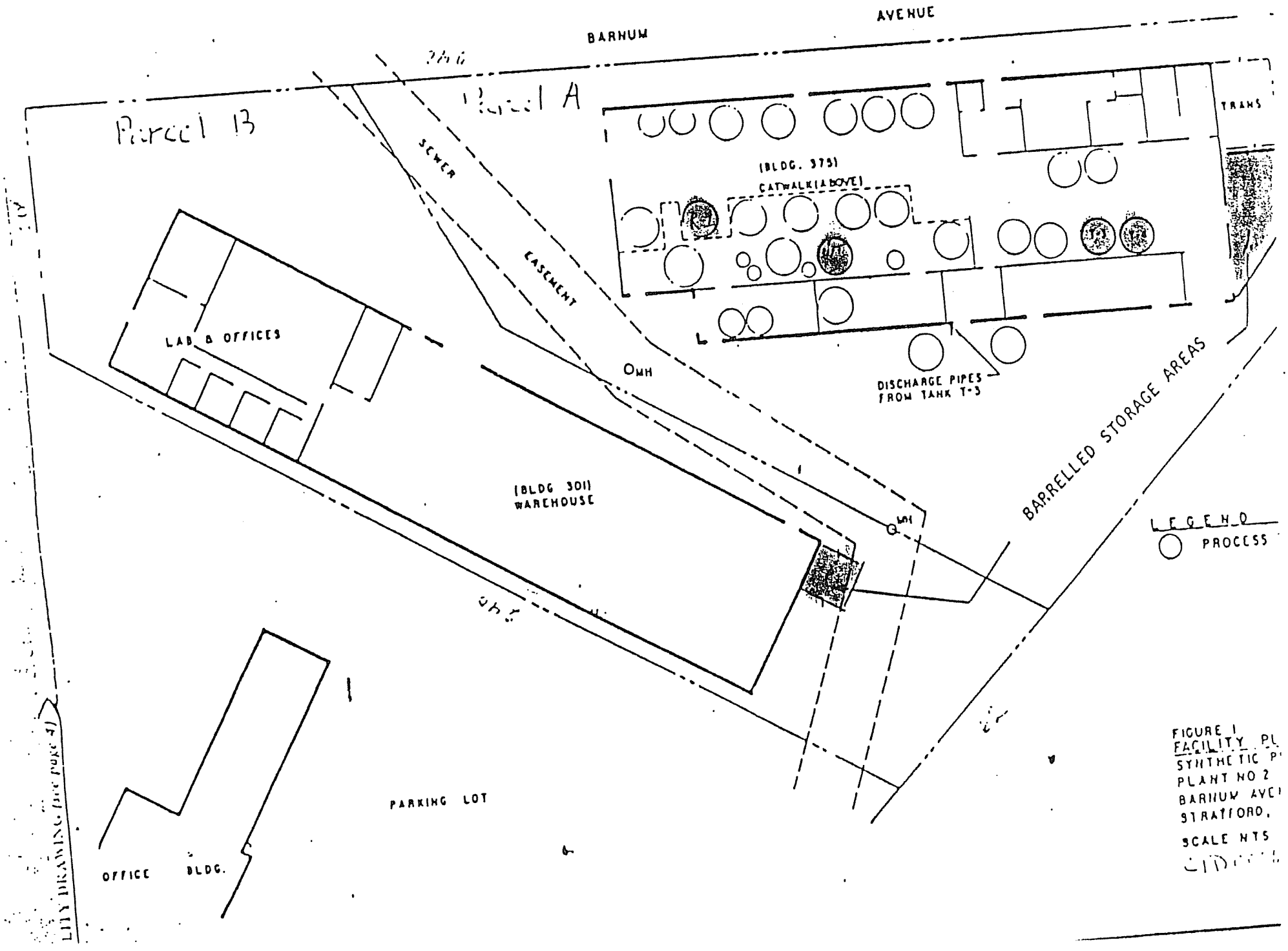
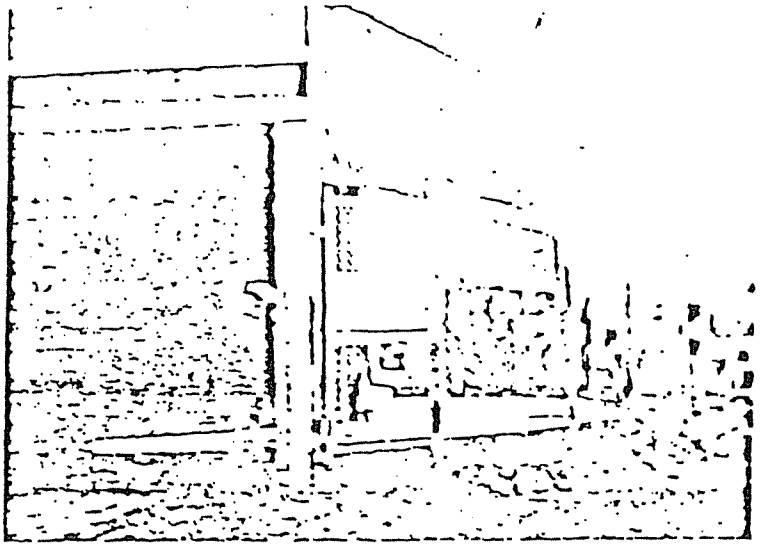
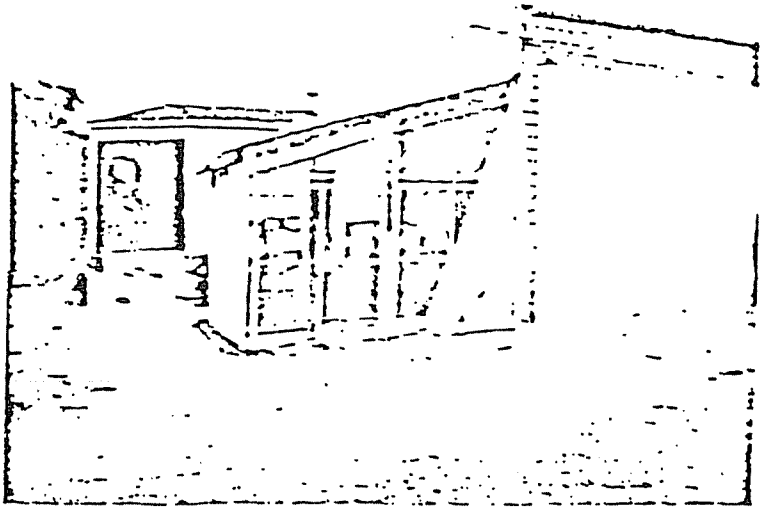


FIGURE 1
FACILITY PL
SYNTHETIC P
PLANT NO 2
BARNUM AVE
STRATFORD,
SCALE NTS



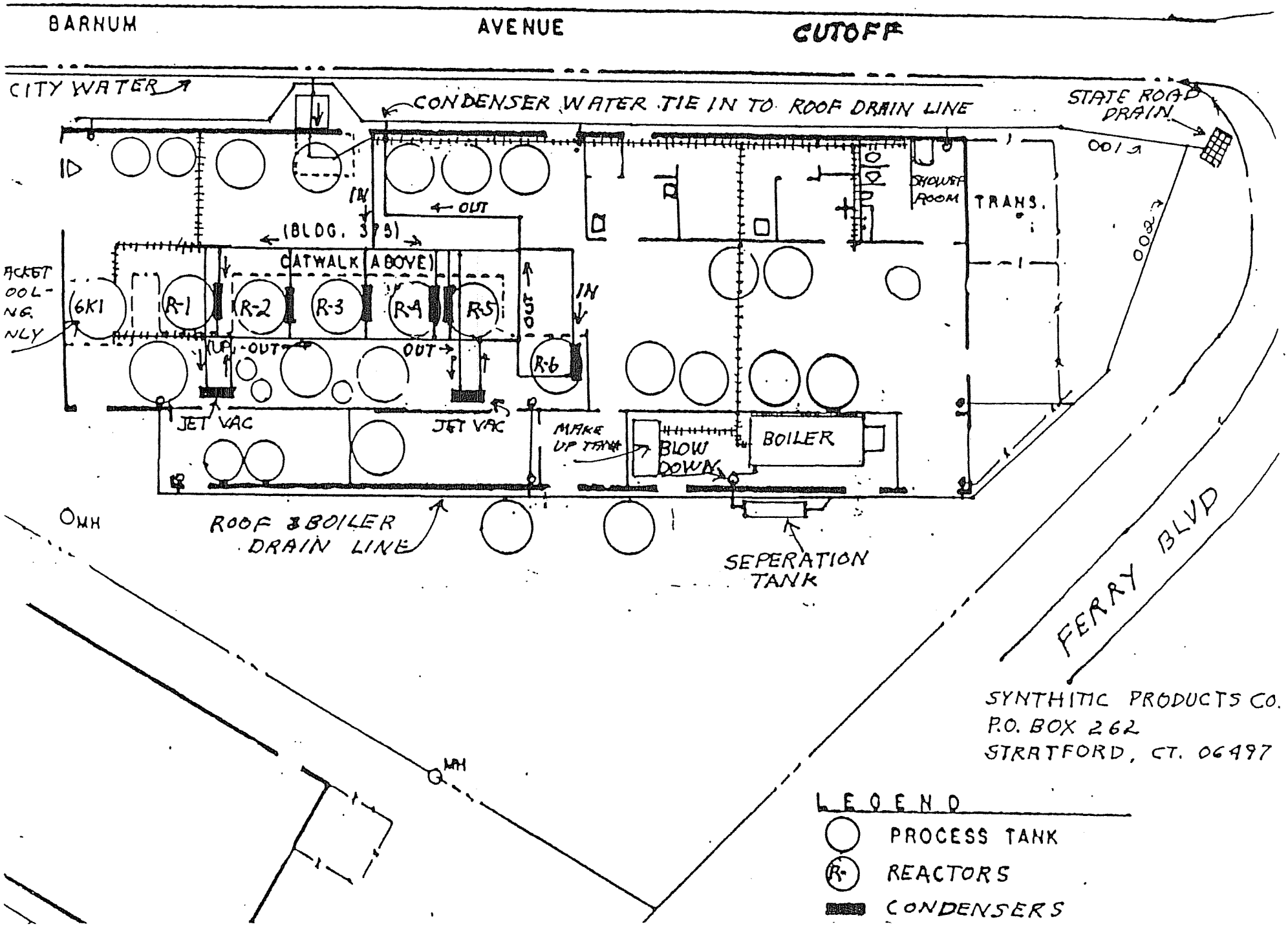
STORAGE AREA PARCEL A



STORAGE AREA PARCEL B

SYNTHETIC PRODUCTS COMPANY
DIV. PLASTIC SPECIALTIES & TECHNOLOGIES
6/22/84

CTD000844365


BARNUM AVENUE CUTOFF
CITY WATER
CONDENSER WATER TIE IN TO ROOF DRAIN LINE
STATE ROAD DRAIN
001
002
SHOWER ROOM
TRANS.
IN
OUT
(BLDG. 379)
CATWALK (ABOVE)
JACKET COOLING ONLY
6K1
R-1
R-2
R-3
R-4
R-5
R-6
IN
OUT
OUT
OUT
JET VAC
JET VAC
MAKE UP TANK
BLOW DOWN
BOILER
ROOF & BOILER DRAIN LINE
SEPERATION TANK
MH
MH
FERRY BLVD
SYNTHITIC PRODUCTS CO.
P.O. BOX 262
STRATFORD, CT. 06497
LEGEND
PROCESS TANK
REACTORS
CONDENSERS

APPENDIX E

HAZARDOUS WASTE PROFILE SHEETS

	Compounds	MDL PPM	PQL PPM	RCRA Limit PPM	Final Results PPM
1.	Dichlorodifluoromethane	1.00	1.00	n/a	< 1.
2.	Trichlorofluoromethane	1.00	1.00	n/a	< 1.
3.	1,1,2-Trichloro-1,2,2-Trifluoromethane	1.00	1.00	n/a	< 1.
4.	Methylene Chloride	1.00	1.00	n/a	< 1.
5.	Methyl Ethyl Ketone	1.00	1.00	n/a	< 1.
6.	1,1,1-Trichloroethane	1.00	1.00	n/a	< 1.
7.	Carbon Tetrachloride	1.00	1.00	n/a	< 1.
8.	Benzene	1.00	1.00	n/a	< 1.
9.	Trichloroethylene	1.00	1.00	n/a	< 1.
10.	Toluene	1.00	1.00	n/a	< 1.
11.	1,1,2-Trichloroethane	1.00	1.00	n/a	< 1.
12.	Tetrachloroethylene	1.00	1.00	n/a	< 1.
13.	Chlorobenzene	1.00	1.00	n/a	< 1.
14.	Ethylbenzene	1.00	1.00	n/a	< 1.
15.	meta-Xylene/para-Xylene	1.00	1.00	n/a	< 1.
16.	ortho-Xylene	1.00	1.00	n/a	< 1.
17.	1,2-Dichlorobenzene	1.00	1.00	n/a	< 1.
18.	Methyl Alcohol	10.00	10.00	n/a	< 10.
19.	Ethyl Ether	10.00	10.00	n/a	< 10.
20.	Acetone	10.00	10.00	n/a	< 10.
21.	2-Ethoxyethanol	10.00	10.00	n/a	< 10.
22.	Ethyl Acetate	10.00	10.00	n/a	< 10.
23.	iso-Butyl Alcohol	10.00	10.00	n/a	< 10.
24.	n-Butyl Alcohol	10.00	10.00	n/a	< 10.
25.	2-Nitropropane	10.00	10.00	n/a	< 10.
26.	Methyl iso-Butyl Ketone	10.00	10.00	n/a	< 10.
27.	Pyridine	10.00	10.00	n/a	< 10.
28.	Cyclohexanone	10.00	10.00	n/a	< 10.

Organic

Results were analyzed by automated headspace analysis. This is only a screening method.
The results should not be used for compliance reporting

ALL OF THE RESULTS HAVE BEEN REVIEWED ALONG WITH THE APPLICABLE DAILY QC DATA AND ARE CONSIDERED VALID AND APPROVED.

Batch #: 0065

HOWARD F. WHALEY RES(PA) LABORATORY MANAGER DATE

	EPA (mg/L)	TCLP (mg/L)	ELEMENT SYMBOL	mg/L or mg/kg (circle one)	MTD of STD ADD			
Arsenic	1.00	5.00	As	0.42		MJN	JY	8/4/95
Barium		100	Ba	4.89				
Cadmium	0.20	1.00	Cd	5.33				
Chromium, Total	1.00	5.00	Cr	0.23				
Hex Chrome	0.08		Cr+6	—				
Nickel	2.00		Ni	<.04				
Zinc	2.00		Zn	23.6				
Thallium			Tl	—				
Copper	2.00		Cu	<.03				
Lead	0.50	5.00	Pb	1.20				
Silver	0.10	5.00	Ag	<.02				
Boron	20		B	<.62				
Selenium		1.00	Se	<.28				
Iron			Fe	<.15				
Mercury	0.04	0.20	Hg	DOWN				
Antimony			Sb	0.15				
Molybdenum			Mo					
Beryllium			Be					

ANY TCLP EXTRACT ANALYTE ABOVE 85% OF THE REGULATORY LIMIT WILL BE CONFIRMED BY METHOD OF STANDARD ADDITION.

Tier 1 Review: MJN (INITIALS & DATE) Tier 2 Review: _____ (INITIALS & DATE) Tier 3 Review: _____ (INITIALS & DATE)

DRUG.WRKSHE.ETAMETL.CERT

PROBLEMS:
TPS: ALL BACKUP TESTING MUST BE SENT TO APPROVALS WHEN COMPLETED!
DUMP ON D004-11 PILE FOR MDI ONLY, NO OTHER LANDFILL!..DO NOT TREAT!

CONSTITUENTS	PERC	CONSTITUENTS	PERC
WATER	5-10	PPE	0-5
SPEEDI DRY	0-5	DIRT	0-=5
INERT SOLIDS	85-95	LEAD	

Parameter	Spec Range	Test Results	MS	MSD	RPD	LCS	Init	Date
SP. GR.	1-1.2	NA					JAM	08/04/95
PH	5-9	8.0					JAM	08/04/95
IGN/FLASH	NON IGN	NON					JAM	08/04/95
COMPAT W/	SLUDGE	OK					JAM	08/04/95
H2O MIX	NO RX	OK					JAM	08/04/95
RAD	NEG	NEG					JAM	08/04/95
SPOT S	NEG	NEG					JAM	08/04/95
SPOT CN	NEG	NEG					JAM	08/04/95
COLOR	BROWN	VARIES					JAM	
ODOR	NONE	NONE					JAM	08/04/95
PHYS STATE	SOLID	SOLID					JAM	08/04/95
LAYERS	PASS	1					JAM	08/04/95
PUMPABLE	BMDL	NO					JAM	08/04/95
VISCOSITY		SOLID					JAM	08/04/95
NOTE	COMP B	DRUMS #11-20					TMM	08/04/95
VOA PREP	BACKUP	SET 8/4					JAM	08/04/95

PROBLEMS:
TPS: ALL BACKUP TESTING MUST BE SENT TO APPROVALS WHEN COMPLETED!
DUMP ON D004-11 PILE FOR MDI ONLY, NO OTHER LANDFILL!..DO NOT TREAT!

CONSTITUENTS	PERC	CONSTITUENTS	PERC
WATER	5-10	PPE	0-5
SPEEDI DRY	0-5	DIRT	0-=5
INERT SOLIDS	85-95	LEAD	

Parameter	Spec Range	Test Results	MS	MSD	RPD	LCS	Init	Date
VOA		VOA OK					DAT	08/08/95
TCLP PREP	BACKUP	SET 8/4					JAM	08/04/95
TCLP		COMPLETE					NJM	08/07/95

Lou

DU PONT ENVIRONMENTAL TREATMENT

Water

Waste Characterization Profile Sheet

OW 0 9835

(A) GENERATOR INFORMATION

GENERATOR: Synthetic Products Company
USEPA ID NUMBER:
SITE LOCATION: 375 Barnum Avenue Cut-off

CITY Stratford STATE CT ZIP 06497
CONTACT James Kalanta PHONE 203-377-5550

SUBMITTER: Synthetic Products Company
MAILING ADDRESS: 375 Barnum Avenue Cut-off

CITY Stratford CT STATE ZIP 06497
CONTACT James Kalanta PHONE 203-377-5550

FOR DU PONT USE ONLY

D14930
T014930

(B) SPECIFIED TREATMENT

- [x] Water
- [ ] Incineration
- [ ] Unspecified

(C) GENERAL WASTE INFORMATION

NAME OF WASTE REACTION WASHWATER
PROCESS GENERATING WASTE
BARIUM MONOHYDROXIDE REACTION KETTLE WASHWATER

(D) WASTE STREAM COMPOSITION

Major Components	Concentration Range (wt % or ppm) Lower	Upper	Typical
SOAPS(NONHAZARDOUS)		<8%	
INORGANIC SALTS (BARIUM & CADMIUM)		<2%	
POSSIBLE TRACES OF NONYL PHENOL/KEROSENE DERIVATIVES/SOYABEAN OIL/ORGANIC ACIDS		<2%	
WATER		BALANCE	
			100%

(E) EPA INFORMATION: (code in ( ) may or may not apply to waste)
RCRA HAZARDOUS WASTE CODES (and/or State Codes)
(D005) (D006)

(F) EXPECTED VOLUME

		Lbs	Gal	Drum
Annual	35000	[ ]	[x]	[ ]
Per month	5000	[ ]	[x]	[ ]
Per shipment	5000	[ ]	[x]	[ ]

(G) DOT SHIPPING INFORMATION

Proper Shipping Name HAZARDOUS WASTE LIQUID,NOS
HAZARD CLASS 9 NA NUMBER 3082

(H) DOES THE WASTE CONTAIN? (Check all appropriate boxes.)

- [ ] Human / Animal waste
- [ ] Pesticides / Herbicides
- [ ] Mercaptans
- [ ] Surfactants
- [ ] Asbestos
- [ ] Dioxins
- [ ] PCBs (>50 ppm)
- [ ] Benzene (>10%).
- [ ] Bromoform
- [ ] Dichlorodifluoromethane
- [ ] Trichlorofluoromethane

(I) PHYSICAL PROPERTIES (Check all appropriate boxes.)

- [ ] Emulsion
- [ ] Explosive
- [ ] Multiple liqiud phases
- [x] Carcinogen (or suspect)
- [x] Water miscible
- [ ] Radioactive
- [ ] Oxidizer
- [ ] Pyrophoric
- [ ] Infectious
- [ ] Shock sensitive

GENERATOR'S CERTIFICATION

I hereby certify that I have personally examined and am familiar with the information submitted in this and all attached pages. Based on my inquiry of those individuals immediately responsible for obtaining the information, the submitted information is true, accurate, and complete, and all known and suspected hazards have been disclosed.

James J. Kalanta — Authorized Signature
Director of Operations — Title
9/9/94 — Date

RECERTIFICATION

Authorized Signature — Title — Date

MU-2096

JNT

DU PONT ENVIRONMENTAL TREATMENT

Water Treatment

(I) PHYSICAL PROPERTIES (continued)

DOC	< 10.0%	pH range	4.00 to 10.00
TSS	< 1.0%	Color / appearance	PALE/PINK
Odor	Y	Temperature (as delivered)	AMB °F
Flash point	> 140 °F	Reaction products with acidic water	N

FOR DU PONT USE ONLY

D14930 T014930

(J) METHOD OF SHIPMENT

TANK TRUCK

(K) ANALYTICAL DATA (Please attach laboratory data if available.)

Heavy Metals	TCLP (PPM)	Total Comp (PPM)
Arsenic	N/A	N/A
Barium	500	500
Cadmium	700	700
Chromium	N/A	N/A
Lead	N/A	N/A
Mercury	N/A	N/A
Selenium	N/A	N/A
Silver	N/A	N/A
Antimony	200	200
Chrom +6	N/A	N/A
Copper	N/A	N/A
Iron	N/A	N/A
Nickel	N/A	N/A
Thallium	N/A	N/A
Zinc	100	100

Other Components	Total Comp (PPM)
Ammonia	N/A
Cyanides	
- soluble	N/A
- total	N/A
- amenable	N/A
Fluoride	N/A
PCBs	N/A
Sulfides	
- soluble	N/A
- total	N/A

TC Organics	TCLP (PPM)
Benzene	N/A
Carbon tetrachloride	N/A
Chlordane	N/A
Chlorobenzene	N/A
Chloroform	N/A
Cresols	N/A
1,4-Dichlorobenzene	N/A
1,2-Dichloroethane	N/A
1,1-Dichloroethylene	N/A
2,4-Dinitrotoluene	N/A
Heptachlor	N/A
Hexachlorobenzene	N/A
Hexachlorobutadiene	N/A
Hexachloroethane	N/A
Methyl ethyl ketone	N/A
Nitrobenzene	N/A
Pentachlorophenol	N/A
Pyridine	N/A
Tetrachloroethylene	N/A
Trichloroethylene	N/A
2,4,5-Trichlorophenol	N/A
2,4,6-Trichlorophenol	N/A
Vinyl Chloride	N/A

Organics	Total Comp (PPM)
Anthracene	N/A
Bis (2-ethylhexyl) phthalate	N/A
Butyl benzyl phthalate	N/A
Chloroethane	N/A
2-Chlorophenol	N/A
1,2-Dichlorobenzene	N/A
2,4-Dichlorophenol	N/A
2,4-Dimethylphenol	N/A
4,6-Dinitro-o-cresol	N/A
2,4-Dinitrophenol	N/A
Di-n-butyl phthalate	N/A
2,6-Dinitrotoluene	N/A
Di-n-octyl phthalate	N/A
Fluorene	N/A
Hexachloroethane	N/A
Isophorone	N/A
Methyl chloride	N/A
Methylene chloride	N/A
Naphthalene	N/A
2-Nitrophenol	N/A
4-Nitrophenol	N/A
Phenanthrene	N/A
Phenol	N/A
Pyrene	N/A
Toluene	N/A
1,2,4-Trichlorobenzene	N/A
1,1,1-Trichloroethane	N/A
1,1,2-Trichloroethane	N/A

NOTE ** N/A = NOT APPLICABLE

(PLEASE PROVIDE SPECIAL HANDLING INFORMATION OR ATTACH MATERIAL SAFETY DATA SHEETS.)

(L) FOR DU PONT USE ONLY

MUST BE SINGLE AQUEOUS PHASE
MUST NOT CONTAIN F/K/P/U-LISTED WASTES
MUST CONTAIN LESS THAN 700PPM CADMIUM!!!

Approved By:

Du Pont Signature

Date

LAB CODE # WD35840

A. Generator Information

Generator US EPA ID # CTD 000 844 365

Generator SYNTHETIC PRODUCTS

Facility Address P.O. BOX 262 375 BRANUM AVE

City STRATFORD State CT Zip 06497

Mailing Address (if different) SAME

City State Zip

Technical Contact LOU MANNOOD Title MANAGER Phone 203-377-5550

Invoice Information (Broker)

CUT OFF

Company Name

Contact Phone

Address

City State Zip

B. Waste Information

Common Name for Waste FILTER CAKE + BAGS

Detailed Description of Process Generating Waste (Describe each step in process)

After stabilizer are manufactured, they run through a filter press to remove any impurities. Also any product that falls to the ground is absorbed with speedi dry and drummed for disposal.

List raw materials used: List Products Produced:

Is waste Dioxin bearing? ☐ Yes ☒ No Infectious? ☐ Yes ☒ No Radioactive? ☐ Yes ☒ No Explosive? ☐ Yes ☒ No

Anticipated Volume: 40 DRUMS Frequency: Φ Current Volume on site:

Have toxicity characteristic or other analysis been performed on this waste?
☐ No ☐ Yes (if yes, please attach copy of results)

C. Physical Characteristics of Waste

Color	Specific Gravity	Ignitability	Corrosivity	Reactivity	Physical State 70°F
BROWN	☐ < 0.8	☐ yes ☒ no	(pH)	☐ yes ☒ no	☐ Liquid ☒ Solid
Odor	☐ 0.8-1.0	**Flash Point**	☐ ≤ 2.0	☐ Unstable	☐ Semi-solid ☐ Powder
☒ NONE	☐ 1.0-1.2	☐ < 70°F	☐ 2.01-5	☐ Water reactive	☐ Bilayer ☐ Multilayer
☐ MILD	☒ > 1.2	☐ 70°F-100°F	☒ 5-9	☐ Cyanide	% Free liquids →
☐ STRONG	**Viscosity**	☐ 101°F-139°F	☐ 9-12.49	☐ Sulfide	% Total solids 100
Describe:	☒ Low ☐ High	☒ ≥ 140°F	☐ ≥ 12.50	☐ Explosive	Pumpable? ☐ yes ☒ no
	☐ Medium	*Actual:*	*Actual pH:*	☐ Generates toxic fumes	

D. Chemical Composition

(Must add up to 100%)

		%
FILTER PADS	0-8	%
BAGS + GLOVES	0-5	%
WATER	10-30	%
INERT SOLIDS (FILTER CAKE)	75-90	%
SPEEDI DRY	0-10	%
		%
		%

Is waste a commercial chemical product? ☐ Yes ☒ No
If yes attach MSDS

Is waste a spill residue from a virgin commercial chemical product? ☐ Yes ☒ No
If yes attach MSDS

What industry is waste generated from?
STABILIZERS FOR PLASTIC INDUSTRY

Was a representative sample provided which matches the description on this form? ☒ Yes ☐ No

E. RCRA Characteristics

1) Is this a US EPA hazardous waste? ☒ Yes ☐ No
2) Is waste an EPA Listed hazardous waste? ☐ Yes ☒ No
3) Does waste contain solvents? ☐ Yes ☒ No
If yes, specify:
4) Is waste a listed solvent as defined by 40 CFR 261.31 (F001, F002, F003, F004, F005)? ☐ Yes ☒ No
5) Does waste contain greater than 1,000 ppm Total HOCs, Halogenated Organic Compounds? ☐ Yes ☒ No
6) Does waste contain PCBs greater than 50 ppm or PCBs derived from a source greater than 50 ppm?
☐ Yes ☒ No

F. Fuel or Solvent Recycling (Optional)

Solvents/Oils	Caloric Content (BTU/lb. x 1000)	Total Metals (In ppm)
% Halogens	☐ NONE	Arsenic
% Sulfur	☐ < 5	Cadmium
% Water	☐ 5-10	Chrome
% Ash	☐ 10-15	Lead
% Suspended Solids	☐ > 15	Total Metals
% BS&W	*Actual:*	

G. Heavy Metals

☐ Total ☒ TCLP ☐ EP Toxicity

		(in parts per million)		Actual
D004	Arsenic	☒ < 5	☐ <500	
D005	Barium	☐ <100		1780
D006	Cadmium	☐ < 1	☐ <100	450
D007	Chromium	☒ < 5		
D008	Lead	☒ < 5	☐ <500	
D009	Mercury	☒ <0.2	☐ < 20	
D010	Selenium	☒ < 1	☐ <100	
D011	Silver	☒ < 5		
	Hex-Chrome	☐ < 5	☐ <500	
	Copper	☐ < 25		
	Nickel	☐ < 25	☐ <134	
	Thallium	☐ < 25	☐ <130	
	Zinc	☐ < 25		
Other		☐ <		
Other		☐ <		
Other		☐ <		

H. Toxicity Characteristic Organics

☒ Total ☐ TCLP

		(in parts per million)	Actual
D012	Endrin	☒ <0.02	
D013	Lindane	☒ <0.4	
D014	Methoxychlor	☒ <10.0	
D015	Toxaphene	☒ <0.5	
D016	2, 4 D	☒ <10.0	
D017	Silvex (2, 4, 5-TP)	☒ <1.0	
D018	Benzene	☒ <0.5	
D019	Carbon Tetrachloride	☒ <0.5	
D020	Chlordane	☒ <0.03	
D021	Chlorobenzene	☒ <100	
D022	Chloroform	☒ <6.0	
D023	O-Cresol	☒ <200	
D024	M-Cresol	☒ <200	
D025	P-Cresol	☒ <200	
D026	Cresols	☒ <200	
D027	1, 4 Dichlorobenzene	☒ <7.5	
D028	1, 2 Dichloroethane	☒ <0.5	
D029	1, 1 Dichloroethylene	☒ <0.7	
D030	2, 4 Dinitrotoluene	☒ <0.13	
D031	Heptachlor	☒ <0.008	
D032	Hexachlorobenzene	☒ <0.13	
D033	Hexachlorobutadiene	☒ <0.5	
D034	Hexachloroethane	☒ <3.0	
D035	Methyl Ethyl Ketone	☒ <200	
D036	Nitrobenzene	☒ <2.0	
D037	Pentachlorophenol	☒ <100	
D038	Pyridine	☒ <5.0	
D039	Tetrachloroethylene	☒ <0.7	
D040	Trichloroethylene	☒ <0.5	
D041	2, 4, 5 Trichlorophenol	☒ <400	
D042	2, 4, 6 Trichlorophenol	☒ <2.0	
D043	Vinyl Chloride	☒ <0.2	

I. Other Components (parts per million)

Cyanides, Total	N/D	Amenable Cyanide	N/D
Sulfides, Total		Reactive Sulfide	
Nitrogen, Total		Ammonia	
Pesticides, Total		Herbicides, Total	
Fluorides, Total		Asbestos	
Phosphorus, Total		Phosphates	
Phenolics		PCB's	
Total HOC's		Total VOC's	

Other _____

J. Land Disposal Restrictions

1) Is waste subject to land ban? ☒ Yes ☐ No
If yes check the appropriate box
☒ Restricted waste requires treatment
☐ Waste meets treatment standards
☐ Waste subject to variance. Effective until _____ (date)

2) Is waste a soil or debris? ☐ Yes ☒ No
3) Identify all waste subcategories

K. Hazardous Characteristics

☐ Corrosive ☐ Toxic ☐ Oxidizer
☒ T.C. Toxic ☐ Acutely Toxic ☐ Peroxide
☐ Ignitable ☐ Poison ☐ Pyrophoric
☐ Reactive ☐ Water Reactive

TSCA Regulated Waste? ☐ Yes ☒ No
US EPA Hazardous Waste? ☒ Yes ☐ No
State Hazardous Waste? ☒ Yes ☐ No
CERCLA Hazardous Waste? ☐ Yes ☒ No

US EPA Hazardous Waste Numbers
D005, D006

L. Shipping Information

Is waste a DOT Hazardous Material? ☒ Yes ☐ No

Proper DOT Shipping Name
RQ, HAZARDOUS WASTE SOLID, N.O.S. (D005, D006)

DOT Hazard Class 9 PG III UN/NA Number 3077
Reportable Quantity (RQ) — US EPA Hazard Code(s) R
Method of Shipment:
☐ Vac Truck ☐ Dump Trailer ☒ Drum (type/size) 17-H 55 gallon
☐ Tank Truck ☐ Roll Off ☐ Other

State Hazardous Waste Numbers

Can waste be disposed out of state in a Subtitle D landfill? ☐ Yes ☒ No

Generator Certification

A representative sample of the waste stream was obtained using an EPA approved method and corresponds to the information on this profile.

