

US EPA ARCHIVE DOCUMENT



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S. RUSSELL SYLVA
Commissioner

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering
Metropolitan Boston - Northeast Region
5 Commonwealth Avenue
Woburn, Massachusetts 01801

935-2160

March 1, 1985

Emerson & Cuming
Dewey and Almy Chemical Division
W.R. Grace and Company
59 Walpole Street
Canton, Ma. 02021

RE: CANTON-"Spill Control
Audit at Plant #2"
Engineering Report

Attention: Mr. Randolph M. Olson, Plant Manager

Dear Mr. Olson:

On February 27, 1985, Engineers from the Metropolitan Boston/Northeast Region of the Department of Environmental Quality Engineering, Division of Water Pollution Control, met with you and Ms. Gina McCarthy of the Canton Board of Health to review and inspect the progress toward accomplishing the recommended actions contained in a report entitled:

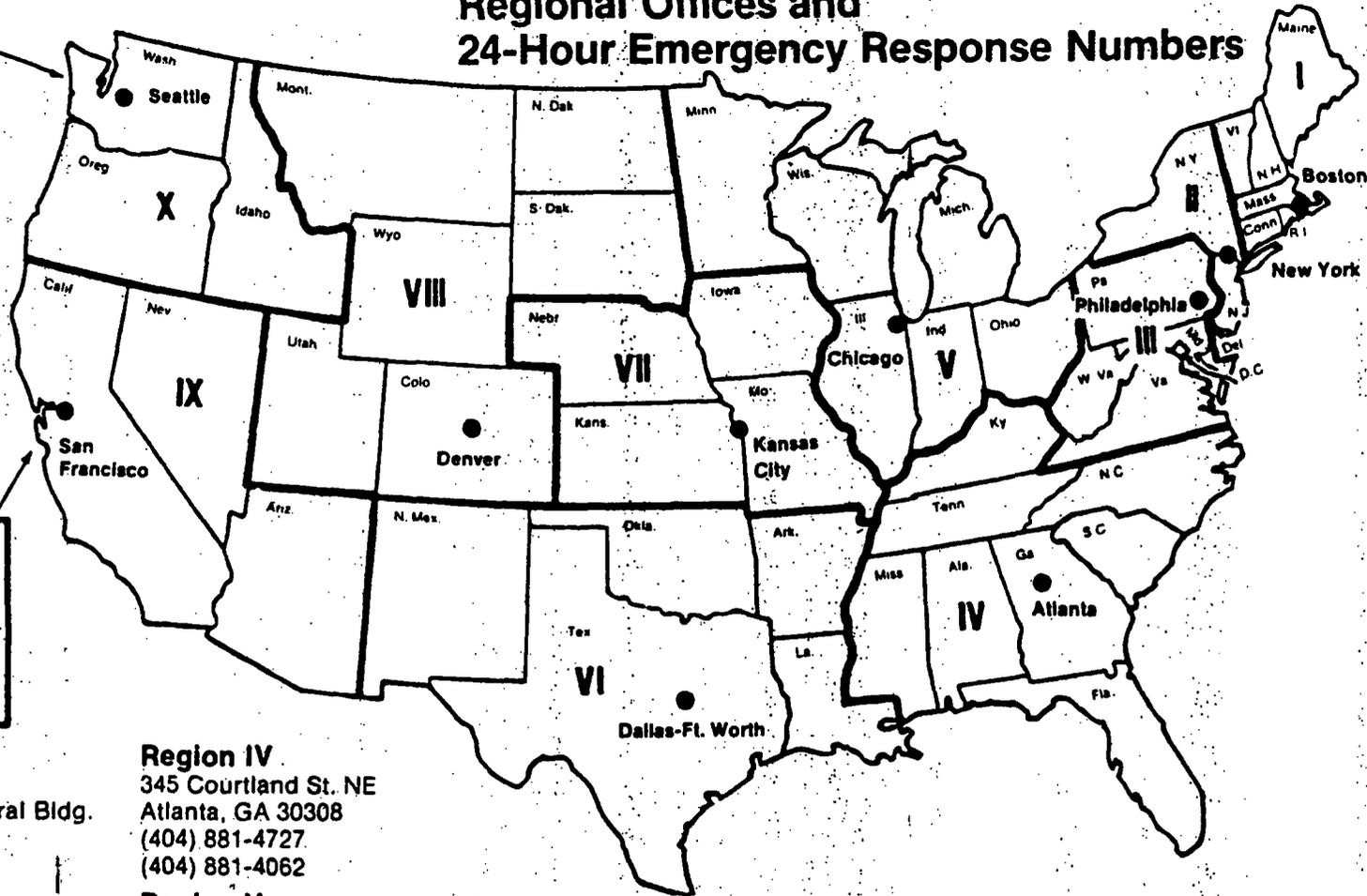
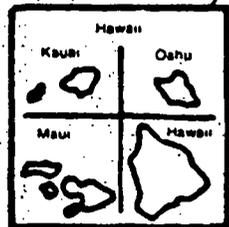
Emerson & Cuming
Canton, Massachusetts
Spill Control Audit
at
Plant No. 2"

The above report was prepared by Camp Dresser & McKee, Inc., and dated January, 1983. The report was requested in a letter from the Department, dated November 5, 1982 and was the result of an inspection of your facility at the above address on November 2, 1982. The inspection was conducted at the request of the Canton Board of Health to investigate the drainage patterns both inside and outside the plant as they related to any existing or potential discharge of pollutants to an existing raceway which flows under the building and property. The raceway is diverted from the East Branch River of the Neponset River and discharges back to the River through a 24 inch concrete pipe. The Board of Health's concern in this matter was the potential for any pollutants to reach the Town Wells downstream from your facility.

The inspection at that time did not reveal the presence of any existing discharges nor the appearance of any pollutants at the outfall pipe. However; the Department's letter did point out that due to the existence of the raceway, certain chemical storage and the use of these chemicals, or unauthorized use presented a potential discharge. Therefore; the Department recommended that some appropriate steps be taken to address this potential discharge.

As a result, the aforementioned report addressed these issues and made recommendations including, sealing the entrance to the raceway, sealing grates, trenches, drains and accesses from the plant, paving along Walpole Street, to

United States Environmental Protection Agency Regional Offices and 24-Hour Emergency Response Numbers



Region I
John F. Kennedy Federal Bldg.
Boston, MA 02203
(617) 223-7210
(617) 223-7265

Region II
26 Federal Plaza
New York, NY 10007
(212) 264-2525
(201) 321-6658

Region III
6th & Walnut Sts.
Philadelphia, PA 19106
(215) 597-9814
(215) 597-9898

Region IV
345 Courtland St. NE
Atlanta, GA 30308
(404) 881-4727
(404) 881-4062

Region V
230 South Dearborn St.
Chicago, IL 60604
(312) 353-2000
(312) 353-2318

Region VI
1201 Elm St.
First International Bldg.
Dallas, TX 75270
(214) 767-2600
(214) 767-2666

Region VII
1735 Baltimore Ave.
Kansas City, MO 64108
(816) 374-5493
(913) 236-3778

Region VIII
1860 Lincoln St.
Denver, CO 80203
(303) 837-3895
(303) 837-3880

Region IX
215 Fremont St.
San Francisco, CA 94111
(415) 974-8071
(415) 974-8131

Region X
1200 6th Ave.
Seattle, WA 98101
(206) 442-1200
(206) 442-1263

Note: The first telephone number is a general number, and the second number is the 24-hour Emergency Response number.

DEPARTMENT OF TRANSPORTATION

Form Approved OMB No. 04-5613

HAZARDOUS MATERIALS INCIDENT REPORT

INSTRUCTIONS: Submit this report in duplicate to the Director, Office of Hazardous Materials Operations, Materials Transportation Bureau, Department of Transportation, Washington, D.C. 20590, (ATTN: Op. Div.). If space provided for any item is inadequate, complete that item under Section H, "Remarks", keying to the entry number being completed. Copies of this form, in limited quantities, may be obtained from the Director, Office of Hazardous Materials Operations. Additional copies in this prescribed format may be reproduced and used, if on the same size and kind of paper.

A INCIDENT		
1. TYPE OF OPERATION 1 <input type="checkbox"/> AIR 2 <input type="checkbox"/> HIGHWAY 3 <input type="checkbox"/> RAIL 4 <input type="checkbox"/> WATER 5 <input type="checkbox"/> FREIGHT FORWARDER 6 <input type="checkbox"/> OTHER (Identify) _____		
2. DATE AND TIME OF INCIDENT (Month - Day - Year) _____ a.m. _____ p.m.		3. LOCATION OF INCIDENT
B REPORTING CARRIER, COMPANY OR INDIVIDUAL		
4. FULL NAME		5. ADDRESS (Number, Street, City, State and Zip Code)
6. TYPE OF VEHICLE OR FACILITY		
C SHIPMENT INFORMATION		
7. NAME AND ADDRESS OF SHIPPER (Origin address)		8. NAME AND ADDRESS OF CONSIGNEE (Destination address)
9. SHIPPING PAPER IDENTIFICATION NO.		10. SHIPPING PAPERS ISSUED BY <input type="checkbox"/> CARRIER <input type="checkbox"/> SHIPPER <input type="checkbox"/> OTHER (Identify)
D DEATHS, INJURIES, LOSS AND DAMAGE		
DUE TO HAZARDOUS MATERIALS INVOLVED		13. ESTIMATED AMOUNT OF LOSS AND/OR PROPERTY DAMAGE INCLUDING COST OF DECONTAMINATION (Round off in dollars) \$
11. NUMBER PERSONS INJURED	12. NUMBER PERSONS KILLED	
14. ESTIMATED TOTAL QUANTITY OF HAZARDOUS MATERIALS RELEASED		
E HAZARDOUS MATERIALS INVOLVED		
15. HAZARD CLASS (*Sec. 172.101, Col. 3)	16. SHIPPING NAME (*Sec. 172.101, Col. 2)	17. TRADE NAME
F NATURE OF PACKAGING FAILURE		
18. (Check all applicable boxes)		
(1) DROPPED IN HANDLING	(2) EXTERNAL PUNCTURE	(3) DAMAGE BY OTHER FREIGHT
(4) WATER DAMAGE	(5) DAMAGE FROM OTHER LIQUID	(6) FREEZING
(7) EXTERNAL HEAT	(8) INTERNAL PRESSURE	(9) CORROSION OR RUST
(10) DEFECTIVE FITTINGS, VALVES, OR CLOSURES	(11) LOOSE FITTINGS, VALVES OR CLOSURES	(12) FAILURE OF INNER RECEPTACLES
(13) BOTTOM FAILURE	(14) BODY OR SIDE FAILURE	(15) WELD FAILURE
(16) CHIME FAILURE	(17) OTHER CONDITIONS (Identify)	19. SPACE FOR DOT USE ONLY

DEPARTMENT OF TRANSPORTATION		REPORT DATE																																		
LEAK OR TEST FAILURE REPORT—TRANSMISSION & GATHERING SYSTEMS																																				
<input type="checkbox"/> LEAK REPORT <input type="checkbox"/> TEST FAILURE REPORT <input type="checkbox"/> NEW CONSTRUCTION <input type="checkbox"/> EXISTING FACILITY (Specify reason for test)																																				
INSTRUCTIONS: Complete this side of this form for each incident regardless of cause. Check appropriate box for specific cause of leak or failure and complete the pertinent part(s) on the reverse side.																																				
<input type="checkbox"/> CORROSION PART—A <input type="checkbox"/> DAMAGE BY OUTSIDE FORCES—PART—B <input type="checkbox"/> CONSTRUCTION OBJECT OR MATERIAL FAILURE—PART—C <input type="checkbox"/> OTHER (Describe incident in detail in writing and attach to this form where space is not applicable.)																																				
If material to answer an applicable question is not available this should be stated. Only such portions of the form as apply to the particular leak are to be completed. In all parts of the form which are not applicable, the letters "NA" should be inserted so that every item is completed. If additional instruction is needed to complete this form, the operator may telephone the Department of Transportation, Transportation Systems Center, Area Code (617) 494-2192, Monday through Friday, 8:15 a.m. to 4:45 p.m., Eastern Time.																																				
GENERAL																																				
1. OPERATOR INFORMATION NAME OF OPERATOR _____ NUMBER & STREET _____ CITY & COUNTY _____ STATE & ZIP CODE _____ REPORTING OFFICIAL'S TELEPHONE NUMBER (Include Area Code) _____	10. PERSONAL INJURY OR PROPERTY DAMAGE RESULTING FROM ESCAPE OF GAS a. Number of employee(s) _____ (1) Fatalities _____ (2) Suffering loss-time injuries _____ b. Number of non-employee(s) _____ (1) Fatalities _____ (2) Injured and requiring medical treatment other than on-site first aid _____ c. Rupture occurred..... (1) <input type="checkbox"/> (2) <input type="checkbox"/> d. Gas ignited..... (1) <input type="checkbox"/> (2) <input type="checkbox"/> e. Explosion occurred..... (1) <input type="checkbox"/> (2) <input type="checkbox"/> f. Incident induced any secondary explosions or fires (1) <input type="checkbox"/> (2) <input type="checkbox"/> g. Estimated value of operator's property damage \$ _____																																			
2. LEAK WITH RUPTURE a. Shear fracture (feet) _____ b. Cleavage fracture (feet) _____ c. Has a fracture toughness test been made on the material that failed? (1) <input type="checkbox"/> Yes (2) <input type="checkbox"/> No d. Is a metallurgical analysis planned? (1) <input type="checkbox"/> Yes (2) <input type="checkbox"/> No	11. ENVIRONMENTAL DESCRIPTION a. Predominant type of area _____ (1) At time of construction (2) At time of incident a. <input type="checkbox"/> Commercial a. <input type="checkbox"/> Commercial b. <input type="checkbox"/> Industrial b. <input type="checkbox"/> Industrial c. <input type="checkbox"/> Residential c. <input type="checkbox"/> Residential d. <input type="checkbox"/> Rural d. <input type="checkbox"/> Rural e. <input type="checkbox"/> Undeveloped e. <input type="checkbox"/> Undeveloped f. <input type="checkbox"/> Unknown f. <input type="checkbox"/> Other (Specify) _____ g. <input type="checkbox"/> Other (Specify) _____ b. Predominant above-ground structure adjacent to leak <table style="width:100%; border: none;"> <tr> <td></td> <td style="text-align: center;">Multi-story</td> <td style="text-align: center;">Single-story</td> </tr> <tr> <td>(1) Commercial</td> <td style="text-align: center;">a <input type="checkbox"/></td> <td style="text-align: center;">b <input type="checkbox"/></td> </tr> <tr> <td>(2) Industrial</td> <td style="text-align: center;">a <input type="checkbox"/></td> <td style="text-align: center;">b <input type="checkbox"/></td> </tr> <tr> <td>(3) Residential</td> <td style="text-align: center;">a <input type="checkbox"/></td> <td style="text-align: center;">b <input type="checkbox"/></td> </tr> <tr> <td>(4) None</td> <td style="text-align: center;"><input type="checkbox"/></td> <td style="text-align: center;"><input type="checkbox"/></td> </tr> <tr> <td>(5) Other (Specify)</td> <td style="text-align: center;">a <input type="checkbox"/></td> <td style="text-align: center;">b <input type="checkbox"/></td> </tr> </table> c. Approximate distance to nearest above-ground structure (Within 1 mile of leak) _____ feet d. Did other underground facility(ies) contribute to occurrence of leak in any manner? (1) <input type="checkbox"/> Yes (2) <input type="checkbox"/> No e. If so, what was effect on existence of other facility(ies)? _____ f. Was other utility(ies) imperiled by the leak? (1) <input type="checkbox"/> Yes (2) <input type="checkbox"/> No g. Distance of other facility(ies) or utility(ies) from leak or failure location <table style="width:100%; border: none;"> <tr> <td style="width: 50%;">Other facility(ies) contributing to</td> <td style="width: 50%;">Other utility(ies) imperiled</td> </tr> <tr> <td>_____ Ft. (1) <input type="checkbox"/> Other gas</td> <td>(8) <input type="checkbox"/> _____ Ft.</td> </tr> <tr> <td>_____ Ft. (2) <input type="checkbox"/> Telephone</td> <td>(9) <input type="checkbox"/> _____ Ft.</td> </tr> <tr> <td>_____ Ft. (3) <input type="checkbox"/> Electric</td> <td>(10) <input type="checkbox"/> _____ Ft.</td> </tr> <tr> <td>_____ Ft. (4) <input type="checkbox"/> Sewers (Storm)</td> <td>(11) <input type="checkbox"/> _____ Ft.</td> </tr> <tr> <td>_____ Ft. (5) <input type="checkbox"/> Sewers (Other)</td> <td>(12) <input type="checkbox"/> _____ Ft.</td> </tr> <tr> <td>_____ Ft. (6) <input type="checkbox"/> Water</td> <td>(13) <input type="checkbox"/> _____ Ft.</td> </tr> <tr> <td>_____ Ft. (7) <input type="checkbox"/> Other (Specify)</td> <td>(14) <input type="checkbox"/> _____ Ft.</td> </tr> </table> h. Location of leak or failure (1) <input type="checkbox"/> Within building (5) <input type="checkbox"/> Below walkway (2) <input type="checkbox"/> Above ground (6) <input type="checkbox"/> Below road— a <input type="checkbox"/> Paved (3) <input type="checkbox"/> Below ground b <input type="checkbox"/> Median or unpaved (4) <input type="checkbox"/> Below water (7) <input type="checkbox"/> Below other paved area (Specify) _____ (i) Depth of cover _____ inches (j) Soil information at pipe depth (1) <input type="checkbox"/> Soil (2) <input type="checkbox"/> Rock (3) Estimated soil temperature at point of leak _____ °F			Multi-story	Single-story	(1) Commercial	a <input type="checkbox"/>	b <input type="checkbox"/>	(2) Industrial	a <input type="checkbox"/>	b <input type="checkbox"/>	(3) Residential	a <input type="checkbox"/>	b <input type="checkbox"/>	(4) None	<input type="checkbox"/>	<input type="checkbox"/>	(5) Other (Specify)	a <input type="checkbox"/>	b <input type="checkbox"/>	Other facility(ies) contributing to	Other utility(ies) imperiled	_____ Ft. (1) <input type="checkbox"/> Other gas	(8) <input type="checkbox"/> _____ Ft.	_____ Ft. (2) <input type="checkbox"/> Telephone	(9) <input type="checkbox"/> _____ Ft.	_____ Ft. (3) <input type="checkbox"/> Electric	(10) <input type="checkbox"/> _____ Ft.	_____ Ft. (4) <input type="checkbox"/> Sewers (Storm)	(11) <input type="checkbox"/> _____ Ft.	_____ Ft. (5) <input type="checkbox"/> Sewers (Other)	(12) <input type="checkbox"/> _____ Ft.	_____ Ft. (6) <input type="checkbox"/> Water	(13) <input type="checkbox"/> _____ Ft.	_____ Ft. (7) <input type="checkbox"/> Other (Specify)	(14) <input type="checkbox"/> _____ Ft.
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_____ Ft. (7) <input type="checkbox"/> Other (Specify)	(14) <input type="checkbox"/> _____ Ft.																																			
3. LOCATION AND TIME OF LEAK OR FAILURE a. Number & Street _____ City & County _____ State & ZIP Code _____ b. Mile Post _____ c. Survey Station No. _____ d. Time of Detection (1) Date _____ (2) Hour _____ e. HOURS & MINUTES BETWEEN TIME OF DETECTION AND TIME ESCAPE OF GAS WAS STOPPED _____ f. Estimated pressure at point and time of incident (PSIG) _____ g. Maximum allowable operating pressure (PSIG) _____	4. LEAK OR FAILURE OCCURRED ON a. <input type="checkbox"/> Transmission system c. <input type="checkbox"/> Gathering system b. <input type="checkbox"/> Transmission line of distribution system																																			
5. PART OF SYSTEM WHICH LEAKED OR FAILED a. Part (1) <input type="checkbox"/> Pipeline (4) <input type="checkbox"/> Regulator station (2) <input type="checkbox"/> Compressor station (5) <input type="checkbox"/> Meter station (3) <input type="checkbox"/> Dehydration plant (6) <input type="checkbox"/> Other (Specify) _____ b. Date installed _____	6. ORIGIN OF LEAK OR FAILURE a. <input type="checkbox"/> Body of pipe g. <input type="checkbox"/> Scraper trap b. <input type="checkbox"/> Girth weld h. <input type="checkbox"/> Tap connection c. <input type="checkbox"/> Longitudinal weld i. <input type="checkbox"/> Fitting (Type) _____ d. <input type="checkbox"/> Other field weld j. <input type="checkbox"/> Gas cooler e. <input type="checkbox"/> Compressor k. <input type="checkbox"/> Other (Specify) _____ f. <input type="checkbox"/> Valve																																			
7. MATERIAL WHICH LEAKED OR FAILED a. <input type="checkbox"/> Steel b. <input type="checkbox"/> Plastic c. <input type="checkbox"/> Other (Specify) _____	8. PIPE DESCRIPTION a. Nominal diameter (Inches) _____ b. Nominal wall thickness (Inches) _____ c. Pipe specification _____ d. Grade _____																																			
9. TYPE OF REPAIR a. Pipe (1) <input type="checkbox"/> Weld over-sleeve (4) <input type="checkbox"/> Replace pipe (length) _____ feet (2) <input type="checkbox"/> Patch-welded (3) <input type="checkbox"/> Clamp (5) <input type="checkbox"/> Other repair or disposition (Specify) _____ b. Component (1) <input type="checkbox"/> Replaced (5) <input type="checkbox"/> Other (Specify) _____ (2) <input type="checkbox"/> Reconditioned	12. ADDITIONAL DESCRIPTION OF INCIDENT OR FOR CONTINUATION OF EXPLANATION OF ITEMS ABOVE NAME AND TITLE OF REPORTING OFFICIAL _____ SIGNATURE OF REPORTING OFFICIAL _____																																			