I hereby certify that the above and attached description is complete and accurate and that no deliberate or willful omissions of compositions or properties exists, and that all known or suspected hazards have been disclosed.

Generator's Authorized Signatory:

TITLE MAINT SUPERVISOR DATE 8-10-94

A. Generator Information

Generator US EPA ID # CTD000844365

Generator: Synthetic Products Company

Facility Address: 375 Barnum Ave

City: Stratford State: CT Zip: 06497

Mailing Address (if different): PO Box 262

City: Stratford State: CT Zip: 06497

Technical Contact: Jamie Kalata Title: President Phone: (203) 377-2232

Invoice Information (Broker)

Company Name: _____

Contact: _____ Phone: _____

Address: _____

City: _____ State: _____ Zip: _____

B. Waste Information

Common Name for Waste: Waste Sympron 1028

Detailed Description of Process Generating Waste (Describe each step in process)

Sympron is a stabilizer ~~that~~ chemical that goes into making the stabilizer matrix used for mfg PVC material. This waste does not contain vinyl chloride. This is waste from bottom of reactor

List raw materials used: NA List Products Produced: NA

Is waste Dioxin bearing? ☐ Yes ☒ No Infectious? ☐ Yes ☒ No Radioactive? ☐ Yes ☒ No Explosive? ☐ Yes ☒ No

Anticipated Volume: 5 Drums Frequency: Qtr Current Volume on site: _____

Have toxicity characteristic or other analysis been performed on this waste?
☐ No ☐ Yes (if yes, please attach copy of results)

C. Physical Characteristics of Waste

Color	Specific Gravity	Ignitability	Corrosivity	Reactivity	Physical State 70°F
Odor ☐ NONE ☐ MILD ☐ STRONG Describe:	☐ < 0.8 ☐ 0.8-1.0 ☒ 1.0-1.2 ☐ > 1.2 Viscosity ☐ Low ☐ High ☐ Medium	☐ yes ☒ no Flash Point ☐ < 70°F ☐ 70°F-100°F ☐ 101°F-139°F ☐ ≥ 140°F *Actual:*	(pH) ☐ ≤ 2.0 ☐ 2.01-5 ☒ 5-9 ☐ 9-12.49 ☐ ≥ 12.50 *Actual pH:*	☐ yes ☒ no ☐ Unstable ☐ Water reactive ☐ Cyanide ☐ Sulfide ☐ Explosive ☐ Generates toxic fumes	☐ Liquid ☐ Solid ☐ Semi-solid ☐ Powder ☐ Bilayer ☐ Multilayer % Free liquids _____ % Total solids _____ Pumpable? ☐ yes ☐ no

D. Chemical Composition

(Must add up to 100%)

		%
Filter cloth	10	%
~~Trinonyl Phenyl Phosphite~~		%
~~Epoxidized Soybean oil~~ 19/14/92		%
Antimony		%
Tris-isoctylThioGlycolate	40-60	%
Isooctyl Alcohol	10-20	%
Inert ingredients	40-60	%

Is waste a commercial chemical product? ☒ Yes ☐ No
If yes attach MSDS

Is waste a spill residue from a virgin commercial chemical product? ☐ Yes ☒ No
If yes attach MSDS

What industry is waste generated from?
Stabilizer Mfg

Was a representative sample provided which matches the description on this form? ☒ Yes ☐ No

E. RCRA Characteristics

1) Is this a US EPA hazardous waste? ☐ Yes ☒ No
2) Is waste an EPA Listed hazardous waste? ☐ Yes ☒ No
3) Does waste contain solvents? ☐ Yes ☒ No
If yes, specify: _____
4) Is waste a listed solvent as defined by 40 CFR 261.31 (F001, F002, F003, F004, F005)? ☐ Yes ☒ No
5) Does waste contain greater than 1,000 ppm Total HOCs, Halogenated Organic Compounds? ☐ Yes ☒ No
6) Does waste contain PCBs greater than 50 ppm or PCBs derived from a source greater than 50 ppm?
☐ Yes ☒ No

F. Fuel or Solvent Recycling (Optional)

Solvents/Oils	Caloric Content (BTU/lb. x 1000)	Total Metals (in ppm)
% Halogens ____ % Sulfur ____ % Water ____ % Ash ____ % Suspended Solids ____ % BS&W ____	☐ NONE ☐ < 5 ☐ 5-10 ☐ 10-15 ☐ > 15 *Actual:*	Arsenic ____ Cadmium ____ Chrome ____ Lead ____ Total Metals ____

G. Heavy Metals

☐ Total ☐ TCLP ☐ EP Toxicity

		(in parts per million)		Actual
D004	Arsenic	☒ < 5	☐ <500	
D005	Barium	☒ <100		
D006	Cadmium	☒ < 1	☐ <100	
D007	Chromium	☒ < 5		
D008	Lead	☒ < 5	☐ <500	
D009	Mercury	☒ <0.2	☐ < 20	
D010	Selenium	☒ < 1	☐ <100	
D011	Silver	☒ < 5		
	Hex-Chrome	☒ < 5	☐ <500	
	Copper	☒ < 25		
	Nickel	☒ < 25	☐ <134	
	Thallium	☒ < 25	☐ <130	
	Zinc	☒ < 25		
Other		☐ <		
Other	Antimony	☐ <		
Other	Tin	☐ <		

H. Toxicity Characteristic Organics

☐ Total ☐ TCLP

		(in parts per million)	Actual
D012	Endrin	☒ <0.02	
D013	Lindane	☒ <0.4	
D014	Methoxychlor	☒ <10.0	
D015	Toxaphene	☒ <0.5	
D016	2, 4 D	☒ <10.0	
D017	Silvex (2, 4, 5-TP)	☒ <1.0	
D018	Benzene	☒ <0.5	
D019	Carbon Tetrachloride	☒ <0.5	
D020	Chlordane	☒ <0.03	
D021	Chlorobenzene	☒ <100	
D022	Chloroform	☒ <6.0	
D023	O-Cresol	☒ <200	
D024	M-Cresol	☒ <200	
D025	P-Cresol	☒ <200	
D026	Cresols	☒ <200	
D027	1, 4 Dichlorobenzene	☒ <7.5	
D028	1, 2 Dichloroethane	☒ <0.5	
D029	1, 1 Dichloroethylene	☒ <0.7	
D030	2, 4 Dinitrotoluene	☒ <0.13	
D031	Heptachlor	☒ <0.008	
D032	Hexachlorobenzene	☒ <0.13	
D033	Hexachlorobutadiene	☒ <0.5	
D034	Hexachloroethane	☒ <3.0	
D035	Methyl Ethyl Ketone	☒ <200	
D036	Nitrobenzene	☒ <2.0	
D037	Pentachlorophenol	☒ <100	
D038	Pyridine	☒ <5.0	
D039	Tetrachloroethylene	☒ <0.7	
D040	Trichloroethylene	☒ <0.5	
D041	2, 4, 5 Trichlorophenol	☒ <400	
D042	2, 4, 6 Trichlorophenol	☒ <2.0	
D043	Vinyl Chloride	☒ <0.2	

I. Other Components (parts per million)

Cyanides, Total	NONE	Amenable Cyanide	NONE
Sulfides, Total	NONE	Reactive Sulfide	NONE
Nitrogen, Total	NONE	Ammonia	
Pesticides, Total	NONE	Herbicides, Total	
Fluorides, Total	NONE	Asbestos	
Phosphorus, Total	NONE	Phosphates	
Phenolics	NONE	PCB's	
Total HOC's	NONE	Total VOC's	

Other

J. Land Disposal Restrictions

1) Is waste subject to land ban? ☐ Yes ☐ No
If yes check the appropriate box
☐ Restricted waste requires treatment
☐ Waste meets treatment standards
☐ Waste subject to variance. Effective until _____ (date)

2) Is waste a soil or debris? ☐ Yes ☐ No
3) Identify all waste subcategories

K. Hazardous Characteristics

☐ Corrosive ☐ Toxic ☐ Oxidizer
☐ T.C. Toxic ☐ Acutely Toxic ☐ Peroxide
☐ Ignitable ☐ Poison ☐ Pyrophoric
☐ Reactive ☐ Water Reactive

TSCA Regulated Waste? ☐ Yes ☒ No
US EPA Hazardous Waste? ☐ Yes ☒ No
State Hazardous Waste? ☐ Yes ☐ No
CERCLA Hazardous Waste? ☐ Yes ☒ No

US EPA Hazardous Waste Numbers

L. Shipping Information

Is waste a DOT Hazardous Material? ☐ Yes ☐ No

Proper DOT Shipping Name
NON HAZARDOUS SOLID

DOT Hazard Class Non Regulated UN/NA Number
Reportable Quantity (RQ) US EPA Hazard Code(s)
Method of Shipment:
☐ Vac Truck ☐ Dump Trailer ☒ Drum (type/size)
☐ Tank Truck ☐ Roll Off ☐ Other

State Hazardous Waste Numbers

Can waste be disposed out of state in a Subtitle D landfill? ☐ Yes ☐ No

Generator Certification

A representative sample of the waste stream was obtained using an EPA approved method and corresponds to the information on this profile.
I hereby certify that the above and attached description is complete and accurate and that no deliberate or willful omissions of compositions or properties exists, and that all known or suspected hazards have been disclosed.

Generator's Authorized Signatory:

TITLE MAINT SUPERVISOR DATE 9-14-92

APPENDIX F

CALCULATED MEDIA CLOSURE CRITERIA

HRP
ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(203) 793-6899
FAX: (203) 793-6871

PROJECT TITLE SPC CLOSURE PLAN - BARNUM AVE. CUT-OFF			
PROJECT NUMBER SPC 0002.RC			
SUBJECT CALCULATED MEDIA CLOSURE CRITERIA			
DESIGNED CRS	DATE 4/24/97	CHECKED	DATE

I.) DIRECT EXPOSURE:

FOR THOSE PARAMETERS FOR WHICH NO DIRECT EXPOSURE CLEAN STANDARDS HAVE BEEN PROMULGATED, THE FOLLOWING EQUATION FROM THE CT REMEDIATION STANDARD REGULATIONS (RSR) WILL BE USED:

$$DEC_{RB} = [RfD \times HI] \times \left[\frac{BW_C \times AT_C}{IR_C \times ED_C \times EF \times CF} + \frac{BW_A \times AT_A}{IR_A \times ED_A \times EF \times CF}\right]$$

THIS EQUATION IS APPLICABLE TO DIRECT EXPOSURE TO NON-CARCINOGENS (I.E., TIN, AND MALEIC ANHYDRIDE) IN A RESIDENTIAL SETTING.

THE TERMS OF THE EQUATION AND THEIR DEFAULT VALUES FROM THE RSR ARE AS FOLLOWS:

- DEC_{RB} = RISK-BASED DIRECT EXPOSURE CRITERIA IN mg/kg
- HI = HAZARD INDEX = 1.0
- BW_C = BODY WEIGHT OF A CHILD = 15 kg
- BW_A = BODY WEIGHT OF AN ADULT = 70 kg
- AT_C = AVERAGING TIME FOR A CHILD = 2,190 days
- AT_A = AVERAGING TIME FOR AN ADULT = 8,760 days
- IR_C = INGESTION RATE FOR A CHILD = 200 mg/day
- IR_A = INGESTION RATE FOR AN ADULT = 100 mg/day
- ED_C = EXPOSURE DURATION FOR A CHILD = 6 years
- ED_A = EXPOSURE DURATION FOR AN ADULT = 24 years
- EF = EXPOSURE FREQUENCY = 365 days/yr.
- CF = CONVERSION FACTOR = 0.000001 kg/mg

THE RfD IS THE "REFERENCE DOSE" FOR THE PARAMETER OF CONCERN. EPA HAS DEFINED THE RfD AS "AN ESTIMATE (WITH UNCERTAINTY SPANNING PERHAPS AN ORDER OF MAGNITUDE) OF A DAILY EXPOSURE TO THE HUMAN POPULATION (INCLUDING SENSITIVE SUBGROUPS) THAT IS LIKELY TO BE WITHOUT APPRECIABLE RISK OF DELETERIOUS EFFECTS DURING A LIFETIME." THE UNITS ASSOCIATED WITH THE RfD ARE mg/kg/day.

HRP
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PROJECT TITLE SPC CLOSURE PLAN - BARNUM AVE. CUT-OFF			
PROJECT NUMBER SPC 0002.RC			
SUBJECT CALCULATED MEDIA CLOSURE CRITERIA			
DESIGNED CRS	DATE 4/24/97	CHECKED	DATE

I.A.) TIN: RfD = 0.6 mg/kg/day (REFERENCED TO HEAST IN JANUARY 1997 USEPA REGION III RISK-BASED CONCENTRATION TABLE)

$$DEC_{RB} = \left[0.6\frac{mg}{kg\text{-}day} \times 1.0\right] \times \left[\frac{(15kg \times 2{,}190\ days)}{\left(200\frac{mg}{day} \times 6yr \times 365\frac{day}{yr} \times 1\times10^{-6}\frac{kg}{mg}\right)} + \frac{(70kg \times 8{,}760\ days)}{\left(100\frac{mg}{day} \times 24yr \times 365\frac{day}{yr} \times 1\times10^{-6}\frac{kg}{mg}\right)}\right]$$

$$DEC_{RB} = \left[0.6\frac{mg}{kg\text{-}day}\right] \times \left[75{,}000\ days + 700{,}000\ days\right]$$

$$DEC_{RB} = 465{,}000\ mg/kg \text{ FOR TIN}$$

I.B.) MALEIC ANHYDRIDE: RfD = 0.1 mg/kg/day (FROM IRIS, AS OF 4/22/97)

$$DEC_{RB} = \left[0.1\frac{mg}{kg\text{-}day} \times 1.0\right] \times \left[\frac{(15kg \times 2{,}190\ days)}{\left(200\frac{mg}{day} \times 6yr \times 365\frac{day}{yr} \times 1\times10^{-6}\frac{kg}{mg}\right)} + \frac{(70kg \times 8{,}760\ days)}{\left(100\frac{mg}{day} \times 24yr \times 365\frac{day}{yr} \times 1\times10^{-6}\frac{kg}{mg}\right)}\right]$$

$$DEC_{RB} = \left[0.1\frac{mg}{kg\text{-}day}\right] \times \left[75{,}000\ days + 700{,}000\ days\right]$$

$$DEC_{RB} = 77{,}500\ mg/kg \text{ FOR MALEIC ANHYDRIDE}$$

HRP
ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(203) 793-6899
FAX: (203) 793-6871

PROJECT TITLE SPC CLOSURE PLAN - BARNUM AVE. CUT-OFF			
PROJECT NUMBER SPC 0002.RC			
SUBJECT CALCULATED MEDIA CLOSURE CRITERIA			
DESIGNED CAS	DATE 4/24/97	CHECKED	DATE

II.) WATER INGESTION:

FOR THOSE PARAMETERS FOR WHICH NO WATER INGESTION STANDARD HAS BEEN PROMULGATED, THE PROCEDURES SET FORTH IN THE CT RSR FOR THE CALCULATION OF RISK-BASED POLLUTANT MOBILITY CRITERIA WILL BE USED. WITH RESPECT TO CONCRETE STRUCTURES AT THE SPC FACILITY, THE CLEAN CLOSURE STANDARDS WILL BE EQUAL TO THE SUBSTANCES' RISK-BASED GROUND WATER PROTECTION CRITERIA AS CALCULATED BY THE FOLLOWING EQUATION:

$$GWPC_{RB} = [RfD \times HI] \times \left[\frac{BW \times AT \times SA}{IR \times EF \times ED \times CF}\right]$$

THIS EQUATION IS APPLICABLE TO NON-CARCINOGENS (I.E., TIN, AND MALEIC ANHYDRIDE) AND IS INTENDED TO PROVIDE PROTECTION OF GA GROUND WATERS.

THE TERMS OF THE EQUATION AND THEIR DEFAULT VALUES FROM THE RSR ARE AS FOLLOWS:

- $GWPC_{RB}$ = GROUND WATER PROTECTION CRITERION IN µg/l.
- HI = HAZARD INDEX = 1.0
- BW = BODY WEIGHT = 70 kg
- AT = AVERAGING TIME = 25,550 days
- SA = SOURCE ALLOCATION = 0.2
- IR = INGESTION RATE = 2 l/day
- EF = EXPOSURE FREQUENCY = 365 days/yr
- ED = EXPOSURE DURATION = 70 years
- CF = CONVERSION FACTOR = 0.001 µg/mg

THE RfD IS AS DEFINED IN CALCULATION SECTION I.A.

BECAUSE THE GROUND WATER UNDERLYING THE SITE IS CLASSIFIED GB, THE RESULTS OF ANY SOIL SAMPLES ANALYZED VIA TCLP OR SPLP MUST BE LESS THAN OR EQUAL TO THE $GWPC_{RB}$ MULTIPLIED BY 10.

HRP
ASSOCIATES, INC.
167 New Britain Avenue
Plainville, CT 06062
(203) 793-6899
FAX: (203) 793-6871

PROJECT TITLE SPC CLOSURE PLAN - BARNUM AVE. CUT-OFF			
PROJECT NUMBER SPC 0002.RC			
SUBJECT CALCULATED MEDIA CLOSURE CRITERIA			
DESIGNED CRS	DATE 4/24/97	CHECKED	DATE

II.A.) TIN: RfD = 0.6 mg/kg/day (REFERENCED TO HEAST IN JANUARY 1997 USEPA REGION III RISK-BASED CONCENTRATION TABLE)

$$GWPC_{RB} = \left[0.6 \frac{mg}{kg\text{-}day} \times 1.0\right] \times \left[\frac{70\,kg \times 25{,}550\,days \times 0.2}{2\,l/day \times 365 \frac{days}{yr} \times 70\,yrs. \times 0.001 \frac{mg}{\mu g}}\right]$$

$$GWPC_{RB} = \left[0.6\,mg\right] \times \left[7{,}000 \frac{\mu g}{mg\text{-}l}\right] = 4{,}200\,\mu g/l \times \frac{1\,mg}{1000\,\mu g} = 4.2\,mg/l$$

∴ FOR CONCRETE STRUCTURES, CLEAN STANDARD = 4.2 mg/l

∴ FOR SITE SOILS, CLEAN STANDARD = 10 X 4.2 mg/l = 42 mg/l

II.B.) MALEIC ANHYDRIDE: RfD = 0.1 mg/kg/day (FROM IRIS, AS OF 4/22/97)

$$GWPC_{RB} = \left[0.1 \frac{mg}{kg\text{-}day} \times 1.0\right] \times \left[\frac{70\,kg \times 25{,}550\,days \times 0.2}{2\,l/day \times 365 \frac{days}{yr} \times 70\,yrs. \times 0.001 \frac{mg}{\mu g}}\right]$$

$$GWPC_{RB} = \left[0.1\,mg\right] \times \left[7{,}000 \frac{\mu g}{mg\text{-}l}\right] = 700\,\mu g/l \times \frac{1\,mg}{1000\,\mu g} = 0.70\,mg/l$$

∴ FOR CONCRETE STRUCTURES, CLEAN STANDARD = 0.70 mg/l

∴ FOR SITE SOILS, CLEAN STANDARD = 7.0 mg/l

APPENDIX G

SAMPLE CHAIN-OF-CUSTODY

HRP Associates, Inc.
167 New Britain Avenue
Plainville, CT 06062
Phone: 860-793-6899
Fax: 860-793-6871

HRP

CHAIN OF CUSTODY

Sheet _____ of _____
Job Number _____
Project Manager _____

Place & Address of Collection	Samplers Name (Signature)
	Assistant (Witness)(Signature)

Sample Number	Sample Location	Container Type	Total Volume	Preservative	Date	Time	Sample Type				Remarks
							Water	Soil	Air	Waste	

Relinquished By (Signature)	Received By (Signature)	Date	Time
Relinquished By (Signature)	Received By (Signature)	Date	Time

Name & Address of Laboratory

LABORATORY SAMPLE PREPARATION REQUIRED

None ☐	Filter ☐	Adjust pH to _____	Priority ☐

Other

ANALYSES REQUIRED

Parameters	Sample Number					Parameters	Sample Number				
pH						TPH 418.1					
Ag						TOC					
Al						TOX					
As						STD Water					
Ba						Total Coliform					
Cd						Fluoride					
CN-A						Chloride					
CN-T						8010/601					
Cr^{+6}						8015					
Cr-T						8020/602					
Cu						8020 + MTBE					
Fe-D						8080					
Hg						8100					
Na						8 TCLP Metals					
Ni											
Pb											
Se											
Sp. Cond.											
TDS											
Zn											

Remarks

White Copy - Accounting Yellow Copy - Lab Pink Copy - Field Services Gold Copy - Job File

№ 5858

APPENDIX H

HRP ASSOCIATES, INC.
STANDARD OPERATING PROCEDURES (SOPs)
FOR ENVIRONMENTAL INVESTIGATIONS

SECTION I

HRP ASSOCIATES, INC.

STANDARD OPERATING PROCEDURES (SOP'S)
FOR ENVIRONMENTAL INVESTIGATIONS

ISSUED:

REVISED THROUGH:

AUTHORIZATIONS

Robert H. Leach, AVP Geological Services	Date
Walter J. Gancarz, P.E., AVP Engineering Services	Date
Jeffrey T. Mosholder, Health and Safety	Date
John D. Goodno, Field Technical Services	Date

SECTION II

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III INTRODUCTION AND STATEMENT OF PURPOSE

The Standard Operating Procedures (SOP's) set forth in this compendium present the methodologies to be utilized by all HRP personnel engaged in environmental investigations. The SOP's are provided to assure that field data collection is performed in an appropriate, consistent and reproducible manner by methods which are thoroughly documented and approved by the applicable regulatory agencies.

Each SOP may be reviewed and revised periodically and new SOP's may be added, based on new equipment acquisition, personnel changes, reviews of new technology or methods. As each revision is incorporated into the original Compendium Document, the authorizations, Table of Contents, and revision dates will be appropriately updated and copies of same will be distributed to all technical personnel. The compendium has been produced in a loose-leaf format to facilitate the revision process.

It will be the responsibility of each member of HRP's technical staff to thoroughly familiarize himself or herself with each of the SOP's, update their personal copy of the SOP Compendium, and communicate his or her understanding of each SOP to his or her immediate supervisor within ten (10) working days of: (A) receipt of the compendium; (B) receipt of a new or revised SOP; or (C)initial date of employment with HRP.

Each member of HRP's technical staff shall receive and subsequently maintain a copy of the Compendium for his or her own reference.

Any departures in methods form the Standard Operating Procedures contained herein, for whatever reason, must be thoroughly documented in the project field notes and project reports. The documentation should include the field conditions which necessitated the departures from SOP's, the alternative methods employed, and their justification, as appropriate.

IV STATEMENT OF GENERAL POLICY

It is the policy of HRP Associates, Inc. (HRP) that methods utilized to collect, analyze and evaluate field laboratory data are consistent with the highest appropriate level of quality assurance and quality control (QA/QC) procedures. The QA/QC program provisions ensure:

- Generation of data of a verifiable quality;
- Use of sound QA/QC management practices;
- Documented field data collection methodologies which meet highest QA/QC standards;
- Field interpretations and analytical results which are valid;
- Sample identification and integrity are controlled by adherence to chain of custody protocol;
- Laboratory accuracy and precision of analyses are maintained by the specific laboratory identified in each Quality Assurance Plan (QAP); and
- Calculations and evaluations are accurate and well documented.

All major environmental studies conducted by HRP involving the following tasks must be performed in accordance with a QAP.

1. Ground water and surface water sampling;
2. Soil and sediment sampling;
3. Industrial hazardous and domestic waste sampling;
4. Air monitoring screening; and
5. Field (in-situ) analysis (e.g., pH, specific conductance, etc.).

V HRP ORGANIZATION AND RESPONSIBILITY

HRP is a professional engineering and hydrogeological services consulting company specializing in services which include identifying the presence of site contamination problems, defining site conditions and determining the extent and degree of contamination; performing feasibility studies to determine appropriate corrective measures; designing and implementing selected remedial measures; and long-term environmental monitoring. HRP's services also include environmental investigations related to environmental audits, industrial facility sitings, and environmental impact studies.

HRP's QA Officer is ultimately responsible for corporate QA/QC program. The QA Officer reports directly to HRP's Corporate Officers and works closely with each of HRP's individual project managers. The QA Manager is independent of specific project teams and is responsible for:

1. Approval of all QA/QC procedures on the project;
2. Compilation of the QAP Supplement Form which provides project-specific information;
3. Initiating system audits of field and engineering operations to assure compliance with the QAP;
4. Periodic review of field data or compliance with precision, accuracy, and completeness objectives;
5. Notification of any QC deficiencies discovered during audits;
6. Provision of guidance and coordination to rapidly resolve any QA/QC problems;
7. Maintenance of all project QA records and assembly of project QA data;
8. Independent review to assure the quality of all deliverables or outputs from the HRP project team to the client;

9. Interaction and communication with client QA personnel to resolve QA/QC problems specific to the project; and

10. Providing both oral and written QA/QC reports as described in Section 15.0 of this QAP.

For HRP projects, the Project Director is responsible for appointing the Project Manager, supervision of the manager in performance of project duties, and the provision of corporate support as needed. The HRP Project Manager is responsible for effective day-to-day management of the project staff as well as direct communication and liaison with the CT DEP and/or the client. The Project Manager's responsibility to QA is to assure that all project QC procedures are followed in the performance of the project.

The Task Managers are responsible for providing consistent and accurate field data and technical reports, produced by analysts, project scientist or engineers, and sampling personnel under his supervision. This individual is responsible to the Project Manager to assure that all personnel under his direction understand the QA/QC requirements of the project, all QC and technical review procedures are followed, and documentation is provided.

VI STANDARD OPERATING PROCEDURE FORMAT

The Standard Operating Procedures (SOP) contained in this compendium are presented in the format described below:

SOP FORMAT

A. Title

B. Revision Date

C. Description: General description of method, application, and variations.

D. Equipment: A listing of the various pieces of equipment and/or requests necessary to perform the method including a reference for the specifications of each.

E. Documentation: A listing of the documents appropriate to the method including necessary information which should be included there-on.

F. Procedure: A step by step narrative of the application of the particular method with reference to equipment and documentation used. Acceptable variations in the methods or alternative methods shall be included when appropriate.

G. References: An abbreviated listing of the references used in developing the HRP SOP or published sources which are included by reference into an HRP SOP.

1.0 SAMPLING PROCEDURES

1.1 SOIL SAMPLING PROCEDURES (Revision of 6/1/99)

According to site conditions and the scope of the investigation soil samples are frequently required. Soil samples are typically collected from the surface and subsurface (either deep or shallow) of the land. Sample locations vary, but often include; path of surface run off, downgradient and upgradient points of interest, and in the area of suspected contamination. The soil sampling procedure must consider the volatilization potential. When collecting soil samples for volatile analysis, field screening with a PID should be performed in accordance with Section 3.2.1. A representative soil sample will provide additional information as to the condition of the subject area.

Decontamination procedures are discussed in Section VI-4.0 of this document. Sample handling procedures are contained in Section VI-2.0.

Specific Equipment List

- Stainless steel spatula
- Stainless steel hand augers
- Stainless steel shovels
- Plastic (PE) sheeting
- Sample containers
- Personal protection equipment
- Field documents and chain of custody record
- Sample preservation materials and equipment
- Stainless steel scoops
- Stainless steel/glass pan
- Distilled Water

Soil Sampling Precautions

- Prior to conducting sampling, ensure that all necessary sampling equipment is clean and decontaminated according to the site specific work plan and decontamination procedures specified in Section VI-4.0 of this document.

- Trace contaminant soil sampling should proceed only with all stainless steel equipment.

- Soil samples collected for volatile organic compound analyses should not be mixed or composited. Generally, compositing of samples for any analysis should be performed only after careful consideration of sampling goals.

- Collection of samples for laboratory analysis at a single specified location should proceed in the order of greatest to least volatiliza-

tion potential. That is containers utilized for volatile analysis would be filled first followed by the collection of the sample with the next highest volatility.

- Upon completion of all sampling requirements and prior to leaving the site, all equipment used for sampling shall be cleaned and decontaminated. All generated decontamination fluids shall be disposed of in accordance with the site specific work plan and all municipal, state and federal requirements.

1.1.1 Hand Sampling Procedures (Revision of 6/1/99)

1. Personal protective equipment (PPE) should be donned and maintained in accordance with the site specific work plan or health and safety plan during all sampling procedures. In the event that no PPE has been specified for a particular sampling event, disposable latex gloves should be donned, as a minimum, during all sampling procedures.

2. The soil sampling device (i.e. hand auger, split spoon, etc.) shall be retrieved and placed on polyethylene sheeting.

3 Remove any surface vegetation with stainless steel equipment. Carefully set aside to replace after sampling is concluded.

4 Using decontaminated sampling equipment, collect and carefully place soil into stainless steel/glass pan to thoroughly mix or composite if necessary. Soil samples to be analyzed for VOCs should be placed directly into appropriate container and fully packed to ensure zero headspace.

5. Examine the sample to record; color, texture, consistency, moisture content, and other pertinent characteristics.

6. If chemical analysis is required, use a dedicated stainless steel instrument to place the portion of the sample into an appropriate container. Fill analysis containers in the order of greatest volatilization potential to least potential for volatilization. Care must be taken to fill the container completely eliminating voids. Wipe the rim of the container with a clean paper towel and place the cap on container immediately.

7. Label the sample container in accord with procedures described in Section VI-2.0.

1.1.2 Auger Sampling (Revision of 6/1/99)

Following hand sampling of the 0-6" zone, use a stainless steel hand auger to continue from 6" to lower horizons. Record soil matrix and pertinent items or observations (smell, color, feel). Auger each zone stopping every foot to retrieve sample and record observations (field instruments and logs). Thoroughly decontaminate the hand auger after each one foot interval using decontamination procedures listed in Section 4.0.

1.2 WATER SAMPLING

Ground water sampling is a predominant means for interpreting site character. Ground water is usually obtained from monitor wells, either temporarily or permanently installed. The procedures employed to collect ground water and other water samples are discussed in the following passages.

Specific Equipment List:

- Teflon® bailers
- Masterflex® peristaltic pump
- Portable hand pump
- Disposable pore filtration units
- Personal Protection Equipment
- Nylon/polypropylene rope
- Teflon® tubing
- Tygon® tubing
- Polypropylene tubing
- Sample Containers
- Field Documentation and Chain of Custody Records

Specific Log Sheets:

- Monitor Well Data Sheet
- Sample Collection Sheet

Water Sampling Precautions

- Prior to conducting sampling, ensure that all necessary sampling equipment is clean and decontaminated according to the site specific work plan and decontamination procedures specified in Section VI-4.0 of this document.

- Trace contaminant water sampling should proceed only with all stainless steel equipment. The method of collection should take into account the volatilization potential of the sample.

- Water samples collected for volatile organic compound analyses should not be mixed or composited. Collection of composite samples for any analysis should be performed only after careful consideration of sampling objectives.

- Upon completion of all sampling requirements and prior to leaving the site, all equipment used for sampling shall be cleaned and decontaminated. All generated decontamination fluids shall be disposed of in accordance with the site specific work plan and all municipal, state and federal requirements.

- All equipment restrictions for purging are adhered to.

- Mechanical pumps which require fuel as an energy source will be placed a sufficient distance and downwind from sampling activities.

- During the bailing procedure, great care must be taken to keep the polypropylene rope from contacting the ground. If this condition occurs, the rope will be discarded and replaced.

- The polypropylene rope used during the bailing method must be dedicated to a single monitor well and discarded after sampling.

- PVC bailers will never be used to purge/sample for trace organic analysis.

- Samples must be taken within 6 hours of purging. If the well is low yielding then sample within 24 hours.

- Sample containers will be filled in order of volatility from the greatest to lowest potential for volatilization. For example containers for analysis of volatile organics will be filled before containers for inorganic metals.

- As a reminder, all pre-cleaned/dedicated equipment must be stored in a clean environment until its use is required on site.

1.2.1 Surface Water Sampling (Revision of 6/1/99)

Surface water samples are obtained by placing a perforated PVC tube (stilling well) away from water edge as close to middle as practical. The area where the sample is taken will be clearly marked on a map as to number of feet away from shore and location along watercourse. Samples are taken from a disposable bailer and are preserved in accordance with procedures outlined in Section 2.0. If samples are to be taken in the future, a suitable means to hold the pipe in place will be utilized (cinderblocks and electrical tie wraps as an example).

1.2.1.1 Description

This SOP covers the procedures necessary to collect water samples from surface water bodies, including streams, rivers and lakes. The results of surface water analyses are often used in site investigations to, among other things, determine the effects of nearby contamination sources on the water body, determine the effectiveness of an on-site wastewater treatment system, and/or aid in the development/design of an on-site wastewater treatment system.

1.2.1.2 Equipment

The following lists sampling equipment needed to collect surface water samples. The equipment requirements vary according to the depth of the water body. For purposes of this SOP, a "shallow" water body is one that is two feet deep or less. Equipment requirements are as follows:

- **Shallow Water Body**

  1 - pair of waders
  1 - measuring tape with weighted end
  1 - clean bailer
  appropriate sample containers (see Section 2.0)
  cooler

- **Deep Water Body**

  1- row boat or canoe
  1 - measuring tape with weighted end
  1 - depth sampler
  appropriate sample containers (see Section 2.0)
  cooler

1.2.1.3 Documentation

A site plan, drawn to scale, which depicts the site features and proposed or established sampling locations is necessary. A field book should also be utilized to document sampling conditions, such as weather, temperature, depth of water body at sample location and depth of sample collection. The laboratory chain-of-custody should also be completed prior to sample collection.

1.2.1.4 Procedure

A. Shallow Water Bodies

When sampling shallow water bodies, i.e. depth less than or equal to two feet, a pair of waders is all that will be required to reach the sample locations and remain dry. When collecting samples from rivers and streams, the sampler should stand downgradient of the collection location to prevent cross-contamination of the sample with the waders. It is also important, when sampling rivers and streams, to ensure that the sampling station has a non-shifting bottom and that the flow is consistent with the average stream conditions in the sampling vicinity.

Once the sample location is reached, the sampler should use a clean, dedicated bailer to collect the sample. The bailer should be inserted the full depth of the water body, taking care to ensure that sediment is not disturbed or collected, as this material will cross-contaminant the sample. All collected samples should be placed in the appropriate containers, which should then be placed on ice in a cooler as soon as possible.

B. Deep Water Bodies

When sampling deep water bodies, i.e. depth greater than 2 feet, it is usually best to use a row boat or canoe to reach the sample location. Once the sample collection is achieved, a measurement of the depth to bottom should be taken with the tape measure. The samples will need to be collected and composited from two depths: 0.2 times the depth to bottom, and 0.8 times the depth to bottom. If, for example, the depth of a pond is 10 feet at the sample location, then the samples for compositing need to be collected from 2 feet below the surface and 8 feet below the surface.

The depth sampler is used to collect discrete water samples from the two depths calculated. For samples from a flowing river, the discrete samples will be composited in the appropriate containers in volumes directly proportional to the flow rates at the two sampling depths. For samples collected from a

non-flowing water body, the discrete samples will be composited in the appropriate containers at a 1:1 ratio. All composited samples will be placed on ice in a cooler as soon as possible.

C. Other Considerations

If it is necessary to establish a sampling point for regular monitoring of a surface water body's quality, then a "stilling well" will be placed at the location. A stilling well consists of slotted PVC piping set into a bucket of concrete. The concrete holds the well upright and prevents movement due to flow. The slotted PVC allows fresh water to flow through the PVC freely. A clean, dedicated bailer, lowered to the required sample depth(s), will be used to collect samples from "stilling wells".

1.2.2 Ground Water Sampling of Monitor Wells (Revision of 6/1/99)

Collection of ground water samples from a monitor well consists of:

1. Assessment of potential exposure hazards;

2. Measurement of ground water depth;

3. Investigation of the potential presence of Non-Aqueous Phase Liquids (NAPL); and

4. Collection of the ground water sample.

Assessment of Potential Exposure Hazards

Prior to performing any field activity, the Health & Safety Plan should be thoroughly reviewed to identify the site history, possible chemical and physical hazards, and emergency protocols. At locations where volatile organics are known to be present or are suspected, the headspace within the monitor well should be screened for volatile organics with a PID in order to assess the potential for exposure to volatile compounds. If volatile organics are detected, procedures outlined in the Health & Safety Plan should be followed.

Measurement of Ground Water Depths

The depth to ground water and the depth to the bottom of the well should be measured at each well location prior to sampling. Well depths should be measured from survey points which have been marked on the well. Water depths can be measured using a sounding device or electronic interface probe. Bottom depths should be measured using a sounding device. All depths will be measured in accordance to ASTM Method D4750-87 (1993), "Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well)". Depth measuring equipment should be decontaminated in accordance with SOP Number 4.2 after measurement of each well.

Investigation of Potential NAPL

Liquid products which are immiscible in water can form product layers, films or globules when present in sufficient quantities in the ground water. These immiscible products are often referred to as Non-Aqueous Phase Liquids (NAPL). The potential for NAPL should be evaluated at any monitor well location which has been newly installed at a potential source area where liquid products were managed and at any well where NAPL may be suspected. NAPL evaluation should be continued to be performed prior to sampling at any location where NAPL has been previously identified and any location were available ground water data has identified any single compound at a concentration equal to or greater than 1% of that compound's solubility in water. In all instances, the evaluation of NAPL must be performed prior to purging and collection of water samples for laboratory analysis.

Light Non-Aqueous Phase Liquids (LNAPLs) have a specific gravity less than water. Examples include gasoline, fuel oil, etc. Methods to detect the presence of LNAPL include collection of a sample, oil/water interface probes, and water finding paste. Water finding paste can be difficult to use and clean off of equipment. Thin films or globules of product can be difficult to detect with this method. Oil/water interface probes are capable of detecting thick films and more appreciable product layers. Visual inspection of a water sample is a reliable means to identify product globules, films and more appreciable layers. A sample can be collected from the top of the water column using a clean bailer or peristaltic pump with dedicated tubing. If a bailer is utilized it must be thoroughly decontaminated before reuse. The sample can be collected in a glass jar and visibly inspected for LNAPL. A small amount of hydrophobic dye (the amount that fits on the end of a toothpick) such as Sudan IV can be added to the sample to aide the visual

identification of LNAPL. The hydrophobic dye will color the immiscible liquid.

Dense Non-Aqueous Phase Liquids (DNAPLs) have a specific gravity greater than water. Examples include chlorinated solvents such as trichloroethylene and tetrachloroethylene. Since DNAPL is denser than water, it will tend to accumulate at the bottom of the monitor well. The presence of DNAPL can be determined through visual inspection of a water sample collected from the bottom of the well. A hydrophobic dye can assist visual identification of DNAPL. The sample should be collected using a peristaltic pump with dedicated tubing. The intake end of the tubing must be placed at the very bottom of the well. The peristaltic pump is only effective at locations where the water level is less than 15 feet below grade. At locations where the water depth is more than 15 feet, an alternative pumping means would be necessary. Special consideration should be given to equipment decontamination requirements before alternative pumping methods are utilized.

Ground Water Sample Collection

Ground water must be extracted from monitor wells by displacement since in place plumbing does not exist. Commonly, shallow monitor wells allow manual purging of ground water through the use of a stainless steel or Teflon® bailer and deeper wells require a mechanical pump to draw ground water to the surface.

Specific procedures are followed before a representative sample may be obtained. Water levels in monitor wells must be determined with the use of a water level indicator. Ground water depths will be recorded in conformance with ASTM Method D 4750-87 (1993), "Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well)." Each reading using a water level indicator, pre-cleaned steel tape or interface probe will occur from the survey notch on well casing. The depth to water is recorded to the nearest 1/100th of a foot. The volume of water to be purged is then calculated from the well construction details using the following equation:

$$V = [(0.041)d^2](h)$$

Where:

V = Volume in gallons
d = Diameter of well in inches
h = Depth of water in feet

The volume determined from this equation is the volume of water in the well. A minimum of <u>three</u> well volumes should be removed

and subsequent stabilization of field parameters (pH, conductivity, and temperature) should be achieved. Use a bucket of known volume to collect and record amount purged by bailer method. Field parameters of pH, temperature and conductivity should be recorded after each well volume is removed. Well stabilization is achieved when consecutive readings of field parameters are within five percent of each interval. If stabilization does not occur, then the minimum of six well volumes will be purged prior to sampling. The only exception will be if the monitor well is bailed/purged dry, in which case, the well should be allowed sufficient recharge time before samples may be drawn. If well has not adequately recharged, it is recommended that sample collection does not take place.

When a mechanical pump is used for purging, the flow rate may be calculated to assist in monitoring the volume of water purged. The purging device should withdraw ground water from just below the water level inside the well. As the ground water is removed the pump tubing should be extended to reach below water level. As previously stated either:

1. Three well volumes are removed and consecutive field parameters are stabilized; or

2. Six well volumes are removed; or

3. Well is purged dry and sufficient recharge has occurred.

If Tygon® or Teflon® is not used for those portions of the pump purging system that are in contact with water in the well, then the final well volume should be purged with a bailer.

BAILING PURGE METHOD

1. Obtain a dedicated laboratory decontaminated bailer (if available) and a spool of polypropylene rope or equivalent bailer cord. Tie a bowline knot or equivalent through the bailer loop. Test the knot for adequacy by creating tension between the line and the bailer. Tie again if needed. New rope will be used for every sampling point. New latex gloves will be used when touching rope or bailer.

2. Use a clean plastic sheet to wrap the base of the well and cover the ground surrounding the well. The plastic sheet should be of sufficient size to prevent bailer or bailer rope from contacting the ground. Care also should be taken to

prevent the bailer lanyard from coming into contact with the plastic sheeting.

3. Remove the plastic wrapping from the bailer and place the bailer inside the well to verify that an adequate annulus is present between the bailer and the well casing to allow free movement.

4. During well bailing, lower the bailer carefully into the well casing taking care not to agitate the water in the well. This will minimize sediment disturbance and evaporation of volatile organics.

5. Raise the bailer by grasping a section of cord used using each hand alternately. This bailer lift method will assure that the bailer cord will not come into contact with the ground or other potentially contaminated surfaces.

6. Bailed ground water will be poured from the bailer into a bucket to measure the purged water volume.

7. During sample collection, bailers will be slowly lowered to allow for sample collection from the top of the water column and withdrawn slowly to avoid disturbing the bottom of the well.

8. Samples collected by bailing will be pored directly into sample containers. the sample should be poured slowly to minimize air entrapment in the sample bottle. During sample collection, bailers will not be allowed to contact the sample containers.

SPECIAL CONSIDERATIONS:

1. Volatile Organic Compounds (VOCs)--At least two or more 40 ml vials obtained from one of the primary laboratories will be filled for volatile organic samples. Aqueous samples are not mixed or composited prior to collection. Care must be taken not to touch the Teflon® faced septa. If the septum is contaminated, it should be replaced. Slowly pour the sample down the edge of the vial until the bottle barely overflows. The vials should be filled to a convex meniscus and have no head space or air bubbles. Put the Teflon® side (shiny side) of the septum on the meniscus and screw the cap. Invert the bottle, tap and check for bubbles. If air bubbles are present, reopen and add more sample. Repeat (maximum three times) until no bubbles are observed. If

sample persists to contain bubbles (CO_2) collect with unpreserved vials and analyze within 7 days. After samples are collected and preservatives added the vials should be properly packed in coolers to prevent breakage during shipment, and maintained at 4°C during transport to the laboratory.

2. Dissolved Metals--Samples for determination of dissolved metals will be filtered in the field using either of the filtration apparatus units as shown in Figure 6.3-4 and 6.3-5. In-line filtered samples will be collected using a peristaltic pump. A new 0.45 micron filter placed on the pressure side of the pump is to be used for each filtered sample. The samples will be collected in laboratory cleaned sample bottles. Each bottle will contain nitric-acid as a preservative. After collection, each sample will be placed on ice for transportation to the laboratory.

   Vacuum filtration of samples are collected from the well by either bailer or pump. The collected sample is then poured into a clean polyethylene secondary container which contains no preservative. The sample is then transferred from the secondary container to a filtration unit. When using the Zap-Cap unit, the sample is poured into the top reservoir and then filtered (using a hand pump for suction) through a 0.45 um membrane filter directly into a nitric acid pre-preserved glass metals bottle. When using the Corning unit, the sample is poured into the top reservoir, filtered (using a hand pump) through a 0.45 um membrane filter into the bottom reservoir. The filtrate in the bottom reservoir is then poured into a pre-preserved metals bottle. After collection, each sample will be placed on ice for transportation to the laboratory.

3. Total Metals--Samples for determining the concentration of total metals will be collected only by low flow sampling procedures. Refer to EPA Region I Low-Flow Procedures for discussion of appropriate equipment and sampling procedures. Each sampling bottle will contain nitric acid as a preservative. Samples will be collected in an unfiltered state.

4. Instructions for obtaining samples for parameters other than those mentioned are reviewed with the laboratory to insure proper preservation and filtering requirements are met.

1.2.3 Tap Water Sampling

Determine source where tap water comes from (i.e., production well, street sources, or municipal, bedrock well). If tap water comes from a site well, collection of a sample directly from the well is preferred. If access to the well is not available, then remove any aerator devices, open tap and allow to drain for fifteen minutes. Sample directly from tap. Note construction material of tap (i.e., stainless, chrome plated, PVC, etc.) and any treatment systems. The sample must be collected prior to any treatment. Follow preservation and containerization procedures outlined in Section 2.0. Turn off tap.

2.0 SAMPLE HANDLING PROCEDURES (Revision of 6/1/99)

Description: This SOP identifies the containers, preservatives, sample preparation, chain-of-custody procedures, and QA/QC procedures associated with the various types of samples collected and analyzed by HRP.

Equipment: Most of this SOP deals with methods requiring no equipment other than sample containers. Section 2.3, Sample Preparation, lists equipment which may be required for preparation of samples prior to delivery to an analytical laboratory.

Documentation: Field notebook & map to detail location of sampling points
Chain-of-custody form for each batch of samples
Purchase Order for laboratory analyses

References: EPA's SW-846: Test Methods for Evaluating Solid Waste, rev. 4, Final Update III, 12/96.

Procedures: following text

2.1 CONTAINERS

2.1.1 Solids

Solid samples shall be contained in wide-mouth glass jars with tightly-fitting lids. Samples to be submitted directly to the lab shall fill the jar as nearly as possible to eliminate any headspace. (Samples which are not to be analyzed for Volatile Organic Compounds (VOC's) are not required to fill the jar.) Sample splits to be screened by HRP's gas chromatograph should fill about ½ of the jar; the jar should be equipped with a Teflon ™ septum.

The size of the jar will depend on the analyses to be performed. Sample requirements are provided in Table 2-6 of the RFI work plan.

2.1.2 Liquids

Several types of container are available for liquid samples. The type(s) of container to be used are determined by the analyses to be performed and the nature of the liquid. Oil samples may be contained in wide-mouth glass jars, as are solid samples. Water samples may be analyzed for more analytes than are oil samples, and additionally may undergo volatile loss and/or photochemical

degradation. Containers for water samples are given in Table 2-6 of the RFI work plan.

Vials with Teflon™ septa must be overfilled before closing, to ensure that no headspace (air) is present in the vial.

2.1.3 Gasses

Gasses are intrinsically mobile and must be contained in fully-enclosed containers. Two types of container are available: Tedlar™ bags and glass bulbs with Teflon™ septa to allow insertion of hypodermic syringes.

2.2 PRESERVATION

2.2.1 Refrigeration

Samples which do not require refrigeration are: oil samples; gaseous samples; and water samples to be analyzed only for metals. All other samples must be kept cool (ideally at 4°C or 39.3°F) until delivered to the lab for analysis. Sample preservation requirements are provided in Table 2-6 of the RFI work plan.

The samples must not be allowed to freeze in cold weather! The jars/vials will break and the samples will be lost.

2.2.2 pH adjustment and other preservatives

The pH of water samples must be adjusted in the field, using the materials, indicated on Table 2-6 of the RFI work plan.

Solid and gaseous samples do not require preservatives or pH-adjusting compounds to be added.

2.2.3 Holding Times

Holding times for various parameters are provided in Table 2-6 of the RFI work plan.

2.3 PREPARATION

2.3.1 Filtration

Equipment: Peristaltic pump, 2 feet Tygon™ tubing per sample, one 45-μ in-line filter per sample, one extra cubitaner per sample. If electric power is unavailable, a gasoline-powered generator is

required to operate the peristaltic pump. A ring stand with clamp to hold the in-line filter is optional but handy.

Procedure: Put a 2-foot length of Tygon™ tubing in the peristaltic pump. Insert the input end of the tubing into the unfiltered water sample and the in-line filter into the output end of the tubing. Make sure that the flow direction shown on the filter matches the actual flow direction. Position the in-line filter over the (extra) cubitaner. Turn on the pump and run until done.

2.3.2 Compositing

Compositing of samples for investigation purposes is strongly discouraged. However, compositing of similar materials for the purposes of obtaining waste disposition approvals is generally acceptable. Careful consideration should be given to the objectives of the sampling before collection of any composite sample is performed.

Soil samples: those to be analyzed for non-volatile parameters may be mixed in any convenient, clean container. Those to be analyzed for Volatile Organic Compounds (VOC's) must be mixed in polyethylene bags (PVC is unacceptable owing to the typical presence in new PVC of unreacted vinyl chloride). The soil must be placed in the bags as rapidly as possible, and mixing must be performed with as little headspace in the bags as is possible.

Waste oil and other wastes: only those of similar appearance (color, viscosity, suspended material, odor if determined) should be composited. Liquid samples may be poured into the container to be sent to the lab.

2.4 CHAIN OF CUSTODY PROCEDURES

2.4.1 COC form (HRP)

Fill in all relevant blanks, including the "laboratory preparation" section. Check "none" or indicate what preparation is required.

2.4.2 COC forms (others)

Fill in all relevant blanks.

2.4.3 Sample Labelling Nomenclature

Samples shall be labelled with the following information:

Date
HRP
HRP Job #

Sample identification. Samples from test borings must have, in addition to the test boring identification, the depth from which the sample was retrieved.

2.4.4 Delivery/receipt procedures

The chain-of-custody forms must be signed by both the person delivering the samples and the person receiving them. The time and date of transfer must be indicated.

2.5 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

2.5.1 Blanks

Field, trip, and equipment blanks are slightly different from one another. For preparation of an equipment blank, an appropriate blank material (water) is brought in contact with the sampling tools used for "real" samples. Equipment blanks, in theory, show whether the sampling equipment has been properly decontaminated. Field blanks are prepared by carrying the blank material to the sampling site and placing it is appropriate containers. Field blanks are used to determine whether airborne contamination is present at the sampling site. Field blanks are collected only when airborne contamination is suspected. Trip blanks are prepared at HRP's offices and transported to the site in sealed containers. They are used to document contamination that may be attributed to shipping and handling procedures. Temperature blanks are prepared prior to sampling. They document the temperature preservation of samples upon receipt at the laboratory.

Blank samples are typically used for quality control and quality assurance. They provide qualitative information concerning contamination, handling and shipping procedures which may affect the quality of data that is collected. Blank samples are typically prepared at a rate of 5%, 1 per 20 samples, or 1 per shipping container if less than 20 samples are collected.

Water: water for blanks shall consist of analyte free water. In order to ensure that the blanks do not contain excessive chloride, sulfate, aluminum, and other identifiable contaminants, the specific conductance of the water should be measured before using it for blanks. If the specific conductance of the water exceeds 5 μmhos, do not use it. Put the blank in the same kind of

container used for the other water samples. The blanks really should not be labelled "MW-B", "MW-F", "MW-T", etc., but should instead be given plausible "well" identifications such as "MW-28". Trip blanks are typically analyzed only for volatile compounds. Analysis of equipment and field blanks are generally determined on a site by site basis.

Soil: Due to difficulties in preparing representative samples, blanks comprised of soil are uncommon.

2.5.2 Duplicates

Duplicates of samples should be collected as near as possible, both in time as well as space, to their principal samples. As above, the preferred method is to collect and analyze three or more "identical" samples. This procedure allows a determination of the statistical variance, and consequently it is possible to test statistical hypotheses (e.g., "is there a significant difference between samples reported to have 10 ppb of trichloroethylene and those reported to have 50 ppb?"). Note: in order to perform these statistical tests, **three** replicates must be analyzed. Two is not sufficient.

3.0 FIELD SCREENING METHODS

3.1 PHYSICAL METHODS

3.1.1 Visual Observations

Please note color of all matrices -- soil, air, water. For soils, please write down observations and follow ASTM Designations D2487-92 "Classification of Soils for Engineering Purposes (Unified Soil Classification)" and D2488-90 "Practice for Description and Identification of Soils (Visual-Manual Procedure" as guidelines for soil characterization. For water, please write down color, turbidity, silt amounts and color as settling occurs. Also record if LNAPL's or DNAPL's are present. For air, please write down if air is moist (condensate on collection material), if color is present, temperature, if available.

3.1.2 Olfactory Observation

Please note only if evident in ambient air condition. Under **no** condition is anyone from this firm allowed to directly smell samples from containers.

3.2 FIELD INSTRUMENT SCREENING

3.2.1 Photoionization Detector (PID)

a. Prior to collecting a soil sample for PID screening, a preliminary screening of the entire length of the soil core should be performed to assess potential exposure hazards and identify possible PID "hot spots" in the soil core. This preliminary screening is performed by slowly moving the PID probe along the length of the soil core and noting the PID response. This information is used to assist health and safety procedures and determine the most appropriate locations for collection of discrete samples for PID screening and laboratory analysis.

The following procedure shall be used to obtain a PID reading for a soil sample. Not that a sample collected for PID screening should not be submitted for volatile analysis at a laboratory. The laboratory sample for volatile analysis should be collected in a separate container.

1. Obtain an aliquot of soil (approximately 50 grams) from the split spoon and place into a glass jar, cover with aluminum foil, and replace cover. Note that if

recovery is poor, there may be insufficient sample present for field screening. However, keep in mind that a sample could be screened and then submitted for metals analysis.

2. Agitate the sample, assuring that all soil aggregates are broken. After agitation, place in a controlled environment with a temperature of about 70° F for a period of at least 10 minutes.

3. Remove the cover and carefully break the aluminum foil seal of the jar to allow for the insertion of the PID probe.

4. Record the maximum reading obtained on the boring log, or in field notes.

3.3 EQUIPMENT CALIBRATION METHODS

All field equipment will be calibrated immediately prior to use in the field. The calibration procedures will follow standard manufacturer's instructions or routine HRP procedures to assure that the equipment is functioning within tolerances established by the manufacturer and required by the project. Field personnel will document all instrument calibration in bound field notebooks and on specific calibration forms. All records generated will be maintained by field personnel and are subject to audit by the QA Manager.

The detailed calibration, operation, and maintenance procedures for field instrumentation routinely used by HRP personnel are specific to manufacturer's instructions. The following sections will briefly summarize these procedures. Table 9.1-1 lists all field instruments, calibration frequency, and calibration standards.

Calibration standards and pH buffer solutions used for field instrumentation calibration checks will be obtained from scientific products supply companies (e.g., Fisher Scientific; American Scientific Products, etc.). All buffer and calibration standards obtained will be certified and standardized against or traceable to a reliable primary reference standard. All solutions are stored according to manufacturer's suggestion for optimal shelf-life. Chemical container labels must also include the date received, date opened, as well as the initials of the analyst who first opened the container. Stock solutions will be marked with expiration date and replaced with new solutions when the recommended shelf-life is exceeded.

3.3.1 Photoionization Detector (PID)

HRP utilizes several types of PIDs made by different manufacturers. Calibration procedures which are specific to each instrument can be found in the manufacturer's operation manual. The PIDs will be calibrated in the field, under the working temperature conditions where it is to be used. The calibrant gas typically used is isobutylene (100 ppm). Calibrations should be recorded in the field notebook and on the calibration log of the HASP. Calibration records should note the date, instrument manufacturer and model calibration gas and operator.

3.3.2 Temperature/Conductance Meter

Calibration is performed at the start of each sampling day using potassium chloride (KCl) standard solutions. Calibrations are recorded in either a bound field notebook or on field calibration forms. Specific conductance standards are selected to bracket the range of values expected in the samples. If the unit has a calibration adjustment, the meter is calibrated in the same manner as the pH meter. Internal automatic adjustments are made on meters which lack a designated calibration knob. The meter must read within 10 percent of the standard to be considered in control and acceptable.

If the calibration indicates the meter is out of control, a backup unit should be employed; if one is not available, the data will be flagged to note the percent difference between the meter and standard. Readings from conductivity meters lacking calibration adjustments are limited to checks at the beginning and end of the sampling day. All calibrations may be recorded in a bound field notebook along with conclusions as to the acceptability of readings.

Temperature is measured using a glass thermometer. Field thermometers must be checked against a National Institute of Standards Technology (NIST) thermometer once a month. All checks must be recorded in the NIST logbook. Acceptance criteria are $\pm 1\,^{\circ}C$. Any thermometers exceeding these limits shall either be replaced or marked with a correction factor. The calibration frequencies noted above are the minimum requirements. Additional checks should be performed if the unit experiences harsh conditions or if readings become erratic.

3.3.3 pH Meter

Calibration is performed at the start of each sampling day using two traceable standard solutions which bracket the pH range expected in the samples. Calibration is recorded in either a bound field notebook or on field calibration forms. Calibration knobs are used to set the meter to read the value of the standard. The meter is then checked during the sampling period, using at least one standard, at a frequency which results in little or no calibration adjustment. If the reading varies by more than one-tenth of a unit between calibration checks, the frequency of the checks must be increased. Temperature and pH must be taken on a portion of the sample that is not used for laboratory analysis.

3.3.4 Equipment Deficiency/Operational Status Reporting

All calibrations will be recorded in a field notebook. These calibration records become part of the individual project files as documentation of QA objectives.

3.4 PREVENTATIVE MAINTENANCE

ROUTINE MAINTENANCE

HRP personnel routinely maintain field equipment for optimal results. All maintenance procedures are documented in control logbooks designated for each piece of equipment. Any field activities involving routine maintenance will be recorded in field logbooks by the individual performing the adjustment of the equipment. Maintenance performed at an authorized repair service will be documented in the maintenance log, including service location, specific repair, and method of transport. Methods of routine maintenance depend on the instrument and manufacturer. Refer to the manufacturer's operations manual for these procedures.

DOCUMENTATION

The Task Managers maintain all documentation concerning routine maintenance and nonroutine repairs. All pertinent information regarding instrument status is recorded in personnel field log books along with calibration documentation.

CONTINGENCY

In the event that the primary field equipment is inoperable as determined by calibration difficulties, back-up field instruments will be obtained from other sources. These instruments will be calibrated prior to recording data. In no event shall instruments be used to record data unless the performance of the equipment has been documented.

4.0 DECONTAMINATION PROCEDURES

Equipment used to collect samples must be free of contaminants in order to avoid misleading analyses. It is HRP's primary policy to use pre-cleaned sampling equipment in the field. Laboratory supplied equipment, i.e., bailers, must be inspected before sampling may commence. Equipment that is questionable as to sufficiency of decontamination will not be used for sampling or will be decontaminated prior to use. Record the sample location and other pertinent information regarding field decontamination in the field notebook.

Decontamination procedures utilize a series of scrubs and rinses to remove debris and contaminants which may adhere to the equipment and affect the quality of subsequent sampling. A soap and water wash using a low phosphate or non-phosphate detergent removes any debris, soils, etc. A tap water rinse removes washwater. Rinses including a dilute nitric acid (10%), analyte free water, and hexane (or methanol) removes any residual contamination. Dilute nitric acid is used to cleanse metals. Analyte free water or tap water is used to remove the acid rinse. Hexane is used to remove volatile compounds. Analyte free water is used to remove the hexane rinse. A wipe with a clean paper towel should be used to remove excess hexane and facilitate drying. Although the type of rinse required depends upon the analyses to be performed, all of the rinses described above will be utilized at all times.

4.1 PRECLEANING SAMPLING EQUIPMENT

Bailers are placed back into their plastic bags and ropes and tubing are properly disposed before return to the laboratory. Equipment transported back to the laboratory must remain separate from samples collected. Decontamination is performed before each sampling event in the office using the following procedure:

- Tap water and detergent to soak and/or scrub. Alconox® and Planisol-M® are preferred choices of low-phosphate and Liquinox® of nonphosphate detergent brands. If sampling for nutrients, Liquinox® is the required detergent.
- Tap water rinse.
- Nitric acid (10 percent trace metals grade) rinse.
- Tap water rinse.
- Hexane (or methanol) rinse.
- Analyte free water rinse.
- Air dry.

- Allow equipment to air dry completely in a clean environment.
- If storage is necessary, wrap equipment in a clean, nonscented plastic bag and tag with initials.
- Store in safe environment.

4.2 FIELD DECONTAMINATION

In field situations it may be necessary to perform decontamination procedures on equipment for immediate reuse. To avoid cross-contamination, the following procedures for field decontamination must be adhered to:

- Tap water (drinking water quality) and low or nonphosphate detergent to soak and/or scrub if necessary.
- Tap water rinse.
- Nitric acid (10 percent trace metals grade) rinse.
- Analyte free water rinse.
- Hexane (or methanol) rinse.
- Wipe clean with paper towel.
- Allow equipment to air dry completely in a clean environment.
- Wrap in a clean, nonscented, plastic bag for temporary storage.

If purging equipment and field instruments/indicators are used during a sampling event with multiple samples, field decontamination procedures are as stated:

- Rinse or scrub surfaces with tap water and either Liquinox® or Alconox®.
- Rinse with tap water.
- Deionized water rinse.
- Air dry adequately before beginning next well/sample source.

- If equipment is known to be heavily contaminated, rinse with acetone or acetone-hexane-acetone before regular decontamination procedures begin. Dispose of properly if equipment cannot be cleaned.

4.3 TEFLON® BAILER DECONTAMINATION

Teflon®bailers are precleaned prior to their use in the field. A distinct area is dedicated for the washing process apart from exposure to any clean equipment, sample containers, or samples. Large (100 gallon) cylindrical Nalgene Tanks are used for each stage of treatment as described below:

- Detach ropes and dispose. Disassemble the bailer into its three components and place bailer "body" into a pre-soak container of tap water. The remaining parts are placed into a second container of soapy tap water to accommodate their small size and allowing a soak period for at least 24 hours.

- Place bailer and ends into second container of Planison-M detergent and water. Wash tubes with brushes on the inside and out paying particular attention to the threads.

- Rinse thoroughly in tap water, then place into the rinse tank allowing the water to overflow.

- Rinse bailer tubes with 10% Nitric Acid (HNO_3) solution.

- Place bailers into the rinse tank.

- Remove bailers from tank and apply final distilled water rinse.

- Place bailer tube and components into a Hildebrand drying apparatus and allow sufficient time to dry.