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
PIPELINE CARRIER ACCIDENT REPORT

FORM APPROVED
BUDGET BUREAU NO.
004R5601

Instructions →	<p>Complete in duplicate. If the space provided for any question is not adequate, attach an additional sheet. Definition of a reportable accident is stated in the Code of Federal Regulations, Title 49, Part 195, Subpart B. File both copies of this report within 15 days after discovery of the accident with the Director, Office of Pipeline Safety Operations, Department of Transportation, Washington, D.C. 20590. Detailed instructions for preparing this form are found in Part 195, Subpart B, Section 195.56. Specimen copies of this form will be supplied upon request without charge. Additional copies may be reproduced using the same format and size. This report is required by 49 CFR Section 195.54. Failure to report can result in \$1,000 fine or imprisonment for 1 year as provided in 18 U.S.C. 832.</p>					
A. Carrier Information	1. NAME OF CARRIER					
	2. PRINCIPAL BUSINESS ADDRESS					
B. Time and Location of Accident	1. DATE (Month, Day, Year)	2. HOUR <input type="checkbox"/> AM <input type="checkbox"/> PM	4. PART OF CARRIER'S SYSTEM INVOLVED <input type="checkbox"/> LINE PIPE <input type="checkbox"/> PUMPING STATION <input type="checkbox"/> DELIVERY POINT <input type="checkbox"/> TANK FARM <input type="checkbox"/> OTHER (specify) _____			
	3. LOCATION (State, County, City)					
5. PHYSICAL LOCATION (If location is near public or private buildings, or other significant landmarks such as highways or railroads, attach a sketch or drawing showing relationship of accident location to these landmarks)						
C. Origin of Liquid or Vapor Release	<input type="checkbox"/> PIPE	<input type="checkbox"/> GIRTH WELD	<input type="checkbox"/> LONGITUDINAL WELD	<input type="checkbox"/> PUMP	<input type="checkbox"/> VALVE	<input type="checkbox"/> SCRAPER TRAP
	<input type="checkbox"/> METER OR PROVER	<input type="checkbox"/> TANK	<input type="checkbox"/> WELDED FITTING	<input type="checkbox"/> BOLTED FITTING		
	<input type="checkbox"/> SAMPLE HOUSE	<input type="checkbox"/> HAY TANK	<input type="checkbox"/> STRAINER OR FILTER	<input type="checkbox"/> OTHER (Specify) _____		
D. Cause of Accident	<input type="checkbox"/> CORROSION	<input type="checkbox"/> DEFECTIVE WELD	<input type="checkbox"/> INCORRECT OPERATION BY CARRIER PERSONNEL			
	<input type="checkbox"/> DEFECTIVE PIPE	<input type="checkbox"/> EQUIPMENT RUPTURING LINE	<input type="checkbox"/> OTHER (specify) _____			
E. Death or Injury	1. NUMBER OF PERSONS KILLED		2. NUMBER OF PERSONS INJURED			
	CARRIER EMPLOYEES	NON-EMPLOYEES	CARRIER EMPLOYEES	NON-EMPLOYEES		
F. Property Damage	1. CARRIER'S DAMAGE (Physical property damaged) \$		2. ITEMS DAMAGED			
	3. OTHER PROPERTY DAMAGE \$		4. ITEMS DAMAGED			
G. General Information	1. Commodity being transported at time of accident	2. Estimated loss due to accident Barrels	3. Year facility installed (excluding pipe)	4. Was there a fire? <input type="checkbox"/> Yes <input type="checkbox"/> No	5. Was there an explosion? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	Instructions → Answer sections H, I or J only if they apply to the particular accident being reported.					
H. Occurred in Line Pipe	1. Nominal Diameter in.	2. Wall Thickness in.	3. Grade	4. Year of installation <input type="checkbox"/> Before 1920 <input type="checkbox"/> 1920-30 <input type="checkbox"/> 1930-5 <input type="checkbox"/> After 1935 (specify yr.)	5. Condition When Installed <input type="checkbox"/> New <input type="checkbox"/> Reconditioned	6. Type of Joint <input type="checkbox"/> Weld <input type="checkbox"/> Coupled <input type="checkbox"/> Threaded
	7. Configuration at Point of Accident <input type="checkbox"/> Straight <input type="checkbox"/> Sag <input type="checkbox"/> Overbend <input type="checkbox"/> Sidebend			8. Pipe Was <input type="checkbox"/> Coated <input type="checkbox"/> Not Coated	9. Pipe Was <input type="checkbox"/> Above <input type="checkbox"/> Below Ground	
	10. Cover, if below ground in.		11. Design Pressure psig	12. Pressure at time & location of accident psig	13. Had there been a pressure test on system? <input type="checkbox"/> Yes <input type="checkbox"/> No	
	14. If 13. Is Yes, Medium Used <input type="checkbox"/> Water <input type="checkbox"/> Petroleum <input type="checkbox"/> Air			15. Duration of Test Hrs.	16. Maximum Test Pressure psig	17. Date of Latest Test

Submit two copies of DOT Form F 5800.1 to:

**United States Department of Transportation
Transportation Programs Bureau
Chief, Information Systems Division
Washington, DC 20590**

Excess Air Emissions:

Refer to notes.

Notes:

1. Releases of hazardous air pollutants are subject to the same reporting requirements as hazardous wastes above.
2. "Exception": Hazardous air pollutant releases covered by NESHAP semiannual and special reporting requirements.
3. The only applicable special reporting requirement under NESHAP is for "Vinyl Chloride" relief valve discharges. Within 10 days of any relief valve discharge (except for emergency relief discharge), a written report must be submitted to the appropriate EPA Regional Administrator and include the following:

Submit to:

Refer to map for regional offices.

The written submission shall include:

- a. Source, nature, and cause of discharge.
- b. Date and time of discharge.
- c. Estimated vinyl chloride loss.
- d. Method of estimation.
- e. Action to prevent discharge.
- f. Measures adopted to prevent future discharges.

Water Discharge Excursions:

Report any excursion (noncompliance) which may endanger health or the environment within 24 hours of becoming aware of the circumstances to the appropriate EPA Regional Administrator (refer to map). A written submission shall also be provided within 5 days of becoming aware of the circumstances.

Notes:

1. The following shall be included as information which must be reported within 24 hours:
 - a. Any unanticipated "bypass" which exceeds any effluent limitation in the NPDES permit.
 - b. Any "upset" which exceeds any effluent limitation in the NPDES permit.
 - c. Violation of a maximum daily discharge limitation for any pollutants listed in the NPDES permit to be reported within 24 hours.
2. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

3. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
4. The written submission shall be submitted to and include the following:
Submit to:
Refer to map for regional offices.
The written submission shall include:
 - a. Description of the noncompliance and its cause.
 - b. Period of noncompliance, including exact dates and times.
 - c. If the noncompliance has not been corrected, the anticipated time it is expected to continue.
 - d. Steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
5. The Regional Administrator may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

Notes:

1. "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment.
2. "Environment" means all surface and ground water, land surface, or subsurface strata and ambient air within the United States or under the jurisdiction of the United States.
3. A hazardous waste generator is exempt from having to file a written 15-day incident report as long as he or she is engaged in treatment or containment activities during an immediate response to (1) a discharge of a hazardous waste, (2) an imminent and substantial threat of a discharge of hazardous waste, and/or (3) a discharge of a material which, when discharged, becomes a hazardous waste.

Hazardous Materials:

Report transportation-related (including loading, unloading, and temporary storage) incidents in which as a direct result of "hazardous materials" the following occurred to:

United States Coast Guard, Washington, DC
National Response Center
(24-hour) (800) 424-8802
(24-hour) (202) 426-2675

Notes:

1. "Hazardous materials" are listed under 49 CFR 172.101.
2. Report incidents in which
 - a. A person is killed.
 - b. A person receives injuries requiring his hospitalization.
 - c. Estimated carrier or other property damage exceeds \$50,000.
 - d. Fire, breakage, spillage, or suspected radioactive contamination occurs involving shipment of radioactive material.
 - e. A situation exists of such a nature that, in the judgement of the carrier, it should be reported, even though it does not meet the criteria of a. through c.
3. Reports must include the following:
 - a. Name of the reporter.
 - b. Name and address of carrier represented by reporter.
 - c. Phone number where reporter can be contacted.
 - d. Date, time, and location of incident.
 - e. The extent of injuries, if any.
 - f. Classification, name, and quantity of hazardous material involved, if such information is available.
 - g. Type of incident and nature of hazardous material involvement and whether a continuing danger to life exists at the scene.
4. Each carrier that has a reportable hazardous material incident shall report in writing in duplicate on the following DOT Form F 5800.1 within 15 days of the date of discovery of each incident.

- c. Resulted in gas igniting.
 - d. Caused estimated damage to the property of the operator or others, or both, of a total of \$5,000 or more.
 - e. In the judgement of the operator was significant, even though it did not meet the criteria of a. through d. above.
3. An operator need "not" report a leak that met 2.b. or 2.c. if it occurred solely as a result of, or in connection with, planned or routine maintenance or construction.
4. Reports must include the following:
- a. The location of the leak.
 - b. The time of the leak.
 - c. The fatalities and personal injuries, if any.
 - d. All other significant facts that are known by the operator that are relevant to the cause of the leak or extent of the damages.
5. Each operator that has a reportable leak shall, as soon as practicable but not later than 20 days after detection, file a leak report on the following DOT Form: F-7100.2.

Submit DOT Form F-7100.2 to:

United States Department of Transportation
Transportation Programs Bureau
Chief, Information Systems Division
Washington, DC 20590

Hazardous Substances:

Report any release equal to or exceeding the "reportable quantity" in any 24-hour period to:

United States Coast Guard, Washington, DC
National Response Center
(24-hour) (800) 424-8802

In Hawaii, Alaska, and the Washington, DC, metropolitan area, report to:

United States Coast Guard, Washington, DC
National Response Center
(24-hour) (202) 426-2675

Note: "Reportable quantities" of hazardous substances can be found under 40 CFR 117.3 (Table 117.3). It should be noted that EPA plans to promulgate a revised list of hazardous substances and reportable quantities in April or May 1984.

Hazardous Wastes:

Report any "release" from a treatment, storage, or disposal facility equal to or exceeding "one pound" into the "environment" to:

United States Coast Guard, Washington, DC
National Response Center
(24-hour) (800) 424-8802
(24-hour) (202) 426-2675

Notes:

1. "Hazardous liquid" means petroleum, petroleum products, and anhydrous ammonia.
2. Report any failure that
 - a. Caused a death or a personal injury requiring hospitalization.
 - b. Resulted in either a fire or an explosion not intentionally set by the operator.
 - c. Caused estimated damage to the property of the operator or others, or both, exceeding \$5,000.
 - d. Resulted in pollution of any stream, river, lake reservoir, or other similar body of water that violated applicable water quality standards, caused a discoloration of the surface of the water or adjoining shoreline, or deposited a sludge or emulsion beneath the surface of the water or upon adjoining shorelines.
 - e. In the judgement of the operator was significant, even though it did not meet the criteria of a. through d. above.
3. Reports must include the following:
 - a. Name and address of the operator.
 - b. Name and telephone number of reporter.
 - c. Location of the failure.
 - d. Time of the failure.
 - e. Fatalities and personal injuries, if any.
 - f. All other significant facts known by the operator that are relevant to the cause of the failure or extent of the damages.
4. Each operator that has a failure that is required to be reported shall, as soon as practical but not later than 15 days after discovery of the failure, file an accident report on the following DOT Form 7000-1.

Submit two copies of DOT Form 7000-1 to:

United States Department of Transportation
Transportation Programs Bureau
Chief, Information Systems Division
Washington, DC 20590

Report any leak in a "gas" pipeline resulting in any of the following (see notes) to:

United States Department of Transportation, Washington, DC
Office of Pipeline Safety
(24-hour) (202) 426-0700
(Otherwise) (800) 424-8802 (National Response Center)

Notes:

1. "Gas" means natural gas, flammable gas, or gas which is toxic or corrosive.
2. Report any leak that
 - a. Caused a death or a personal injury requiring hospitalization.
 - b. Required the taking of any segment of transmission pipeline out of service.