- Using disposable Latex gloves, remove the bailer and components from drying apparatus and re-assemble.

- Place completed bailer into a nonscented plastic lawn bag and seal.

Decontamination of various other field equipment may be necessary together with those mentioned above. Automatic and wastewater samplers are cleaned per U.S. EPA, Environmental Services Division, Environmental Compliance Branch, Standard Operating Procedures and Quality Assurance Manual (ECBSOPQAM), revision 02/01/91. Soil boring equipment may be required to be pressure washed for decontami-

nation purposes. Also, field analyte-free water containers should be maintained and cleaned per ECBSOPQAM guidance. Refer to ECBSOPQAM guidelines for restrictions and procedures of field instrumentation, Appendix B, Subsection B1-B10, revision 02/01/91 for further discussions.

4.4 FIELD WASTE DISPOSAL

All waste generated by personnel during a sampling event will be properly containerized and/or disposed of according to type of waste. Solvents, such as isopropanol, should be:

1. Allowed to evaporate if a small quantity; or
2. Containerized for commercial disposal if in large quantities.

Acids and bases must be diluted or neutralized first, then disposed of into a sanitary sewer source. Often purged waters may pose a significant concern for proper discharge if heavy contamination is known. Purged waters of this nature should be allowed to evaporate on an impermeable surface, while avoiding drainage basins, sewers and direct pathways to permeate the earth. Purged waters are either containerized for commercial disposal or dumped onto the ground only if the purged water will infiltrate into the same aquifer zone from which it was purged from, or into a more contaminated aquifer zone. Lastly, all calibration standards and buffer solutions may be disposed of directly into sanitary sewer system.

If soil encountered during borehole drilling or test pit work is suspected to be hazardous because of discoloration, odor or air monitoring levels, the soil cuttings will be containerized in new, unused drums. The boring logs will indicate the depth(s) from which suspected soil cuttings were collected for containerization. HRP will determine the appropriate laboratory tests in order to determine acceptable disposal methodologies.

4.5 ANALYTE-FREE WATER

The analyte-free water which HRP utilizes for field services will be obtained from the subcontracted laboratory. HRP maintains that analyte-free water shall contain no analytes at or above the minimum detection limits for any constituents of interest.

Analyte-free water is utilized during field decontamination and for the preparation of field equipment blanks (Section 2.5). The integrity of supplied analyte-free water may be questionable when equipment or trip blank results provide evidence of contamination. Such incidences will be recorded to monitor the quality of analyte-free water provided for field activities.

5.0 SUBSURFACE EXPLORATION

This section discusses procedures for conducting soil borings either for exploration or for the installation of monitoring wells. The HRP representative should be aware that the drillers are responsible for the operation and safety of the drilling rig itself, but should ensure that proper procedures are used with respect to sampling and cleaning of equipment. This document was prepared in accordance with methods ASTM D 1452-80 "Practice for Soil Investigation and Sampling by Auger Borings" and 1586-84 "Test Method for Penetration Test and Split-Barrel Sampling of Soils". Soil sampling for chemical analysis is covered under HRP's "Standard Operating Procedures for Soil Sampling."

5.1 MARKOUT/UTILITY CLEARANCE PROCEDURES

a. The appropriate utility notification service (e.g. Call-Before-You-Dig) should be contacted by HRP or a subcontractor to HRP at least 3 working days prior to commencing operations on a site. If fewer than 3 days are available prior to the start of work, then an emergency markout request should be made, which typically requires that the utility providers be contacted individually by HRP or the subcontractor representative.

b. Particularly on larger private sites (but for any site where public or private utilities are unaccounted for), an attempt should be made to consult with the Owner or other person knowledgeable about the site as to the locations of potential private or abandoned utilities and to locate these prior to beginning work. Upon the discretion of the project manager, a private locating service can also be used to assist in locating on-site utilities.

c. Note that OSHA may have additional requirements for drilling in a proximal location to on-site utilities (i.e., overhead electric lines).

5.2 TEST PIT INVESTIGATION

Test pits provide a useful means to examine shallow subsurface conditions at depths less than 15 feet. Test pits are typically excavated by a backhoe or track excavator. Equipment generally provided by HRP for completion of test pit investigations include the following:

Field monitoring or screening instruments (appropriate for the contaminants of interest)
Sampling containers
Cooler with ice
Camera with film
Field Notebook
Marking pen

Measuring tape
Stainless steel shovel
Stainless steel trowel
Paper towels
(2) 5 gallon buckets
Water
(2) Brushes
Alconox® soap (or equivalent)
Dilute nitric acid
Hexane
Distilled or deionized water
Personal protective equipment appropriate for anticipated conditions (at a minimum hard hat, gloves, steel toe shoes, hearing protection, safety glasses)
Laytex or nitrile gloves

5.2.1 Test Pit Installation

An experienced equipment operator will be retained for excavation of test pits. The operator will excavate the test pits to the depth of interest under the direction of the HRP supervisor. Prior to excavation, check for marked underground and overhead utilities. Excavation near utilities should be avoided if possible. Otherwise, proper precautions such as insulation of overhead electrical lines or hand digging to expose buried utilities must be implemented. Excavation near buried or overhead utilities should not be attempted without the knowledge and approval of the project manager.

5.2.2 Test Pit Logging Procedures

During excavation, the geologist, scientist or engineer will record the location, identification number, soil conditions, observations and stratigraphy of the test pit. This should include: depths of each soil strata, ground water, bottom and environmental features such as discoloration, contaminant sources and bedrock; photographs of the test pit; notes regarding the environmental condition of the soil, debris, and ground water; and any problems, complications or concerns. Detailed descriptions of each soil strata will be maintained. At a minimum, soil descriptions will include color, texture, degree of sorting, angularity and grain size of predominant and accessory sediments. ASTM Designations D2487-92 "Classification of Soils for Engineering Purposes (Unified Soil Classification)" and D2488-90 "Practice for Description and Identification of Soils (Visual-Manual Procedure)" will be used as guidelines for soil descriptions.

5.2.3 Test Pit Sampling (accessible)

Test pit sampling will be dependent on site specific requirements and the objectives of the investigation. Adequate characterization of stratigraphy and environmental concerns would necessitate collection of one or more samples from the following:

1. Each stratigraphic unit;
2. Above, within, and below visibly stained soil; and
3. Suspected contamination source materials (pipe sediment, etc.).

In most cases, all of these samples will not be submitted for laboratory analysis. More likely they will be screened with field instruments such as the PID and closely inspected for the purposes of characterization and documentation of test pit conditions. At locations where test pits are less than 4 feet in depth, they may be entered at the discretion of the geologist for purposes of sampling. Samples are collected using a shovel and trowel and placed in the appropriate containers. Sampling equipment will be decontaminated, as described in Section 4, between each use.

5.2.4 Test Pit Sampling (inaccessible)

Test pits greater than 4 feet in depth are not to be entered. Samples will be collected from locations described above using the bucket of the excavation equipment. The soil samples will be collected directly from the bucket, away from the bucket walls.

5.2.5 Test Pit Abandonment

Test pits will be backfilled with the materials which were removed during excavation. During backfilling the materials will be periodically compacted with the bucket. Once backfilled, a survey stake marked with the test pit identification number will be set into the soil to mark its location in the field.

5.2.6 Test Pit Location Records

The location of the test pit in relation to known, mapped site features should be measured and recorded for future reference. In some instances, the location will also be surveyed onto a site plan.

5.3 TEST BORING INVESTIGATION

Equipment - General

Equipment supplied by HRP for conducting hollow stem auger borings typically includes:

Stainless Steel Spatula (optional, useful for splitting samples)
Portable Photoionization Detector (PID) instrument (Photovac Microtip or HNu), for sites where VOCs are a concern
Polyethylene Plastic Sheeting (optional)
Sample Collection Containers (glass jars, etc.)
Indelible Marker
Two 5-Gallon Buckets
Decontamination Brushes
Alconox Detergent, 10% Nitric Acid Solution, Hexane (or Methanol), and distilled Deionized (DI) Water
Cooler with Ice and/or Cold Packs
Sample Labels (if necessary)
Field Logbook and appropriate field forms
Personal Protective Equipment, including Clean Disposable Gloves, Hard Hat, Steel Toe Shoes, and Hearing Protection
Clipboard
Measuring Tape (with a water level sounding device)
Chain-of-Custody Forms
Paper Towels (optional)

Drilling Rig

Unless otherwise specified, all soil borings will be installed using hollow stem auger equipment powered by an appropriate rig.

Water

Water is occasionally required to maintain the stability of the boring or during rock drilling or coring procedures. If water is used, the source(s) and estimated quantity will be recorded in the drilling log. Only a potable water supply may be used for drilling purposes unless approval for an alternate source is obtained from the HRP project manager.

Central Auger Bit Plug

In order to maintain clean, accurate samples, no hollow stem auger drilling may be conducted without the use of a central auger bit plug. The driller should be made aware of this prior to entering the site, as is necessary.

Cleaning and Decontamination

a. Prior to installing a boring, the HRP representative will ensure that all necessary equipment is clean and decontaminated, including the rig, all auger rods and bits, samplers, brushes, and any other tools or equipment. Decontamination procedures may vary slightly from those presented below, dependent upon the particular types of contaminants encountered.

b. The following solutions shall be prepared and placed in 500 ml laboratory squirt bottles: hexane (or methanol) solution; 10% nitric acid solution; and distilled deionized (DI) water. A solution of phosphate-free detergent (Alconox) and tap water shall be prepared in a five-gallon bucket (approximately 2.5 gallons). Another five-gallon bucket will contain tap water (approximate 2.5 gallons).

c. Sampling devices (typically split-spoons) will be decontaminated between each sample. The order of decontamination solutions and procedures is as follows:

1) Detergent Scrub (in a five-gallon bucket)
2) Tap Water Rinse (in a five-gallon bucket)
3) 10% Nitric Acid Spray Rinse
4) DI Water Spray Rinse
5) Hexane (or Methanol) Spray Rinse
6) Wipe with a clean paper towel (optional, depending on weather conditions)
7) Air Dry

d. All loose debris shall be removed from the augers between test borings. At the discretion of the HRP project manager, all equipment may also be decontaminated using high pressure wash and steam cleaning equipment between test boring locations. Other alternative methods of cleaning may be more appropriate for an individual piece of equipment for site conditions based upon a knowledge of site contaminants, and may be used at the discretion of the HRP representative.

e. At the end of the project day, all HRP equipment which is used on the site shall be decontaminated. Disposal of all spent decontamination solutions shall be in accordance with the requirements of the HRP site comprehensive work plan or plan of investigation.

OSHA

The Foreman or Supervisor of the drilling crew shall be the "Competent Person" as required by OSHA for all work. However, to the best of his ability, the HRP representative should bring to his or her attention conditions which may be unsafe or present a hazard to the drilling crew, the general public, or other workers on the site.

VOC Monitoring

a. If VOCs are a concern, portable photoionization detector (PID) shall be available on site and shall be used to screen all cuttings and fluids (if any) removed from the hole, and to screen the working area for volatile organic contaminant (VOC) levels.

5.3.1 Test Boring Installation

5.3.1.1 Site Preparation

a. A sufficient area shall be established to restrict access to the work area. This area shall be termed an "Exclusion Zone."

b. An equipment decontamination area shall be established within the exclusion zone. Cleaning and decontamination as discussed in Section 4.0 will occur within this area.

c. All necessary personal protective equipment shall be donned by HRP personnel prior to entering the exclusion zone. For a drilling rig, hard hats and steel toed boots are mandatory, and clean disposable gloves will be used while sampling. Ear plugs are optional equipment, but are recommended for use during split spoon sampling.

5.3.1.2 Rig Operation

a. Rig operation is the responsibility of the drilling crew Foreman or Supervisor.

b. The HRP representative will bring to the attention of the rig operator the requirements for sampling, health and safety, identified utility restrictions, decontamination procedures, and well construction specifications, as is appropriate.

c. The rig should be inspected upon arrival on-site to insure that it is in good working order; that all required equipment and supplies are present; and that the rig is free of loose debris, oil leaks or defective equipment.

5.3.1.3 Field Screening

a. The procedure obtain a PID reading for a soil sample is described in Section 3.2.1.

5.3.1.4 Disposal of Potentially Contaminated Materials

Potentially contaminated cuttings or fluids, as indicated by knowledge of the site, discoloration, PID readings, or other evidence shall be disposed of in accordance with the requirements of the HRP site comprehensive work plan or plan of investigation.

5.3.1.5 Refusal

Technically, a refusal is defined as failure to penetrate with a split spoon sampler more than one-tenth of an inch with 100 blows using a 140 pound hammer. However, at the discretion of the HRP representative, a refusal can be designated if the split spoon does not advance 6" after 50 blows, as long as it is so noted on the drilling log.

5.3.1.6 Bedrock

a. The term "bedrock" will not be used in a boring log or other description unless a minimum of three (3) feet of bedrock core is recovered using an appropriate core drill, and in the opinion of a competent geologist the core is of characteristics of known bedrock in the region.

b. The terms "apparent bedrock" or "possible bedrock" may be used in a boring log at the judgement of the HRP representative even if 3 feet of bedrock has not been cored, provided there is reasonable justification.

5.3.1.7 Other

Depending on the specific site, other considerations may be applicable. Consult the site specific comprehensive work plan (CWP) and health and safety plan (HASP) for details.

5.3.2 Test Boring Logging Procedures

a. The following information shall be recorded on the boring log:

- Project name, site location, and HRP job number.
- Bore hole number, bore hole diameter, boring location on the site, drilling method, contractor, ground water observations, the logger's name and the date.
- Depth below grade, sample I.D. number, duplicate numbers, PID analyzer reading, number of blows required for each six inch penetration of a 2 inch split spoon using a 140 pound hammer, rig behavior (i.e. drilling effort, etc.).
- A complete sample description, including at a minimum: depth of the sampling interval, depth of significant changes in lithology, material size and gradation, color, moisture, density, physical evidence of contamination, and any unusual odors. ASTM Designations D2487-92 "Classification of Soils for Engineering Purposes (Unified Soil Classification System)" and D2488-90 "Practice for Description and Identification of Soils (Visual-Manual Procedure) will be used as guidelines for soil descriptions.
- The use of water for drilling purposes, if any, including source(s) and estimated quantities.

5.3.3 Split Spoon Sample Retrieval

a. All shallow soil samples, unless otherwise specified by the site specific comprehensive work plan, shall be collected with a split spoon sample device operating inside of, and in advance of the hollow stem augers. However, if split spoon sampling is not possible for an interval, then at the discretion of the HRP representative, other methods of collecting a sample may be employed.

b. In general, the hollow stem augers and the central auger bit plug shall be advanced to the depth of the sampling interval.

c. After removing the central auger bit plug, the split spoon sampler will be lowered into the augers. It will then be driven up to 24 inches into the soil using a 140 pound hammer with a fall of 36 inches. The HRP representative will record the blows for each six inch increment.

d. The spoon shall be opened by the driller. The HRP representative may assist in opening the split spoons, at his or her discretion.

e. At a minimum, the HRP representative will record on the boring log a description of the material in the sampler (material gradation, lithology, color), blow counts, depth below grade, PID instrument reading, moisture, density, physical evidence of contamination, and odor (if any).

f. Prior to reuse, the sampler shall be decontaminated using the procedures described in Section 4.0 and the beginning of this section.

g. Soil samples collected for archival purposes shall be placed into clean soil jars and labeled with the boring number, sample collection depth, date and job number.

h. The procedures for collection of soil samples for chemical analysis are described in Section 1.0.

5.3.4 Auger Flight Sample Retrieval

In cases where an insufficient amount of sample was provided by the split spoon, collection of an auger flight sample may be appropriate. However, the utility of this sample is limited because an accurate measurement of the depth where the soil originated and the degree of mixing with other soil are not known. The limitations of this type of sample should be carefully considered before submitting an auger flight sample for laboratory analysis. Auger flight samples can be collected using two methods.

1. A sample of the drill cuttings can be collected as the soil is extruded onto the ground (after rotation of the drill stem has stopped); or

2. A sample can be collected directly off the augers by removing a portion or all of the drill stem from the ground.

Typically, the closer the sample can be collected to the cutting bit when using Method 2 the greater the ability to estimate the depth of sample origin.

5.3.5 Test Boring Abandonment

a. If the boring is not to be used for other purposes (i.e. monitoring well, soil vapor probe, soil vapor extraction well, etc.) it shall be abandoned.

b. If there are confining layers present in a boring, the presence of DNAPL is suspected, and the boring has been advanced more than 2′ - 3′ below the regional water table, then the boring shall be filled and sealed as the augers are withdrawn with neat cement grout or high density bentonite clay grout. If there are confining layers present in a boring and the presence of DNAPL is suspected, but the boring is <u>not</u> advanced more than 2′ - 3′ into the regional water table, then bentonite pellets or chips may be used, preferably as the augers are withdrawn. The pellets or chips should be compacted during the backfilling operation. For most borings, backfilling with bentonite chips or drill tailings should be used, either of which should be compacted during the backfilling operation. If drilling spoils are used, then they should be free from any evidence of contamination.

c. In paved areas, when bentonite chips or grout is being used, the upper one to two feet of the borehole shall be filled, up to two inches below the existing grade, with sand to allow for repairing of the pavement.

d. Pavement shall be repaired using cold patch asphalt filler or concrete, unless other arrangements are made by the HRP project manager.

5.2.6 Test Boring Location Records

Following completion of the test boring, its location in relation to known mapped features should be recorded for future references. In some cases, the locations may be surveyed relative to site features.

5.4 MONITORING WELL INSTALLATION

The purpose of this document is to describe methods for installing monitoring wells and piezometers within the water-table aquifer. Additional guidances for monitor well installation include ASTM Designation D5092-90 "Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers."

Equipment and Materials

Equipment Supplied by Driller:

Drilling rig or soil coring rig

Well Casing

- Polyvinyl chloride (PVC), schedule 40, minimum 2-inch I.D. flush threaded
- Stainless steel, ASTM Type 304 or 316, minimum 2-inch I.D. flush threaded

Well Screen

- PVC, schedule 40, minimum 2-inch I.D. flush-threaded
- Stainless steel, ASTM Type 304 or 316, threaded to match the well screen

Bottom Cap

- PVC, schedule 40, minimum 2-inch I.D. flush-threaded
- Stainless steel, ASTM Type 304 or 316, threaded to match the well screen

Centering Guides (if used)

- Same material as the casing, except stainless steel may be used in lieu of PVC

Well Cap

- Above-grade well completion: PVC or stainless steel, threaded or push-on type, vented
- Flush-mount well completion: PVC or stainless steel, locking, leak-proof seal

Sand

- Clean silica sand, provided in factory-sealed bags, well-rounded, containing no organic material, anhydride, gypsum, mica, or calcareous material; primary (coarse) filter pack No. 1 or 2 in grain size, and secondary (fine) filter pack, No. 0.1 to 0.4 in grain size

Bentonite

- Bentonite seal: Pure, additive-free, bentonite pellets
- Bentonite for grout: Pure, additive-free, powdered bentonite

Cement-Bentonite Grout

- Proportion not more than 6 gallons of water per 94-pound bag of Portland cement; 3 to 4 pounds of bentonite added per bag of cement to reduce shrinkage

Protective Casing

- Above-grade well completion: Steel pipe with locking cover, diameter at least 2 inches greater than well casing, painted with epoxy paint for rust protection, heavy duty lock; protective posts, if appropriate
- Flush-mount well completion: Steel road box with a cover and drain, diameter at least 4 inches greater than the well casing, rubber seal to prevent leakage

Well Development

- Surge block, single or double solid type
- Pump and associated equipment
- Calibrated meters to ensure pH, temperature, and specific conductance
- Containerization for water produced from well

5.4.1 Overburden Well Construction

While determining the desired depth of a monitor well, the stratigraphy of the location and the nature of the contaminants should be considered. Completion of a well screen across aquifer materials of varying hydraulic properties should generally be avoided if possible.

Monitoring wells will be constructed through the inside of the hollow-stem augers, once the borehole has been advanced to the

desired depth. If the borehole has been drilled to a depth greater than that at which the well is to be set, the borehole will be backfilled with bentonite pellets or a bentonite-cement slurry to a depth approximately 1 foot below the intended well depth. Approximately 1 foot of clean sand will be placed on top of the bentonite to return the borehole to the proper depth for well installation.

Well construction materials not delivered to the site with decontamination certified will be steam-cleaned before being installed.

The appropriate lengths of well screen (with bottom cap) and casing will be joined watertight and lowered inside the augers to the bottom of the borehole. If centering guides are used, they will be placed at intervals around the well casing, beginning no lower than 5 feet above the top of the well screen.

Selection of the filter pack and well screen for the permanent shallow monitoring wells shall be made in the field. Based on lithologic samples previously obtained at the site, and comparison with samples to be obtained in the well borings, standard well screen slot sizes between 0.010- and 0.020-inch and silica sand gradations conforming to Moire No. 00N or 00 are acceptable to avoid excessive sediment movement into the well.

A sand pack consisting of clean silica sand will be placed around the well screen. The sand will be placed into the borehole at a uniform rate, in a manner that will allow even placement of the sand pack. The augers will be raised gradually during sand pack installation to avoid caving of the borehole wall; at no time will the augers be raised higher than the top of the sand pack during installation. During placement of the sand, the position of the top of the sand will be continuously sounded using a stainless steel weight attached to a fiberglass tape measure. The sand pack will be extended from the bottom of the borehole to a minimum height of 2 feet above the top of the well screen. A sand pack of finer-grained sand will be installed for a minimum of 1 foot above the coarser sand pack. Heights of the coarse and fine sand packs and bentonite seal may be modified slightly in the field to account for shallow water table and small saturated aquifer thickness.

A bentonite pellet seal at least 2 feet thick will be placed above the sand pack. The pellets will be placed into the borehole in a manner that will prevent bridging. The position of the top of the bentonite seal will be verified using a weighted tape measure. If all or a portion of the bentonite seal is above the water table, clean water will be added to hydrate the bentonite. A hydration

period of at least 30 minutes will be allowed following installation of the bentonite seal.

Above the bentonite seal, an annular seal of cement-bentonite grout will be placed. The cement-bentonite grout will be installed continuously in one operation from the bottom of the space to be grouted to the ground surface through a tremie pipe. The tremie pipe must be plugged at the bottom and have small openings along the sides of the bottom 1-foot length of pipe. This will allow the grout to diffuse laterally into the borehole and not disturb the bentonite pellet seal.

For monitoring wells that will be completed above-grade, a locking steel protective casing set in a concrete pad will be installed. The steel protective casing will extend at least 3 feet into the ground and 2 feet above ground. The concrete pad will be square, approximately 3 feet per side. The concrete will be sloped away from the protective casing.

Guard posts may be installed in high-traffic areas for additional protection. Four steel guard posts would be installed around the protective casing, within the edges of the concrete pad. Guard posts would be concrete-filled, at least 3 inches in diameter, and would extend at least 2 feet into the ground and 3 feet above the round. The protective casing and guard posts will be painted with multiple coats of an epoxy paint to prevent rust.

For monitoring wells with flush-mount completing, a steel road box with a rubber-sealed cover and drain will be installed. The top of the road box cover will be positioned approximately 1 inch above grade. A square concrete pad, approximately 3 feet per side, will be installed as a concrete collar surrounding the road box cover, and will slope uniformly downward the adjacent grade. The road box and installation thereof will be of sufficient strength to withstand normal vehicular traffic.

Concrete pads installed at all wells will extend to a minimum of 3 to 6 inches below grade. Protective casing, guard posts, and flush mounts will be installed into this concrete. Figure 5 included with the RFI Work Plan illustrates the construction method for well completion.

Each well will be properly labeled on the exterior of the locking cap or protective casing with a metal stamp indicating the permanent well number.

5.4.2 Bedrock Well Construction (coring)

There are a variety of methods for installing a bedrock monitoring well using rock coring procedures. In order to prevent the potential for cross-contamination of the bedrock and to provide a well which is representative of bedrock conditions, the well screen must be isolated in the bedrock and an adequate seal must be installed. Typical bedrock well constructions can include:

1. Installation of a permanent casing with completion of an "open hole" in bedrock.

2. Installation of PVC well screen and riser within a temporary casing which is removed during well construction and grouting to provide an adequate seal above the well screen; and

3. Installation of PVC well materials within a permanent casing which is set into the upper portions of the bedrock.

The most appropriate well construction will depend upon project objective and site specific conditions.

Bedrock coring often proceeds as follows:

1. Hollow stem augers are advanced and split-spoon samples are collected as described for test borings until auger refusal is encountered.

2. The hollow stem augers are removed from the drill hole and flush wall casing and casing bit are spun down the drill hole. The casing is set 1-2 feet into competent rock.

3. The core barrel and core bit are used to penetrate bedrock and retrieve rock core. The core barrel is advanced to the desired well completion depth.

Construction of a monitor well without an oversized permanent casing set into bedrock will proceed as follows:

1. The well screen, threaded to an appropriate length of well casing will be lowered into the drill hole.

2. An appropriately sized sand pack will be slowly emplaced around the screen, between the core hole wall and the outside wall of the well screen. The sand pack will extend approximately 2 feet above the top of the well screen.

3. Approximately 2 feet of bentonite pellets will be placed above the sand pack.

4. the volume of cement-bentonite grout sufficient to fill the drill hole from the top of the bentonite seal to a depth of about 3-4 feet below grade will be calculated. The grout will be carefully placed into the drill hole via tremie pipe.

5. The temporary flush wall casing will be removed. Additional grout will be added as necessary to raise the level of grout to the 3-4 foot depth below grade.

6. After the grout has set, the remaining annular space will be backfilled with clean drill cuttings or sand. The well will be finished at grade in a flush-mount handway or standpipe surrounded by a concrete collar.

During drilling of bedrock monitor wells it is important to note the depth of auger refusal, depth to bedrock, and provide detailed descriptions of drilling conditions and bedrock, in addition to the information noted in Section 5.3.2. Observations which should be recorded include:

1. Drill time per foot of rock core.

2. Color of return water and depth of bit when changes in color occur.

3. Depths of drill bit when chatter of the drill stem changes.

4. Depths of drill bit when loss of return water occurs.

5. Depths of voids when drill stem drops.

6. Length of core run and amount of recovery.

7. Depth number and type (vertical, horizontal, 45°) of fracture.

8. Degree of weathering or fracture surfaces.

9. Well completion details, including bottom depth, well screen interval, sand pack interval, depth and thickness of bentonite seal, and volume and interval of grout.

5.4.3 Well Development

ASTM Designations D5092-90 "Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers" will be used as a guideline to identify well development procedures. Well development will be accomplished using a combination of surging throughout the length of the screened interval and pumping, until the physical and chemical parameters of the discharge water that are measured in the field have stabilized and the turbidity of the discharge water is substantially reduced. In cases where the aquifer is composed of fine-grained materials, it may be difficult to achieve low turbidity results.

Well development will begin by surging throughout the length of the well screen, starting at the bottom of the screen and proceeding upwards. Care will be taken not to surge too violently, so as not to risk damage to the well screen or sand pack.

Following surging, the well will be pumped to remove the fine materials that have been drawn into the well. During pumping, measurements of pH, temperature, specific conductance will be recorded.

Development will continue by alternately surging and pumping until the discharge water is free from sand and silt, the turbidity is substantially reduced, and the pH, temperature, and specific conductance have stabilized at regional background levels, based on historical data. Development will continue for a minimum of 30 minutes.

Well development criteria are as follows:

- Turbidity must be less than 5.0 NTU
- The pH must be less than 9.0
- Temperature and conductivity must be stable within 10 percent
- Minimum time of pumping is 30 minutes
- A minimum of three well volumes must be removed

Well development equipment will be decontaminated prior to initial use and after the development of each well. Water generated during well development will be containerized or otherwise managed in accordance with municipal, state, and federal regulations.

5.5 SOIL GAS SURVEY INVESTIGATION

The soil gas survey is an active sampling and analysis technique in which small volumes of vapor are extracted from soil pore spaces and analyzed by gas chromatography in the field or laboratory for volatile organic compounds (VOCs). The contaminants detected in soil vapor may reflect the presence of free phase product, VOCs adsorbed or absorbed by soil particles, or a dissolved phase that occurs in ground water and diffuses directly into the soil vapor. Using this technique, the presence, extent, and relative concentrations of volatile organic contaminants within the soil gas is determined. During the course of a soil gas survey, only air samples are analyzed; therefore, the soil gas survey is an indirect method of determining the extent and concentrations of soil and ground water contamination. Similarly, field screening of actual soil or groundwater samples can be completed with the gas chromatograph (GC) by partially filling of the sample jar, covering the jar with aluminum foil or saran wrap, ensuring that the sample is at room temperature, and inserting the GC's gas collection probe into the "headspace" portion of the jar. A description of this field screening method is provided in Section 5.0 of this document. It is noted that no EPA standard methods for performing soil gas surveys are currently available.

5.5.1 Sample Point Installation

The test points are typically advanced to a depth of approximately three feet (or refusal) using a clean dry "slam bar". The slam bar is a ½" diameter steel rod with a hand operated sliding weight used to drive the rod vertically into the ground. The slam bar is advanced, removed and a new 7/16" diameter glass thief tube inserted into the hole. In areas where concrete, bituminous pavement or hard fill materials are present, test points are installed by using an electric rotary hammer with a ⅞" masonry bit to penetrate the paved or impenetrable surface, and a hand-operated slam bar is used to penetrate the remaining unconsolidated material below. Alternatively, the unconsolidated materials can be penetrated using a steel probe with a retractable tip.

Modeling clay is used to seal the annular space between the glass thief and the surface penetrated by the rotary hammer in order to prevent the influx of ambient air into the sample ("short circuiting"). Alternately, if no bituminous pavement or concrete is present, the soil around the glass thief is tamped down to prevent short circuiting.

5.5.2 Sample Retrieval Methods

A personal size air sampling pump with a gas sampling bulb is attached to the end of the glass thief with Tygon tubing and operated at a rate of one liter/min for two minutes in order to extract soil gases from the subsurface pore spaces. A 100-500 microliter gas-tight Hamilton syringe is then inserted into the gas sampling bulb in order to draw a sample of the soil gas. This process is repeated for each successive sampling location.

If the time of pumping or the pumping rate of the air sampling pump needs to be altered, field tests can be conducted to determine the optimum pumping rate or time. The optimum pumping rate or time should be considered as that rate or time that yields the maximum soil gas concentration as indicated by extracting and analyzing samples at various rates and times. In any case, all samples should be extracted at the same rate for the same period of time throughout the soil gas investigation to provide a consistent basis for data evaluation and for mapping VOC contaminant distributions, as appropriate.

5.5.3 GC/Analysis Methods

A Photovac Portable Gas Chromatograph (GC) with a pre-column backflush oven, and a Photoionization Detector (PID-10.6 ev and/or 11.7 ev) are used to analyze the soil gas or soil headspace obtained from each sample point unless an alternative unit is specified. A Photovac capillary column nine meters long and a pre-column one meter long both constructed of CPSil 5CB and measuring 530 micrometers in diameter will normally be employed. The GC is best housed in an interior "climate-controlled" area or a mobile trailer laboratory, but also can be housed in a field vehicle such as HRP's ¾ ton van if no such area is available.

The peak amplitudes and retention times associated with each sample are then compared to standard peak and retention times. Standards are obtained from a laboratory supply company which provides QA/QC data for each constituent. If possible, the types and approximate concentration ranges of each site contaminant should be known prior to field operations. By comparing the soil gas results with the target standards, the amounts and types of contaminants in each sample are quantified.

"Ultra Zero Air" certified to contain less than 0.1 ppm total hydrocarbons is used as the carrier gas. The gas chromatograph oven operates isothermally at approximately 40 °C, although 50°C can be used for some applications (i.e. late eluting com-

pounds). The total run time for each sample is programmed to allow sufficient time for analysis of all contaminants of interest. Both sample and standard injection volumes are recorded to allow direct quantification between standards and unknowns. Carrier gas flow rate is held constant between 5 and 20 cubic centimeters (cc's)/minute depending on the application to assure constant retention times.

5.5.4 QA/QC Methods

The purpose of the QA/QC program is to assure that soil gas contamination detected on the site does not arise from interferences such as ambient surface air, carry-over from contaminated equipment or spurious instrument response. The QA/QC program consists of periodic injection of headspace gas obtained from water standards, needle blanks, equipment blanks, and ambient air blanks. Instrument blanks (no injections) are also performed as needed to evaluate the potential for column carry-over.

Headspace gases from the targeted VOC standards are injected into the GC at least twice during each day of operation to confirm accurate calibration and retention times. In addition, representative syringe and ambient air samples from both the GC and sampling areas are analyzed in order to verify syringe cleanliness and background air quality. If significant ambient air interferences are present, then additional ambient air analyses are performed (one ambient analysis for every 2-5 samples). Syringes are decontaminated prior to the start of, and daily, during the investigation. Standard calibration information is stored on a computer and in the GC's mini-computer library prior to the first day of sampling for all contaminants targeted for study.

Syringe blanks are periodically injected to confirm that syringe contaminant carryover from the previous sample(s) did not occur. All sample syringes are numbered and rotated between uses. Sample syringes are not mixed with syringes used for standard injections. In addition, all syringes are disassembled and allowed to air dry or (preferably) dried under a heat lamp between uses.

In order to prevent test point cross-contamination, all glass tubes, tygon tubing, and 40 ml VOA soil headspace jars are used once and discarded. In addition, the slam bar and sample probes are decontaminated between each test point by wiping with a clean towel and air drying, or by use of methanol if high concentrations of volatile organics are apparent.

An "equipment blank" analysis of the modeling clay used to seal test holes is performed by sampling equilibrated headspace gas from a 40 ml teflon-capped septa vial containing the clay material. The modeling clay should be free of interfering VOCs.

Duplicate soil gas and soil headspace samples extracted at approximately the same time from selected sample points are also analyzed to evaluate sample variability. Duplicate sample analyses should be sufficiently consistent to meet the study objective of contour mapping contaminant distributions on a semi-quantitative basis.

The QA/QC program for field GC applications should verify that:

1. GC column carryover is not interfering with any of the analyses (measured column carry-over is less than 5 parts per billion (ppb) for any of the VOC constituents which are included in the investigation);

2. Carryover syringe contamination is not detected after any sample injection (measured syringe carry-over is less than 5 ppb for any of the VOC constituents which are included in the investigation);

3. No interfering contaminants are present in the modeling clay used to seal the test points (measured modeling clay concentrations are less than 5 ppb for any of the VOC constituents which are included in the investigation);

4. Ambient air contaminant concentrations in the sample analysis area and outside the building are documented not to interfere with the soil gas survey (measured ambient air concentrations are less than 5 ppb for any of the VOC constituents which are included in the investigation); and

5. Verification that "ultra zero air" used for the gas chromatograph has no contaminants present before testing.

APPENDIX I

- U.S. EPA ENFORCEMENT SUMMARY
- CT DEP RCRA INSPECTION REPORTS

NOV M.D

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

SITE NAME: Synthetic Products
TOWN: Stratford
FILE TYPE: Ins

RECEIVED
OCT 13 1988
HAZARDOUS MATERIALS
MANAGEMENT UNIT

October 7, 1988

Dr. Stephen Hitchcock, Director
Department of Environmental Protection
Hazardous Materials Management Unit
State Office Building
165 Capitol Avenue
Hartford, Connecticut 06106

Dear Dr. Hitchcock:

On July 28, 1988 a hazardous waste inspection was conducted by EPA at Synthetic Products Company, CTD000844365, in Stratford, Connecticut. A copy of the inspection report is enclosed for your review and follow-up compliance action.

The purpose of this letter is to provide notice, pursuant to Section 3008(a)(2) of RCRA, that EPA has found Synthetic Products Company to be in violation of several Federal hazardous waste management regulations. A summary of these violations is included in the inspection report.

As agreed, during the program reversion period, the Phase I Memorandum of Agreement (MOA) as amended for Phase II Interim Authorization, remains the primary operative enforcement agreement and was supplemented by the April 9, 1986 Letter of Intent (LOI). Consequently, as specified in Section II D.3 of the MOA and Item 6.b of the LOI, it is the primary obligation of the state to take timely and appropriate action against persons in violation of RCRA. This includes violations detected by Federal compliance evaluation inspection.

The enforcement action chosen should require compliance by a specified date. The action taken should be consistent with DEP's enforcement response policy. Should the state fail to require compliance by a specified date and/or fail to remedy the deficiencies noted in our inspection report within the time specified, EPA may exercise its right to initiate enforcement action under Section 3008(a)(2) of RCRA.

As agreed, EPA will take the necessary enforcement action for Land Ban violations. All other violations noted in the attached trip report should be addressed by DEP.

If you have any questions please contact Robert Leger of my staff at (617) 573-9656.

Sincerely,

Merrill S. Hohman, Director
Waste Management Division

Enclosure

cc: Pat Bowe

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F.K. FEDERAL BUILDING, BOSTON, MA 02203

DATE: September 2, 1988

SUBJ: RCRA Compliance Evaluation Inspection (CEI) Trip Report

FROM: Mary Garren, Geologist
NH & RI Waste Regulation Section

Austine Frawley, Program Management Specialist
RCRA Support Section

TO: Mary Jane O'Donnell, Chief
NH & RI Waste Regulation Section

Gerry Sotolongo, Chief
CT Compliance Enforcement Section

I. General Information
- A. Facility Name: Synthetic Products Company
- B. EPA ID Number: CTD000844365
- C. Mailing Address: P.O. Box 262
  Stratford, CT 06497
- D. Facility Location: 375 Barnum Avenue Cut-off
  Stratford, CT 06497
- E. RCRA Contact: Jamie Kalanta, Director of Operations
- F. Responsible Official: Jamie Kalanta, Director of Operations
- G. Date of Inspection: July 28, 1988
- H. Purpose of Inspection: S & T CEI
- I. Persons Participating on the Inspection:
  1. Austine Frawley, EPA
  2. Mary Garren, EPA
  3. Jamie Kalanta, Director of Operations

II. RCRA Reporting/Information Requirements
- A. Type of Operation: Generator & Storage Facility
- B. Type of Operation for which notification has been received: Large Quantity Generator, Transporter, Container Storage
- C. Date of Notification to EPA: 8/18/80
- D. Date of Submittal of Part A to EPA: 11/19/80
- E. Date Part B was called by EPA: Interim Status Permit Candidate, hopes to convert to generator status.
  by State: Not called
- F. Date Part B was received: Not applicable
- G. Date Permit was issued: Not applicable
- H. Closure Plan approved: No

III. Source Description

Synthetic Products Company has been operating under varying ownership on Barnum Ave Cutoff since 1969. Operations prior to 1980 involved production of a line of reactive monomers. Between 1969 and 1980 waste from monomer production was disposed of in the leach field onsite. The leach field is currently the site's paved parking lot. Ground water recovery wells and an air stripper operate under the oversight of the State of Connecticut.

Since 1983/1984 Synthetic Products has been producing liquid PVC heat stabilizers. The product line is made up of antimony stabilizers, barium-cadmium-zinc mixed metal stabilizers, and a smaller percentage of tin stabilizers. Production of all stabilizers includes adding solvent to an organic acid and metal oxide. The mixture is heated to 100-130°c and allowed to cook. The water of reaction is then pulled off with a vacuum. The stabilizer is then analyzed, filtered, and stored in tanks. Product is shipped to customers in 55-gallon drums, 450-gallon returnable totes, or tank wagons.

Hazardous wastes produced at Barnum Ave are exclusively D005/D006 wastes. Ten 5000-gallon tank wagons of D005/D006 water of reaction and steam condensate were shipped to Dupont in New Jersey for treatment last year. Nine tank wagons of D005/D006 organic waste (tank clean-outs, small hose spills, totes cleaning) were sent to Delaware Container, blended as a fuel additives, and shipped to Keystone Cement in Pottstown, Pennsylvania last year. In the past year, 559 drums of D005/D006 solid waste (filter pads containing barium/cadmium) were sent via Waste Conversions in Pennsylvania to the Ford Motor Company Landfill in Wayne, Michigan. Container and tank storage are used to manage wastes onsite.

IV. General Observations

Container storage at Barnum Ave is primarily in the drum storage area off the back room of the production building. The area is roofed, fenced, locked, and based on a bermed concrete floor. Thirty-two drums were stored three tiers high on pallets with good aisle spacing. Most drums were identified with a label stating hazardous waste, a verbal description of the waste, and the accumulation date. No EPA hazardous waste code was included on many labels. One drum had a hazardous waste label on it but no identification of the waste or when accumulation started. Most drums

were onsite less than one year.

A second overflow drum storage area is located outside the office building. It is a roofed enclosure with a fence and lock. The base is a tarred surface with no berm. No hazardous waste has been stored there since 1984. The area has been used for flammable product storage. Mr. Kalanta explained that CTDEP advised the facility to keep this area as back-up storage. No warning signs are currently posted but would be if the area was ever used.

Two areas inside the production building were being used to store drums of waste. Seven drums of hazardous waste liquids were stored on the concrete floor of the back room. Drums had accumulation dates of 7/13, 7/16, and 7/20/88. Four drums of hazardous waste solids were being kept in the front room. These drums were also found on a concrete base. Accumulation dates were 7/26 and 7/27/88.

Synthetic Products stores hazardous wastes in tank storage as well. In the front room of the production building are two tanks used for hazardous waste accumulation. One 2000 gallon tank collects floor sump wastes. The other 1000 gallon tank is used for organic wastes. The contents of the two tanks are combined and piped overhead to one of the hazardous waste tanks in the back room. Wastes from the front room are piped to a 5000 gallon tank for organic wastes. A second 5000 gallon tank is used for waste water of reaction. Tanks are found on a concrete floor that is sloped to sumps providing containment. Both tanks in the back room are labelled combustible liquid. These two tanks are pumped by Delaware Container 8-10 times each year. All tanks and piping appeared well-maintained. A fifth tank holding hazardous waste is located beside the cross-current air stripper operating to treat ground water from the leach field. The tank is found in an outdoor-fenced area. No secondary containment is present. Insulation surrounds the tank so the tank integrity was not readily determined. Mr. Kalanta said that in four years the tank had accumulated one gallon of organic waste.

The facility's paperwork requirements were generally in order. Waste analysis is performed on each waste stream. The waste analysis plan should specifically discuss the facility's waste as land ban waste. The land ban notification form currently in use must be revised to identify the particular waste treatment standard for the waste being shipped.

V. Summary of Violations

- Failure to mark each container to identify its contents

and the date each period of accumulation began.

per state/EPA agreement we'll refer these back to EPA. PB

2. 40 CFR 265.13(b)(6) Class II
Failure to address land disposal restricted waste in the facility's written analysis plan.

3. 40 CFR 268.7(a)(1) Class II
Failure to identify the appropriate waste treatment standard on notifications accompanying land disposal restricted waste.

4. 40 CFR 265.15 Class II
Failure to inspect the hazardous waste tank that stores distilled contaminants from the air stripper or to include the tank on the inspection log.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F.K. FEDERAL BUILDING, BOSTON, MA 02203

ENFORCEMENT SUMMARY

Name and Address of Company: Synthetic Products Company
301 Barnum Ave. Cut-off
Stratford, CT 06497

Date of Inspection: 7/28/88

State Enforcement Summary:

1/27/84 State record review. Class III "Other" Violations (inspection schedule, logs, and training records).

2/21/85 EPA and State CEI. Class I financial, Class I and II "Other", Class II closure. State issued Nov #193 4/15/85 for Class I "Other" Violations

11/7/85 State record review. Class I financial and "Other" Violations. AG filing 7/31/86. $3000 penalty collected. Compliance achieved 5/7/87.

7/28/88 EPA CEI. Current Violations.

Recommended Enforcement Response:

The recommended enforcement response for Synthetic Products is for the Agency to refer all violations, with the exception of land ban violations, to the State for follow-up enforcement action. The violations of 40 CFR 268.50(a)(2)(i) and 40 CFR 268.7(a)(1) must be addressed directly by EPA through a Notice of Violation to the facility. The State of Connecticut is not authorized to enforce violations of the land ban.

State Coordination:

CT DEP did not participate in this inspection. EPA performed this inspection at DEP's request.

Solid Waste Management Units

In addition to the container storage and tank storage discussed in the trip report, additional SWMUs were identified onsite. Two outdoor drum storage areas existed prior to construction of the enclosed areas currently onsite. A large area for container storage ran the length of the production building. The second smaller area appears to have been on the edge of the site near

dumpsters were also seen onsite.

Barnum Ave DEBRIEFING MEMO TO: Date:

Synpro-Ware Co. (R + Kraft) 6/1/83 Inspection Type: RCRA INV
Name of Site Division Inspection Date Compliance w/ enforcement
Complaint #____
Stratford CTD000844365 Hassler Other: ____
Town - EPA ID # Inspector's Name

Status: Small-Q (Notifier) GEN TRANS CT-Permitted-Hauler TSD: Treatment (Storage) Disposal
O.O.B _ No Haz. Waste Required to Notify but didn't Moved to:

Does operation agree with notification? __yes ✓no __N/A. Status change needed?: YES, new wa and remo trans. s

Type of Waste: __chlo. solvents ✓corrosives IN: ✓containers __inc/therm. trt
✓non-chlo. solvent __reactives ✓tanks __phys/chem/bio trt
✓heavy metals __PCBs __surf.imp. __land trt
__ignitables ?waste oil __waste pile __secure L.F.
__other: organics (liq.), polymerized + off-spec batches, lab waste. __wwts __engineered L.F.
__Solid Waste L.F.

What do they do or make?: Mfg. Chemicals

PROBLEMS: List ALL violations, deficiencies, etc., and briefly explain

in compliance	not in compliance	(If not applicable, indicate N/A in "in compliance" column)
✓	__	Manifests - but need gen. dates + description for NOS. wastes.
		__no __yes: Any Exception, Discrepancy or Unmanifested Waste Reports in last 3 mo:
✓	__	Using Permitted Haulers and TSDF's?*
✓	__	Proper Haz. Waste Disposal?* - but historical problem - see Water Comp.
__	✓	Haz. Waste Determinations* - needed for new wastes + rinsewater.
__	✓	Waste Analysis Plan } have none, told to devise.
__	✓	Inspection Schedule & Log } have none, told to devise.
__	✓	Personnel Training } have none, told to devise.
__	✓	Contingency Plan } have none, told to devise.
✓	__	Closure/Post-closure - but needs minor modifications (see report)
✓	__	Cost Estimate
__	✓	Operating Records - have none
__	✓	Security - needed for waste storage area.
✓	__	Prep. & Prevention
__ ?	__	Groundwater Monitoring - check with Water Comp. + T. Stark (G.W contam.)
__	✓	Actual storage, treatment and disposal*: Poor, see report - need impermeable base, security + posting; need berm, are triple-stacking.

General comments: Space a problem for proper storage.

Potential for groundwater contamination? __no ✓yes __maybe. Comment: Occuring, see report

Problem is: Serious(Order) Intermed.(NOV) Routine/Minor(LOD) None(no response) Not Sure?
Recommended Response by Reviewer:

Any contact since inspection? ✓no __yes __not sure. If yes, document on STATUS SUMMARY
Copies to: File ✓Enforcement Officer ✓ONCR folder ✓Referrals to: Water R

HAZARDOUS WASTE INSPECTION CHECKLIST

Site:

Name: Synpro-Ware Co.

Location: 385 Barnum Ave. cut-off
Stratford 06497

Phone No: ( ) 377-5550

ID No: CT000084 4365

Contact & Title: Leo Grondine

Mailing Address (if different from location):

Inspector(s): Hassler

Inspection Date: 6/1/83

Inspection Category:

RCRA Notifier as:

Generator: ✓

Transporter:

TSDF: ✓

Part A Application ___ No, ✓

UIC:

Inventory: ✓

Complaint No:

Other (describe):

Note: groundwater contamination due to solvents + organics to old leach field - Water Comp. involved, treatment installed.

CHARACTERIZATION OF SITE ACTIVITY

A) Date Established at Present Location: 1968 (approx)

B) No. of Employees, Shifts: 28, on 3 shifts.

C) Type of Activity: Mfg. chemicals

D) Products: metal stabilizers for pvc, methacylate monomers (wire insulation, floor tiles, others) - monomers being phased out, will be replaced.

E) Processes: Five esterification reactors, two vacuum distillation units. Bulk storage: 5* in-ground tanks (2 for reclaimed solvent, 3 for raw materials: ink oil + isodecyl alcohol), above ground: 1000 gal. heptane, 7 others from 3,000 - 6,000 gal. each for: phosphite, nonyl phenol, methacrylic acid, acrylic acid, NaOH, Ba intermediate, other acid. Also other in-process tanks for intermediate storage.
1.) Esterification: heptane + toluene mixed w/glycol + organic acid in batch reactors; add NaOH; wash tanks + bottom phase waste. Also filters + solvent distillation. 2.) metal stabilizers: similar to esterification but no solvents, use ink oil (viscosity control); make metal intermediates in reactors - Ba, Cd, Zn compounds, various "recipes" for pvc. Washout, trenches + sumps, solvent skim. ⊛

F) Water Supply (if well(s) give approx. location): City water. Had well, discontinued in early 1970's.

G) Septic System(s), Municipal Sewer(s), Drywell(s): Sanitary sewer + NPDES to Long Brook. Leach field discontinued in '79 received floor rinses, now to

* have 6th inground tank: 2000 gal. alkaline waste.

⊛ - also have heat exchangers for stripper, Q.C. lab, warehouse + maintenance.

Off-site, Temporary Storage/ISD | Transporter | Off-site TSD

SEE ATTACHED pg. 16 Summary:

1.) alkaline washwater; 10,000 gal./month, SCA Services, N.J. haulers
2.) floor rinsewaters; 30,000 gal./mo., stored in tanker, " " "
3.) skimmed organic layer; 2500 gal./3 months (heptane, inks, oils); drum storage, hauled by SCA Services.
4.) solidified batch wastes, off-spec. stabilizers, EP toxic filter pads, total 250 drums/yr. SCA Services, N.J. haulers.
5.) lab waste; 5 dr/yr.; SCA " " "

III INVENTORY

A) Has this site notified EPA under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 PL 96-510 (commonly known as Superfund): ___ No, ___ Yes: (Attach copy of Notification, if available)

B) Prior to the November 19, 1980 Implementation of RCRA Where; When; What type; Amount/Frequency; How long; and by Who (Transporters, Facilities, Etc.) were wastes disposed of Off-site:

SCA Services, N.J. used since '79 or '80, prior hauler was Newtown Refining, N.J. + N.Y. for years. Two loads to Sealand, Ct + Tri-Chem, Ct. Hisko Trucking, N.J. (see manifest) hauls for SCA sometimes. Call Peter for solid waste.

C) Is there any evidence of On-site disposal? ___ No, ✓ Yes. - historical

Give Approximate Location; Type; Amount/Frequency; Length of Time On-site disposal has been used, etc. (Specify any historical On-site disposal):

Rinses went to leach field till 1979, now have groundwater contamination of organics + solvents (heptane +); NEPCO installed treatment system, not yet on-line, to pump off contam. + ~~air~~ aerate.

IV RECORDS

262.11/ 25-54cc(c)-2(a)(3)(A)-7, &-9(3)(3)

aa) Hazardous Waste Determination

Also: need determination for rinsewa

1) Performed: YES, based upon spec. sheets + purchasing record Processes + wastes have changed since notification:

2) Records Maintained: YES, but now have EP Toxic filter pad waste + off-spec. stabilizer waste. Should re-notify

Note: original notification was for "Ware Chemical", but the company name has changed since. Also the 3rd Ware Chem. plant (125 Ontario St) has been sold - reasons for renotification.

IV RECORDS

..21/
.5-54cc(c)-5

a) Manifest

1) Document No.: CT0053075

2) Generator ID, name, address: CTD000844365 Sympro-Ware 385 Barnum Ave cutoff, Strat

3) Transporter(s) ID, name, address: NJD060784483 Hisko Trucking Co., Inc. 24 Buckingham Ave, Perth Amboy N.J.

4) Continuing Transporter ID, Name, Address: —

5) TSD Facility ID, name, address: NJD089216790 SCA Chemical Services 200 Lister Ave., Newark, NJ.

6) Waste Type/ Quantity: 5000 gal. waste corrosive NOS - needs descript

7) Date Shipped: 5/18/83

8) Delivered: 5/18/83

Need gen. dates + description column (for NOS. wastes) filled out.

262.50/
25-54cc(c)-

i) International Shipping Manifest: —

262.42/
25-54cc(c)-6

ii) Exception Report: —

265.13/
25-54cc(c)-26

b) Waste Analysis Plan

1) Plan on site: NO, told to devise.

2) Plan should include (a) parameters: YES, hand-written.

(b) test methods: YES, informal description

(c) sampling methods: ?

(d) frequency: NO

3) Copy of Results: YES, own lab + SCA results.

265.15/
25-54cc(c)-28

c) Inspection Schedule and Log

1) Are inspections conducted: NONE, told to devise.

2)* Written inspection schedule: ?

3) Inspection Log: NO

(A) Daily - loading and unloading of areas subject to spills: NO

- discharge control equipment in tanks:
- incinerator system, thermal treatment equipment,
- chem/phys/bio. treatment equipment:
- freeboard level of surface impoundments:

* Required for Temporary Storage

265.15/
25-54cc(c)-28

c) Inspection Schedule and Log (continued) NONE, told to devise.

(B) Weekly - physical conditions of containers:

- physical conditions of tanks: _____
- physical conditions of surface impoundments: _____
- physical conditions of chem/phys/bio. treatment facility: _____

265.16/
25-54cc(c)-29

*d) Personnel Training Records Need documentation:

1) Job titles/position description and name of employee
maint. supr. to fire school.
also Dart Industries course to Grondine.

2) Description of training: NO

3) Records of training: NO

4) Training completed: ?

*e) Contingency Plan NONE, told to devise.

265.53/
25-54cc(c)-31

1) Plan on site: _____

265.53/
25-54cc(c)-31

2) Plan to local authorities: _____

265.52/
25-54cc(c)-31

3) Content of Plan: Only have Air Comp. "Emergency Episodes" manual.

a) Emergency plan: _____

b) Local authority arrangements: _____

c) Identify emergency coordinator: _____

d) List of emergency plans: _____

e) Evacuation plans: _____

f) Closure and Post-closure Plans; Cost Estimates

265.112, .113, .114, .115/
25-54cc(c)-34

1) Closure Plan (TSD Facilities) -

a) Plan on site: YES, needs minor modifications.

b) Does plan include:

1) Schedule of partial closure if applicable: ?

2) Estimate of maximum inventory of waste in storage or treatment at given time: 570 drums + 4000 gal. (tank)

3) Schedule for final closure & an estimate of the expected year of closure: 2000 +

4) Description of steps needed to decontaminate facility equipment: YES, boil-out, clean-up, soils

5) Total time required for closure: NO

6) Certification of closure: NO

*Required for Temporary Storage

.117, .118/ 2) Post-closure Plan (disposal facilities only) N/A
-54cc(c)-34

a) Plan on site: _____

b) Does plan identify and include frequency of: _____

o planned groundwater monitoring: _____

o planned maintenance & security activities: _____

o name, address and phone number of Post-closure contact: _____

c) Length of Post-closure period identified: _____

265.142/ 3) Closure Cost Estimate (TSD facilities)
25-54cc(c)-35

a) Estimate on site: Amount of estimate: $ 85,542

b) Estimate adjusted annually on 11/19 for inflation: ?

c) Has Closure Plan changed? ?

d) If answer to 3 is yes, has cost estimate changed?

265.144/ 4) Post-closure Cost Estimate (disposal facilities only)
25-54cc(c)-35

a) Estimate on-site: Amount of estimate: N/A

b) Estimate adjusted annually on 11/19 for inflation:

c) Has Post-closure plan changed?

d) If answer to 3 is yes, has cost estimate changed?

265.73/ g) Operating Records
25-54-cc(c)-32

1) Records on site: NO, told to devise

2) Description, quantity, method and dates of disposal: YES, informal written inventory of waste generation & disposition.

3) Location on-site and manifest number: NO, but accessional reference to manifest # on informal inventory

4) Results of waste analysis: NO, but see waste analysis pla

5) Record of any incidents requiring use of contingency plan: NO

6) Records and results of inspections: NO

7) Closure and post-closure cost estimates if needed: See Closure Plan

Completed financial test, needs review by DEP.

B. Inspectir

265.14/
25-54cc(c)-27

1) Site Security

a) 24 hour surveillance system: ADT alarm, also 24 hr. occupation

b) or Artificial or natural barrier: NO

c) and Means to control entry: NO

d) Danger sign posted at each entrance legible at 25': NO

265.30-.37/
25-54cc(c)-30

**2) Site Preparedness/Prevention

a) Internal communication/alarm: Page system, ADT burglar alarm

b) Telephone/2-way radio: Phones 100 ft. from waste area.

c) Portable fire control equipment: ABC ext.

d) Adequate water for fire control: sprinklers, city hydrants.

e) Testing and Maintenance of equipment: YES.

f) Adequate aisle space: NO for waste drums

g) Access to equipment: ?

265.170-177/
25-54cc(c)-38

3) Containers Approx. 225 drums, triple-stacked, no berms, only part of base impermeable. Need posting & security.

Leaks NO, but not all drums accessible

Ruptures " " "

Corrosion YES.

Closed Except in use YES, but not all drums accessible

Heat/Pressure NO, " " " "

50' bufferzone for I and R wastes: ? Space is a problem.

I = Ignitable _____; R = Reactive _____

No smoking signs near I or R waste NO

Separation of incompatible wastes ?

Evidence of spills Minor (resins & oils ?).

Also 4300 gal. waste tanker kept here for alkaline waste, needs label & dike.

Storm drain 50 ft. away, downgradient, oil spill (small) at drain.

262.30-.34/
25-54cc(c)-8

Pretransport requirements: packaging YES

labelling Use waste codes (eg. "41 D")

marking NO

placarding ?

Date of waste Accumulation YES

*NYR Check for impermeable base under containers, any drains, secondary containment

*NYR - Not yet regulated by EPA, however, required by 25-54cc(c)-38(c)(3)

**Required for Temporary Storage

alkaline wash water

265.190-.199/ 25-54cc(c)-39

4) Tanks YES, 2800 gal. in-ground, plus 4300 gal. waste tanker truck kept at waste area.

Leaks NO

Ruptures NO

Corrosion: Check valves, piping controls for signs of corrosion YES, truck rusted.

2' freeboard or containment N/A

Heat/pressure NO

Evidence of spills Minor, at waste drums nearby.

Inflow and outflow controls YES

Continuous Inflow NO Means to stop flow? YES.

Special Requirements for I and R wastes N/A

Neither tank inspected by ~~where~~ Synpro-Ware - need logs.

Tanker not diked, need ID on it.

265.220-.230/ 25-54cc(c)-40

5) Surface Impoundments (Pits, Ponds and Lagoons) N/A

Protective Cover on Dikes

2' freeboard

Special requirements for I and R waste

Evidence of fire, explosion - leak

*NYR Liner

265.90-.94/ 25-54cc(c)-33

Groundwater Monitoring

265.250-.257/ 25-54cc(c)-41

6) Waste Piles N/A

Wind erosion control

Prevention of leachate from pile (if hazardous)

Special requirements for I and R waste

Evidence of fire, explosion, leak

Separation of incompatible wastes

Waste analysis

265.340/ 25-54-cc(c)-45
265.382/ 25-54cc(c)-48

7) Incinerators/Thermal Treatment N/A

a) Steady State conditions

b) Inspect combustion and emission control instruments every 15 minutes

c) Observe stack plume hourly

d) Waste analysis

*NYR - Not yet regulated

265.302-.315/ 25-54cc(c)-43 10) Secured Landfills N/A

*a) Run-on diversion _____

*b) Run-off collection; Treat if necessary _____

c) Wind dispersion controlled _____

d) Records of all dimensions, locations, and contents _____

e) Special Requirements for I and R wastes _____

f) Special Requirements for Incompatible Wastes _____

*g) Special Requirements for liquids _____

*h) Reduction in volume of empty containers _____

265.90-.94/ 25-54cc(c)-33 *i) Groundwater Monitoring _____

25-54cc(c)-44 11) Engineered Landfills N/A

a) Minimum area exposed to direct precipitation: _____

b) Run-on diversion: _____

c) Run-off collections; Treat if necessary: _____

d) Wind dispersion controlled: _____

e) Prohibited Materials: present: _____

f) Surveying and Recordkeeping: _____

25-54cc(c)-33 g) Groundwater Monitoring: _____

Subpart R/ 25-54cc(c)-48 12) Underground Injection. No, but leach fields received rinses until 1979, replaced by tanks (above-ground). Have groundwater contam. from leach field (see inventory pg 2 and pg. 10, F).

Prohibited, for hazardous waste, in Connecticut.

*November 19, 1981

C. Requests for Information

3) remove Trans. status.

Need recertification for 1) new wastes, 2) new co. name, and 3) Told to amend or devise ~~gen~~ permit documents, including annual report. Storage area needs upgrading, no berm, no impermeable base, shouldn't triple-stack, need better aisle space.

D. Photos Taken

NONE

E. Samples Taken

NONE

F. Potential for Imminent Hazard, Air, or Water Discharge Violations

1) Groundwater contam: organics & solvents (heptane) to be pumped off (NEPCO, Norwalk installed system, not yet on-line), due to leach field receiving rinses till '79.

2) Storage area needs better mgt & containment.

G. Proximity to Residential Area, Surface Water, Recharge Zone, etc.

Area industrial & commercial, beneath I-95, adjacent to old asbestos disposal site (Raybestos & Reynolds Aluminum nearby). Also urban residential to East & South. NPDES to Long Brook (along East edge of site).

WASTES : Typically ship one load of waste / week :

1.) alkaline wash water (NaOH, NaCl, Na methacrylate, H_2O + pH 11) ; gen. 10,000 gal./month, stored in drums or tanker truck; pumped off by SCA Services, N.J.

2.) floor trench rinsewater; 30,000 gal./month; stored in the tanker truck; pumped off by SCA Services, N.J. Picks up solvents.

3.) skimmed organic layer from skimmer (heptane, ink, oils); gen. 2500 gal. every 3 months; hauled by SCA Services. Drum storage.

4.) solidified batch wastes, filter pads from heavy metals, solids from tank bottoms. Includes off-spec monomers + polymerized batches, plus distillation bottoms from cleaning solvent tanks. These are most of the drummed wastes: total 250 drums/year. Hauled by SCA Services, couple past loads to Sealand, Ct. + Tri-Chem, Ct.

5.) off-spec. stabilizers (gel); avg. 20 drums/yr., SCA hauls.

6.) lab waste, usually gels of off-spec. materials; 5 lb/yr. - SCA.

Occassionally take back customer's off-spec. stabilizers.

Waste stream will change significantly when monomers are discontinued in Fall. New product line will replace it, but uncertain what this will be.

Call Peter for solid waste, dumpster on-site.

HAZARDOUS WASTE INSPECTION CHECKLIST

Site:

Name: Synthetic Products Co. (Formerly Ware Chemical)

Location: Div. of Plastic Specialties and Technologies
292 Longbrook Ave (375 Barnum Ave cutoff)
Stratford, CT 06497

Phone No: ( ) 377-5550

ID No: CTD000844365

Contact & Title: Jamie Kalanta Dir. of Operations

Mailing Address (if different from location):

Inspector(s): Pete Zack DEP, Art Wing EPA.

Inspection Date: 2/21/85

Inspection Category:

RCRA Notifier as:

Generator: X

Transporter:

TSDF: X

Part A Application ___No, ___Yes

UIC:

Inventory:

Complaint No:

Other (describe):

Formerly Div. of Dart Ind.
(Another division located on 1525 Stratford Ave Stratford, CT.

CHARACTERIZATION OF SITE ACTIVITY

A) Date Established at Present Location: ≃1968

B) No. of Employees, Shifts: 14 total 3 shifts 5 days/week

C) Type of Activity: Mfg.