Oil:

Report spills into or upon the "navigable waters of the United States" or adjoining shorelines to:

United States Coast Guard, Washington, DC
National Response Center
(24-hour) (800) 424-8802

Notes:

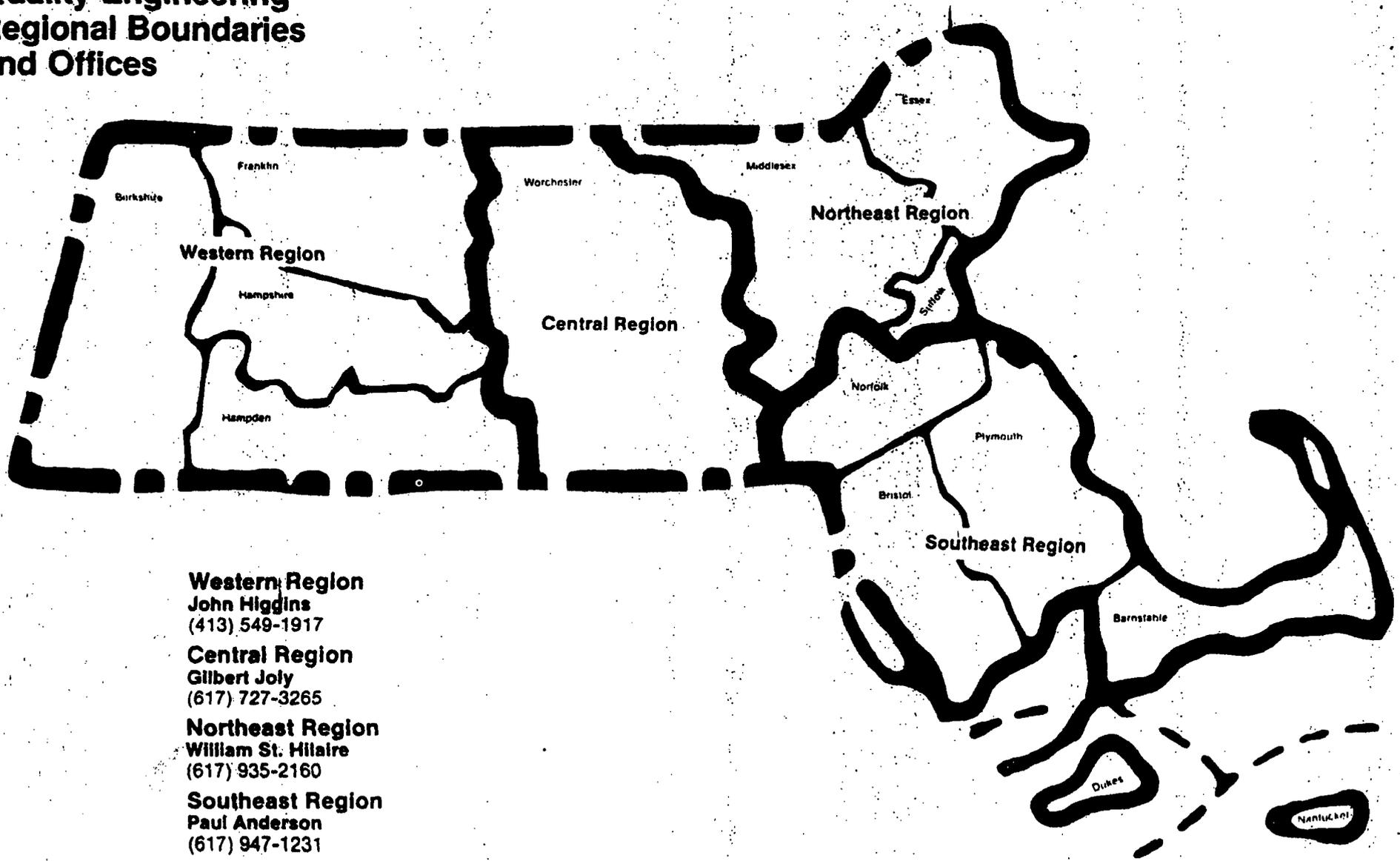
1. "Navigable waters of the United States" include all surface waters.
2. The spill report shall include:
 - a. Time of the spill.
 - b. Identity of the material spilled.
 - c. Approximate quantity spilled.
 - d. Location and source of the spill.
 - e. Cause and circumstances of the spill.
 - f. Existing or potential hazards (fire, explosion, etc.), if any.
 - g. Personal injuries or casualties, if any.
 - h. Corrective action being taken and an approximate timetable to control, contain, and clean up spill.
 - i. Name(s) and telephone number(s) of individual(s) who discovered and/or reported the spill.
 - j. Other unique or unusual circumstances.
3. Facilities required to have a Spill Prevention Control and Countermeasure (SPCC) Plan that have a spill in excess of "1000 U.S. gallons" in a single event or have two spill events within any 12-month period into or upon "navigable waters of the United States" or adjoining shorelines shall submit to the appropriate EPA Regional Administrator within 60 days from the time the facility becomes aware of the spill the following:
 - a. Name of the facility.
 - b. Name(s) of the owner or operator of the facility.
 - c. Location of the facility.
 - d. Date and year of initial facility operation.
 - e. Maximum storage or handling capacity of the facility and normal daily throughput.
 - f. Description of the facility, including maps, flow diagrams, and topographical maps.
 - g. A complete copy of the SPCC Plan with any amendments.
 - h. The cause(s) of such spill, including a failure analysis of system or subsystem in which the failure occurred.
 - i. The corrective actions and/or countermeasures taken, including an adequate description of equipment repairs and/or replacements.
 - j. Additional preventive measures taken or contemplated to minimize the possibility of recurrence.
 - k. Such other information as the Regional Administrator may reasonably require pertinent to the Plan or spill event.

Report any failure in a pipeline system in which there is a release of a "hazardous liquid" resulting in any of the following (see notes) to:

United States Department of Transportation, Washington, DC
Office of Pipeline Safety
(24-hour) (202) 426-0700
(Otherwise) (800) 424-8802 (National Response Center)

F
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**Massachusetts
Department of Environmental
Quality Engineering
Regional Boundaries
and Offices**



Hazardous Materials:

Same as Hazardous Wastes.

Excess Air Emissions:

No immediate reporting requirements.

Water Discharge Excursions:

Report excursions (noncompliance) within 24 hours followed by a written report within 5 days to:

**Massachusetts Department of Environmental Quality
Engineering, Boston
Water Pollution Control Division
(Office hours) (617) 292-5673**

And to:

**Western Regional Office (413) 549-1917
Central Regional Office (617) 727-3265
Southeast Regional Office (617) 935-1231
Northeast Regional Office (617) 947-2160**

Notes:

1. The verbal shall include:
 - a. Description of the noncompliance.
 - b. Date and time.
 - c. Situation has been corrected.
 - d. Situation will continue until and is expected to be corrected.
 - e. Steps taken to prevent recurrence.
2. The written report shall describe the incident and be submitted to:

**Massachusetts Department of Environmental Quality Engineering
Water Pollution Control Division
1 Winter Street
Boston, MA 02108**

Oil: Same as Hazardous Wastes.

Hazardous Substances: Same as Hazardous Wastes.

Hazardous Wastes: Report any imminent or actual emergency to:

**Massachusetts Department of Environmental Quality
Engineering, Boston
Hazardous Waste Division
Office of Incident Response
(9 to 5) (617) 292-5648
(Otherwise) (617) 566-4500 (State Police)**

Notes:

1. If the facility has had a fire, explosion, or other release which could threaten public health, safety or welfare or the environment, the Conoco Emergency Coordinator shall immediately notify the above Department. The report shall include:
 - a. Name and telephone of individual reporting.
 - b. Name and address of the facility.
 - c. Time and type of incident (e.g., release, fire).
 - d. Name(s) and quantity of material(s) involved, to extent known.
 - e. Extent of injuries, if any.
 - f. Possible hazards to public health, safety, or welfare, or the environment outside the facility.
2. Within 15 days after the incident, a written report shall be filed with and include the following:

Submit to:

**Massachusetts Department of Environmental Quality Engineering
Hazardous Waste Division
Office of Incident Response
5th Floor
1 Winter Street
Boston, MA 02108**

The written report shall include:

- a. Name, address, and telephone number of the owner or operator and the facility.
- b. Date, time, and type of incident.
- c. Name and quantity of material(s).
- d. Extent of injuries, if any.
- e. Assessment of actual or potential hazards to public health, safety, welfare, or the environment.
- f. Estimated quantity and the disposition of recovered material that resulted from the incident.
- g. All differences between the emergency response activities actually taken and those prescribed in the contingency plan and the reasons for each such difference.
- h. Proposed measures to prevent similar incidents in the future.

GRACE MEMO

to: J. J. Cohenno

from: ~~R. M. Olson~~

subject: HAZARDOUS MATERIALS

date: April 26, 1985

cc: R. P. Porter
R. P. Riolo
R. S. Brooks
J. S. Colageo
J. P. Nardelli
H. J. Gaffney
R. P. Elson
T. P. Cummings

Attached are the DEQE Spill Reporting Procedures for Hazardous Waste & Materials. Please read this and keep on file with your other Hazardous Materials Information.

Reminder: All incidences of spills are to be reported immediately to the Hazardous Waste Coordinator (John Cohenno).

R. M. Olson

Randy

RMO/dlg
attachment

divert groundwater run-off away from the building, constructing dikes and berms around potential spill areas and chemical storage areas and in general, better housekeeping procedures.

It was observed during the inspection that all of the above has been completed and that on-going improvements will continue to address the elimination of potential releases to the East Branch River. The Camp Dresser & McKee, Inc., report did reveal, as a result of their investigation, the discharge of non-contact cooling water i.e. steam condensate, air conditioning and a groundwater sump discharge to the raceway. These discharges will continue and an appropriate "NPDES" permit application has been made to EPA which was acknowledged by them in writing on June 13, 1984.

It is the Department's opinion that Emerson & Cuming has acted in good faith and has taken all appropriate steps as requested. The Department would like to extend its appreciation to you for your cooperation and continued efforts in this matter.

If you have any questioning regarding this matter, you may contact Mr. David G. Erekson of my staff at 935-2160.

Very truly yours,


William A. Krol, P.E.
Deputy Regional Environmental
Engineer

DGE/bc

cc: Canton Board of Health, 1492 Washington Street, Canton, Ma. 02021
Attention: Ms. Regina McCarthy
Department of Environmental Quality Engineering, Metropolitan Boston/
Northeast Region, 5 Commonwealth Avenue, Woburn, Ma. 01801
Attention: Richard Chalpin, Acting Regional Environmental Engineer
Department of Environmental Quality Engineering, Division of Hazardous
Waste, One Winter Street, Boston, Ma. 02108



S. RUSSELL SYLVA
Commissioner

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering
Metropolitan Boston - Northeast Region
5 Commonwealth Avenue
Woburn, Massachusetts 01801

935-2160

March 1, 1985

Emerson & Cuming
Dewey and Almy Chemical Division
W.R. Grace and Company
59 Walpole Street
Canton, Ma. 02021

RE: CANTON-"Spill Control
Audit at Plant #2"
Engineering Report

Attention: Mr. Randolph M. Olson, Plant Manager

Dear Mr. Olson:

On February 27, 1985, Engineers from the Metropolitan Boston/Northeast Region of the Department of Environmental Quality Engineering, Division of Water Pollution Control, met with you and Ms. Gina McCarthy of the Canton Board of Health to review and inspect the progress toward accomplishing the recommended actions contained in a report entitled:

"Emerson & Cuming
Canton, Massachusetts
Spill Control Audit
at
Plant No. 2"

The above report was prepared by Camp Dresser & McKee, Inc., and dated January, 1983. The report was requested in a letter from the Department, dated November 5, 1982 and was the result of an inspection of your facility at the above address on November 2, 1982. The inspection was conducted at the request of the Canton Board of Health to investigate the drainage patterns both inside and outside the plant as they related to any existing or potential discharge of pollutants to an existing raceway which flows under the building and property. The raceway is diverted from the East Branch River of the Neponset River and discharges back to the River through a 24 inch concrete pipe. The Board of Health's concern in this matter was the potential for any pollutants to reach the Town Wells downstream from your facility.

The inspection at that time did not reveal the presence of any existing discharges nor the appearance of any pollutants at the outfall pipe. However; the Department's letter did point out that due to the existence of the raceway, certain chemical storage and the use of these chemicals, or unauthorized use presented a potential discharge. Therefore; the Department recommended that some appropriate steps be taken to address this potential discharge.

As a result, the aforementioned report addressed these issues and made recommendations including, sealing the entrance to the raceway, sealing grates, trenches, drains and accesses from the plant, paving along Walpole Street, to

Town of Canton, Massachusetts



BOARD OF HEALTH
MEMORIAL HALL
828-0615

March 4, 1985

Randy Olson, Plant Manager
Emerson & Cuming - Plant No. 2
59 Walpole Street
Canton, Ma. 02021

Dear Mr. Olson,

An inspection of your facility conducted on February 27, 1985 with representatives from D.E.Q.E. indicated that you have completed a great deal of work in response to recommendations outlined in the Spill Control Audit conducted in January, 1983. The remaining work to be completed involves the following action:

1. Clean and seal the trench in the small room ✓
behind the buoyancy testing area.
2. Provide a new hatch and screen at the discharge ✓
point into the raceway to prevent the escape of
macroballoons.
3. Provide a sealed plate over the remaining sump. ✓
4. Seal the pipe across from the open sump area ✓
which has an unknown discharge point.
- 5. Move outside empty barrels into the diked area.

In addition, you have indicated your intention to install a still to reclaim methylene chloride, when all necessary permits are obtained.

Once the above work is completed, and the sandblasting operation is brought into compliance, please contact me for a reinspection.

I wish to thank you for the efforts you have shown and look forward to your continued cooperation.

Sincerely,

Regina Metasey

Regina A. Metasey

5. Shipping & Receiving will come and pick up the waste container (drum) within 24 hours from receiving the waste generation form.
6. Shipping & Receiving will inspect, log, relabel the container and place it in the Hazardous/Chemical Waste Storage area pending shipment.
7. The waste will then be shipped out at minimum within 90 days. It would be preferable to ship every 30-45 days.

See to it that you and your departments comply with these specific requirements. Use your departmental safety meeting next week to re-educate your people and see that they understand and follow these procedures. We will be following through on these details over the next month. Also, we will have a self inspection to be prepared for the actual RCRA inspection.

R. M. Olson

Rady

Distribution:

J. J. Cohenno
J. S. Colageo
J. P. Nardelli
R. P. Porter
R. S. Brooks
R. P. Riolo
L. J. Patterson
H. J. Gaffney
R. P. Elson
M. Haddad

RMO/dlg

GRACE: MEMIO

File
3780

to: Distribution

date: May 14, 1985

from: R. M. Olson

cc:

subject: HAZARDOUS AND CHEMICAL
WASTE GENERATION

As you know, we had a visitor last week from the DEQE regarding Hazardous Waste. Fortunately this was not a full fledged RCRA inspection. However, I expect a full inspection soon.

We must bring our procedures for generation and accumulation back up to good standards. Some of the key factors that need your attention are:

1. Each department area that generates chemical waste must have a clearly defined, marked and labelled area for collecting the chemical waste. IE - Flotation Block, Flotation Module Pouring, Frac Ball, P2 Aft Casting, Absorber Solution & Paint Mixing, P2 Nosecap Assembly & Painting and Absorber Painting & Gluing.
2. Waste must be collected in the appropriate APPROVED container required for the waste involved.
3. The empty container (drum) must be LABELLED with the material going into it, the date that the first drop went into it and the department name. This LABELLING must be done before the first drop goes in!
4. Upon a given container (drum) being filled and capped, a waste generation form must be filled out and forwarded to John Cohenno the same day!

GRACE MEMO

to: Plant II Supervisors
from: R. M. Olson
subject: Chemical Waste Removal &
Empty Drum Removal

date: 9/21/82

In response to Jay's memo of 9/7/82, there is not any action in progress to set up your departments' waste. Please provide me with a written plan to implement waste handling in your department(s) by October 1, 1982.

Empty drum disposal procedures are not being properly followed. The system is:

1. Ensure drums are completely empty!
2. Empty drum must have bung cap in place.
3. An "EMPTY" drum label must be applied to the empty drum.
4. The empty drums must be palletized for removal to the yard.
5. Notify the Flotation supervisor that you have drums brought down to the nearest dock and ready to be stacked in the yard for pick up.
6. The Flotation supervisor will have his forklift driver move the palletized, empty drums to the yard.


R. M. Olson

dmg





*file
3480*

Emerson & Cuming

Dewey and Almy Chemical Division
W. R. Grace & Co.
Canton, Mass. 02021

(617) 828-3300

March 21, 1983

Mr. Sabin Lord
D.E.Q.E.
323 New Boston Street
Woburn, Massachusetts 01801

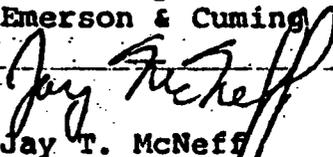
Dear Mr. Lord:

This letter is to confirm that our company reported a chemical spill on Wednesday, March 16, per our phone conversation. We believe that approximately 80 gallons of Tertbutylstyrene leaked out of three punctured drums before the leaks were discovered and stopped at 1:30p.m. on March 16. This liquid flowed into the Neponset River about 15 feet away. Upon examination of the drums, the punctures seemed to be of suspicious origin. The matter is under investigation.

Regina McCarthy, the Town of Canton Health Agent, came to the spill location around 3:00p.m. on March 16. Emerson & Cuming cleaned up the contaminated earth and placed it into drums for hazardous waste disposal.

Should there be any further action required on our company's part, please notify us as soon as possible.

Sincerely,
Emerson & Cuming


Jay T. McNeff
Plant Engineer

JTM/dlg

21300

North East Solvents Corp.

221 SUTTON STREET

NO. ANDOVER, MASS. 01845

TEL. (617) 683-1002

CREDIT MEMO

NO 5950

CREDIT
TO

Emerson & Cuming
59 Walpole St
Canton, MA 02021

Attention: Accounts Payable

APPROVED
BY:

SW

DATE	OUR INVOICE NO.	SALESMAN	REASON FOR CREDIT	CUST. ORDER NO.
3/31/86	33676		Empty Drum Return	
QUAN.	DESCRIPTION		PRICE	AMOUNT
6	WE CREDIT YOUR ACCOUNT Drum Deposits Returned		20./ea	120.00

CREDIT MEMORANDUM

File
2480

GRACE MEMO

to: G. F. Winterson date: January 12, 1984
from: R. M. Olson cc: W. A. Mischel
J. T. McNeff
subject: Canton Health Department
Gina McCarthy

Gina McCarthy of the Canton Health Department visited plant 2 today. She met with Jay McNeff and myself to primarily review and follow up the CDM survey and proposals presented to the DEQE last January 1983. Overall, Gina was pleased and impressed with our action and progress related to the situation.

Gina indicated that she had followed up with the DEQE over the past year and got little response. This is consistent with my finding. I have called the DEQE several times during the year (latest call was November 1983) and gotten no response. The most I found out was that they had gotten the report but haven't read it yet.

Gina, Jay and I reviewed each of the items on my memo to DEQE and the CDM report. We then walked through the plant and looked at each area and item to verify status. All items have been completed with the exception of the following:

1. Seal entrance to raceway at the viaduct. We are waiting for the contractor to complete (weather problems) Estimate April completion.
2. Finish sealing the remaining floor drains and trenches. A shop order for \$5,000 has been routed. Estimate completion to be end of February.

Gina will be formally requesting water sampling at the discharge end of the raceway after we complete the above work. She feels that the tests are necessary to "wrap-up" the matter and satisfy the Health Department that we are not contributors to Canton well water contamination. Her primary interest relates to fluorocarbons.