D) Products: PVC heat stabilizers including; barium nonyl phenate, cadium octoate, zinc benzoate, tin isooctyl thioglycenate, antimony isooctyl glycenate.

E) Processes: Currently not mfg. monomers, but there is a possiblity of doing so in future. PVC heat stabilizer production: Primarily ink oil solvent and some fatty acids, Soybean oil, phosphites are mixed with the metals to keep them in solution.
Intermediates are formed by mixing the solvent mixture with an acid and a base to form a salt. Water is driven off and collected in a 5000gallon above ground tank. The intermediates are filtered and placed in a storage tank. There are 6 reactors and one large blending tank. The intermediates are blend to form the final product, and drumed. Tanker loads are blended in a large blending tank.
Wash downs and floor washings go to a 5,000gallon above ground tank. Waste filters and solid floor sweeping are drumed.
Have a recovery well onsite. Waste from stripper is collected in a 200gallon tank. The contact said only 7gallons of waste has accumulated since September.

F) Water Supply (if well(s) give approx. location): City water. Have 8-9 test wells and a recovery well onsite due to past discharge of monomer waste to septic system.

G) Septic System(s), Municipal Sewer(s), Drywell(s): Sanitary sewer for sanitary wastes. Have NPDES permit for non contact cooling water discharged to Longbrook.

II WASTE PROFILE

Type of Waste	Amount/Frequency	On-Site, Temporary Storage/TSD	Transporter	Off-site TSD
1) (EP toxic) Waste water;	5000gal/10days;	stored in 5000gal tank	; Delaware Container;	Dupont
2) (Steam-cleaning) Waste organics;	5000gal/mon.;	stored in 5000gal tank;	Delaware Container →	Delaware Container.
3) Solid Wastes and filters;	20drums/60days;	drum storage;	Delaware Container →	Delaware Cont.

3a) Receive lead contaminated waste from other division in Stratford.

4) Lab waste; Placed back into batches according to contact.

5) Waste from recovery well air stripper; pumped to a 200 gallon tank. Must relocate recovery well due to low yield. NEPCO handles well and waste generated. Under contract by previous owner.

III INVENTORY

A) Has this site notified EPA under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 PL 96-510 (commonly known as Superfund): ___No, X Yes: (Attach copy of Notification, if available) not available

B) Prior to the November 19, 1980 Implementation of RCRA Where; When; What type; Amount/Frequency; How long; and by Who (Transporters, Facilities, Etc.) were wastes disposed of Off-site:

Completed on previous inspection

C) Is there any evidence of On-site disposal? ___No, ___Yes.

Give Approximate Location; Type; Amount/Frequency; Length of Time On-site disposal has been used, etc. (Specify any historical On-site disposal):

Completed on previous inspection.

IV RECORDS

2.11/ -54cc(c)- 1)(3)(A)-7, 9(3)(3)

aa) Hazardous Waste Determination

1) Performed: Need analysis for Solid wastes generated on site and for waste from other plant in Stratford.

2) Records Maintained:

IV RECORDS

262.21/ 25-54cc(c)-5

a) Manifest

1) Document No.: PA B 004138073

2) Generator ID, name, address: Synthetic Products Co. CTD000844365 375 Barnum Av. Stratford

3) Transporter(s) ID, name, address: Delaware Container Co. Inc. PA D064375470

4) Continuing Transporter ID, Name, Address: —

5) TSD Facility ID, name, address: Delaware Container Co. Inc. PA D064375470 West 11th and Valley Rd. Contesville, PA

6) Waste Type/ Quantity: Waste flamable liquid 5,500 gallons

7) Date Shipped: 1/25/85

8) Delivered: 1/25/85

262.50/ 25-54cc(c)-

i) International Shipping Manifest: —

262.42/ 25-54cc(c)-6

ii) Exception Report: —

265.13/ 25-54cc(c)-26

b) Waste Analysis Plan

1) Plan on site: yes

2) Plan should include (a) parameters: yes

(b) test methods: refrences Standard Methods

(c) sampling methods: yes

(d) frequency: yes when process change signif

3) Copy of Results: Need for some wastes

265.15/ 25-54cc(c)-28

c) Inspection Schedule and Log

1) Are inspections conducted: yes

2)* Written inspection schedule: yes

3) Inspection Log: yes

(A) Daily - loading and unloading of areas subject to spills: yes

- discharge control equipment in tanks: yes
- incinerator system, thermal treatment equipment,
- chem/phys/bio. treatment equipment: NA
- freeboard level of surface impoundments: NA

Plan needs revisions. Waste storage areas have changed.

Required for Temporary Storage

265.15/
25-54cc(c)-28

c) Inspection Schedule and Log (continued)

(B) Weekly - physical conditions of containers: yes, but log did not indicate unlabled drums, or leaking drum

- physical conditions of tanks: yes
- physical conditions of surface impoundments: NA
- physical conditions of chem/phys/bio. treatment facility: NA

265.16/
25-54cc(c)-29

*d) Personnel Training Records

1) Job titles/position description and name of employee

Need

2) Description of training: yes, very good
3) Records of training: No records of training
4) Training completed: for some personnel

*e) Contingency Plan

265.53/
25-54cc(c)-31

1) Plan on site: yes

265.53/
25-54cc(c)-31

2) Plan to local authorities: yes to police, fire, and hospital

265.52/
25-54cc(c)-31

3) Content of Plan:

a) Emergency plan: yes

Need some revisions regarding waste storage areas.

b) Local authority arrangements: nothing documented

c) Identify emergency coordinator: need to formerly update

d) List of emergency equipment yes

e) Evacuation plans: yes

f) Closure and Post-closure Plans; Cost Estimates

265.112, .113, .114, .115/
25-54cc(c)-34

1) Closure Plan (TSD Facilities) -

a) Plan on site: yes

b) Does plan include:

1) Schedule of partial closure if applicable: NA
2) Estimate of maximum inventory of waste in storage or treatment at given time: yes
3) Schedule for final closure & an estimate of the expected year of closure: yes.
4) Description of steps needed to decontaminate facility equipment: yes
5) Total time required for closure: 90 days
6) Certification of closure: yes

equired for Temporar

265.117, .118/ 25-54cc(c)-34

2) Post-closure Plan (disposal facilities only) NA

a) Plan on site: _____

b) Does plan identify and include frequency of: _____

o planned groundwater monitoring: _____

o planned maintenance & security activities: _____

o name, address and phone number of Post-closure contact: _____

c) Length of Post-closure period identified: _____

265.142/ 25-54cc(c)-35

3) Closure Cost Estimate (TSD facilities) Need

a) Estimate on site: Amount of estimate:

b) Estimate adjusted annually on 11/19 for inflation:

c) Has Closure Plan changed?

d) If answer to 3 is yes, has cost estimate changed?

265.144/ 25-54cc(c)-35

4) Post-closure Cost Estimate (disposal facilities only) NA

a) Estimate on-site: Amount of estimate:

b) Estimate adjusted annually on 11/19 for inflation:

c) Has Post-closure plan changed?

d) If answer to 3 is yes, has cost estimate changed?

265.73/ 25-54-cc(c)-32

g) Operating Records

1) Records on site: yes

2) Description, quantity, method and dates of disposal: yes but does not indicate waste received from other plant.

3) Location on-site and manifest number: No - need for waste from other stratford Plant

4) Results of waste analysis: need for some wastes

5) Record of any incidents requiring use of contingency plan: Had a spill during waste pick around Jan 1st. Was reported to state amount was less than 500 gallons

6) Records and results of inspections: yes

7) Closure and post-closure cost estimates if needed: yes

B. Inspection

265.14/
25-54cc(c)-27

1) Site Security

a) 24 hour surveillance system: ADT alarm

b) or Artificial or natural barrier: fence

c) and Means to control entry: yes

d) Danger sign posted at each entrance legible at 25': yes

265.30-.37/
25-54cc(c)-30

**2) Site Preparedness/Prevention

a) Internal communication/alarm: phone page system

b) Telephone/2-way radio: phone

c) Portable fire control equipment: ABC fire ext.

d) Adequate water for fire control: yes

e) Testing and Maintenance of equipment: yes

f) Adequate aisle space: Need more space in drum storage area.

g) Access to equipment: yes

'65.170-177/
5-54cc(c)-38

3) Containers Two storage areas for drums (1) primary (2) secondary.

Primary area had approx. 76 drums, Secondary area contained 44 drums.

Leaks yes one drum leaking in secondary area (drum crushed)

Ruptures No

Corrosion No

Closed Except in use yes

Heat/Pressure NO

50' bufferzone for I and R wastes:

I = Ignitable NA ; R = Reactive NA

No smoking signs near I or R waste NA

Separation of incompatible wastes NA

Evidence of spills NO

2.30-.34/
-54cc(c)-8

Pretransport requirements: packaging good for all but one drum

labelling NA

marking yes, but 6 drums not marked

placarding NA

Date of waste Accumulation missing on many drums in both storage areas.

*NYR Check for impermeable base under containers, any drains, secondary containment Primary area berm is damaged extensively. Secondary area good.

YR - Not yet regulated by EPA, however, required by 25-54cc(c)-38(c)(3)

equired for Temporary Storage

265.190-.199/ 4) Tanks Two 5,000 gallon above ground tanks.
25-54cc(c)-39

Leaks None

Ruptures None

Corrosion: Check valves, piping controls for signs of corrosion _____

2' freeboard or containment Containment includes building and encompasses primary drum storage area. Berm was damaged.

Heat/pressure _____

Evidence of spills NO

Inflow and outflow controls NA

Continuous Inflow NA Means to stop flow? _____

Special Requirements for I and R wastes NA

55.220-.230/ 5) Surface Impoundments (Pits, Ponds and Lagoons) NA
5-54cc(c)-40

Protective Cover on Dikes _____

2' freeboard _____

Special requirements for I and R waste _____

Evidence of fire, explosion - leak _____

*NYR Liner _____

5.90-.94/
-54cc(c)-33 Groundwater Monitoring _____

5.250-.257/ 6) Waste Piles NA
-54cc(c)-41

Wind erosion control _____

Prevention of leachate from pile (if hazardous) _____

Special requirements for I and R waste _____

Evidence of fire, explosion, leak _____

Separation of incompatible wastes _____

Waste analysis _____

.340/ 7) Incinerators/Thermal Treatment NA
54-cc(c)-45
382/
4cc(c)-48

a) Steady State conditions _____

b) Inspect combustion and emission control instruments every 15 minutes _____

c) Observe stack plume hourly _____

d) Waste analysis _____

* - Not not regulated

C. Requests for Information

Tell contact to send any revisions made to plans and documents

D. Photos Taken

Three photos 1) Primary storage area 2) Secondary Storage area. 3) Waste tank for recovery well air stripper

E. Samples Taken (List sample numbers & describe technique.)

None

F. Potential for Imminent Hazard, Air, or Water Discharge Violations

Berm damage which contains drum storage (primary) and two 5000 gallon waste tanks. Rupture could reach water way

G. Proximity to Residential Area, Surface Water, Recharge Zone, etc.

Industrial and commercial area near I 95.
Long Brook near by.

H. Additional Notes, Maps, etc:

Recent change of ownership from Dart Ind. to Div. of Plastic Specialties and Technologies. Financial assurance and insurance needs to be developed.

Have ground water contamination due to past practices. Have groundwater monitoring and recovery well. Not currently considered a hazardous waste disposal site. Have made a CECLA notification.

Not currently mfg. monomers, but could possibly do so in future:

Receive some waste from another plant in Stratford.

Need to change notification to reflect name change.

Bulk Storage

Have 5 underground storage tanks 5,000 gallons each. Two contain ink oil solvent. Two contain iso octanol. One contains 140° solvent. Below tanks installed around 1976

Waste Tanks.

Have Two above ground tanks 5,000 gallons each. One small 200 gallon tank for recovery well.

HAZARDOUS WASTE INSPECTION CHECKLIST

Site:

Name: Synthetic Products Co.

Location: 375 Barnum Ave
Stratford, CT 06497

Phone No: ( ) 377-5550

ID No: CTD000 844365

Contact & Title: Jamie Kalanta Dir of Operations

Mailing Address (if different from location):

Inspector(s): P. Zack

Inspection Date: 4/1/86

Inspection Category:

RCRA Notifier as:

Generator: X

Transporter:

TSDF: X storage

Part A Application ___No, X Yes

UIC:

Inventory:

Complaint No:

Other (describe):

Formerly Dart Ind.

CHARACTERIZATION OF SITE ACTIVITY

(Have another division on 1525 Stratford Ave, Stratford.)

A) Date Established at Present Location: ≈ 1968

B) No. of Employees, Shifts: ≈14 3 shifts 5 days/week

C) Type of Activity: Mfg.

D) Products: PVC heat stabilizers including barium nonyl phenate, cadium octoate zinc benzoate, tin isooctyl thioglycolate, antimony isooctyl glycolate

E) Processes: PVC heat stabilizer production: Fatty oil solvent, fatty acids, soybean oil and phosphites are mixed with metals to keep them in solution. Intermediates are formed by mixing the solvent mixture with an acid and a base to form a salt. The water is drawn off and collected in tanks as a waste. The intermediates are filtered and placed in a storage tank. Have six reactors and one large blending tank. The different intermediates are blended to form the final product and drumed. Tanker loads are blended in a large tank. Wash downs and floor spillages are collected in two tanks and pumped over to a storage tank (5,000 gallons). Waste filters and floor sweepings are drumed as solid wastes.

Have a recovery well onsite (see below)

F) Water Supply (if well(s) give approx. location): City water. Have 8-9 test wells and a recovery well onsite due to past discharge of monomer waste to septic system

G) Septic System(s), Municipal Sewer(s), Drywell(s): Municipal sewer for sanitary wastes. Have an NPDES permit for non contact cooling waters.

II WASTE PROFILE

Type of Waste	Amount/Frequency	On-Site, Temporary Storage/TSD	Transporter	Off-site TSD
1) EP toxic wastewater;	5,000 gallons/month;	tank;	Delaware Container →	E I DuPont NJ
2) Waste organics combustible from floor cleaning;	500 gallons/3 mon.;	Delaware Cont →	Delaware Cont.	
3) Solid wastes and filters;	45 drums/mon. (EP toxic);	Solvents Recovery Service →	SRS	
4) No longer received lead contaminated waste from other plant.				

III INVENTORY

1) Has this site notified EPA under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 PL 96-510 (commonly known as Superfund): ___No, ___ Yes: (Attach copy of Notification, if available)

1) Prior to the November 19, 1980 Implementation of RCRA Where; When; What type; Amount/Frequency; How long; and by Who (Transporters, Facilities, Etc.) were wastes disposed of Off-site: Completed on prior inspection

) Is there any evidence of On-site disposal? ___No, ___Yes.

Give Approximate Location; Type; Amount/Frequency; Length of Time On-site disposal has been used, etc. (Specify any historical On-site disposal): Completed on prior inspection

IV RECORDS

2.11/ -54cc(c)- a)(3)(A)-7, 9(3)(3)

aa) Hazardous Waste Determination

1) Performed: Yes

2) Records Maintained: yes

IV RECORDS

262.21/ 25-54cc(c)-5

a) Manifest

1) Document No.: PAB2079151

2) Generator ID, name, address: CTD008844365 Synthetic Products Co., 375 Barnum Ave, Stratford

3) Transporter(s) ID, name, address: PA D064375470 Delaware Container Co. Inc.

4) Continuing Transporter ID, Name, Address: —

5) TSD Facility ID, name, address: PA D064375470 Delaware Container Co. Inc., West 11th & Valley Rd Coatsville PA.

6) Waste Type/ Quantity: Waste Combustable liquid D009 5,000 gallons

7) Date Shipped: 1/18/86

8) Delivered: 1/18/86

62.50/ 5-54cc(c)-

i) International Shipping Manifest: —

62.22/ 5-54cc(c)-6

ii) Exception Report: —

65.13/ 5-54cc(c)-26

b) Waste Analysis Plan

1) Plan on site: yes

2) Plan should include (a) parameters: yes

(b) test methods: yes

(c) sampling methods: yes

(d) frequency: yes

3) Copy of Results: yes

65.15/ 5-54cc(c)-28

c) Inspection Schedule and Log

1) Are inspections conducted: yes according to Contact

2)* Written inspection schedule: yes - need to include daily insp. of tanks.

3) Inspection Log:

(A) Daily - loading and unloading of areas subject to spills: yes

- discharge control equipment in tanks: N/A

- incinerator system, thermal treatment equipment,

- chem/phys/bio. treatment equipment: N/A

- freeboard level of surface impoundments: N/A

* log has not been kept since 2/3/86.

265.15/ 25-54cc(c)-28 c) Inspection Schedule and Log (continued)

(B) Weekly - physical conditions of containers: No

- physical conditions of tanks: No
- physical conditions of surface impoundments: N/A
- physical conditions of chem/phys/bio. treatment facility: N/A

265.16/ 25-54cc(c)-29 *d) Personnel Training Records

1) Job titles/position description and name of employee

yes

2) Description of training: yes
3) Records of training: yes
4) Training completed: yes

*e) Contingency Plan

265.53/ 25-54cc(c)-31 1) Plan on site: yes

265.53/ 25-54cc(c)-31 2) Plan to local authorities: yes

265.52/ 25-54cc(c)-31 3) Content of Plan:

a) Emergency plan: yes
b) Local authority arrangements: yes
c) Identify emergency coordinator: yes need new name for secondary coordinator.
d) List of emergency equipment yes
e) Evacuation plans: yes

need to include tanks used to hold waste prior to pumping to final storage tanks

f) Closure and Post-closure Plans; Cost Estimates

265.112, .113, .114, .115/ 25-54cc(c)-34 1) Closure Plan (TSD Facilities) -

a) Plan on site: yes
b) Does plan include:

1) Schedule of partial closure if applicable: ~~yes~~ NA
* 2) Estimate of maximum inventory of waste in storage or treatment at given time: 170 drums and 10,000 gallons in tanks
3) Schedule for final closure & an estimate of the expected year of closure: yes expected year 2500
4) Description of steps needed to decontaminate facility equipment: yes
5) Total time required for closure: 90 days
6) Certification of closure: yes

* use additional tanks which would make tank storage volume higher.

Required for Temporary

265.117, .118/ 25-54cc(c)-34

2) Post-closure Plan (disposal facilities only) N/A

a) Plan on site: _____

b) Does plan identify and include frequency of: _____

o planned groundwater monitoring: _____

o planned maintenance & security activities: _____

o name, address and phone number of Post-closure contact: _____

c) Length of Post-closure period identified: _____

265.142/ 25-54cc(c)-35

3) Closure Cost Estimate (TSD facilities)

a) Estimate on site: ✓ Amount of estimate: 98,000 dollars

b) Estimate adjusted annually on 11/19 for inflation: yes

c) Has Closure Plan changed? no

d) If answer to 3 is yes, has cost estimate changed?

265.144/ 25-54cc(c)-35

4) Post-closure Cost Estimate (disposal facilities only) N/A

a) Estimate on-site: Amount of estimate:

b) Estimate adjusted annually on 11/19 for inflation:

c) Has Post-closure plan changed?

d) If answer to 3 is yes, has cost estimate changed?

265.73/ 25-54-cc(c)-32

g) Operating Records

1) Records on site: yes

2) Description, quantity, method and dates of disposal: yes, manifests and log

3) Location on-site and manifest number: yes

4) Results of waste analysis: yes

5) Record of any incidents requiring use of contingency plan: no

6) Records and results of inspections: no inspections recorded since 2/3/86

7) Closure and post-closure cost estimates if needed: yes

B. Inspection

265.14/
25-54cc(c)-27

1) Site Security

a) 24 hour surveillance system: ADT Alarm system

b) or Artificial or natural barrier: fenced

c) and Means to control entry: yes

d) Danger sign posted at each entrance legible at 25': yes

265.30-.37/
25-54cc(c)-30

**2) Site Preparedness/Prevention

a) Internal communication/alarm: yes

b) Telephone/2-way radio: yes

c) Portable fire control equipment: yes

d) Adequate water for fire control: yes

e) Testing and Maintenance of equipment: yes

f) Adequate aisle space: yes

g) Access to equipment: yes

265.170-177/
25-54cc(c)-38

3) Containers

Leaks No

Ruptures No

Corrosion No

Closed Except in use yes

Heat/Pressure No

50' bufferzone for I and R wastes:

I = Ignitable yes ; R = Reactive N/A

No smoking signs near I or R waste yes

Separation of incompatible wastes N/A

Evidence of spills No

262.30-.34/
25-54cc(c)-8

Pretransport requirements: packaging yes

labelling yes

marking yes

placarding N/A

Date of waste Accumulation yes

*NYR Check for impermeable base under containers, any drains, secondary containment yes

*NYR - Not yet regulated by EPA, however, required by 25-54cc(c)-38(c)(3)

**Required for Temporary Storage

Have two tanks for accumulating wastes organics not noted on previous inspections. (3,000 gallon flow-waste tank and 1,200 gallon tank R1) These pump to two other storage tanks both 5,000 gallons.

265.190-.199/ 25-54cc(c)-39 4) Tanks

Leaks NO

Ruptures NO

Need marking on the two acc. tanks and they should be added to closure cost est and closure plan. Also must be inspected.

Corrosion: Check valves, piping controls for signs of corrosion None observed

2' freeboard or containment containment questionable for two accumulation tanks

Heat/pressure NO

Evidence of spills NO

Inflow and outflow controls yes

Continuous Inflow NO Means to stop flow? yes

Special Requirements for I and R wastes N/A

265.220-.230/ 25-54cc(c)-40 5) Surface Impoundments (Pits, Ponds and Lagoons) N/A

Protective Cover on Dikes

2' freeboard

Special requirements for I and R waste

Evidence of fire, explosion - leak

*NYR Liner

265.90-.94/ 25-54cc(c)-33 Groundwater Monitoring

265.250-.257/ 25-54cc(c)-41 6) Waste Piles N/A

Wind erosion control

Prevention of leachate from pile (if hazardous)

Special requirements for I and R waste

Evidence of fire, explosion, leak

Separation of incompatible wastes

Waste analysis

.340/ 54-cc(c)-45 382/ 4cc(c)-48 7) Incinerators/Thermal Treatment N/A

a) Steady State conditions

b) Inspect combustion and emission control instruments every 15 minutes

c) Observe stack plume hourly

d) Waste analysis

NYR - Not yet regulated

HAZARDOUS WASTE INSPECTION REPORT

Site Name Synthetic Products Co. 375 Barnum Ave. cut-off
Location Stratford 06497

Phone No 377-5550
ID No CTD000844365

Contact/Title Jamie Kalanta, Dir. of Op.

Mailing Address:

Property Owned/Leased (circled) lease two bldgs. from two separate owners.

Inspection Date 5/21/90
Previous Inspection Date 7/28/88

Notified as:
Generator ✓
Transporter
TSDF ✓
Burner/Blender
CT. Reg. Facility
Inspector(s) Hassler
Inventory
Complaint No
Other (describe)

Status Change Request: Yes, 2/2/89, attempting to certify were never TSDF, but have Closure Plan addressing 3 areas.

CHARACTERIZATION OF SITE ACTIVITY

a) Date Established at Present Location 1969

b) No. of Employees, Shifts ≈18 on three shifts

c) Type of Activity Mfg. liquid p.v.c. heat stabilizers (≈160 products)

d) Products Antimony stabilizers, Ba/Cd/Zn stabilizers, Sn stabilizers (≈160 products)

e) Processes Add solvents, organic acids + metal oxides to reactor; solvents include kerosene-based "ink oil," some alcohols; acids include actyllic + benzoic acids plus nonyl phenol; heat to 100-130°C, pull aqueous phase off via vacuum, condense it + collect in 5000 gal. holding tank; sample product for H_2O content + metals; next, filter product (3 filter presses) to removed unreacted oxides; product goes into storage for eventual blending w/other metal salts per customer request. Note: reaction carriers listed pg. 13.
- Q.C. lab performs metals titrations, checks on incoming chemicals;
- aqueous phase noted above goes through condensers, de-misters + activated C prior to holding tank as waste;
- total 5 reactors (1200 - 6000 gal. capacities);
- 1 blend tank, 6000 gal.
- Bulk storage: ≈20 tanks indoors for raw mat'ls + intermediates, 1200 - 5000 gal. sizes; four haz. waste tanks: two 5000 gal. above-g, indoors, one for aqueous waste, other for floor spills, rinses + reactor wash-outs, other two (2000 + 1200 gal) above-g. indoors for (cont. pg. 13)

f) Water Supply (if well(s) give approx. location) City water. Lab sinks to sanitary sewer.

g) Type of Wastewater Discharges Sanitary sewer + yard drains to storm sewer via NPDES permit.

Comments

II WASTE PROFILE

Type of Waste	Amount/Frequency	Handling Method	Transporter	Designated Facility
1.) haz. waste solid (D005/D006);	≈ 50 dr./3 months;	loads contain filter pads, solids, spill clean-ups, gloves, rags, etc.);	hauler + TSD is GSX Services, Inc. Pinewood, S.C. (used Waste Conversion, PA. until 4/89).	
2.) aqueous phase fr/reactions, haz. waste liq. (D006);	stored in 5000 gal. tank, ship ≈ 5000 gal./1½-2 months;	also high in Ba;	trans is Delaware Container Co., PA,	to E.I. Dupont, Deepwater, N.J.
3.) haz. waste liq. (D005+D006);	from spills, reactor wash-outs, etc.; ship ≈ 5000 gal./month (bulk stored)	to Delaware Container, PA (trans + HWF) for fuel blending. May attempt to recycle some of this waste on-site. Ba content ranges ≈ 500 - 40,000 ppm; Cd ranges ≈ 40 - 15,000 ppm.		

Note: spent carbon goes into 1st waste stream also, along with unreacted metal oxides from filter press.

Lab sample waste to 5 gal. buckets to holding tank for 3rd waste stream

Spec. Accum: three 260 gal. totes of off-spec batches, dated 5/18/90, to be reworked, along w/ ≈ 30 dr. rejected "Synpron 1995" (contains Ba) with 5/15/90 dates.

Comments See below plus pg. 13 re: air stripper system for g.w. contam, is potential source of waste.

a) Is there any evidence of On-Site Disposal/Spills? No____ Yes X

Identify: Location; Type; Amount/Frequency; Length of Time disposal site(s) used, etc.

G.W. contaminated with chlorinated solvents (>1000 ppb), have test wells and one recovery well on-site, run through air stripper. Suspect historical source to have been discharge of monomer wastes to septic system located just south of Bldg. 375. More info pg. 13.

Notifications

a) Part "A" (TSDF only): Yes X /No___ Part "B" Application: Yes___/No X

b) - Any discrepencies, with actual operations Yes X /No___

Comments Part A only denotes S01 (drums), yet use two waste tanks in addition to drums, claim all < 90 day storage. Status change requests made 11/15/88 and 2/2/90 (contradiction: sent closure plan for outdoor dr. area, but also sent certification that were never TSD). Newer 11/88 Closure Plan addresses 3 areas: 2 dr. storage + tanks.

Hazardous Waste262.11/

22a-449(c)-7 Hazardous Waste Determination

a) Performed Yes, although a) reportedly non-haz. waste fr/Antimony spill

Comments is marked D005/D006, and b) claim haz. waste solid NOS (D005/D006 stream) meets landban treatment standard due to insolubility of metals, lacks analytical to confirm.

265.170-177/

22a-449(c)-33 Containers

a) Approx. # of containers 19 dr. D005/D006 solids, 12 dr. antimony spill waste.

b) Condition of containers Good

c) Leaks, Ruptures, Corrosion None evident

d) Containers open/closed closed

e) Heat/Pressure No

f) 50' Bufferzone for I and R wastes Yes although NA.

g) Separation of incompatible wastes N/A

h) Evidence of Spills No, but reactor room floorspills are trothed/collected.

i) Greater than 90 day storage (generator only); explain No

Comments

262.30-.34/ - Pretransport Requirements

22a-449(c)-7,8,33

a) Packaging Yes

b) Labelling Yes

c) Marking Yes

d) Accumulation Dates Yes

Comments

22a-449(c)-32,33/ Accumulation/Storage Area (containers only)

a) Impermeable Base (specific type) Yes, concrete (sealed?)

b) Number of Areas One plus satellites (2), both OK.

c) Secondary Containment Yes

Comments

265.190-.199/ Waste Tanks

22a-449(c)-34

Description/Inventory (list each hazardous waste tank, capacity, waste type, inground/ aboveground) two indoor above-g. 5000 gal. D005/D006 storage tanks; one 2000 gal. hold/collection tank for reactor floorspills + wash-outs, and one 1200 gal. back-up tank for floorspills

a) Markings Yes

b) Leaks No

c) Ruptures No

d) Corrosion No

e) 2' freeboard or containment Containment is concrete floor + bldg.

f) Heat/pressure No

g) Evidence of spills No, although routine reactor wash-outs + valve/pipe leaks collected in troths to above tanks, via 30 gal. sumps.

h) Inflow and outflow controls Yes

Continuous Inflow No Means to stop flow? Yes

i) Special requirements for I and R wastes NA

j) Greater than 90 day storage (generator only); explain No

Comments All tanks above-g., indoors, with bldg. concrete walls + floors acting as containment (areas sloped away f/ production processes), uncertain if adequate re: bldgs' access doors - needs verification.

262.21/

22a-449(c)-5/ Manifests

a) Are Manifest used for all hazardous waste and Ct. regulated waste shipments? Yes X No____ (explain)

b) Appropriate Copies On-site? Yes X No___ (explain)

c) Observations (discrepancies, proper waste I.D., landban restrictions etc.) Claim meet landban treatment standard (D005/D006) due to insolubility of metals, but lack analytical to confirm.

Comments

265.15/

22a-449(c)-23/ Inspection Schedule and Log

a) Are inspections conducted Yes

b) Written inspection schedule Yes, well itemized.

c) Inspection Log (date, time, inspector and corrective actions)

(1) Daily; logged weekley

loading/unloading of areas subject to spills Yes

discharge control equip., waste level in tanks Yes (float valves)

incinerator system, thermal treatment equip,

chem/phys/bio treatment equip. NA

freeboard level of surface impoundments NA

2) Weekly; physical conditions of: (containment system, if applicable)

containers Yes

tanks Yes, all four tanks.

surface impoundments NA

chem/phys/bio treatment facility NA

3) Safety and Emergency Equipment Yes

Comments

265.16/

22a-449(c)-24/ Personnel Training Records

a) Job titles/position description and name of employee

Entire plant trained, lack titles + descriptions (claim titles are foreman + operators)

b) Written description of training Yes: RCRA, safety + emergencies, etc.

c) Records of training Yes; trainer: J. Kalanta

d) Training completed

1. New Employees Yes

2. Last Annual Training Yes, 6/7/89 most recent (entire plant).

Comments Also specific chemical hazards covered, inspections, etc. Do not I.D. waste handlers + RCRA compliance mgrs in program or job titles/duties.

265.50-56

22a-449(c)-26/ Contingency Plan

a) Plan on site Yes X No Prepared by and date 6/88 in-house update.

b) Plan to local authorities Yes

c) Emergency procedures Yes + emerg. contacts, reporting requirements.

d) Identify emergency coordinator(s) Yes: J. Kalanta + alts.

e) List, location, capabilities of emergency equipment Yes + schematic

f) Evacuation plans OK but no map for routes.

Comments

265.30-.37/ Site Preparedness/Prevention

22a-449(c)-25

a) Internal communication/alarm Yes, page + phones.

b) Telephone/2-way radio Yes, phones

c) Portable fire control, spill & decon equipment Yes, ABC ext.

d) Adequate water for fire control Yes, city hydrants.

e) Testing and Maintenance of equipment Yes, monthly.

f) Adequate aisle space Yes

g) Access to equipment OK

h) No smoking signs (for I & R waste) Yes for entire plant.

Comments

Facility Requirements

22a-449(c)-21/ Waste Analysis Plan

Facility Requirement

a) Plan on site Yes X No Prepared by and date 11/88 in-house update.

b) Plan must include

1) Parameters Yes

2) Test Methods Yes

3) Sampling Methods Yes

4) Frequency Yes, every two years + per load for limited parameters

c) Copy of results Yes, except for solubility of metals re: LDR

Comments Updated for landban revisions.

Based on knowledge of waste claim D005/D006 waste meets treatment standard, no analytical to verify.

265.73/ Operating Records

22a-449(c)-27

No waste stored ≥ 90 days, but maintain two "Haz. Waste Logbooks":

a) Are the following written records maintained on-site:

1) Waste received from: off-site NA ; on-site Yes

2) Waste: a. description Yes

b. quantity Yes, assign drum #'s.

3) Methods/Dates of: storage Yes treatment NA disposal Yes

b) Waste inventory (including type(s), volume(s), and location(s)):

1) In storage Yes for drums + tanks.

2) Disposal on-site (recorded on map) NA

3) Does inventory cross reference specific manifest Yes

c) Analytical records for:

1) All waste Yes

2) Monitoring wells NA except Water Comp. recovery well.

3) Trial test (to assure compatibility with tanks, surface impoundments, waste piles) ? No Subpart J review.

d) Report/Summary of any incident requiring implementation of Contingency Plan

Claim none

e) Records and results of inspection Yes

f) Closure/Post Closure cost estimates Yes

Comments

265.112-115 Closure Plan

22a-449(c)-29

a) Plan on site Yes X No Prepared by and date 11/15/88 in-house.

b) Does plan include:

1) Schedule of partial closure if applicable Uncertain, see comments.

2) Estimated maximum waste in inventory 170 dr. + 400 dr. contam. soil + 19000 gal. tanks decon.

3) Schedule and total time required for final closure Yes 90 days.

4) Estimated expected year of closure Uncertain, pending DEP review.

5) Description of steps needed to decontaminate facility/equipment Yes

6) Are there any regulated units closed, if yes are they certified by owner and P.E. No

Comments Plan addresses a) current dr. storage area, b) tanks, and c) former dr. storage area (outdoor soils = 400 dr. denoted above) believed to have caused g.w. contam. historically.

265.142/ Closure Cost Estimate

22a-449(c)-30

a) Estimate on site Yes Amount of estimate $98,000

b) Estimate adjusted annually Yes, above is 1988 cost, claim update sent into DEP, filed with financial info: $108,903.

Comments

265.117,.118/ Post-Closure Plan (disposal facilities only) NA

22a-449(c)-29

a) Plan on site Yes No Prepared by and date

b) Does plan identify and include frequency of:

1) planned groundwater monitoring/and reporting

2) planned maintenance & security acitivies

3) name, address, phone # of Post-closure contact

c) Length of Post-closure period identified

Comments

265.144/ Post-Closure Cost Estimate (disposal facilities only) NA

22a-449(c)-30

a) Estimate on site Amount of estimate

b) Estimate adjusted annually on 11/19 for inflation

Comments

FINANCIAL REQUIREMENTS

22a-449(c)-30

12) Financial Assurance:

(Fed) 265.143 A. Closure

Type of mechanism Trust Fund

(trust fund, surety bond, letter of credit, insurance, financial test)

Amount of coverage $ 108,903

(should be ≥ cost estimate)

Comments Fund with First Fidelity Bank, N.Y.

265.145 B. Post-Closure

Type of mechanism _____

Amount of coverage $ _____

Comments _____

13) Liability Insurance:

265.147 A. Sudden (all TSD facilities)

Type of mechanism None

(insurance, financial test)

Amount of coverage $ _____

Comments No attempts to obtain were documented.

B. Nonsudden (surface impoundments, landfills, and land treatment facilities)

Type of mechanism _____

Amount of Coverage $ _____

Comments _____

Federally owned facilities are exempt from financial requirements.

22a-449(c)-22 Site Security

a) 24 hour surveillance system, or All wastes indoors or in locked fence.

b) Means to control entry Yes for all except former dr. storage area (yet to be RCRA closed.

c) Danger sign posted at each entrance legible at 25' Yes

Comments

265.220-.230/ Surface Impoundments (Pits, Ponds and Lagoons)

22a-449(c)-35

NA

a) Number and Type

b) Protective Cover on Dikes

c) 2' freeboard

d) Special requirements for I and R waste

e) Evidence of fire, explosion - leak

f) Liner

NOTE: If closed as a landfill refer to "Landfills" section

Comments

265.90-.94/

22a-449(c)-28/Groundwater Monitoring See pg. 13 re: recovery well.

265.250-.257/ Waste Piles

22a-449(c)-36

NA

a) Approx. type and size

b) Wind erosion control

c) Impermeable base

d) Run-On/Run-Off control and prevention

e) Special requirements for I and R waste

f) Evidence of fire, explosion, leak

g) Separation of incompatible waste

h) Waste analysis

Comments

265.340/ Incinerators/Thermal Treatment NA

22a-449(c)-38, 39

a) Steady state conditions _____

b) Inspect combustion and emission control instruments every 15 min. _____

c) Observe stack plume hourly _____

d) Waste analysis _____

e) Heating value of waste _____

f) Organic halogen content _____

g) Sulfur content _____

h) Lead concentrations _____

i) Mercury concentrations _____

j) Evidence of leaks or spills (pumps, valves, conveyors and pipes _____

_____

k) Daily Inspection of Emergency shutdown controls and Alarm systems _____

_____

l) Special Requirements for incompatible wastes _____

_____

265.302-.315/

22a-449(c1-37e) Landfills NA

a) Run-on diversion _____

b) Run-off collection; Treat if necessary _____

c) Wind dispersion controlled _____

d) Records of all dimensions, locations and contents _____

e) Special Requirements for I and R wastes _____

f) Special Requirements for Incompatible Wastes _____

g) Special Requirements for liquids _____

h) Reduction in volume of empty containers _____

i) Groundwater Monitoring _____

Comments _____

_____

Miscellaneous Information

Spec. accum. issue discussed, need to verify market + log dates of rework to ensure < 1 yr. storage; told to re-mark non-haz. drums (marked "haz."), to include job descriptions/titles for waste handlers; also discussed landban - may need to analyze D005/D006 waste to verify insolubility of metals (claim meet treat. standard).

Photos Taken (number and a brief description)

None

Samples Taken (number)

None

Potential Hazard, Air, or Water Discharge Violations

GW contaminated w/solvents (see pg. 13 bottom) historically, source believed to have been historical dr. storage area on soil (south edge of bldg. 301); all reactor wash-outs + floor spills go to floor trenches (concrete), and collection sumps.

Proximity to Residential Area, Surface Water, Recharge Zone, etc.

Area industrial + commercial alongside Rt. 1 + I-95, storm sewer/yard drains go to Housatonic River ≈ 1/4 mile away.

PROCESSES (cont.):

Bulk storage (cont.): rinses, floor spills + wash-outs, are collection tanks for short-term (days-weeks) prior to transfer into the 5000 gal. tank. Materials (rinses, washes, etc.) go to various floor troths in reaction/blending room which lead to two ≈ 30 gal sumps, pump to 2000 + 1200 gal. tanks. Other bulk storage includes:

- two 5000 gal. iso-octanol tanks, in-g.
- two 5000 gal. ink oil tanks, in-g.
- one 5000 gal. octylic acid tank, in-g.
- 5000 gal. above-g. outdoor tank for dipropylene glycol ethyl ether
- 5000 gal. " " " " high flash pt. solvent (>240°F)
  - ⊛ (latter two chemicals used as carriers to keep salts in suspension)
- 4000 gal. inground #2 fuel oil tank, to be replaced this summer (claim tested in 1989, no leaks, but due for replacement per age);
- 1000 gal. in-g. #2 fuel oil tank.

⊛ another carrier, stored in drums, is di-octyl-decyl-phthalate (used in one product).

Maint. dept., plumbing, electrical, little machining. Small vol. waste oils goes into bulk waste stream (floor spills, wash outs).

Synthetic Products occupies two buildings, each with separate addresses because they are owned separately: 301 and 375 Barnum Ave. cut-off. Both are leased by Synthetic Products.

GW Contam. Air Stripper system:

Counter current air stripper, g.w. sprayed into packing (increase surface area), is air vented; flow rate designed for 60 gpm but currently much lower, discharge to sanitary sewer. 9/25/89 g.w. analyses yielded trans 1,2 di-chloroethylene at 1500 ppb, 111 trichloroethane at 125 ppb, others lower.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

7/92 Rev.

RCRA (HAZARDOUS WASTE) INSPECTION REPORT
TREATMENT/STORAGE/DISPOSAL FACILITY

Name(s) of inspector(s): Hassler
Date(s) of inspection: 5/25/93 Complaint Number: —
Previous RCRA inspection date: 5/21/90 Active RCRA enforcement #:

SITE INFORMATION

EPA ID No. : CTD 0 0 0 8 4 4 3 6 5
Site Name (& AKA/DBA if any): Synthetic Products Co.
Street Address: 375 Barnum Ave. cut-off, Stratford.
Mailing Address: same
Contact Name(s) and Title: Jamie Kalauta, dir. of operations.
Contact Phone No.: 377-5550

STATUS (actual - operating)

___ CESQG	___ Storage	___ Interim Status	___ Recycle/Reclaim
___ SQG (100-1000kg/mo)	___ Treatment	___ Permitted facility	___ Unknown
X Lg Quantity Generator	___ Disposal	___ CT Regulated facility	___ Other:
___ Transporter	___ Post closure units	___ Commercial facility	
___ Burner/Blender		___ Receiving waste from off-site	

Notified as: Generator + TSDF
Any discrepancies between notification/Part A/B & actual operation:
Yes X No___ (describe): co. operates as generator only.
If yes, has a status change been requested: Yes X No___
Comments (e.g., type of change requested): Requested change to Gen. 11/15/88, not yet processed; signed certification that never stored ≥ 90 days.

TYPE OF WASTE HANDLED

X Ignitables (D001)	X F or K listed wastes	___ Used oil (regulated under 266)
X Corrosives (D002)	X P or U listed wastes	X CT regulated wastes
___ Reactives (D003)	___ Precious metals	___ Unknown
X TCLP (D004-43)	___ Haz. scrap metal	X Other: soil removals, rainwater

SITE ACTIVITY

Date established at present location: 1969

No. employees/shifts ≈20/two Type of activity: Mfg. liq. p.v.c. heat stabilizers.

Products: ≈160 products: Sn + Sb stabilizers, Ba/Zn + Ba/Cd/Zn stabilizers, also two polyurethane products (polyols), others.

Describe processes (particularly those involving chemicals):

Co. occupies two bldgs., each with separate addresses + owners (leased by Synthetic Products): 301 and 375 Barnum Ave. cut-off.

Total five reactors (1200-6000 gal. sizes), one 6000 gal. blend tank, 12 process transfer tanks (≈2500-5000 gal. sizes) for intermediates + raw materials; see pg. 3a for bulk tanks listing.

I. Stabilizers Manufacture: charge reactors with tall oil acid, chelates, reactant solvents (kerosene-based "ink oil," iso-octanol, other alcohols), carrier solvents (dipropylene glycol methyl ether, also high flash solvent), organic acids (octylic, benzoic, nonyl phenol), metal oxides; heat to 100-130°C; pull aqueous phase off via vacuum, condense and collect in 5000 gal. holding tank; product gets sampled for metals + H_2O content; next filter the product (one filter press) to remove unreacted oxides; product goes into storage for eventual blending w/other metal salts per customer request.

- unreacted oxides separated for handling purposes: Antimony goes off as non-haz. waste, Zn/Cd get combined + go off for reclaim (see waste profile), Ba goes off as haz. waste.
- screen filters located on each reactor (screen products + intermediates).
- aqueous phase from 5000 gal. tank goes through condensers, demisters and activated carbon, then to holding tank as waste.

II. Polyurethane product: mfg. polyol to be mixed w/isocyanate (by customers) to form polyurethane. Use same reactors as pre-noted but only blend, no reactions; raw mat'ls include poly ether amine, silicone oil, phenolic wetting agent, methyl propysolv + polyol, H_2O; blend + mix, package in drums.

- flush out reactors with ink oil (flash pt. 197°F), gets reused in mfg. of stabilizers.

III. Support: Q.C. lab performs checks on incoming mat'ls, metal titrations; check color, refractive index, infrared, specific gravity. No R+D.

Comments (e.g., any changes since last inspection):

(cont. pg. 3a)

Add: small shredder for filter blankets, to waste drums.

(CONTINUED FROM PAGE 3)

EPA ID number: CTD 0 0 0 8 4 4 3 6 5 Date of inspection: 5/25/93

Site name: Synthetic Products Co. Town: Stratford

PROCESSES (cont.):

Support (cont.):

- maint. dept. performs plumbing, electrical, small vol. machining, generate minor amounts of waste oil.
- warehousing on-site and at separate location (950 Bridgeport Ave, Milford): store products, inventory items, returned goods from customers, occassional off-spec. mat'ls. Claim rarely generate off-specs + returned goods (occur f/experimental items, color problems, etc.) but have one low-end performance product sold to China + Taiwan comprised of these mat'ls. Claim when preparing these batches check inventory for mat'ls. > 9 months old, add to batch.
- no vehicle fleet garaged nor maintained on-site, instead lease trucks.
- no air pollution control equip. aside from pre-noted demisters + carbon adsorber; two stacks for vac. pumps.

Bulk Storage:

Rinses, floor spills + reactor wash-outs to floor troths to two ≈ 30 gal. floor sumps, pumped to 1200 + 2000 gal. transfer tanks, then to two 5000 gal. haz. waste tanks, noted pg. 12 + 13. Other bulk storage includes:

- replaced 4000 gal. #2 fuel oil tank in 1990, claim no contam. soils, tank removed, now have 8000 gal. above-g. #2 fuel tank.
- 1000 gal. in-g. #2 fuel tank
- two 5000 gal. in-g. iso-octanol tanks
- two 5000 gal. in-g. "ink oil" tanks
- one 5000 gal. actylic acid tank, in-g.
- one 5000 gal. above-g. dipropylene glycol methyl ether tank, out doors
- one 5000 gal. above-g. high flash solvent tank

WASTE PROFILE

WASTE STREAM	EPA WASTE #	EST. GENERATION RATE (amount:time)	HANDLING METHOD	TRANS	TSD

1.) lab packs; 18 dr. shipped 1992, all on 12/8 + 21/92, to Clean Harbors, MA. Types include: 5 dr. D002/F002 liq.; 4 dr. D001, 02, 03, F003, 05 liq.; 1 dr. U147 solid; 1 dr. P098; 3 dr. D001 (liq. + solids); 1 dr. D005/U188 liq.; 3 dr. D001, 02, 03 liq. + solid.

2.) D005/D006 haz. waste solid N.O.S. (filter pads, spill sorbant, other solids); 120 dr./1992 to Clean Harbors, MA.

3.) D005/D006 combustible liq. (organics fr/reactor wash-outs, spills, etc.); 50,601 gal./'92; store in bulk tank; shipped to both Delaware Container, PA. and Ecolotec. Ba content ranges ≈ 500 - 40,000 ppm, Cd content ≈ 40 - 15,000 ppm.

4.) D005/D006 haz. waste liq. (aqueous phase fr/reactors + clean-outs, etc.); 24,400 gal/'92; bulk storage; shipped to E.I. Dupont, N.J. Ba content ≈ 500 ppm, Cd ≈ 10 - 100 ppm.

5.) MA99 non-haz. antimony debris (off filter press); 8976 lbs/'92 to Clean Harbors, MA.

6.) CR05 non-haz. soil from product spill, contains Zn + low levels Ba; 145,000 lbs/'92, all shipped 9/8/92 to Envirosafe Services, Ohio.

7.) CR04 non-haz. liq. off top of roll-off from #6 above (mainly rainwater); 3450 gal/'92 to United Waste, Meriden via Sealand (transporter).

(cont. pg. 4a)

RCRA (the statute) WASTE MINIMIZATION PROGRAM (GOR)

Is a program in place (If yes, generally describe components of program, wastes addressed, reductions achieved): None written, however: a) ≈ 1991 stopped landfilling Cd/Zn wastes and began Zn recovery; also ≈ 1991 began selling CdO_2 back to supplier; in 1993 began segregating organic reactor heels into four types, now able to reuse in batches (previously were all wastes).

40 CFR 262.11[1] HAZARDOUS WASTE DETERMINATIONS (GHW) 22a-449(c)-102(a)[2]

Determination conducted for all waste streams: Yes X No___ (explain): appears OK; see pg. 4a regarding co. determination of Zn/Cd solids as non-waste due to reclamation.

[1] See 40 CFR 264 for permitted facilities.

[2] See 22a-449(c)-104 for permitted facilities.

(CONTINUED FROM PAGE 4)

EPA ID number: CTD 0 0 0 8 4 4 3 6 5 Date of inspection: 5/25/93

Site name: Synthetic Products Co. Town: Stratford

Waste Profile (cont.):

8.) non-haz. soil/sand contam. w/#2 fuel oil; 15 dr. shipped 3/27/93 to Env. Products + Services, N.Y. Generated via DEP OCSRA (J. Aceto) spill response activity whereby its been necessary to boom Long River at storm sewer outfall due to ≈ once/day get discharge of ≈ 1/2 gal. #2 fuel oil. Aceto traced oil via camera through sewer back to Synthetic Products. Mr. Kalanta stated co. then tested fuel tanks + piping, all passed (no leaks evident), claim they are not the source of discharge.

9.) unreacted oxides (solids) off filter press get segregated per contents:
a) Ba-based, D005; 57,351 lbs/'92; to Chem Harbors, MA for disposal to Chem. Waste Mgt, Alabama;
b) Antimony-based, non-haz.; 8976 lbs/'92, same disposition as above (a.);
c) Zn/Cd-based, D006; 5069 lbs/'92; for reclaim to Big River Zinc, Illinois as raw material, not manifested, not regarded as waste by Synthetic Products. Co. rationale: 1990 co. legal determination that mat'l. is a by-product per 261.2 therefore not solid waste if reclaimed. Claim is by-product (and not spent material nor sludge) because mfg. process causes Cd oxide (raw mat'l. into reactor) conversion into Cd octoate (via octoic acid, causes visible color change); this is what gets filtered out and shipped off for reclaim. Claim Big River Zinc removes Cd from this filtered residue by mixing with Zn ore, then smelting the mixture (which removes Cd as Cd oxide), then sell Cd oxide back to Synthetic Products as raw material.

Empty drums (currently ≈ 25) and empty totes (≈ one yd³ size) stored outside along Bldg. 375, go to drum reconditioner: Russell Stanick, N.J.

40 CFR 265.70-77/262.21 MANIFESTS 22a-449(c)-105(a) & 102(b)(3)

Dates/months of manifests reviewed: All 1992 + 1993

Manifests used for all hazardous waste shipments: X Yes ___No (explain): _____

Appropriate copy(ies) on-site: X Yes ___No (explain): _____

Any exception (generators); discrepancy or unmanifested waste reports (facilities): X No ___Yes (explain): _____

Comments (e.g., CT reg. wastes): Regarding D005/D006 aqueous phase, manifested only as D005, claim N.J. DEP requests only one waste code be placed in item J, so additional code D006 placed in item I. Appear to store < 90 days per stream.

(See special checklist for land ban manifest requirements).

40 CFR 265.75 ANNUAL HAZARDOUS WASTE MANAGEMENT REPORT 22a-449(c)-105(a)(2)(D)

Reports filed on an annual basis: X Yes ___No: _____

Comments: _____

40 CFR 262.50-58 EXPORT/IMPORT ACTIVITIES 22a-449(c)-102(a)(1)
40 CFR 262.20 & 265.12

Has any hazardous waste been exported during the last 3 years: ___Yes X No.

If No, skip the rest of this section.

Do they attach a current Acknowledgement of Consent form for each export shipment ___Yes ___No (explain): _____

Have they filed with EPA's administrator by March 1 of each year an annual report summarizing the previous year's export activities: ___Yes ___No. _____

In the past 3 years, have they ever had waste returned to the U.S., & if so, have appropriate exception reports been filed: ___Yes (explain) ___No _____

Have manifests for export shipments been completed according to the special manifest requirements (e.g., additional language): __ Yes __ No (explain): _____

Are wastes received from a foreign source: ___Yes ___No.

If yes, has notice been filed with EPA: ___Yes ___No: _____

Comments: _____

40 CFR 265.110-120 CLOSURE PLAN (DCL) 22a-449(c)-105(a)

Have any regulated units closed: Yes___ No X. Claim N/A, attempting to certify never stored ≥90 days.
If Yes, is closure certified by owner/P.E.: Yes___ No___
If Yes, date of certification: _____ On-file at DEP: Yes___ No___
Plan on-site: Yes X No___. Date: 11/88 revision Prepared by: _____
Status of closure plan (approved & date): Not reviewed nor approved. Co. claims closure plan not applicable (attempting to certify never stored ≥ 90 days) but have plan anyway
Are all regulated units covered (compare to Part A & on-site operations): Appears Yes as 6/22/84 Part A denotes 501 only (containers), max. 5000 gal. - plan covers additional units
Does plan include (indicate presence/absence, comment on adequacy):
Estimate of maximum inventory: Yes, total 19,000 gal. plus 550 dr., see comments.
Description of how each unit will be closed & methods to be used during closure: Yes, procedures noted.
Description of steps needed to remove/decontaminate equip/structures/soils: Yes, includes vacuuming, wet mop, soil sampling, steam cleaning of tanks.
Schedule for closure of each unit & for final closure (time & milestones): Total 90 days
* Estimate of expected year of final closure: No
Comments (e.g., operations do not match plan, amendments needed): Max. Inv.: all wastes deemed D005/D006; tanks: 12,000 gal.; liq. wastes 5000 gal.; decon. solutions 2000 gal.; drums 170; contam. soil 380 drums (if needed, from beneath container storage area)

* Expected date of closure required only for facilities using trust funds with <20 years of remaining life, & for facilities without approved closure plans).

40 CFR 265.117,118 POST-CLOSURE PLAN (DCL) NA 22a-449(c)-105(a)
(disposal facilities only)

Plan on-site: Yes___ No___. Date: _____ Prepared by: _____
Status of Post-closure plan (e.g., approved & date): _____

Does plan include description & frequency of:
monitoring activities: _____
maintenance & inspection activities (e.g., integrity of cap, gwm): _____
name, address, telephone no. of post-closure contact: _____
length of post-closure period: _____
Certification to the Commissioner that notation on deed has been recorded: _____
Yes___ No___. _____
Record sent to the Commissioner of the type, location & quantity of hazardous waste disposed of in each cell/disposal unit: Yes___ No___
Comments (e.g., amendments needed, etc.): _____

40 CFR 262.30-34 OTHER PRE-TRANSPORT REQUIREMENTS (DPT) 22a-449(c)-102(a)

Packaging: OK

Labelling (if applicable, DOT haz.class): NA

Marking (Words "Hazardous Waste", generator name & address, manifest doc. no. if being shipped): Yes

Contents described (e.g., chemical name): 9 dr. marked "haz. waste" but contents not identified

Proper DOT shipping name: " " " " " " "

Accumulation date: Yes

Comments: all 9 dr. re-marked A.S.A.P. as "R.Q. haz. waste solid N.O.S." and coded D005/D006. Also no contents identified on 5 dr. Zn/Cd solids deemed non-wastes.

40 CFR 265.190-201 WASTE TANKS (DTR) 22a-449(c)-105(a)
262.34 (generators)

Tank inventory/description (note above/underground, location, age, construction, ancillary equipment, capacity & waste type): Four tanks: 5000 gal. aqueous D005/D006 tank, 5000 gal. organic D005/D006 tank, 2000 gal. + 1200 gal. tanks feed same wastes to the 5000 gal. tanks. All tanks above-g., steel, indoors, installed ≈ 1980. Two smaller tanks receive reactors' wash-outs, rinses + floorspills from floor collection troughs + sumps, feed 5000 gal. tanks via hard-piping.

Adequate secondary containment for tank & ancillary equip: Yes ? No___ N/A___

Comments: Bldg. serves as containment, may be adequate but uncertain re: location of doors and fact that many other tanks are in same rooms.

Describe leak detection system (including ancillary equip.): NA for two 5000 gal. tanks, need determination on other two re: base of tanks on floor.

Describe corrosion protection system: NA

Special requirements for ignitable & reactive waste: Yes___ No___ N/A X:

Words "Hazardous Waste" and description of contents: Yes on three tanks, No on one smaller tank (uncertain size due to difficult access), claim was painted over mistakenly.

Evidence of releases/leaks: No X Yes___.

If yes, describe:

Was release reported: Yes___ No___. If yes, date (if known):

Certification of major repairs to tank Yes___ No___ N/A X.

Any out-of service tanks: Yes___ No X. If yes, describe:

Comments:

Tanks Section continued on next page

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

SITE NAME: Synthetic Prod (Barnum A
TOWN: Stratford
FILE TYPE: - INS

7/92 Rev.

RCRA (HAZARDOUS WASTE) INSPECTION REPORT
TREATMENT/STORAGE/DISPOSAL FACILITY

Name(s) of inspector(s): Hassler, Lorentson (7/22/94)
Date(s) of inspection: 7/1 + 22/94 Complaint Number: —
Previous RCRA inspection date: 5/25/93 Active RCRA enforcement #: NOV#593

SITE INFORMATION

EPA ID No. : CTD 0 0 0 8 4 4 3 6 5
Site Name (& AKA/DBA if any): Synthetic Products Co.
Street Address: 375 Barnum Ave. cut-off, Stratford
Mailing Address: same
Contact Name(s) and Title: Jamie Kalanta, dir. of operations; Douglas Butler, pl. mgr.; William Duffin, admin. mgr.
Contact Phone No.: 377-5550

STATUS (actual - operating)

___ CESQG	___ Storage	___ Interim Status	___ Recycle/Reclaim
___ SQG (100-1000kg/mo)	___ Treatment	___ Permitted facility	___ Unknown
X Lg Quantity Generator	___ Disposal	___ CT Regulated facility	___ Other:
___ Transporter	___ Post closure units	___ Commercial facility	
___ Burner/Blender		___ Receiving waste from off-site	

Notified as: Generator + TSDF (501)
Any discrepancies between notification/Part A/B & actual operation:
Yes X No___ (describe): currently operate as generator only.
If yes has a status change been requested: Yes X No___ - not yet reviewed by DEP.
Comments (e.g., type of change requested): 11/15/88 status change request, plus 2/2/89 certification that never stored 90 days. Note that co. has changed ownership and/or name several times since 1980, uncertain if former co's stored 90 days - see former Part A's and notifications (location of storage areas changed).

TYPE OF WASTE HANDLED

X Ignitables (D001)	X F or K listed wastes	___ Used oil (regulated under 266)
X Corrosives (D002)	___ P or U listed wastes	X CT regulated wastes
___ Reactives (D003)	___ Precious metals	___ Unknown
X TCLP (D004-43)	___ Haz. scrap metal	X Other: recyclable solvents

HANDLING METHOD (actual)

X Containers (# ≈14)
X Tanks-above ground (# 4)
__ Tanks-underground (#)
__ Surface impoundments (#)
__ Landfill
__ Other: ___

__ Waste piles (#)
__ Wastewater treatment
__ Incinerator/Thermal treatment
__ Chem/Phys/Bio treatment

SITE DESCRIPTION

Proximity to residential areas/surface water/recharge zone, etc: Area industrial + commercial along Rt. 1 and I-95; storm sewers + yard drains go to Housatonic River ≈ 1/8-1/4 mile away, possibly via brook feeding Long River.

Water supply (if wells, give approximate location): City water

Types of waste/water discharges: NPDES (one pt. source) for chiller cooling H_2O (non-contact), is back-up system, rarely discharged; lab sinks to sani. sewer; also sanitary sewer.

Evidence of on-site disposal: Yes X No___. If yes, identify location, amount & frequency, length of time, disposal sites used, etc: Details in 5/93 inspection report pgs. 2 + 19; g.w. + soils contam. f/ discharge of monomer wastes to septic/leach system immediately south of Bldg. 375; also possible off-site sources (Raymark).

Groundwater monitoring wells on-site: Yes X No___.
If yes: ___RCRA (complete GWM checklist) Non-RCRA (briefly describe why installed and any information available): Not monitored since ≈ 7/90, see 5/93 inspection report, pg. 19 + 2. Also in 1992 discovered two aquifers beneath site (shallow + deeper w/clay layer separating the two); uncertain which aquifer had been monitored, or depth of wells (?).

GW classification (if known): _____ Property owned/leased: Two owners: Bldg. 375 by Harry Tickey trust, Bldg. 301 by Hampford.

Previous occupants of site: Ware Chemical; Syapro Ware; Syapron; Dart Industries; possibly others - there are name and/or ownership changes since 1969.

Comments: ___

SITE ACTIVITY

Date established at present location: 1969

No. employees/shifts ≈20/two Type of activity: Mfg. liquid p.v.c heat stabilizers.

Products: ≈160 products: Sn + Pb stabilizers, Ba/Zn + Ba/Cd/Zn stabilizers, also two polyurethane products (polyols), others.

Describe processes (particularly those involving chemicals):

Occupy two buildings on-site, each w/separate addresses + owners (leased by Synthetic Products): 301 and 375 Barnum Ave. cut-off.

Total five reactors (1200 - 6000 gal. sizes), one 6000 gal. blend tank, 13 process transfer tanks (sizes ≈1200 - 5000 gal.) for intermediates + raw materials; see pg. 3a for tanks listing.

I. Stabilizers Manufacture: charge reactors with tall oil acid, chelates, reactant solvents (kerosene-based "ink oil," iso-octanol, other alcohols), carrier solvents (dipropylene glycol methyl ether, also high flash solvents), organic acids (octoic, benzoic, nonyl phenol), metal oxides or hydroxides, heat to 100°-130°C; pull aqueous phase off via vacuum, condense and collect in 5000 gal. holding tank; product gets sampled for metals + H_2O content; filter press filters product to remove unreacted oxides; product goes into storage for eventual blending with other metal salts per customer request.

- unreacted oxides separated for handling purposes: Antimony shipped as non-haz. waste, Zn/Cd get combined + shipped to reclamation facility, Ba shipped as haz. waste.
- screen filters located on each reactor (for screening products + intermediates); spent filters segregated + drummed for handling as unreacted oxides. Filter shredder + compactor.
- aqueous phase from 5000 gal holding tank goes through condensers, demisters and activated carbon, then to holding tank as waste.

II. Polyurethane new product: manufacture polyol to be mixed with isocyanate (by customers) to form polyurethane. (No isocyanates used here) Use same reactors noted above, but only for blending, not reacting. Raw materials include polyether amine, silicone oil, phenolic wetting agent, methyl propysolv + polyol, H_2O; blend + mix, package in drums.

- Flush out reactors with ink oil (flash pt. 197°F), gets reused in manufacture of stabilizers.

III. Support Activities: Q.C. lab checks incoming materials; metal titrations, color, refractive index, infrared, specific gravity. No R+D performed.

- Maint. dept. performs plumbing, electrical, light machining, generating small volumes of waste oil.

(cont. pg. 3a)

(CONTINUED FROM PAGE 3)

EPA ID number: CTD 0 0 0 8 4 4 3 6 5 Date of inspection: 7/1+22/94

Site name: Synthetic Products Co. Town: Stratford

PROCESSES (cont.):

- warehousing both on-site and at separate location (950 Bridgeport Ave, Milford): store products, inventory items, returned goods from customers, and occassional off-spec. materials. Claim rarely generate off-spec. products; sometimes receive returned products (usually from experimental items, color problems). Manufacture one low-grade product sold to China + Taiwan, comprised of off-spec or returned goods. Claim when preparing these batches, check inventory for materials > 9 months old to blend. Also reblend off-specs + returned goods into future batches of similar product.

  Note: in warehouse were two totes (sizes ≈ 250 + 500 gal.), both marked "Rejected"; reviewed records on older tote, dated 12/30/92, lot # 1360042500396 filed on business records as finished good, Ba neodecanate, made for one customer; returned due to cloudy color, expect to blend into next batch of same product, uncertain that will be.
- all vehicles leased, no garaging nor maintenance on-site.
- no air pollution control equipment aside from pre-noted demisters + carbon adsorbers; two vent stacks for vacuum pumps.