R. M. Olson



RMO/dlg

WR/IP-2103

JUN 13 1984

Randolph M. Olson, Plant Manager
Emerson & Cuming
59 Walpole Street
Canton, MA 02021

Re: NPDES Application No.

Dear Mr. Olson:

Your application for a National Pollutant Discharge Elimination System (NPDES) permit has been reviewed and appears to be complete. You may be contacted for additional information as the permit is developed, should it be necessary to clarify, modify or supplement any previously submitted information. By copy of this letter, your State Water Pollution Control Agency is being furnished a copy of your complete application for certification pursuant to Section 401(a)(1) of the Clean Water Act, as amended, 33 U.S.C §1341(a)(1).

A draft permit and statement of basis or fact sheet will be prepared by this office and forwarded to you for comment prior to the opening of the public comment period. The draft permit will then be publicly noticed and forwarded for state certification if certification has not previously been received on the application. If it is deemed necessary, a public hearing will be held, in which case, the comment period will be extended until the close of the hearing. After the close of the public comment period, your final permit will be issued providing no new substantial questions are raised. If new questions develop during the comment period, it may be necessary to draft a new permit, revise the statement of basis or fact sheet and/or reopen the public comment period.

The waiver of testing requirements requested in your letter of May 8, 1984 for Outfall 001 has been granted for the following parameters: BOD, COD, TOC, TSS and Ammonia.

Should you have any questions concerning the permit issuance process, don't hesitate to contact Nanci Siciliano, of my staff. She may be reached at 617/223-3940.

Sincerely yours,



Edward K. McSweeney, Chief
Compliance Branch

cc: State Water Pollution Control Agency w/encl.



REFERENCE NUMBER E+C PURCHASE ORDER # J-49405

WASTE TRANSPORTATION AND DISPOSAL AGREEMENT

On this 7th day of March 1984, the parties, Emerson and Cuming a ^{WIT W.R. GRACE + CO.} ~~PUBLICLY HELD~~ ^{CONVECTI} corporation with its principal offices at 1114 AVENUE OF THE AMERICANS NEW YORK NY 10036 (hereinafter called "Generator"), and Chemical Waste Management, Inc., a Delaware corporation with its principal offices at 3003 Butterfield Road, Oak Brook, Illinois 60521, (hereinafter referred to as "Disposer"), have agreed as follows:

1. WASTE MATERIALS. During the term of this Agreement, Generator will provide to Disposer Generator's entire output of certain waste materials generated at Emerson and Cuming, Canton, Massachusetts, (up to a maximum of one load per one time), the chemical composition and physical characteristics of which materials are described in the "Generator's PCB Waste Material Description Sheet", Code designation Reference Number D82566, attached hereto, and incorporated herein.

PREVIOUSLY SUBMITTED NUMBER

2. DISPOSER SERVICES. Disposer agrees to provide Generator the following services, as described in one or more of the following sections:

a. Transportation of (2) two five gallon pails containing PCB liquid (greater than 500 ppm) from Emerson and Cuming, Canton, Massachusetts to the disposal facility as listed in Section b. following.

b. Transportation and disposal of the PCB liquid containing more than 500 ppm, in a manner permitted by law, at the following facility: MT "Vulcanus", Ocean Incineration Vessel, at the U.S.E.P.A. designated burn site.

3. FEES AND BILLING. For those services provided by Disposer, Generator will pay Disposer a fee as follows:

Transportation and disposal of (2) two five gallon pails containing PCB liquid (greater than 500 ppm).....\$150.00

Chemical Waste Management, Inc., will not accept any PCB materials for incineration which have been in storage for disposal by Generator for more than six months at the time of delivery to Chemical Waste Management, Inc.

The fees set forth are subject to change at any time during the term hereof upon Disposer providing Generator with at least thirty (30) days advance written notice.

The fee stated above shall be increased to include any amounts which Disposer is required to pay to local, state or Federal governments or agencies by virtue of a tax, tariff, fee, surcharge or other charge on the transportation, storage, treatment or disposal of the described waste materials. Such amounts will be invoiced to the Generator as a separate item on monthly statements. Disposer shall submit statements to Generator which shall be paid not later than thirty (30) days from date of receipt. Disposer shall retain copies of statements for at least five (5) years, as a record of disposal.

4. TERM. This Agreement shall have a term of one year from the date hereof, unless some shorter period is hereafter entered: May 7, 1984. Either party may terminate this Agreement, with or without cause, upon thirty (30) days' written notice to the other party.

5. TRANSFER OF WASTES AND TITLE. Generator's waste materials, so described, will be transferred to Disposer at the following place, times, frequencies and quantities.

Emerson and Cuming
Canton, Massachusetts

As scheduled between the parties.

During normal business hours Monday thru Friday excluding legal holidays.

At the time Disposer takes possession of, and removes, waste materials from the place of transfer, or at the time Disposer accepts delivery of the waste materials at the designated storage or disposal facility, whichever circumstance is applicable, title, risk of loss and all other incidents of ownership to the waste materials shall be transferred from Generator and vested in Disposer.

In the event waste materials are discovered to be nonconforming, Disposer may revoke its acceptance of the materials. A justified revocation of acceptance shall operate to revert title, risk of loss and all other incidents of ownership in Generator, at the time revocation is communicated to Generator. Waste materials shall be considered nonconforming, for purposes of this Agreement: (i) if they are not in accordance with the descriptions, limitations or specifications stated in the attached Waste Material Description Sheet; or (ii) if they have constituents or components, not specifically identified in the Generator's PCB Waste Material Description Sheet, (a) which increase the nature or extent of the hazard and risk undertaken by Disposer in agreeing to handle, load, transport, store, treat or dispose of the waste materials, or (b) for whose storage, treatment or disposal the Disposal Facility is not designed or permitted.

Waste Materials discovered by Disposer to be nonconforming, if they are in Disposer's possession, shall be prepared for lawful transportation and returned to Generator within a reasonable time, not to exceed seven days, after notice of revocation of acceptance has been communicated to Generator, unless within such time the parties agree to some alternative lawful manner of materials disposition. Generator shall pay Disposer its reasonable expenses and charges for handling, loading, preparing, transporting, storing and caring for nonconforming waste materials returned to Generator under this paragraph.

6. DISPOSER WARRANTIES. Disposer warrants that: it understands the currently known hazards which are presented to persons, property and the environment in the transportation, storage and disposal of the described waste materials; it will transport, store and dispose of such materials in full compliance with all governmental laws, regulations and orders; the storage and disposal facilities above described are now licensed and permitted to store and dispose of waste materials within the description of Paragraph 1; and, in the event the storage or disposal facility loses its permitted status hereafter during the term of this Agreement, disposer will promptly notify Generator of such loss.

7. GENERATOR WARRANTIES. Generator warrants that: the description of its waste materials, made in Paragraph 1, is true and correct; waste materials to be transferred to Disposer will conform to such description; containers of waste materials transferred to Disposer will be marked, labeled and otherwise in conformance with governmental laws, regulations and orders; he holds clear title to all waste materials to be transferred hereunder; he is under no legal restraint or order which would prohibit transfer of possession or title to such materials to

Disposer for transportation and storage or disposal; he has, and will during the term hereof, communicate to Disposer those hazards and risks known or learned by the Generator to be incident to the handling, transportation, storage and disposal of the waste materials; if the waste materials are hazardous wastes as defined pursuant to Section 3001 of the Resource Conservation and Recovery Act, the Generator has made any notifications required by Section 3010 of that Act and the Generator will comply with pertinent regulatory requirements established pursuant to Section 3002 of that Act, including the manifest requirement; he will comply with the relevant requirements of 40 CFR, Part 761: if the waste materials are, or contain, hazardous substances as defined pursuant to Section 101 (14) of the Federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, the Generator will advise Disposer, in writing, prior to tendering or delivering to Disposer any vehicular load of waste materials containing a reportable quantity of any hazardous substance or substances pursuant to Section 102 of said Act, specifying those hazardous substances present in a reportable quantity.

8. **INDEMNIFICATION.** Disposer agrees to indemnify, save harmless and defend the Generator from and against any and all liabilities, claims, penalties, forfeitures, suits, and the costs and expenses incident thereto, (including costs of defense, settlement and reasonable attorneys' fees), which it may hereafter incur, become responsible for or pay out as a result of death or bodily injuries to any person, destruction or damage to any property, contamination of or adverse effects on the environment, or any violation of governmental laws, regulations or orders, caused, in whole or in part, by (i) Disposer's breach of any term or provision of this Agreement; or, (ii) any negligent or willful act or omission of the Disposer, its employees or subcontractors in the performance of this Agreement.

Generator agrees to indemnify, save harmless and defend the Disposer from and against any and all liabilities, claims, penalties, forfeitures, suits, and the costs and expenses incident thereto, (including costs of defense, settlement and reasonable attorneys' fees), which it may hereafter incur, become responsible for or pay out as a result of death or bodily injuries to any person, destruction or damage to any property, contamination of or adverse effects on the environment, or any violation of governmental laws, regulations or orders, caused, in whole or in part, by (i) Generator's breach of any term or provision of this Agreement; or, (ii) any negligent or willful act or omission of the Generator, its employees or subcontractors in the performance of this Agreement.

9. **INSURANCE.** Disposer shall procure and maintain, at its expense, during the term of this Agreement, at least the following insurance, covering activities, performed under, and contractual obligations undertaken in this Agreement:

<u>COVERAGE</u>	<u>LIMITS</u>
(a) Workmen's Compensation	Statutory
(b) Employer's Liability	\$500,000 each occurrence
(c) Public Liability (bodily injury)	\$5,000,000 combined single limit
(d) Public Liability (property damage)	Same as (c) above

- | | | |
|-----|---|--|
| (e) | Automobile Liability
(bodily injury) | \$200,000 each person
\$500,000 each occurrence |
| (f) | Automobile Liability
(property damage) | \$50,000 each occurrence |

Disposer agrees to furnish insurance certificates, showing Disposer's compliance with this Section, upon written request of the Generator.

10. WORK ON GENERATOR'S PREMISES. Generator agrees to provide Disposer, its employees and subcontractors a safe working environment for any work, in performance of this Agreement, which must be undertaken on premises owned or controlled by the Generator. Disposer, its employees and subcontractors shall comply with the Generator's safety procedures while on the Generator's premises, provided such procedures are conspicuously and legibly posted in the working area or have been delivered, in writing, to Disposer prior to the commencement of work on the Generator's premises.

11. INDEPENDENT CONTRACTOR. Disposer is and shall perform this Agreement as an independent contractor, and as such, shall have and maintain complete control over all of its employees, agents, and operations. Neither Disposer nor anyone employed by it shall be, represent, act, purport to act or be deemed to be the agent, representative, employee or servant of the Generator.

12. INSPECTIONS. The Generator shall have the right to inspect and obtain copies of all written licenses, permits or approvals, issued by any governmental entity or agency to Disposer or its subcontractors which are applicable to the performance of this Agreement; to inspect and test, at its own expense, transportation vehicles or vessels, containers or disposal facilities provided by Disposer; and to inspect the handling, loading, transportation, storage or disposal operations conducted by Disposer in the performance of this Agreement. Such inspections are encouraged by Disposer.

13. EXCUSE OF PERFORMANCE. The performance of this Agreement, except for the payment of money for services already rendered, may be suspended by either party in the event the delivery or transportation of the described waste materials by Generator, or transportation, storage or disposal of such materials by Disposer are prevented by a cause or causes beyond the reasonable control of such party. Such causes shall include, but not be limited to, acts of God, acts of war, riot, fire, explosion, accident, flood, or sabotage; lack of adequate fuel, power, raw materials, labor or transportation facilities; governmental laws, regulations, requirements, orders or actions; breakage or failure of machinery or apparatus; national defense requirements; injunctions or restraining orders; labor trouble, strike, lockout or injunction (provided that neither party shall be required to settle a labor dispute against its own best judgment).

14. DELEGATION AND ASSIGNMENT. Disposer may at any time, upon written notice to the Generator, delegate, orally or in writing, the performance of the work, or any portion thereof, which is by this Agreement undertaken by Disposer; provided, however, Disposer may not, without the prior written consent of Generator, cause the storage or disposal of the waste materials at any facility other than those specified in Section 2 (b) of this Agreement. Any such delegation shall not operate to relieve Disposer of its responsibilities hereunder and, notwithstanding any such delegation, Disposer shall remain obligated to the Generator in these undertakings.

CHEMICAL WASTE MANAGEMENT, INC.

GENERATOR'S PCB WASTE MATERIAL DESCRIPTION SHEET

Reference Number E+C PO # 2-49405

Transportation and disposal of (2) two five gallon pails containing PCB liquid (greater than 500 ppm).

PCB LIQUIDS

PCB liquids must be contained in DOT 17E drums according to EPA specifications, or shipped in bulk, 2,000 gallons or more.

For the incineration of PCB liquids containing greater than 500 ppm PCB and/or a flash point less than 140° F., please send any analytical data to Chemical Waste Management, Inc. prior to shipment.

All containers must be labeled in accordance with the Toxic Substance Control Act, PL 94-469, Subpart "C" and the Federal Register (49 CFR, Part 172.316).

NOTE: In accordance with U.S.E.P.A. regulations, all materials designated for disposal must have notation on the container indicating the date the materials were placed in storage.

P C B
PROPOSAL ANALYSIS FORM/BILLING FORM

CONTRACT NO. COL

CWM DISPOSAL BILLING LOCATION:

Emelle, Al
 Kansas City, MO
NATICK, MA X

SHIPPING NAME & ADDRESS:

same

 _____ ZIP _____

CONTACT:

PHONE:

CWM TRANSPORTATION BILLING LOCATION:

Emelle, Al
 Kansas City, MO
CLEAN HARBORS, INC X

BILLING NAME & ADDRESS:

EMERSON AND CUMING
59 WALPOLE STREET
CANTON, MA ZIP 02021

CONTACT: JAY McNEFF

PHONE:

WASTE TYPE	QUANTITY	PRICING	
CAPACITORS, Small (less than 3 lbs.) Landfill			crat dru
CAPACITORS, Large			crat dru
PCB Liquid (less than 500 ppm) for LANDFILLING			bu dru
<u>X</u> PCB Liquid for INCINERATION	<u>(2) 5 GAL PAILS PCB LIQUID (OVER 500 PPM)</u> <u>\$150.00 / Rump sum</u>		bu dru
PCB ARTICLES (Soil, rags, clothing, debris, etc.)	<u>TRANSPORTATION & DISPOSAL</u>		
TRANSFORMERS - Drained & Flushed			/cu. f
TRANSFORMER - Turnkey Service (See Other Side)			
OTHER			
<u>X</u> ADDITIONAL PRICING	<u>INCLUDED IN ABOVE PRICE</u>		
<u>X</u> Transportation: \$ _____ /loaded mile x _____ miles = _____ / large truck _____ small truck			
<u>X</u> _____ <u>1 1/2</u> hours will be allowed for loading starting upon arrival at Generator's facility. All time excess will be considered as demurrage and charged at a rate of \$ <u>60.00</u> per hour			
<u>N/A</u> Alabama Tax: \$ _____ /drum additional/included \$ _____ /ton (For material to be landfilled			
*****TOTAL TRANSPORTATION AND DISPOSAL \$ <u>-150.00</u>			*****

PROJECTED ANNUAL VOLUME _____ ACTION REQUESTED _____

SPECIAL INSTRUCTIONS _____

SUBMITTED BY Bret Ayer CREDIT CHECK OK APPROVED BY R Kiville
3/2/84 3/5/84

Either party may, at any time, upon written notice to the other party, assign its rights under this Agreement.

15. NOTICE. Any notice to be given under this Agreement shall be in writing and delivered to the address of the respective party below:

GENERATOR:

Emerson and Cuming
59 Walpole Street
Canton, Massachusetts 02021
Attn: Mr. Jay McNeff

DISPOSER:

Chemical Waste Management, Inc.
Five Strathmore Road
Natick, Massachusetts 01760
Attn: Bret Dyer

16. LAW TO APPLY. The validity, interpretation and performance of this Agreement shall be governed and construed in accordance with the laws of Alabama.

17. ENTIRE AGREEMENT. This Agreement represents the entire understanding and agreement between the parties hereto relating to the transportation, storage, treatment, processing and disposal of the described waste materials and supersedes any all prior agreements, whether written or oral, that may exist between the parties regarding same and supersedes any and all terms and conditions which may be contained in any purchase orders, issued by the Generator prior or subsequent to this Agreement.

In no event shall the preprinted terms or conditions found on any Disposer or Generator purchase or work order be considered an amendment or modification of this Agreement, even if such documents are signed by representatives of both parties; such preprinted terms or conditions shall be considered null and of no effect.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

GENERATOR:

EMERSON AND CUMING

By: John F. McNeill II

Title: PLANT ENGINEER

DISPOSER:

CHEMICAL WASTE MANAGEMENT, INC.

By: George M. Simmons

Title: Region Manager

bd

Box N-2-3-1
E&C Canton MA

I.

CANTON, MASSACHUSETTS

The property in Canton, Massachusetts consists of two basic facilities, sometimes referred to below as Plant #1 and Plant #2.

Plant #1 is located at 869 Washington Street, Canton, Massachusetts, on a parcel of land containing approximately acres. Plant #1 consists of 7 essentially separate buildings, which are generally described as follows:

Building 1: This building is used for manufacturing and maintenance purposes, consists of a basement and one story above grade (each floor containing approximately 4,700 sq. ft.) and is of brick, stone and wood construction.

Building 2: This building is used for maintenance and storage, consists of one story of approximately 3,300 sq. ft. and is of concrete block and wood construction.

Building 3: This building is used for offices, laboratories and storage, consists of a basement and one story above grade (each floor containing approximately 5,700 sq. ft.) and is of wood, stone and brick construction.

Building 4: This building is used for manufacturing, consists of one story of approximately 525 sq. ft. and is of poured concrete, concrete block and steel sheeting construction.

Building 5: This building is used for manufacturing, storage and shipping, consists of a basement and three stories above grade (each floor containing approximately 4,200 sq. ft.) and is of stone, brick and wood construction.