IV. Bulk Storage: see tanks pgs. 12, 12a + 13 for waste handling tank systems;
- 8000 gal. #2 fuel tank, above-g.
- 1000 gal. " " " , in-g.
- two 5000 gal. iso-octanol tanks, in-g.
- two 5000 gal. ink oil tanks, in-g.
- 5000 gal. octylic acid tank, in-g.
- 5000 gal. dipropylene glycol methyl ether tank, above-g.
- 5000 gal. high flash solvent tank, above-g.

Process tanks noted pg. 3, with one addition since last inspection: 1200 gal. former haz. waste tank, details pg. 12a.

WASTE PROFILE

WASTE STREAM	EPA WASTE #	EST. GENERATION RATE (amount:time)	HANDLING METHOD	TRANS	TSD

1.) D005/D006 solids (unreacted oxides, filter pads, spill sorbant); 98 lb. (44,815 lbs)/so far 1994; to Clean Harbors, Braintree, MA.

2.) D005/D006/F003 liquid (reactor wash-outs, floorspills), organic phase; 14,989 gal./so far 1994; bulk shipments to Oldover, V.A. Profile by Oldover, dated 2/16/94, denotes composition: mineral oil (ink oil) 30-40%, soybean oil 10%, alkylaryl phosphites 20%, Ba nonyl phenate 20%, Cd octate 10%, Antimony isodecyl thioglycolate 5%, acetone/xylene < 1%, H_2O 5-10%; flash pt. > 200°F; btu value 90,000-120,000 per gal. Stream gets fuel blended.

3.) D005/D006 liquid, aqueous phase (reactor wash-outs, floorspills); 13,766 gal/so far 1994; bulk shipments to E.I. Dupont, N.J. for w.w.t.s. disposal.

4.) D002 HCl lab pack; 15 gal. shipped 2/11/93 (last lab-pack shipment); to Clean Harbors, MA.

Comments: (cont. pg. 4a)

RCRA (the statute) WASTE MINIMIZATION PROGRAM (GOR)

Is a program in place (If yes, generally describe components of program, wastes addressed, reductions achieved): None written; see 5/93 inspection report - no additions since then.

40 CFR 262.11[1] HAZARDOUS WASTE DETERMINATIONS (GHW) 22a-449(c)-102(a)[2]

Determination conducted for all waste streams: Yes X No___ (explain): appears OK

[1] See 40 CFR 264 for permitted facilities.

[2] See 22a-449(c)-104 for permitted facilities.

(CONTINUED FROM PAGE 4)

EPA ID number: CTD 0 0 0 8 4 4 3 6 5 Date of inspection: 7/1+22/94

Site name: Synthetic Products Co. Town: Stratford

WASTE PROFILE (cont.):

5.) unreacted metal oxides (solids) off filter press get segregated per contents:
a.) Zn/Cd-bearing; 5018 lbs/since 5/93 inspection (two shipments, 8/6/93 of 2193 lbs, and 1/19/94 of 2825 lbs), denotes Cd 5% by weight; to Big River Zinc, Illinois for reclamation - see 5/25/93 inspection, pg. 4a for discussion of recycle exemption (claim is byproduct, with portion sold back to Syn. Prod. after reclamation).
b) Antimony-bearing; 11 lb/since 5/93 inspection; to Clean Harbors, MA., ultimately for landfilling at Chemical Waste Mgt, Alabama.
c) D005/D006 Ba-based, noted pg. 4, item 1.

40 CFR 265.70-77/262.21 MANIFESTS (DMR) 22a-449(c)-105(a) & 102(b)(3)

Dates/months of manifests reviewed: All 1993 + 1994

Manifests used for all hazardous waste shipments: Yes X No___ (explain): ___

Appropriate copy(ies) on-site: Yes X No___ (explain): ___

Any exception (generators); discrepancy or unmanifested waste reports (facilities): Yes___ No X

(explain): For one shipment, obtained xerox copy of original because never received return copy fr/TSDF.

Comments (e.g., CT reg. wastes): CDR notifications appear in order.

(See special checklist for land ban manifest requirements)

40 CFR 265.75 ANNUAL HAZARDOUS WASTE REPORT (DOR) 22a-449(c)-105(a)(2)(D)

Reports filed on an annual basis: Yes X No___: ___

Comments: ___

40 CFR 262.50-58 EXPORT/IMPORT ACTIVITIES (DEX) 22a-449(c)-102(a)(1)

40 CFR 262.20 & 265.12 22a-449(c)-105(a)(1)

Has any hazardous waste been exported/imported during the last 3 years: Yes___ No X

(If No, skip the rest of this section).

Exports:

Do they attach a current Acknowledgement of Consent form for each export shipment: Yes___ No___ (explain): ___

Have they filed with EPA's administrator by March 1 of each year an annual report summarizing the previous year's export activities: Yes___ No___. ___

In the past 3 years, have they ever had waste returned to the U.S., & if so, have appropriate exception reports been filed: Yes___ (explain) No___ ___

Have manifests for export shipments been completed according to the special manifest requirements (e.g., additional language): Yes___ No___ (explain): ___

Imports:

Are wastes received from a foreign source: Yes___ No___

If yes, has notice been filed with EPA: Yes___ No___: ___

Comments: ___

40 CFR 265.15 INSPECTION SCHEDULE & LOG (DIS) 22a-449(c)-105(a) & 102(b)(2)

Does contact claim inspections are conducted: Yes

Written inspection schedule: Yes, full program written 2/91 (revision) - see comments.

Inspection log (adequacy of contents: date, time, items inspected, corrective action): 4 primary logs: 1) tanks, 2) drums, 3) safety + emerg. equip., 4) loading/unloading area.

Documentation:

Daily

All Loading/unloading areas subject to spills (when in use): Yes, daily even when not in use.

Tanks Containment, detection, ancillary equip: Yes; but lack ≈200 gal tank.

Trtmt Treatment equipment: NA

Impd Freeboard level: NA

Incin. Combustion/emission control instruments every 15 min.: NA

Incin. Inc. & assoc. equipment for leaks/spills/emissions, check alarms & shutdown controls: NA

Weekly

Cntainrs Physical condition: Yes

Cntainrs Containment system: Yes

Cntainrs Labels, marking, dates: Yes, but failed to denote excess drums at "satellite".

Impdmnts Surface impoundments & dikes: NA

Battery Storage area (no log required): NA

Other

All Safety & emergency equipment: Yes, weekly, itemized.

Tanks Cathodic protection (w/i 6 mos.; then yearly): NA

Tanks Impressed current (every other month): NA

LD Monitoring equip (wells, etc.): NA

PCLD Post-closure inspections: NA

Comments (e.g., failure to correct malfunctions/deficiencies/chronic problems): Schedule states tanks inspected weekly, however actually inspect daily. Also log itemizes tanks, lacks the ≈200 gal. transfer tank for haz. waste, not formally inspected.

40 CFR 265.16 PERSONNEL TRAINING RECORDS (DPR) 22a-449(c)-105(a)(1)(D)

Training conducted: Yes ? No ___: Partial, lacking for J. Kalanta (see comments).

Last annual review (date): 4/28/94 New employees: Yes where applicable.

Written description of training: Yes; health + safety, emerg. response, haz. waste mgt.

Job title, description & name of employee: Yes

Records maintained on-site until closure/3 yrs. for former employees: Yes, except J. Kalanta.

Comments (if SQG, describe): Various sessions + courses documented for D. Butler, waste handlers + manifest personnel; however no haz. mat. emerg. response nor Contingency Plan training for J. Kalanta - Note: as of 8/10/94 J. Kalanta no longer an emergency coordinator, replaced by D. Butler, so claim J. Kalanta no longer required to receive RCRA training.

40 CFR 265.50-56/262.34(a)(4) CONTINGENCY PLAN (DCP) 22a-449(c)-105(a) & 102(a)

Plan on-site Yes X No___. Date: 7/94 revision Prepared by: in-house
Arrangements with/plan to local authorities: Yes for previous plan (letters dated 10/13/93), with new plan sent 8/10/94 (see correspondence).
(police, fire, hospital, emergency response team)
Emergency procedures (fires, explosions, releases/spills): Yes, shows, procedures.
Emergency Coordinator(s) name, address, home & office phone: J. Kalanta + alts (see comments).
Emergency equipment list, location, description, capabilities: Yes + table.
Evacuation plan (signal, primary & alternate routes): Yes w/maps.
Comments: 1.) Plan identifies haz. waste management areas (drums + tanks) but does not I.D. 200 gal. haz. waste transfer tank, 2.) J. Kalanta stated he will no longer be designated emerg. coordinator, instead to become D. Butler – note: 8/10/94 correspondence (see file) indicates D. Butler has become new emerg. coord. as of 8/10/94.

CFR 265.30-37/262.34(a)(4) PREPAREDNESS & PREVENTION (DPP) 22a-449(c)-105(a)&102(a)

Immediately accessible to internal communications/alarm system: Yes; alarm, intercom.
Telephone/hand-held two-way radio: Phones + page system.
Emergency equipment (fire extinguishers/control, spill control, decontamination equip.): Yes, extinguishers + spill control equip.
Equipment maintenance: Yes, annual
Access to emergency equipment: OK
Adequate aisle space: Yes
Source of water in the event of a fire: City hydrant.
Comments:

40 CFR 265.17 IGNITABLES/REACTIVES/INCOMPATIBLES (DSC) 22a-449(c)-105(a)(1)

Ignitable & reactive wastes separated from sources of ignition or reaction & handled per 265.17: Yes, currently NA.
"No smoking" signs (for ignitable & reactive waste): Yes.
Comments:

40 CFR 265.13(b) WASTE ANALYSIS PLAN (DWA) 22a-449(c)-105(a)

Plan on-site: Yes X No___. Date: 11/90 revision Prepared by: in-house revision to HRP original.
Does plan include: Parameters: Yes
(including TCLP Test methods: Yes
and LDR update) Sampling methods: Yes
Frequency: Yes
Copy of results on-site: Yes
Comments: No wastes stored ≥ 90 days, W.A.P. appears NA

40 CFR 265.73 & 265.94(a)(1) OPERATING RECORDS (DRR) 22a-449(c)-105(a)

Are the following records maintained on-site: NA, no wastes stored ≥ 90 days.
Waste received from off-site: _____ From on-site: _____
Waste description: _____
Waste quantity: _____
Methods of & dates of storage/treatment/disposal: Yes___ No___. _____
Waste inventory (including type, volume & location):
in storage: _____
disposed of on-site (recorded on map): _____
cross-reference to specific manifest: _____
Analytical results for:
all waste: _____
monitoring wells: _____
trial test (to assure compatibility with tanks, impoundments or waste piles): _____

Report/summary of any incident requiring implementation of Contingency Plan: _____

Records & results of inspections: _____
Closure/Post closure cost estimates: _____
Comments: _____

40 CFR 265.110-120 CLOSURE PLAN (DCL) 22a-449(c)-105(a)

Have any regulated units closed: Yes___ No X. See comments.

If Yes, is closure certified by owner/P.E.: Yes___ No___

If Yes, date of certification: _____ On-file at DEP: Yes___ No___

Plan on-site: Yes X No___. Date: 7/94 Prepared by: internal

Status of closure plan (approved & date): Not reviewed nor approved. Co. claims Plan N/A due to certification that never stored > 90 days, but on file in case required.

Are all regulated units covered (compare to Part A & on-site operations): Co. claims have no regulated units; however Part A (6/22/84) denotes 501 only, whereas Plan addresses 501 + 502.

Does plan include (indicate presence/absence, comment on adequacy):

Estimate of maximum inventory: 470 drums; 15,300 gal. for tanks + decon. solutions/rinses.

Description of how each unit will be closed & methods to be used during closure: Yes, itemized.

Description of steps needed to remove/decontaminate equip/structures/soils: Yes, including potential need to address soils contamination + removal.

Schedule for closure of each unit & for final closure (time & milestones): Yes, total 90 days

* Estimate of expected year of final closure: None

Comments (e.g., operations do not match plan, amendments needed): 1200 gal. waste feed tank no longer used for haz. waste, removed from Closure Plan (had been on 11/88 Plan). Not formally closed, instead converted for use in mfg. of stabilizers. However, contact states no tanks were ever on Part A, and none were ever used for ≥ 90 day storage, thus claim no need for Closure Plan.

* Expected date of closure required only for facilities using trust funds with <20 years of remaining life, & for facilities without approved closure plans).

40 CFR 265.117,118 POST-CLOSURE PLAN (DCL) 22a-449(c)-105(a)
(disposal facilities only) NA

Plan on-site: Yes___ No___. Date: _____ Prepared by: _____

Status of Post-closure plan (e.g., approved & date): _____

Does plan include description & frequency of:

monitoring activities: _____

maintenance & inspection activities (e.g., integrity of cap, gwm): _____

name, address, telephone no. of post-closure contact: _____

length of post-closure period: _____

Certification to the Commissioner that notation on deed has been recorded: _____

Yes___ No___. _____

Record sent to the Commissioner of the type, location & quantity of hazardous waste disposed of in each cell/disposal unit: Yes___ No___

Comments (e.g., amendments needed, etc.): _____

FINANCIAL REQUIREMENTS (DFR)

40 CFR 265.142 CLOSURE COST ESTIMATE 22a-449-105(a)(1)

Estimate on-site: Yes X No___. Amount of estimate: $ 98,800.00
Date of most recent adjustment: 1988
Comments: Claim more recent adjustments filed w/assurance documents, however not available on-site nor at DEP files (see below).

40 CFR 265.143 FINANCIAL ASSURANCE FOR CLOSURE 22a-449(c)-105(a)(1)

Type of mechanism (trust fund, surety bond, letter of credit, insurance, financial test/corporate guarantee): Trust Fund w/First Fidelity Bank, N.J. - per DEP files entered into 11/10/89.
Amount of coverage: $ 3,555.40 (based on Closure Cost estimate of $11,125)
Comments: No updated cost estimates nor trust fund updates in DEP files - also note conflicting cost estimates.

40 CFR 265.144 POST-CLOSURE COST ESTIMATE 22a-449-105(a)(1)
(disposal facilities only) NA

Estimate on-site: Yes___ No___. Amount of estimate: $ ___
Date of most recent adjustment: ___
Comments: ___

40 CFR 265.145 FINANCIAL ASSURANCE FOR POST-CLOSURE 22a-449-105(a)(1)
(disposal facilities only) NA

Type of mechanism: ___ Amount of coverage: $ ___
Comments: ___

40 CFR 265.147 LIABILITY INSURANCE 22a-449(c)-105(a)(1)

Sudden accidental occurrences (all TSDF's)
Type of mechanism (insurance, financial test/guarantee liability coverage, letter of credit, surety bond, trust fund, combination): financial test: corporate guarantee.
Amount of coverage: $ 1 million/2 million
If no insurance, date of most recent attempt to obtain: —

Non-sudden accidental occurrences (impoundments, landfills) NA
Type of mechanism: ___ Amount of coverage: $ ___
If no insurance, date of most recent attempt to obtain: ___

Comments (e.g., filed Chapter 11, etc.): 7/12/94 letter + financial test, signed by chief financial officer Stuart Daniels. Note: does not address assurance, only insurance. Test performed by parent co.: Conkson America, Inc.

40 CFR 265.14 SITE SECURITY (DSS) 22a-449(c)-105(a)

Does contact claim that physical contact/disturbance of waste would not cause injury/a violation of 40 CFR Part 265/264: Yes___ No X.

If No, is there:

24-hr. surveillance system (describe): All wastes indoors or in fenced + locked area.

OR barrier completely surrounding active portion (describe): " " " "

AND Means to control entry (describe): " " " "

Danger-Unauthorized Personnel Keep Out signs at each entrance to active portion, legible at 25': Yes

Comments: No waste stored ≥ 90 days.

40 CFR 262.34(c)(1) SATELLITE ACCUMULATION (DMC) 22a-449(c)-102(a)

Approx. number of satellite storage areas: One, at waste compactor + shredder (see comments).

Less than 55 gallons (or 1 qt. acutely haz) per waste stream per satellite accumulation area: No, ≈ 3 dr. (each 55 gal.) D005/D006 solids, possibly more (some unmarked

Containers marked & contents described: Yes for 3 dr, uncertain re: others

Containers closed when not in use: Lids in place but not sealed, still filling drums

Comments: See below for listing of all drums in this area.

Note: consolidated previous satellites into this one area.

40 CFR 265.170-177 CONTAINERS (DMC) 22a-449(c)-105(a) & 102(a)

Number of areas: One drum pad, roofed + fenced; see comments re: area next to dr. pad.

Location(s): east end of Bldg. 375.

Impermeable base (type): concrete Secondary containment*: Yes, bermed.

Approx. number & sizes of containers: On 7/1/94: 2 dr. on pad, 12 dr. adjacent to pad (see comments)

Type(s): steel X poly___ fiber___ bag/sack___ lab pack___ roll-off___

Other: occassionally generate lab packs, none on-site during inspection.

Management of containers:

Condition (leaks, ruptures, corrosion, heat, pressure): Appears OK.

Containers closed when not in use: No for 3 dr. D005/D006 at processing area (by compactor).

50 ft. buffer zone for ignitable and reactive waste*: Yes

Incompatibles separated by dike/wall, etc. NA

Storage less than 90 days (LQG) or 180-270 days (SQG): Yes

Comments: Indoors adjacent to pad is waste compactor + filter shredder (all solids) for filling waste drums, had 12 dr., including: ≈ 3 dr. D005/D006 filters, being filled (two with accum. dates 6/23/94 + 6/24/94); ≈ 6 dr. marked "Cadmium cake," claim reclaim exemption; 1 dr. antimony oxide, 2 dr. floorwater (constituents not specified, contact claims non-haz.). Note: by 7/22/94 there were 11 dr. D005/D006 on pad, all with June + July accum. dates, some w/above-noted area.

* = Not applicable to Small Quantity Generators

40 CFR 262.30-34 OTHER PRE-TRANSPORT REQUIREMENTS (DPT) 22a-449(c)-102(a)

Packaging: OK
Labelling (if applicable, DOT haz.class): NA
Marking (Words "Hazardous Waste", generator name & address, manifest doc. no. if being shipped): Yes for most, No for four dr. at "satellite" (see pre-pg.): uncertain if haz. waste or exempt.
Contents described (e.g., chemical name): Yes for most, No for " " " "
Proper DOT shipping name: Yes where applicable
Accumulation date: Yes
Comments: See pre-page re: "satellite" w/12 drums, of which 3 dr. known haz. waste, others either non-haz., exempt Cd. cables, or unmarked.

40 CFR 265.190-201 WASTE TANKS (DTR) 22a-449(c)-105(a)
262.34 (generators)

Tank inventory/description (note above/underground, location, age, construction, ancillary equipment, capacity & waste type): Four tanks (one changed since last insp.): 5000 gal. aqueous D005/D006 tank, 5000 gal. organic D005/D006 tank, 2000 gal. holding tank (transfers organic wastes f/production area to 5000 gal tank), ≈ 200 gal. tank transfers aqueous waste f/reactors to 5000 gal. tank. All tanks steel, above-g., indoors, installed ≈ 1980 or possibly earlier. See pg. 12a for tank uses and 1200 gal. no longer used for haz. waste.
Adequate secondary containment for tank & ancillary equip: Yes ? No ? N/A___
Comments: Bldg. 375 serves as containment for all tanks, however adequacy not verified, see pg. 12a.
Describe leak detection system (including ancillary equip.): Visual inspection - all tanks raised off floor in cradles or platforms.
Describe corrosion protection system: NA

Special requirements for ignitable & reactive waste: Yes___ No___ N/A X: ___

Words "Hazardous Waste" and description of contents: Yes on three tanks, No on ≈ 200 gal. transfer tank.
Evidence of releases/leaks: No X Yes___.
If yes, describe: ___
Was release reported: Yes___ No___. If yes, date (if known): ___
Certification of major repairs to tank Yes___ No___ N/A X.
Any out-of service tanks: Yes X No___. If yes, describe: 1200 gal. tank, details on pg. 12a.

Comments: 5000 gal. aqueous waste tank has level indicator, other tanks do not.

Tanks Section continued on next page

(CONTINUED FROM PAGE 12)

EPA ID number: CTD 000844365 Date of inspection: 7/1+22/94

Site name: Synthetic Products Co. Town: Stratford

WASTE TANKS (cont.):

- I. Waste transfers are as follows: 2000 gal. tank receives all floor spills + line drainings + reactor rinses from production bldg. via floor troughs (concrete, unlined) to two floor sumps; sumps pumped via one line into tank; in addition a 2nd line comes into tank f/5000 gal. aqueous waste tank (skimmed organic phase off aqueous waste); bottom line off tank to 5000 gal. organic waste tank (formerly had 2nd bottom line off 2000 gal. tank for aqueous separation).
  ≈200 gal. tank receives aqueous waste from any reactor in production bldg, then hard-pipe wastes to 5000 gal. tank.
  Both 2000 gal. and ≈200 gal. tanks are on raised platforms or cradles (bottoms visible).

- II. Obsolete 1200 gal. haz. waste tank in production bldg., formerly received wastes from floor troughs + one sump; claim never stored haz. waste ≥90 days; has been converted since last inspection (5/25/93) to mfg. of Ba/Cd/Zn stabilizers. As waste tank had piped (via flexible hoses) to 2000 gal. waste tank (noted above).
  See Closure Plan, as had been addressed in former Plan, since removed f/Plan.

- III. Secondary containment: for the two 5000 gal. tanks, containment is designated (by contact and consultant) as the room in which tanks sit (defined w/black sealant over concrete base + bottoms of walls), plus the adjacent drum storage pad (unsealed, connected to room via open doorway), plus adjacent loading dock (unsealed cracked concrete containment), plus small rooms off main room, connected via ≈5 or 6 doorways. Need verification that a) is adequate volume, and b) is properly sealed and impervious. In addition, all piping (overhead, through wall to production room) must be addressed re: containment.
  For the two smaller tanks located in production room, the same issues must be addressed because this room serves as containment, yet other tanks + reactors located in same room may affect volume adequacy of containment. Floor not sealed, floor troughs not sealed, and doorways (including large overhead doors) lead to outside. Also, above-noted piping must be addressed.

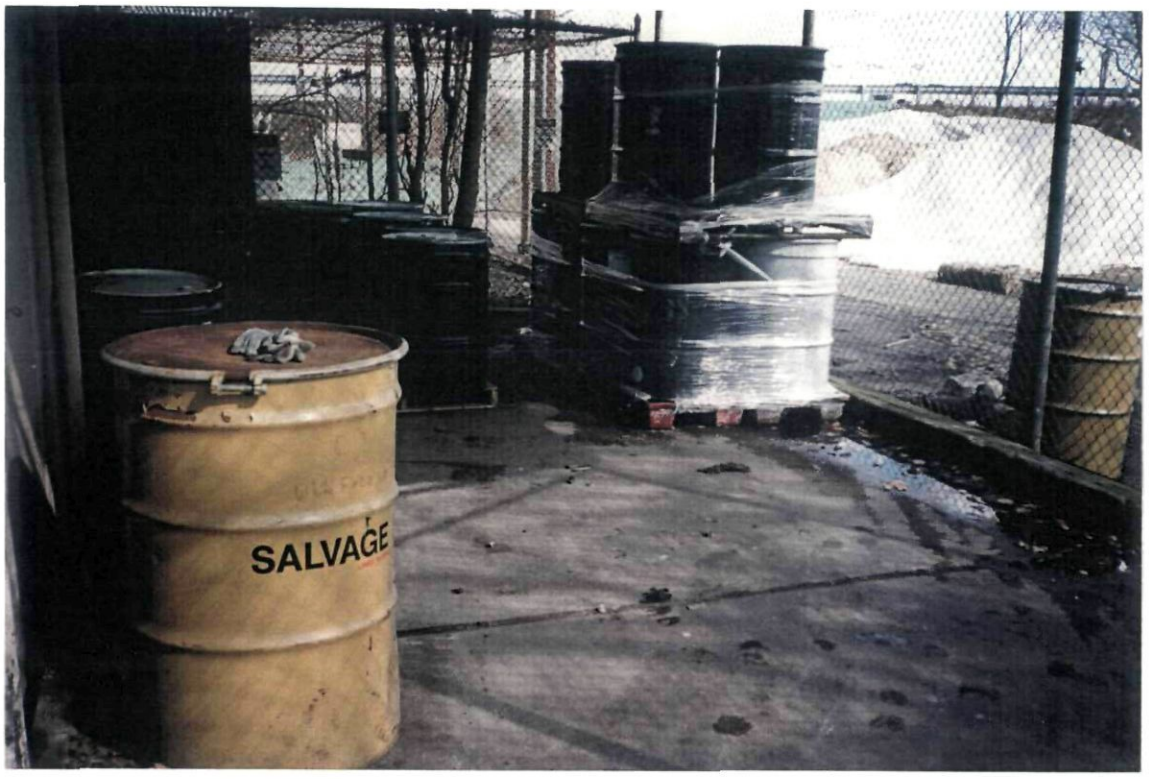
APPENDIX J

PHOTOGRAPHS OF REGULATED UNITS

PHOTOGRAPHIC LOG OF CLOSURE-RELATED ACTIVITIES

FORMER SYNTHETIC PRODUCTS COMPANY
375 BARNUM AVENUE CUT-OFF
STRATFORD, CONNECTICUT

1. Primary CSA - facing north
2. Primary CSA - facing south
3. Secondary CSA - facing west
4. Secondary CSA
5. Secondary CSA
6. Front Room - 300 gallon reaction water storage tank (left) and 3,000 gallon intermediate storage tank for organic hazardous waste (right)
7. Front Room - 300 gallon reaction water storage tank
8. Front Room - 3,000 gallon intermediate storage tank
9. Front Room trenches - facing west
10. Front Room trenches - facing east
11. Front Room trench showing plugged drain to leach field
12. Back Room 5,000 gallon reaction water (left) and 5,000 gallon organic (right) hazardous waste storage tanks

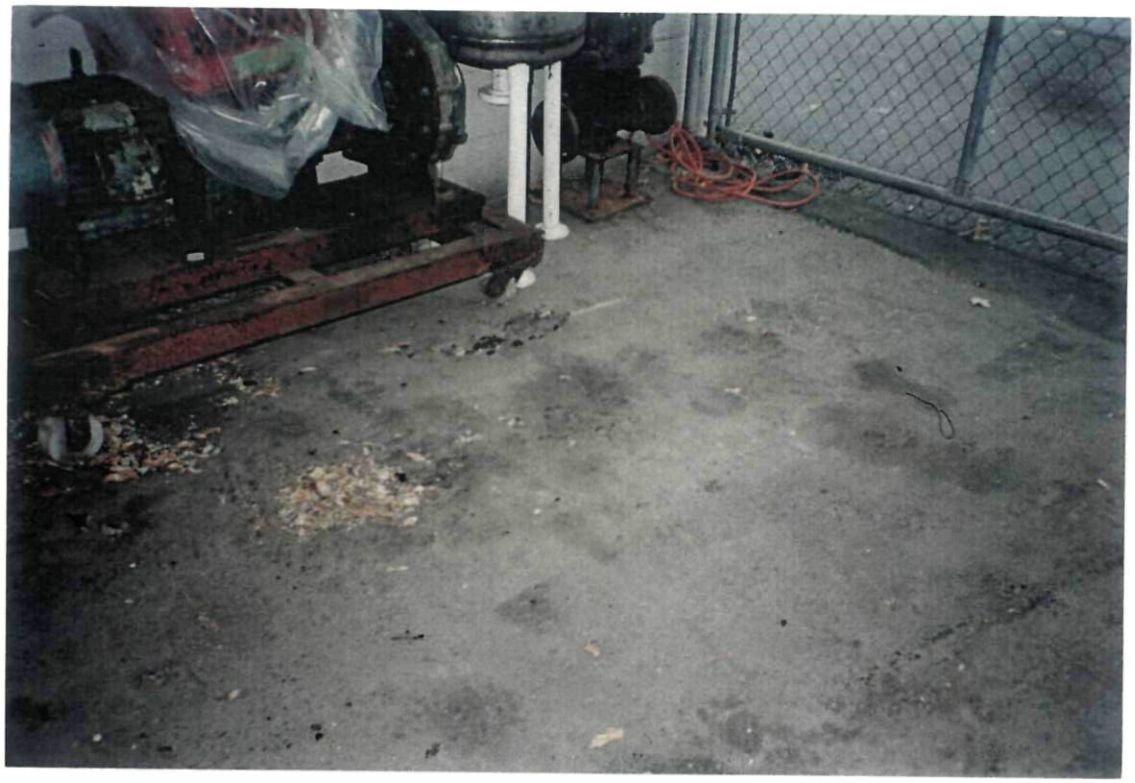


1. Primary CSA - facing north

2. Primary CSA - facing south

3. Secondary CSA - facing west

4. Secondary CSA



5. Secondary CSA

6. Front Room - 300 gallon reaction water storage tank (left) and 3,000 gallon intermediate storage tank for organic hazardous waste (right)

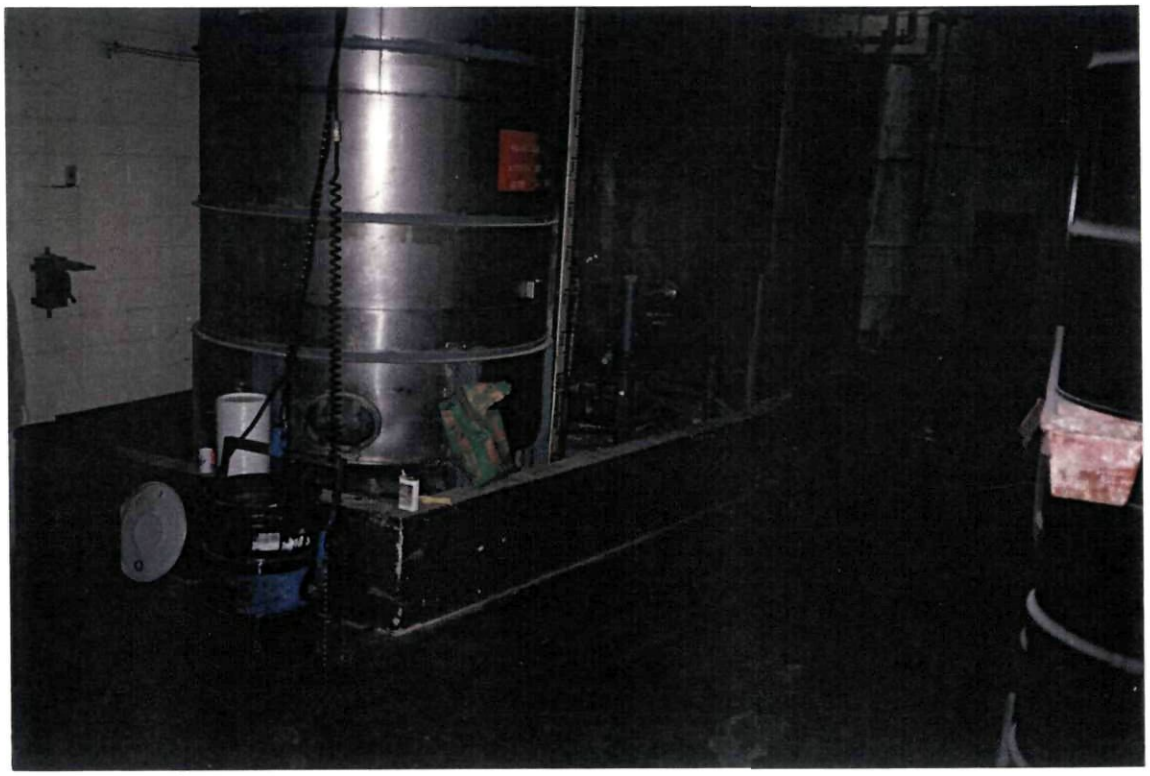
7. Front Room - 300 gallon reaction water storage tank

8. Front Room - 3,000 gallon intermediate storage tank

9. Front Room trenches - facing west

10. Front Room trenches - facing east

11. Front Room trench showing plugged drain to leach field



12. Back Room 5,000 gallon reaction water (left) and 5,000 gallon organic (right) hazardous waste storage tanks