Building 6: This building is used for offices and storage, consists of a basement and two stories above grade. The basement contains approximately 5,500 sq. ft. and there is a total of approximately 9,700 sq. ft. above grade. The building is of reinforced concrete, concrete block and steel construction.

Building 7: This building is used for manufacturing, consists of one story of approximately 2,700 sq. ft. and is of concrete, stone, brick, concrete block and wood construction.

Handwritten signature

- NORTHEASTERLY along land now or formerly of James W. Dennis, two hundred ten (210) feet to a corner; then turning and running
- NORTHWESTERLY along other land now or formerly of said Lawless about ninety-five (95) feet to a corner; then turning and running
- SOUTHWESTERLY along parcel "E" and along the northwesterly face of the brick Building on parcel "A" about two hundred five (205) feet to land of said James W. Dennis and a corner; then turning and running
- SOUTHEASTERLY along land of said Dennis about eighty-five (85) feet to the point of beginning and containing about seventeen thousand nine hundred and nine (17,909) square feet.

The second, "Parcel B": Beginning at the northwesterly corner of the above described "Parcel A" and running

- NORTHWESTERLY along other land now or formerly owned by the Tobe Deutschmann Corporation of Norwood, Massachusetts, about forty-five (45) feet to a corner; then turning and running
- SOUTHWESTERLY about seventy-five (75) feet to a corner; then turning and running
- SOUTHEASTERLY about twenty-five (25) feet to the northwesterly face of the concrete building on "Parcel B" and a corner; then turning and running
- SOUTHWESTERLY along the northeasterly face of the said concrete building on "Parcel B" and partly along the southeasterly face of a building on other land now or formerly owned by the Tobe Deutschmann Corporation of Norwood, Massachusetts, about fifty-five (55) feet to a corner; then turning and running
- SOUTHEASTERLY about twenty-three (23) feet to the northwesterly face of the Brick Building on "Parcel A" and a corner; then turning and running
- NORTHEASTERLY along the aforementioned northwesterly face of the brick Building on "Parcel A" about a hundred and thirty (130) feet to the point of beginning and containing about Four thousand two hundred and fifty (4,250) square feet.

The third parcel "Parcel C" formerly known as the "Windsall Lot" on the northerly side of Sherman Street together with the easement and all rights thereto, all as shown on a plan made by Robert E. Bellamy, C.E., dated March 24, 1945, and entitled "Plan of an Easement through land of James W. Dennis, Canton, Mass." and filed in the Norfolk County Registry of Deeds, Book 2562, Page 337.

Together with the rights and easements vested in the grantor for the maintaining and use of power lines, sanitary and storm sewers, and water lines as well as the rights in and over the passageways as shown on a plan entitled "Plan of Land in Canton, Mass., April 3, 1948, Wm. S. Crocker, C.E., 46 Cornhill, Boston, Massachusetts, and recorded at the Norfolk Registry of Deeds in Plan Book 145, Plan 250 of 1948.

being the same premises conveyed to me by deed of George H. Lawless of said Canton, dated June 18, 1949, and recorded in the Norfolk County Registry of Deeds on June 20, 1949, Book 2037, Page 57h.

Except so much thereof as was taken by the Town of Canton for the laying out of Requit Street by instrument recorded July 20, 1950, in Norfolk Deeds, Book 2929, Page 510.

Deed recorded in Book 3515, Page 529:

The land with the buildings thereon situate in Canton, Norfolk County, Massachusetts, shown as lots "A" and "B" on a Plan of Land in Canton, Mass., dated December 10, 1952, John P. Walsh, Civil Engineer, to be recorded herewith, said lots being together bounded

[Description and encumbrances, if any]

and described as follows:

Beginning at a point at the southwesterly corner of the premises herein conveyed at land of the grantor as shown on said plan, thence running Southeasterly by land of Walter S. Dennis as shown on said plan, 107.40 feet to a granite bound; thence turning and running,

Northeasterly by land of the Canton Housing Authority as shown on said plan, 210 feet to a corner at land of the grantor; thence turning and running,

Northwesterly by land of said grantor, 140 feet to an iron pipe; thence turning and running,

Southwesterly 75 feet to an iron pipe at land of the grantor; thence turning and running,

Southeasterly 25 feet to the northwesterly face of the "one story concrete building" as shown on said plan; thence turning and running,

Southwesterly along the northwesterly face of said concrete building 34.60 feet; thence turning and running,

Southeasterly 90/100ths of a foot; thence turning and running

Southwesterly along the Northeasterly face of said concrete building, 37.10 feet; thence turning and running

Northwesterly 2 feet; thence turning and running

Southwesterly 58.15 feet by land of said grantor to land of said grantor and the point of beginning.

Together with the rights and easements to use the parcel designated as "Proposed Passageway" shown on said plan recorded herewith, to enable the grantee and its successors and assigns to reach the existing passageway to Washington Street as shown on said plan.

Also, together with the rights and easements vested in the grantor for the maintaining and use of power lines, sanitary and storm sewers, and water lines as well as the rights in and over passageways as shown on a plan entitled, "Plan of Land in Canton, Mass.," April 3, 1948, William L. Crocker, C.E., 46 Cornhill, Boston, Massachusetts and recorded with Norfolk Deeds as Plan No. 250 of 1948 in Plan Book 145.

The above described premises are the same premises intended to be conveyed as Parcels "A" and "B" in deed of Tobe Deutschmann Corporation to George H. Lawless, dated August 5, 1948, recorded with Norfolk Deeds in Book 2777, Page 267. See also deed of said Lawless to Leon J. Kowal, dated June 18, 1949 and recorded with said Deeds in Book 2837 Page 574, and deed of said Kowal to the grantee named herein, dated November 3, 1952 and recorded with said Deeds in Book 3130 Page 184.1

Deed recorded in Book 3446, Page 352:

A certain parcel of land with the buildings thereon situated on a right of way Easterly from Washington Street in Canton, Norfolk County, Commonwealth of Massachusetts; shown as Lot E on "Plan of Land in Canton, Massachusetts" by John F. Walsh, civil engineer, dated December 10, 1955, to be recorded herewith, and more particularly, bounded and described as follows:

Beginning at the Southeast corner of the granted premises at the Southwest corner of other land of the grantee and in the Northerly line of land now or formerly of James W. and Pauline S. Dennis; thence running Westerly along land now or formerly of said Dennis, 152.36 feet, to other land of the grantor; thence running Northeasterly along land of grantor, 115.43 feet, according to said Plan, to the land now or formerly of the Brooks Glue Co., and the center line of a common passage way; thence running Easterly along land now or formerly of Brooks Glue Co. and the center line of said passage way, 91.55 feet to other land of the grantor; thence running Easterly, 35.2 feet along said grantor's land to land of the grantee; thence running Easterly 25. feet along land of grantee; thence running Southwesterly, 34.60 feet; thence Easterly, 0.90 feet; thence Southwesterly, 37.10 feet; thence running Westerly, 2. feet and thence Southwesterly 58.15 feet to point of beginning, the last five courses being by other land of the grantee.

Together with the right in common with the grantor and others entitled thereto and consistent with their interests to use the passage ways shown on said Plan, to Washington Street.

The grantor reserves to itself and its grantees and others entitled thereto the right and easement to use, inspect, maintain and have access to water, sewer, power and other utility lines and mains, if any, as at present constituted or involving no greater use of space, passing through or over the premises hereby granted to or from premises now or formerly owned by the grantor and for such purposes, to enter upon the premises hereby granted; and the grantor hereby grants the right and easement, to the grantee to use, inspect and maintain such lines and mains, if any, as at present constituted or involving no greater use of space, in premises retained by the grantor which service the grantee and for such purposes, the right and easement to enter upon premises retained by the grantor subject to rights and easements granted to others by the grantor.

The right of the grantor and its past or future grantees to enter upon the premises herein granted to inspect and maintain said water, sewer, power and other utility lines and mains and the right of the grantee and its parties to enter for said purposes upon premises retained by the grantor, are to be exercisable only in the event and to the extent of the failure of the persons upon whose premises the inspection and maintenance is necessary, to repair and maintain the same, the person so entering for such purpose to indemnify the person whose premises are so entered, from any cost, loss or damage resulting from such entry or such repair or maintenance.

Deed recorded in Book 3565, Page 12:

the land with the buildings thereon situated in Canton, Norfolk County, Massachusetts, shown as Lots F, G and H on a Plan of Land in Canton, Mass., dated May 2,

1957, by John P. Walsh, Registered Civil Engineer, to be recorded herewith, and bounded and described as follows:

Lot H

- Northwesterly by the southeasterly line of Washington Street, forty and $\frac{42}{100}$ (40.42) feet;
- Northeasterly by Parcel C as shown on a Plan of Land in Canton, Mass., dated Oct. 1948, by M. A. Mahoney, C.E., recorded in Norfolk Deeds, Book 2787, page 364, one hundred twenty-nine and $\frac{63}{100}$ (129.63) feet;
- Southeasterly by lot B as shown on a Plan of Land in Canton, Mass., dated May 1, 1948, by John P. Walsh, recorded in Book 2754, page 266, eighty-three and $\frac{32}{100}$ (83.32) feet; and
- Southwesterly by land now or formerly of Walter S. Dennis, one hundred twenty and $\frac{69}{100}$ (120.69) feet.

Lot F

- Southwesterly by said lot B, one hundred twenty-six and $\frac{04}{100}$ (126.04) feet;
- Northeasterly and Northerly by various courses, by Parcel D as shown on said plan dated Oct. 1948, by M. A. Mahoney, one hundred seventy-one and $\frac{43}{100}$ (171.43) feet;
- Southeasterly by land conveyed to Brooks Glue Company, Inc., by deed dated April 7, 1948, recorded in Book 2746, page 481, and shown on a Plan of Land in Canton, Mass., dated April 3, 1948, recorded as Plan No. 250 in Plan Book 145, twenty and $\frac{48}{100}$ (20.48) feet;
- Southerly by Parcel E on said plan dated Oct. 1948, fifty-five and $\frac{26}{100}$ (55.26) feet;
- Easterly by the same, forty-eight and $\frac{50}{100}$ (48.50) feet;
- Southeasterly by said land conveyed to Brooks Glue Company, Inc., about ten (10) feet;

- Northeasterly by the same, eighty-seven and $\frac{58}{100}$ (87.58) feet;
- Southeasterly, in part by the center line of a wall, by Lot "E" as shown on a Plan of Land in Canton, Mass., dated Dec. 10, 1955, by John P. Walsh, C.E., recorded as Plan No. 101 in Plan Book 201, one hundred eleven and $\frac{43}{100}$ (111.43) feet;
- Southwesterly by said land now or formerly of Walter S. Dennis, about one hundred five and $\frac{21}{100}$ (105.21) feet;
- Northwesterly by said Lot B shown on said plan dated May 1, 1948, thirty-four and $\frac{70}{100}$ (34.70) feet;
- Southwesterly by the same, five (5) feet;

Northwesterly by the same, thirty-eight and 59/100 (38.59) feet;
 Northeasterly by the same, one and 60/100 (1.60) feet;
 and
 Northwesterly by the same, fifty and 32/100 (50.32) feet.

Lot G

Northwesterly by said land conveyed to Brooks Glue Company, Inc., forty-seven and 16/100 (47.16) feet;
 Northeasterly by the same, nine and 92/100 (9.92) feet;
 Northwesterly by the same, twelve and 03/100 (12.03) feet;
 Southwesterly by the same, nine and 91/100 (9.91) feet;
 Northwesterly by the same, twenty and 66/100 (20.66) feet;
 Southwesterly by the same, by two courses, fifty and 35/100 (50.35) feet;
 Northwesterly by the same, ninety-five and 88/100 (95.88) feet;
 Southwesterly by said Lot "E" on said plan dated Dec. 10, 1955, twenty-three and 46/100 (23.46) feet;
 Southeasterly by Lot "E" as shown on a Plan of Land in Canton, Mass., dated Dec. 10, 1952, by John P. Walsh, C.E., recorded in Book 3146, page 114, seventy-five (75) feet;
 Northeasterly by Lot A on a Plan of Land in Canton, Mass., dated May 24, 1954, by John P. Walsh, C.E., recorded in Book 3325, page 51, eighteen and 73/100 (18.73) feet;
 Southeasterly, Easterly and Northeasterly by the same, one hundred thirteen and 55/100 (113.55) feet;
 Southeasterly by the same, eight (8) feet; and
 Northeasterly by land now or formerly of August Thiel, about fifty and 5/10 (50.5) feet.

Be all said measurements more or less, and be the premises however otherwise bounded or described.

The granted premises are conveyed together with and subject to the easements and rights of way granted and reserved in the following deeds, all so far as now in force and applicable:

Elijah A. Morse to Samuel Billings, dated July 20, 1883, Book 548, page 573;
 Felicia V. Morse et al to J. L. Prescott Company, dated July 31, 1911, Book 1187, page 353;
 Canton Heel Co. to August Thiel, dated May 28, 1920, Book 1456, page 403;
 Tobe Deutschmann Corporation to Brooks Glue Company, Inc., dated April 7, 1948, Book 2746, page 431;
 Same to Control Engineering Corp., dated May 14, 1948, Book 2754, page 266;
 Same to George H. Lawless, recorded August 24, 1948, Book 2777, page 267;
 Same to same, dated October 1, 1948, Book 2787, page 384;
 Same to Emerson & Cuming, Inc., dated January 8, 1953, Book 3146, page 114;

Same to Walter J. Hanson, dated December 5, 1954, Book 3325, page 51;
Same to Emerson & Cuming, Inc., dated January 28, 1956, Book 3446, page 353.

The granted premises are also subject to a lease to Boston Edison Company, dated October 25, 1941, Book 2366, page 194, to a grant to Boston Edison Company, dated January 9, 1947, Book 2659, page 141, and to taxes assessed as of January 1, 1957.

Deed recorded in Book 3847, Page 426:

the land in Canton, show as Lot "A" on a plan entitled "Plan of Land in Canton, Mass. Belonging to James W. & Pauline Dennis", dated September 12, 1960, prepared by John P. Walsh, (of even record herewith) and bounded and described, as shown on said plan, as follows:

NORTHEASTERLY	by other land of the grantee, thirty-five and 12/100 (35.12) feet;
EASTERLY	by Lot "C", one hundred nine and 76/100 (109.76) feet;
NORTHEASTERLY	by said Lot "C", in two courses measuring eighty-five and 73/100 (85.73) feet and two hundred sixty-nine and 80/100 (269.80) feet, respectively;
NORTHWESTERLY	by said Lot "C" sixty-one and 61/100 (61.61) feet;
NORTHEASTERLY	by other land of the grantee, seventy-three and 50/100 (73.50) feet;
SOUTHEASTERLY	by land now or formerly of the Canton Housing Authority, one hundred eighteen and 53/100 (118.53) feet;
SOUTHWESTERLY	by land now or formerly of Estey and Endicott, in three courses measuring ninety-eight and 01/100 (98.01) feet, one hundred forty-two and 65/100 (142.65) feet and one hundred fifty and 85/100 (150.85) feet, respectively;
NORTHWESTERLY	by other land of the grantors, forty-nine and 77/100 (49.77) feet; and
SOUTHWESTERLY	by said land of the grantors, in two courses measuring forty-nine and 06/100 (49.06) feet and one hundred forty-three and 66/100 (143.66) feet, respectively.

All of said measurements and boundaries being as shown on said plan, and containing 33,109 square feet, according to said plan.

This conveyance is made subject to those easements granted to the Tobe Deutschman Corp., recorded in Books 2408, Page 551, 2562, Page 335 and 2562, Page 338, Norfolk Deeds, all insofar as and only to the extent

that the same affect the granted premises, and only insofar as the same are now in force and applicable.

Being a part of (and intending hereby to convey a part of) the premises conveyed to us by Deed of James W. Dennis dated April 25, 1949, recorded at Book 2825, Page 521, said Deeds.

Deed recorded in Book 3917, Page 596:

two certain parcels of land in said Canton, with the improvements thereon as follows:

Parcel 1.

A certain parcel of land with the buildings thereon, situated on the southeasterly side of Washington Street in Canton, Massachusetts, and sometimes known and numbered as 863 Washington Street, and shown as lot "B" on a "Plan of Land in Canton, belonging to Tobe Deutschmann Corp." by John P. Walsh, registered Civil Engineer, dated May 1, 1948, containing 16,960 square feet, more or less, recorded with Norfolk County Registry of Deeds, as Plan 384 of 1948, Book 2754, Page 266, and bounded and described as follows:

Northwesterly by lot "A" on said plan eighty-seven and 8/100 (87.08) feet,

Northeasterly by other land now or formerly of said Tobe Deutschmann Corp., by three courses, one hundred and sixty-two and 26/100 (162.26) feet to a spike in the pavement

Southeasterly by other land now or formerly of Tobe Deutschmann Corp., fifty and 32/100 (50.32) feet to a point on the outside face of a three-story brick building,

Southwesterly by other land now or formerly of Tobe Deutschmann Corp., one and 60/100 (1.60) feet,

Southeasterly by a building now or formerly of Tobe Deutschmann Corp., thirty-eight and 59/100 (38.59) feet,

Northeasterly by a building now or formerly of Tobe Deutschmann Corp., five (5) feet,

Southeasterly by other land now or formerly of Tobe Deutschmann Corp., thirty-four and 70/100 (34.70) feet,

Southwesterly by land now or formerly of Walter S. Dennis, forty-four and 90/100 (44.90) feet,

Northwesterly by land now or formerly of Walter S. Dennis, fifteen and 10/100 (15.10) feet, and

Southwesterly by land now or formerly of Walter S. Dennis, one hundred twenty and 89/100 (120.89) feet.

As shown on said plan aforementioned and filed and recorded aforesaid.

Being the same premises conveyed to the grantor by deed of Ideal Realty Corp., dated August 24, 1953 and recorded with said deeds, Book 3195, Page 401.

Parcel II.

A certain parcel of land situated in said Canton and shown as lot "C" on "Plan of Land in Canton, Mass." belonging to James W. and Pauline Dennis, John P. Walsh, U.S., dated Jan. 23, 1954 recorded with Norfolk Deeds, Book 3212, Page 18, bounded and described as follows:

Northerly by land now or formerly of the grantor one hundred twenty and 89/100 (120.89) feet,

Southeasterly by other land now or formerly of the grantor, fifteen and 10/100 (15.10) feet,

Northerly by other land now or formerly of the grantor, land now or formerly of Tobe Deutschmann Corp. and land of the grantee three hundred thirty-six and 5/10 (336.5) feet,

Southeasterly by land now of formerly of Dennis, sixty-one and 61/100 (61.61) feet,

Southerly by land now or formerly of Dennis by two courses, two hundred sixty-nine and 80/100 (269.80) feet and eighty-five and 73/100 (85.73) feet, respectively, and

Northwesterly by land now or formerly of Dennis, one hundred nine and 76/100 (109.76) feet.

Said premises are hereby conveyed subject to two easements granted to Tobe Deutschmann Corp. as shown on said plan and recorded with Norfolk Deeds, Book 2408, Page 551 and Book 2562, Page 338, respectively, and a third easement as shown on said plan and a lease to Boston Edison Co. and recorded with said deeds, book 2559, page 141.

Being the same premises conveyed to grantor by deed of James W. and Pauline Dennis dated February 18, 1954 and recorded with said deeds, Book 3242, page 18.

Deed recorded in Book 3695, Page 543:

PARCEL I

Beginning at a stone post on the Westerly line of the location of the New York, New Haven and Hartford Railroad tracks (sometimes also identified as the Boston & Providence Railroad right of way) about twenty (20) feet Northerly from the wing wall of the railroad viaduct (see point marked "abutment" on Sheet 1 of Plan entitled "Plan of Land in Canton, Mass., formerly property of Reponset Woolen Mills, compiled from various deeds & plans by John P. Walsh, Civil Engineer, dated December 19, 1958", to be recorded herewith); thence turning and running in a

NORTHWESTERLY direction by land now or formerly of Cole, one hundred two and 75/100 (102.75) feet, to a point; thence turning and running in a
SOUTHWESTERLY direction, still by land of said Cole, fifty-five (55) feet to a stone monument on Reponset Street; thence turning and running in a
SOUTHEASTERLY direction along Reponset Street, ninety-seven (97) feet to a stone bound at the end of a wall; thence running along Reponset Street in a similar direction in two (2) courses of eighty-two and 15/100 (82.15) feet and one hundred fifty-seven and 66/100 (157.66) feet to a point on a curve; thence turning and running along said curve, still in a generally Southeasterly direction, seventy-five and 70/100 (75.70) feet to a point; thence turning and running in a
NORTHEASTERLY direction, two hundred sixty (260) feet, more or less, to a point on a curve; thence turning and running in a generally
NORTHWESTERLY direction, one hundred thirty (130) feet to the point of the abutment; thence Northwesterly twenty (20) feet to point of beginning.

Being the same premises shown on said Plan as "Lot A", and all of said points and monuments being as shown on said Plan.

PARCEL II

Commencing at the Northerly boundary of the Canton River, as shown on said Plan, on the Westerly side of Neponset Street; thence running in a generally

SOUTHWESTERLY direction, four hundred thirty (430) feet, to a point on the Northerly bank of the Canton River at which said Northerly bank intersects a property line shown on said Plan as "Approx. Fuller Prop. Line"; thence turning and running in a

SOUTHEASTERLY direction, twenty (20) feet, to the thread of the stream; thence turning and running generally in a

SOUTHWESTERLY and then NORTHEASTERLY direction six hundred twenty (620) feet to a point on the thread of the stream intersecting a line on said Plan shown as "Approx. Line Between Lot C & D²"; thence turning and running in a

SOUTHEASTERLY direction along said line between Lots C and D², three hundred twenty (320) feet, to a point on the Southerly side of the Mill Race shown on said Plan; thence turning and running in an

EASTERLY direction, thirty-eight (38) feet, to a point on the South side of the Mill Race opposite a fence post as shown on said Plan; thence turning and running in a

SOUTHEASTERLY direction along the woven wire fence shown on said Plan, three hundred and five (305) feet, to a stone bound on the North side of Walpole Street; thence turning and running generally in an

EASTERLY and NORTHEASTERLY direction along the Northerly side of Walpole Street in three (3) courses of one hundred and five (105) feet, two hundred eleven and 69/100 (211.69) feet and three hundred forty-one and 26/100 (341.26) feet, respectively, to a point on a curve on the North side of Walpole Street; thence turning and running in a generally

NORTHEASTERLY direction along the Northerly line of Walpole Street, one hundred seventy-three and 11/100 (173.11) feet, to a stone bound; thence turning and running in a

NORTHWESTERLY direction along the Westerly side of Neponset Street, two hundred twenty-three (223) feet to the point of beginning.

Being the same parcel shown on said Plan as "Lot C", and all of said points and monuments being as shown on said Plan.

PARCEL III

Beginning at a point on the Northwesterly side of said Railroad line running generally in a Westerly direction along a curve,

one hundred seven and 02/100 (107.02) feet, to a stone bound on the South side of Walpole Street, as shown on said Plan; thence turning and running

SOUTHWESTERLY along said South side of Walpole Street in two (2) curves of three hundred fifty-two and 77/100 (352.77) feet and sixty-six (66) feet, respectively, to a point on the South side of Walpole Street, which is the Northeastery corner of land now or formerly of Bordenko; thence turning and running

SOUTHEASTERLY along the Northeastery boundary of said land of Bordenko, three hundred ninety (390) feet, more or less, to a point on the Northwestery boundary of land shown on said Plan as land of the "N.Y. N.H. & H. RR."; thence turning and running generally in a

NORTHEASTERLY direction, three hundred (300) feet along said Northwestery boundary of the Railroad land to a point; thence turning and running, but still in a

NORTHEASTERLY direction, sixty (60) feet, still along land of said Railroad, as shown on said Plan; thence turning and running still in a

NORTHEASTERLY direction along land of said Railroad, as shown on said Plan, two hundred sixty-three (263) feet to the point of beginning.

Being the same premises shown as "Lot B" on said Plan, and all of said points and monuments being as shown on said Plan.

All of the foregoing references to said Plan are to Sheet 1 thereof.

PARCEL IV

Beginning at the thread of the stream of said Canton River at the Northwestery bound of Lot C as shown on said Plan; thence turning and running generally in a

WESTERLY and SOUTHWESTERLY direction along the thread of the stream, sixteen hundred seventy (1670) feet, to a point fifteen (15) feet from the North side of a ditch shown on Sheet 2 of said Plan; thence turning and running

SOUTHWESTERLY fifteen (15) feet, to a point near the most Northeastery point of the ditch shown on said Sheet 2 of said Plan; thence turning and running generally in a

SOUTHEASTERLY direction along a Northeastery boundary of land now or formerly known as the "Canton and Sharon Park Plot", four hundred twenty (420) feet, to a point; thence turning and running generally in an

EASTERLY direction along the Northerly boundary of said Canton and Sharon Park Plot, seven hundred (700) feet, to a point; thence turning and running

SOUTHEASTERLY along a Southwestery boundary of said Park Plot, one hundred (100) feet, to a point; thence turning and running

NORTHEASTERLY along a Northwesterly boundary of said Plot, two hundred fifty-eight and 07/100 (258.07) feet, to a point; thence turning and running in a direction, ninety-five and 88/100 (95.88) feet, to the most Northwesterly point of Walpole Terrace shown on Sheet 2 of said Plan; thence turning and running in a

NORTHERLY direction, sixty (60) feet, along Walpole Terrace to a point on the North side of Walpole Terrace; thence turning and running in a direction, forty-five (45) feet, along the Westerly boundary of Lot 7, as shown on Sheet 2 of said Plan to a point; thence turning and running in an

NORTHEASTERLY direction along the Northerly boundary of said Lot 7, one hundred twenty-nine and 58/100 (129.58) feet, to a point; thence turning and running in a

NORTHERLY direction along the Northerly boundary of said Lot 7, forty-nine and 65/100 (49.66) feet, to a point on a curve on the North-easterly side of Walpole Terrace; thence turning and running in a generally

EASTERLY direction along said curve, eighty-two and 47/100 (82.47) feet, to a point on a woven wire fence which is a part of the boundary of Lot C hereinabove described, and which point is one hundred eighty-eight (188) feet from the Northerly side of Walpole Street.

Being the same premises shown on said Plan as "Lots D¹ and D²", and all of said points and monuments being shown on Sheets 1 and 2 of said Plan, read together.

However, otherwise said premises may be bounded or described, and be any or all of said measurements more or less, it being the intention, however, of the Grantor to convey by this instrument all the land on which are constructed the Neponset Woolen Mills' buildings, so-called, and the adjoining premises, as are included within the bounds of Lots A, B, C, D¹ and D² on the Plan hereinbefore referred to, including, but without limiting the rights Grantee may otherwise have with respect to the granted premises, the right to use the water flowing through the granted premises by the East branch of the Neponset River, and a right to maintain a dam on the granted premises across said East branch of the Neponset River, the height of which dam may be at least as high as the bolt placed in a drill hole in the viaduct near the Westerly corner of the Northerly abutment of the most Northerly arch of the viaduct of the Boston & Providence Railroad, the top of said dam being at least as high as said bolt, said right being referred to in the deed from Wright et al to the Grantor, recorded at Norfolk Deeds Book 1512, Page 243.

As a part of the granted premises, the Grantor also conveys to the Grantee with quietude covenants the fee in those portions of said Neponset and Walpole Streets on which the granted premises bound, except insofar as the granted premises do not bound on both sides of said streets, as to which such portions this conveyance includes only the fee to the

middle of the way, and the Grantor's right, title and interest in the balance thereof; but the foregoing grant with respect to said ways is subject to any takings made by municipal or other governmental authorities thereof for the purpose of laying out and maintaining public ways.

Excepting and excluding from the foregoing that parcel (conveyed out by Emerson & Cuming, Inc.) by deed recorded in Book 4409, Page 518, and bounded and described as follows:

the land in Canton, Norfolk County, Massachusetts, bounded and described as follows:

Beginning at a point on the Northwestern side of land of the N.Y. N.H. & H. RR. thence running generally in a Westerly direction along a curve, one hundred seven and 02/100 (107.02) feet, more or less, to a stone bound on the South side of Walpole Street, as shown on the Plan hereinafter referred to; thence turning and running

SOUTHWESTERLY along said South side of Walpole Street two (2) distances of three hundred fifty-two and 77/100 (352.77) feet, more or less, and sixty-six (66) feet, more or less, respectively, to a point on the South side of Walpole Street, which is the Northeasterly corner of land now or formerly of Bordenko; thence turning and running

SOUTHEASTERLY along the Northeasterly boundary of said land of Bordenko, three hundred ninety (390) feet, more or less, to a point on the Northwestern boundary of land shown on said Plan as land of the "N.Y. N.H. & H. RR."; thence turning and running generally in a

NORTHEASTERLY direction, three hundred (300) feet, more or less, along said Northwestern boundary of the Railroad land to a point; thence turning and running, but still in a

NORTHEASTERLY direction sixty (60) feet, more or less, still along land of said Railroad, as shown on the Plan hereinafter referred to; thence turning and running still in a

NORTHEASTERLY direction along land of said Railroad, as shown on said Plan, two hundred sixty-three (263) feet, more or less, to the point of beginning.

The aforementioned premises being the same premises as shown as "Lot B" on Sheet 1 of a Plan entitled "Plan Of Land In Canton, Mass., Formerly Property of Reponset Woolen Mills Compiled From Various Deeds & Plans by John P. Walsh-Registered Civil Engineer, December 19, 1958, Scale 1 in. = 40 ft.", recorded at Norfolk Deeds as Plan No. 6 and 7 of 1959 in Plan Book 206.

Title to the Canton property is subject to the following exceptions:

VI. MANUFACTURING**A. EMERSON & CUMING MANUFACTURING PROCESSES**

Emerson & Cuming (E&C) presently has available for sale a minimum of 300 standard products. This number dramatically increases when specially formulated products are taken into account. However, these products can be grouped by method of manufacture, resulting in the following nine manufacturing process descriptions.

DIELECTRIC MATERIALS

Resin Based Products and Catalysts

ECCOSORB High-Loss Dielectric Absorbers

ECCOSHIELD

✓ ECCOSPHERES (Micro and Macrobaloons)

Molding Powders

Plastic Rod & Sheet Stock

MICROWAVE PRODUCTS

✓ ECCOSORB Free Space Absorbers

✓ Lenses and Reflectors

FLOTATION PRODUCTS

✓ Riser Pipe Modules & General Oceanographic

1. Dielectric Materials

a) Resin Based Products and Catalysts

Those products classified as resin-based materials include: casting resins (STYCAST), surface coatings (ECCOCOAT), adhesives and sealants (ECCOBOND), impregnating resins (ECCOSEAL), ceramic dielectrics (ECCOCERAM), silicone resins (ECCOSIL), and plastic and ceramic foams (ECCOFOAM).

The manufacture of an individual resin-based product is essentially a formulated mixing operation. Pre-weighed amounts of from four to twelve different raw materials are loaded into a mixing vessel, ranging in size from a gallon container to a two-hundred-fifty gallon kettle; the most frequent size being a fifty-five gallon drum. The materials are mixed utilizing a drill press and adjusted to final product specifications, primarily viscosity, based on quality control testing. E&C is presently using approximately two-hundred-fifty different raw materials in their resin-based material formulations. However, the primary base ingredients for these products consist of liquid epoxy resins, silicone resins, and powdered fillers; such as, aluminum, silica, iron, zinc, and titanium.

Following manufacture, the material is packaged into containers ranging in size from one-ounce tubes to gallon cans; the most common size being quart cans. Within this product grouping there are two types of materials: one component products; and two component products, which require the addition of a catalyst or the mixing of two components prior to use in the field.

The catalysts are used as curing agents with various E&C epoxy formulations reacting with those products and forming thermosetting solids or foams.

The manufacture of catalysts consists of mixing two to four different raw materials utilizing a drill press. The mixing vessel can range in size from a quart container to a fifty-five gallon drum, with a five-gallon pail being used most frequently. Following the mixing process, the catalyst is packaged into containers ranging in size from two-ounce jars to quart cans, with the most common size being four-ounce jars. In addition to manufacturing catalyst products, E&C also purchases standard epoxy catalysts and repackages those materials under their own label.

b) ECCOSORB

The ECCOSORB name is applied to both "free space" microwave absorbers and "high-loss dielectric" microwave absorbers. Described here is the manufacturing procedure for "high-loss dielectrics" which are produced and sold as casting resins, flexible sheets, and machinable bar and rod stock.

Rod and bar stock are manufactured by mixing epoxy resins, fillers, and iron particles in a gallon container using a drill press. The material is deaerated, poured into a mold, and oven cured. Following curing, the mold is disassembled and the material is machined to final customer specifications. Sheet stock is manufactured by mixing iron or graphite particles with resins and fillers in a small container utilizing a drill press. These products cure at room temperature and, after being deaerated, are formed into sheets by passing the material between an adjustable roller and a flat surface. Casting resins are manufactured utilizing the identical process as resin-based products.

c) ECCOSHIELD

The ECCOSHIELD product line is composed of conductive plastic materials available in the form of sheets, gaskets, liquid adhesives, lacquers, and pressure sensitive tapes. The manufacturing of all ECCOSHIELD products involves pre-mixing formulated amounts of silver particles, resins, fillers, and, in some cases, catalysts. The pre-mix solution is formed into sheets by passing the material between an adjustable roller and a flat surface, followed by air or oven drying. Gaskets are punched from the sheets using a die specially constructed to customer specifications. Pressure sensitive tape is produced by passing the pre-mixed material through an extruder.

d) ECCOSPHERES

E&C manufactures three basic types of ECCOSPHERES: hollow glass and ceramic spheres, referred to as microballoons; and plastic spheres, referred to as macroballoons.

The hollow glass microballoons are manufactured from either a purchased feedstock manufactured to E&C specifications or from feedstock which E&C manufactures themselves. The feedstock is manufactured by producing a slurry using silicate, boric acid, and a blowing agent (UREA), which is then metered into a spray dryer; the dried material is collected and packaged utilizing cyclones. E&C is presently increasing their in-house spray dryer capacity which will eliminate the need to purchase manufactured feedstock.

The feedstock is later added to a blender/feeder which dispenses it into gas furnaces where the particle passes across an open gas flame to form the microballoons which are subsequently collected by the use

of a cyclone. Certain types of microballoon products are packaged directly from the cyclone and sold. Other types of microballoons are treated in order to upgrade their performance characteristics.

The treating of glass microballoons is accomplished through successive washings and steamings of the balloons in one of seven 700-gallon mixing vessels. During this process, depending on the desired type of treated balloon, chemicals are added periodically during the washing process to increase the strength of the microballoon. The repeated washings also eliminate those balloons which are not complete spheres, since they sink to the bottom of the tank. Following the washing cycles, the microballoons are centrifuged, dried, and packaged for sale or for internal use in the manufacture of resin-based materials, or Flotation Products.

Ceramic microballons are manufactured from fly ash purchased from England. The particular type of fly ash used, a by-product of coal burning, is available from only one location in England due to the type of coke used at that power facility. The fly ash is in the form of a hollow sphere when purchased. A batch size of approximately 1100 pounds is loaded into one of two 350^oF gas-fired tumbling drying ovens for a drying period of five hours and is then packaged into shipping containers.

Macroballoons are manufactured by expanding purchased polystyrene beads using steam. The beads are then placed in tumblers where they receive up to fourteen coats of an epoxy resin and glass fiber slurry in order to create a specific bead density and crush strength. Following quality control testing for density and crush strength, the beads are screened to eliminate agglomerates and packaged for shipping, or stored for later use in the manufacture of Flotation Products.

e) Molding Powders

E&C molding powders (ECCOMOLD) are manufactured utilizing silica, resins, and catalysts. The first step involves the treating of purchased silica with a material which activates the silica surface providing increased adhesion to resins. Purchased resin is granulated into a fine powder and, together with the treated silica, is added to a blender along with other materials, depending upon the product to be manufactured. This blended material is fed into a twin screw helical extruder; the operation of which is time and temperature controlled. Extruded material is discharged onto cooling rolls and subsequently granulated into a fine powder. Following a screening operation and the removal of metal particles utilizing magnets, the material is packaged into bags for sale.

f) Plastic Rod and Sheet Stock

Plastic rod and sheet stock products (ECCOSTOCK) are manufactured from purchased fillers and resins which are mixed in gallon and five-gallon containers utilizing small drill presses. The mixture is deaerated and poured into a mold of any shape. The mold is then oven cured with cycle times of one to three days at 100°F to 380°F. Following curing the material is removed from the mold and machined to final customer specifications.

2. Microwave Productsa) ECCOSORB Free Space Absorbers

There are four different manufacturing processes used in the manufacture of microwave absorbers as described below.

VHP's and WG's

These solid, pyramidal (VHP) and wedge-shaped (WG) absorbers are manufactured from purchased polyether foam buns to heights of from 4" to 150". The buns are band-sawed into blocks, into which pyramids are cut using a hot wire cutter. Each block is compressed, submerged, and then expanded in a tank containing a solution mainly consisting of carbon black, water, and latex; thereby distributing the solution throughout the piece. They are removed from the tank, compressed again to remove excess solution, and placed in a drying oven for two days at 220^oF. If a fire retardant absorber is desired, the blocks are dipped for a second time in a fire retardant solution, air-dried for twenty hours, and oven dried for three days. Following drying the absorbers are trimmed, painted with a waterbase paint, checked for weight, and boxed for shipping.

HPY's

These hollow, pyramidal absorbers are manufactured in heights of 12" to 80" from purchased sheets of polyester foam. The sheets are passed through a roller dip tank containing a carbon black, latex and water solution and are air or oven dried. If a fire retardant absorbent is being produced, the sheets are then dipped and dried for a second time. The sheets are cut to a particular length (depending upon product being manufactured), sprayed on one side with an adhesive, and two sheets are hand laminated. The laminated sheets, now called blankets, are joined along the edges with either one or two more blankets, depending upon the height of absorber being produced. For those absorbers larger than 40" in height, the blanket is laminated with styrofoam for increased strength, prior to grooving. These blankets

are either cut into a circle and placed on a circular grooving machine, or are cut on their diagonal and placed on a special grooving machine. Grooves are cut into the blankets to permit later folding, and the blankets are cut completely through along every fourth groove, forming a triangle. The bottom edges are trimmed square. This triangular shaped blanket is then hand formed into a pyramid and from one to sixteen pyramids (depending on size) are attached to a pre-cut polyester foam base. The absorber is spray painted and, if weatherproofing is desired, will be sprayed with an adhesive then covered with a special cloth.

CV's

These solid, convoluted absorbers are manufactured from purchased polyester buns to heights up to 6". The polyester buns are cut into slabs on a horizontal slicer and passed through a convoluter which imparts the tapered shape of the absorber to the foam. The convoluted slabs are then passed through a roller dip tank containing a carbon black, water and latex solution. Following this impregnation step the slabs are oven dried and trimmed to final size. If weatherproofing is desired, a carbon impregnated absorber will be mated to a convoluted piece of raw foam and covered with special cloth. Both the weatherproofed and non-weatherproofed absorbers are spray painted with a waterbase paint and packaged for shipping.

AN's and LS's

These multi-layered absorber sheets (AN's) and single-layer absorber sheets (LS's) are manufactured from either purchased polyester foam sheets, or from pieces trimmed from purchased polyester buns. As in HPY manufacturing, these sheets, or pieces, are passed through a

roller dip tank containing a carbon black solution and are subsequently dried. The sheets, or pieces, are cut into squares and checked for performance. Based on the thickness and the performance, the sheets are inventoried for later use as AN absorbers.

AN absorbers are composed of multi-layered stacks of sheets which have been glued and pressed together, tested for reflectivity, weather-proofed if desired, and painted for identification.

b) Lenses/Reflectors

Spherical lenses and reflectors are manufactured to any nominal diameter size in the range of three to forty-eight inches.

Purchased polystyrene beads are expanded through the use of heaters and are screened and separated, according to size. Density is determined and the beads are placed into the female portion of a hollow semi-spherical mold, in a formulated density mixture. The mold is closed, live steam is injected for a period of twenty minutes, thus creating a permanent bond amongst the beads. The shells, now approximately one-half inch thick, are removed, dried overnight, and lightly sanded. Shells of different diameters are hand assembled in layers building up to the final lens or reflector diameter. Following anechoic chamber testing, the lenses are packaged and the reflectors are fitted with a reflecting cap. The reflector is then encapsulated in a steam cured epoxy coating which provides physical protection. Following additional anechoic chamber testing, the reflector is then packaged.

3. Flotation Products

ECCOFLOAT - Riser Pipe Modules

Since each riser pipe is of a different configuration, prior to commencing the manufacture of buoyancy modules, it is necessary to design and construct two-piece molds to be used to form the desired buoyancy module. E&C has historically manufactured the frames for these molds and contracted the interior construction to a professional mold maker. The average mold costs between \$3,000 to \$5,000, and the number purchased would depend upon the particular module order size.

Mold preparation includes the stapling together of pre-cut glass cloth and mat, which is then cemented to the interior surface of both the male and female section of the mold. The two sections are clamped together, hoisted into a vertical position on a vibrating table, and filled with macroballoons while the mold is being vibrated.

Next, the mold is placed into a vacuum tank and filled, under vacuum, with a solution of resin, microballoons, diluent, and a curing agent which is added to the resin solution immediately prior to the vacuuming operation.

Once filled, the molds are removed from the tanks and are either air-cured, or oven-cured, at 200^oF. The mold is opened, the riser module is removed, trimmed, sand-blasted, patched, and painted. Buoyancy and core sample checks are periodically performed. The modules are stenciled, weighed and crated for shipping.

Utilizing similar manufacturing procedures, E&C manufactures Flotation Products in a wide variety of shapes and performance ranges, with each application requiring a different material formulation.

VI-B PROPERTY AND FACILITIES

E&C has seven manufacturing facilities: two in Canton, Massachusetts, which also house their central administrative and research facilities; and one each in Gardena, California; Northbrook, Illinois; Oevel, Belgium; Scunthorpe, England; and Hokkaido, Japan. In addition, they also own a two-story facility in London, England, which is utilized as European headquarters, and an office area is leased in Yokohama, Japan, housing Japanese headquarters. Also, several small sales office facilities are being rented throughout the world at the following locations: Silver Spring, Maryland; Philadelphia, Pennsylvania; Richardson, Texas; Paris, France; Cologne, Germany; and Milan, Italy.

The following pages describe each of the manufacturing facilities, including a summary table of pertinent data and a plot plan on each one. The first facility discussed is Plant I in Canton, Massachusetts.

(See Table and Plot Plan on the Following Pages)

VI-E EMERSON & CUMING - PURCHASING/RAW MATERIALS

Emerson & Cuming (E&C) utilizes a minimum of 380 different raw materials in the manufacture of their 300 standard products, with 90% being used in the manufacture of dielectric materials. As a general practice, E&C purchases most individual raw materials from a single source, primarily because of the low volumes used, number of different materials required, and technical time necessary to qualify additional sources. However, the majority of these raw materials are available from other suppliers who could be qualified in the event that E&C's primary source was unable to supply. Further, Dewey and Almy already has excellent relationships with most of E&C's suppliers.

The following discussion includes charts detailing the major raw materials used by E&C by product group, accounting for a minimum of 65% of the total E&C raw material purchase costs. The charts include only those materials whose procurement significantly affect a total product group and whose costs/volume warrants inclusion. In addition, E&C management maintains that the effects of an inability to procure those other raw materials could be minimized through reformulating the products, whereas an inability to procure materials on these charts would have a more significant effect on E&C's business.

The table on the following page shows key raw materials data for E&C's Dielectric Materials business and is followed by a discussion of the data.

(See table on following page)

EMERSON & CUMING
RAW MATERIAL DATA

DIELECTRIC MATERIALS

<u>Line No.</u>	<u>Material</u>	<u>Primary Suppliers</u>	(1) <u>1977 Quantity Purchased</u>	(2) <u>1977 Price/Unit</u>	(3) <u>1977 Total (\$000)</u>	(4) <u>1975-1977 Price Incr. Avg. Annual Inc./ (Dec.)</u>
	Epoxy Resins	Shell -				
(01)		U. S.	365,000 lbs.	\$.72	\$262.8	9.5%
(02)		Europe	160,000 lbs.	.92	147.2	3.4
(03)		Japan	15,000 lbs.	1.05	15.8	(0.2)
		Ciba-Geigy -				
(04)		U. S.	67,000 lbs.	.75	50.3	9.1
(05)		Japan	29,000 lbs.	1.10	31.9	1.6
		Dow -				
(06)		Europe	21,000 lbs.	1.12	23.5	0.6
(07)	Silver Silflake	Handy-Harmon	65,000 Tr.Oz.	5.27	342.6	(1.1)
(08)	135	Others	4,200 Tr.Oz.	6.29	26.4	(4.5)
(09)	Tabula Alumina	Alcoa	275,000 lbs.	.30	82.5	5.4
(10)	Carbonyl Iron Powder	GAF	40,000 lbs.	1.57	62.8	5.4
(11)	Silicone Resins	Stauffer	35,000 lbs.	3.85	134.8	2.7
(12)		Gen. Elec.	3,900 lbs.	3.85	15.0	2.7
(13)	PMDA	DuPont	7,000 lbs.	7.50	52.5	-
(14)	Polyglycol Diamine	Union Carbide	21,000 lbs.	3.02	63.4	1.9
(15)	TEPA	Union Carbide	53,000 lbs.	1.16	61.5	10.5
(16)		Bayer	19,000 lbs.	1.23	23.4	(11.9)
(17)	Pleogein 4050	Amer. Petrochem.	19,000 lbs.	1.15	21.9	7.2
(18)	BGE	Ciba-Geigy	22,000 lbs.	1.19	26.2	9.9

Checked By: JBN
Date: 11/4/77

Since most of the dielectric materials are specially formulated, there are many raw materials which are important in the formulation of a particular product, but whose cost and quantity used is quite small and, therefore, do not appear on the chart. However, we have not attempted to research the availability and possibility of substituting for such materials since inability to procure such an item would not dramatically affect a total product group.

Epoxy Resins

As will also be discussed in the Flotation Products section, the types of epoxy resins used by E&C are readily available from many sources, with at least two sources of supply expanding their liquid epoxy capacities.

Silver Silflake 135

This flaked 99% silver material is used throughout the ECCOSHIELD and ECCOBOND product lines. E&C U. S. is presently purchasing 100% of their requirements from Handy and Harmon Company in Canton, Massachusetts. The European and Japanese divisions purchase their silver requirements from local suppliers.

In the event that Handy and Harmon were no longer able to supply this product, other flaked silver manufacturers in the U. S., such as Alcoa, would be available. This situation is unlikely based on discussions with Handy and Harmon personnel who presently offer this material for delivery within twenty-four hours of order placement.

Tabula Alumina

This low iron content, 325 mesh, aluminum powder is used as a filler in the manufacture of STYCAST and ECCOBOND products to enhance their thermal conductivity. E&C presently purchases this material from Alcoa, who is the only world supplier of this type of aluminum. Other higher iron content, harder mesh aluminum powders are available from Kaiser and Alcoa and could be utilized in these dielectric material formulations in the event that this particular type was not available.

Carbonyl Iron Powder

This 99.9% pure iron powder is formulated into ECCOSHIELD and ECCOSORB products providing those items with specific microwave properties. E&C presently purchases this material from GAF, the existing sole source of supply. However, identical material is available from specialty formulators such as Belmont Metals, Inc. in New York.

Silicone Resins

E&C presently uses three different types of silicone resins in their dielectric material formulations, purchasing 90% from Stauffer and 10% from General Electric. These low viscosity, unfilled resins become the formulation building blocks for the ECCOSIL product line. Substitute materials are available from Dow Corning in addition to General Electric and Stauffer. In fact, Stauffer is the smallest manufacturer of the three available suppliers. E&C is not a large user of silicone resins and no future supply problems are anticipated.

PMDA

PMDA (pyromellitic dianhydride) is available in the United States only from DuPont Chemical and is a component used in the manufacture of two E&C catalysts. This material can be obtained in Europe from Merck and Veba Chemie AG; however, the quantities used by E&C are such that alternate sources should not be necessary in the foreseeable future.

Polyglycol Diamine

This material, used in the manufacture of one E&C catalyst, is purchased from Union Carbide, which is the only known source of supply for this material. However, in the event this material was unavailable from Union Carbide, a replacement could be formulated using readily available amines.

TEPA

TEPA (tetraethylenepentamine) is an epoxy resin catalyst sold as a catalyst by E&C. This material is purchased in the U. S. from Union Carbide and in Europe from Bayer Chemical. In addition, two English sources of supply are also available for this material.

Pleogein 4050

This low water content polyester resin is used as a coreactant in the manufacture of ECCOFOAM, a urethane foam. E&C purchases this material from Mor Rez Division of American Petrochemical Co.

BGE

BGE (butylglycidol ether) is an epoxy resin diluent used in the manufacture of STYCAST products. E&C presently purchases this material from Ciba-Geigy, however, other similar epoxy resin diluents are available from Shell Chemical and Reichhold Chemical.

The following table shows key raw materials data for E&C's Microwave Products business and is followed by a discussion of the data.

<u>EMERSON & CUMING</u> <u>RAW MATERIAL DATA</u>						
<u>MICROWAVE PRODUCTS</u>						
<u>Line No.</u>	<u>Material</u>	<u>Primary Suppliers</u>	(1) <u>1977 Quantity Purchased</u>	(2) <u>1977 Price/Unit</u>	(3) <u>1977 Total (\$000)</u>	(4) <u>1975-1977 Avg. Annual Price Inc./Dec.</u>
(01)	Pliobond 2014	Goodyear	12,000 gal.	\$ 6.55	\$ 78.6	13.67
(02)	Neoprene Latex	DuPont-				
		U. S.	75,000 lbs.	.57	42.8	17.9
(03)		Europe	35,000 lbs.	.52	18.2	-
(04)		Japan	30,000 lbs.	.73	21.9	-
(05)	Oncor 23-A	N.L. Industries	9,500 lbs.	1.60	15.2	(1.7)
(06)	Vulcan XC-72 Pellets	Cabot Corp.	20,000 lbs.	.40	8.0	4.0
(07)	Polyurethane Foam	General Felt	340 pcs.	135.00	45.9	6.0
(08)		United Foam	2,450 rolls	11.00	27.0	N.A.
(09)		Alleluia Cushion	78,000 lbs.	.90	70.2	N.A.
(10)		PRB - Europe	27,000 lbs.	1.17	31.7	4.9
(11)		Bridgestone KK	54 pcs.	168.50	9.1	-
(12)			1,600 rolls	15.69	25.1	-

(a) While neoprene latex has increased 17.9% per year during the three year period 1975-1977, the price has been stable during the past two years.

Microwave Products

Pliobond 2014

Pliobond is an adhesive, manufactured by Goodyear Tire & Rubber Co., used throughout the microwave absorber manufacturing process for such things as; bonding polyester foam sheets together in the HPY manufacturing process, bonding finished absorbers to their bases, and bonding weatherproofing cloth to absorbers. Goodyear is the only available supplier for this material; however, similar types of adhesives are available from Goodyear and other manufacturers, such as Goodrich.

Neoprene Latex 400

This latex is one material used in the carbon black dipping solution for impregnating microwave absorbers. DuPont is the sole source of supply for this material however, E&C is a relatively small consumer and DuPont does not anticipate any future supply problem.

Oncor 23-A

Oncor is a fire retardant used in the dipping solution for impregnating fire retardant microwave absorbers. This material is a combination of antimony oxide and inert silica which imparts a flame resistance to the foam. N. L. Industries is the only known source for this material; however, in the event that Oncor 23-A was unavailable, E&C could accomplish the same purpose using antimony trioxide, a readily available substitute.

Vulcan XC-72 Pellets

These conductive carbon black pellets are one of the components used in the microwave absorber dipping solution and are presently being purchased from Cabot Corporation. Other similar types of carbon black are readily available from suppliers such as Cities Service.

Polyurethane Foam

E&C presently purchases polyester and polyether foam in the form of rolls or buns at a specific foam density. The rolls are converted into hollow microwave absorbers (HPY's) and the buns into solid microwave absorbers (VHP's). E&C presently has several foam sources available at the three microwave manufacturing locations. These sources include General Felt Co., United Foam, Alleluia Cushion, and PRB. There are several other sources who supply these types of foam and the utilization of a new source would only require the establishment of mutually agreeable quality control procedures to insure a continuing supply of foam at a proper density.

The following table shows key raw materials data for E&C's Flotation Products business and is followed by a discussion of the data.

		<u>EMERSON & CUMING RAW MATERIAL DATA</u>				
<u>FLOTATION PRODUCTS</u>		(1)	(2)	(3)	(4)	
<u>Line No.</u>	<u>Material</u>	<u>Primary Suppliers</u>	<u>1977 Quantity Purchased</u>	<u>1977 Price/Unit</u>	<u>1977 Total (\$000)</u>	<u>1975-1977 Price Incr Avg. Annual Inc./Dec</u>
	Epoxy Resins	Shell -				
(01)		U. S.	390,000 lbs.	\$.72	\$ 280.8	9.5%
(02)		Europe	331,000 lbs.	.92	304.5	3.4
		Ciba-Geigy -				
(03)		U. S.	60,000 lbs.	.75	45.0	9.1
✓(04)	Versamid 140	General Mills	180,000 lbs.	1.00	180.0	-
(05)		Union Camp	10,000 lbs.	1.00	10.0	-
/ (06)	Epoxide 8	Proctor & Gamble	70,000 lbs.	.94	65.8	5.2
/ (07)	Milled Fibers	Ferro Div. Reichhold	188,000 lbs.	.53	99.6	4.0
	Microballoons					
✓(08)	B-23/500	3M	182,000 lbs.	.95	172.9	5.7
/ (09)	KFP-524	Arco Polymers	38,000 lbs.	.78	29.6	2.0
✓(10)	Enkamat	American Enka	115,000 sq ft.	.23	26.5	(12.4)
✓(11)	Glass Cloth	Owens Corning	24,000 lbs.	.75	18.0	8.3

Flotation Products

Epoxy Resins

By far, the most important large volume raw materials used by E&C are the epoxy resins. E&C is presently purchasing four similar types of epoxy resin from Shell Chemical (90%) and from Ciba-Geigy (10%). These resins are used in virtually all the dielectric and flotation products formulations.

In addition to Shell and Ciba-Geigy, similar types of epoxy resins are available from Dow Chemical, Celanese, General Mills, and Reichhold Chemical. At the present time, Reichhold is actively pursuing a portion of E&C's epoxy resin re-

130 million pounds per year. In addition, Shell Chemical presently has plans to double their liquid epoxy capacity from 52 million pounds per year to 100 million pounds per year by the second quarter of 1978. It is also rumored that Ciba-Geigy is planning an expansion providing an additional 26 million pounds per year. No future supply problems are anticipated and if the two expansions do take place, there is a possibility of an overcapacity situation.

Versamid 140

This polymerized amine is used in flotation riser module formulations as an epoxy curing agent. While E&C presently procures 95% of their requirements from General Mills, substitute materials are available from several customers such as Union Camp, Ciba-Geigy, Reichhold, and Humko Chemical. In addition, Reichhold is actively pursuing a portion of E&C's polyamid business.

Epoxide 8

This epoxy diluent is used in the formulation of flotation products. Procter & Gamble (P&G) is the only known source of supply for the Epoxide 8 material; however, other epoxy diluents could be used in the event that P&G was unable to supply this material.

Milled Fibers

These 1/32" long fiberglass fibers are used in the coating of expanded polystyrene beads which are then formulated into flotation products. E&C purchases these fibers from the Ferro Division of Reichhold Chemical. Reichhold has indicated that the Ferro manufacturing capacity for these fibers will be expanded in the future and no supply problems are anticipated. In addition,

similar acceptable fibers could be obtained from Henry and Frick, a distributor for Owens Corning.

Microballoons B-23/500

These microballoons, purchased exclusively from 3M, are used in the formulation of riser pipe modules intended to operate at a depth of 2,000 feet or less. E&C presently manufactures microballoons used in riser module formulations for applications at depths greater than 2,000 feet. 3M is presently the only source of supply for this particular type of microballoon. However, if necessary, E&C could use their own microballoon in place of the 3M microballoons in the riser module formulation. However, E&C has found that it is economically advantageous to purchase this type of microballoon for the particular module application, as opposed to manufacturing a substitute.

KFP-524

This gasoline resistant polystyrene bead is purchased exclusively from Arco Chemicals. These beads are expanded and coated with milled fibers to be used in flotation product formulations. Arco is the only manufacturer of a polystyrene bead which will expand to approximately 3/8" diameter when subjected to steam. Discussions with Arco reveal that E&C is a small consumer of these beads and continued supply should not be a problem. Foster Grant and BASF manufacture polystyrene beads, however, these beads are a smaller size and reformulation of E&C's flotation product would be required to utilize these beads.

Enkamat

This spongy nylon material is used to line the riser module molds prior to their filling with a resin, microballoon, and polystyrene bead formulation. After

filling and curing, the enkamat becomes a protective integral exterior layer of the riser module providing a physical separation between the seawater and the microballoon components contained within a riser module. The American Enka Company is the sole source of supply for this material which is manufactured in Europe. In the event this material would be unavailable, E&C management feels that substitutes are available.

Glass Cloth

This fiberglass cloth material is also used to line the riser module molds prior to their filling with a resin, microballoon, and polystyrene bead formulation. After filling and curing the fiberglass cloth also becomes a protective exterior layer of the riser module. This material is presently purchased from Henry and Frick, a distributor for Owens Corning Co. and acceptable substitutes can be purchased from Owens Illinois.

The table on the following page shows the key raw materials used in the manufacture of E&C's Microballoons and is followed by a discussion.

(See table on following page)

EMERSON & CUMING
RAW MATERIAL DATA

<u>MICROBALLOONS</u>			(1)	(2)	(3)	(4)
<u>Line No.</u>	<u>Material</u>	<u>Primary Suppliers</u>	<u>1977 Quantity Purchased</u>	<u>1977 Price/Unit</u>	<u>1977 Total (\$000)</u>	<u>1975-1977 Price Incr Avg. Annual Inc./ (Dec.)</u>
(01)	Sodium Silicate	Diamond Shamrock	500,000 lbs.	\$.03	\$ 15.0	13.0%
(02)	Boric Acid	New England Chem.	48,000 lbs.	.24	11.5	22.5
(03)	Urea	New England Chem.	5,300 lbs.	.14	.7	24.7
(04)	Genospheres	Hargraves	450,000 lbs.	.015	6.8	-

Microballoon Products

As discussed in the Manufacturing Process section, E&C manufactures their microballoon feedstock, using a spray dryer, in Canton, as well as utilizing Custom Processing, Inc. in New Jersey to manufacture about 50% of their feedstock. E&C has recently increased their spray drying capacity and anticipates manufacturing 100% of their microballoon feedstock at their Canton, Mass., facility. In the event that the E&C spray drying manufacturing operation is taken out of operation, the total feedstock requirements can be manufactured by Custom Processing, insuring a continuing feedstock source of supply.

Sodium Silicate

This raw material used in the manufacture of microballoon feedstock is presently being purchased almost exclusively (95%) from Diamond Shamrock. Several other sources of supply are available for this material, such as Allied Chemical, DuPont, Philadelphia Quartz, the Davison Division of W. R. Grace & Co.

Available industry capacity is such that no future supply problems are anticipated.

Boric Acid

This component of microballoon feedstock is a borate derivative purchased almost exclusively from New England Chemical. Other sources of supply are available, such as Kerr McGee, Stauffer, and U. S. Borax. The present supply for borates, and hence boric acid, is quite tight; however, based on E&C quantities used, no future supply problems are anticipated.

Urea

This third component of microballoon feedstock is also being purchased almost exclusively from New England Chemical. Many other sources of supply are available with the E&C quantities used being miniscule in comparison to the urea availability.

Cenospheres

As discussed in the Microballoon Manufacturing Process section, this material is converted into ceramic microballoons by E&C through a drying operation. The material is a microballoon purchased from Hargraves in London, England. This material is fly ash, a by-product of coal burning, and is available from only one location in England due to the type of coke used at that power facility. Discussion with Hargraves by E&C management has revealed that there exists an abundance of this fly-ash at this location ensuring a continuing supply for at least 10 years.

Listing to Schedule
to Section 7.36

Listings of effluent and atmospheric discharge generated in
the manufacture of the product line.

June 1973	-	Waste service information
Feb. 1975	-	Air contaminants report.
March 1975	-	Process waste discharge into sanitary sewer.
April 1975	-	Fuel burning Equipment Registration
November 1976	-	Fuel burning Equipment Registration
December 1976	-	Process Manufacturing Equipment
March 1978	-	Hydrocarbon Emissions Registration
May 1978	-	Liquid Organic Material Storage
May 1978	-	Process Manufacturing Equipment
May 1978	-	Process Fuel Burning Equipment Registration.



The Commonwealth of Massachusetts
Metropolitan District Commission
20 Somerset Street, Boston 02108

SEWERAGE DIVISION

Re: Questionnaire

Dear Sir:

The enclosed questionnaire has been developed to supply the Sewerage Division of the Metropolitan District Commission with needed information, so that we may serve you more efficiently and program your future needs.

The requested information will be used in the classification of various process waste discharges and to aid in forecasting future waste service demands, trends, and loadings. Your cooperation in responding to this questionnaire is urgently solicited to identify the most critical program (s) which require modification or enlargement.

The questionnaire should be completed as soon as possible and returned to the indicated address. Matters pertaining to specific manufacturing processes will be considered privileged information.

Your participation and interest in this industrial survey is appreciated.

Sincerely,

A handwritten signature in cursive script, appearing to read 'A. C. Hayes'.

A. C. Hayes
Director of Sewerage Division
and Chief Sewerage Engineer

APF:mc

THE COMMONWEALTH OF MASSACHUSETTS
METROPOLITAN DISTRICT COMMISSION
SEWERAGE DIVISION

Due Date _____

LOCATION: 869 WASHINGTON ST., CANTON

1. If different from stated address, please correct when answering

A) Name of Company, EMERSON & CUMMINS, INC.

B) Business Address, 59 WALPOLE ST CANTON MA 02021
No. Street Town or City Zip Code

2. Telephone Number, 828-3300 3. Years at present location 20

4. Type of industry, CHEMICALS

A) Standard Industrial Classification Index Number, _____

B) Major products or services: CHEMICAL RESINS; INORGANIC POWDERS

C) List type and quantity of chemicals used annually in process-(if applicable):

5. Daily water consumption, 17,000 cu. ft/day or gal/day

A) Source of supply, TOWN OF CANTON

6. Total volume of waste discharged into Public Sewer, _____ gal/day

Other discharge:- Sub-surface or ground, _____ gal/day

Surface waters, _____ gal/day

Scavenger services, (type/quantity) _____

NOTE: If seasonal, please indicate _____

A) Characteristics of waste discharge-(if known): _____

B) Is pretreatment practiced? X Yes No

If "Yes" please indicate type:

a) Separators or Traps

b) Screening

c) Sedimentation X

d) Coagulation and/or Precipitation

e) Other (specify)

C) Is pretreatment planned? Yes No, if "Yes", indicate implementation date:

7. Would you like additional copies of the "Rules and Regulations concerning Discharge of Waste"? Yes X No
If "Yes" indicate number of copies

Name of Company Representative preparing this return:

Name: VICTOR W. MORGAN Date

Title: PLANT MANAGER

Please return to:

METROPOLITAN DISTRICT COMMISSION
SEWERAGE DIVISION
20 SOMERSET STREET
BOSTON, MASSACHUSETTS 02108

Att: Noel Baratta
Assistant Sanitary Engineer
(Telephone: 727-8989)

DATE RECEIVED	APPLICATION NUMBER 0607 (59 Walpole St, Canton)	COORDINATES
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PLEASE MAINTAIN COPY

[Faint, mostly illegible text, possibly bleed-through from the reverse side of the page]

[Handwritten signature]

[Faint, illegible text, possibly a stamp or additional notes]

OFFICIAL USE ONLY

Date Inspected	Inspector
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APPLICATION FOR THE REGISTRATION OF PROCESSING
OR MANUFACTURING EQUIPMENT, SOLVENT USEAGE, AND INCINERATORS
OPERATED DURING THE CALENDAR YEAR ~~1973~~, 1974

The Bureau of Air Quality Control, Division of Environmental Health, Department of Public Health, requests you to complete and return this application within 30 days under Regulation 12 of the Regulations for the Control of Air Pollution. You will receive written acknowledgement upon satisfactory completion of the application.

BEFORE FILLING OUT THE APPLICATION, PLEASE READ THE FOLLOWING INSTRUCTIONS:

- Everyone receiving this form, regardless of whether or not he has any equipment which needs to be registered, must complete page one.
- Indicate any changes in the name and/or address on page one.
- The information submitted should pertain to the calendar year ~~1973~~ 1974
- An application is required for each location of:
 - (a) process and/or manufacturing operations where air contaminants are vented or discharged into the ambient air;
 - (b) solvent useage;
 - (c) incinerator(s).
- The owner is ultimately responsible for registering his air pollution source. Each page must be signed by the owner or by a responsible company official at the location. If an agent has been designated to fill out this form, the owner or official must check and sign this form. If you are a tenant or property manager, your cooperation is asked for by forwarding this application to the owner.
- Additional forms may be copied from the original or obtained from the nearest District Office.
- The form is designed for a wide variety of applicants and many of the questions may not apply or may require engineering expertise. Answer what you can. You will be contacted if further information is necessary.
- Returned applications should be directed to the District Office checked below:

Metropolitan Boston APCD
600 Washington St., Rm. 320
Boston, Tel. 617-727-2658

Southeastern Mass. APCD
Lakeville State Hospital
Lakeville, Tel. 617-947-1060

Merrimack Valley APCD
Tewkesbury State Hospital
Tewkesbury, Tel. 617-727-7908

Central Mass. APCD
75 Grove Street
Worcester, Mass., Tel. 617-791-3672

Berkshire & Pioneer Valley APCD
1414 State Street
Springfield, Tel. 413-785-5327

LOCATION OF SOURCE TO BE REGISTERED:

Facility Name EMERSON & CUMMINS, INC.Address 59 WALPOLE ST.City or Town CANTON, MASS. Zip Code 02021A. 1. Did you previously receive and return a registration form? Yes ___ No V2. If yes, were there any significant changes or additions to the registered equipment or changes in production rate during the calendar year 1974 1974
Yes ___ No ___B. Approximate number of employees 95C. Operating hours of source: hrs/day 8; days/wk 5; wks/yr 52D. 1. What products are produced or services rendered? MOLDED PLASTICS2. Are processing or manufacturing operations involved? Yes X No ___
If yes, complete page two.3. Are solvent containing materials used as an integral part of the process or manufacturing? Yes ___ No X. If yes, complete page three.E. Do you have/or operate an on-premise incinerator? Yes ___ No X.
If yes complete page four.

F. If pages two, three, and/or four are not applicable, so indicate in the appropriate box on the page and sign the page.

G. Person to be contacted for further information, if necessary:

Name VICTOR MORAN Title PLANT MGR.
(please print)Address 85A WASHINGTON ST. Area Code 617 Tel. 827-3300City or Town CANTON Zip Code 02021

PROCESS AND/OR MANUFACTURING EQUIPMENT AND OPERATIONS

INSTRUCTIONS: List those steps in the process or manufacturing where air contaminants are vented or discharged into the ambient air. Additional instructions are on the back of this page. Use the back of this page for additional comments. The information should be for the calendar year 1974. Indicate if otherwise _____.

We have no process and/or manufacturing where air contaminants are vented or discharged into the ambient air. If true, check box and sign below.

1. Process and/or manufacturing Data:								2. Operating Schedule			
Major Steps Involved In Process	Type Equip. Used	RAW MATERIALS			FINISHED MATERIALS			Hrs per day	Days per week	Wks per year	Months in Operation (e.g., Sept-May)
		Type	Max/Hr.	Avg/Yr.	Type	Max/Hr.	Avg/Yr.				
1. FIBERGLASS COATING	BLENDER	FIBERGLASS		200,000 lbs.	—			8	5	52	
2.											
3.											
4.											

3. How is gas/air vented to stack (fan, blower, nat)	4. Stack/Vent Data for Process					5. Air Cleaning Equipment		6. Process Emissions	
	Ht above ground	Inside Diam at Top	Exit Velocity (ft/sec)	Exit Temp (°F)	Quantity of Gaseous Discharge (cfm)	Type	Percent Efficiency Rated Actual	Type Contaminant Collected	Amount Removed (ton/yr)
1. FAN	6'	—	—	AMBIENT	2000	NONE		NONE	
2.									
3.									
4.									

7. Provide a roof plan showing the location of the stacks and/or vents.

CERTIFICATION: I certify that I have examined the above information and that to the best of my knowledge, it is true and complete.	Signed: <i>W. Morgan</i>	Title: <i>Plant Mgr</i>	Date: <i>2/27/75</i>
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Materials Containing Solvents Used In Process and/or Manufacturing

INSTRUCTIONS: This section is to be completed if materials containing solvents are used as an integral part of the processing or manufacturing in quantities of greater than or equal to 40 lbs. per day. This means, for instance, that materials containing solvents used to clean machinery should not be mentioned and those used in such operations as surface coating (paint, varnish, lacquer, enamel, primer, glaze, resin, sealer shellac, etc.), laundries (degreasing agents, dry cleaning agents), and miscellaneous (adhesives, insecticides, printing inks, putty) should be mentioned.

We use no materials containing solvents used in process and/or manufacturing - If true, check box and sign below.

1. Surface Coatings

	<u>Type*</u>	<u>Amount Max Hour</u>	<u>(gal) Annual</u>	<u>Type+ Control Equip</u>	<u>Vents</u>	
					<u>Height (Ft)</u>	<u>Discharge (cfm)</u>
a.	_____	_____	_____	_____	_____	_____
b.	_____	_____	_____	_____	_____	_____
c.	_____	_____	_____	_____	_____	_____

* If paint, indicate whether water base or solvent base.
+ Spray booth, water spray, incinerator, etc.

2. Solvent Cleaners

	<u>Type*</u>	<u>Max Hour</u>	<u>Annual</u>	<u>Recovery System</u>	<u>Discharge Method</u>	<u>Height (Ft)</u>	<u>Discharge (cfm)</u>
1.	_____	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____	_____	_____

*Indicate solvent material (Trichloroethylene, trichloroethane, perchloroethylene, stoddard solvent, etc.)
+For intermittent operation, indicate maximum rate

3. Miscellaneous

	<u>Type</u>	<u>Amount</u>		<u>Percent Solids</u>	<u>Emission Control Equipment</u>	<u>Vents</u>	
		<u>Max Hour</u>	<u>Annual</u>			<u>Height (Ft)</u>	<u>Discharge (cfm)</u>
1.	_____	_____	_____	_____	_____	_____	_____
2.	_____	_____	_____	_____	_____	_____	_____

CERTIFICATION: I certify that I have examined the above information and that to the best of my knowledge, it is true and complete. (Signature subjects signer to provisions of the General Statutes regarding false and misleading statements).

Signed: *Michael W. Morgan* Title *Plant Mgr.* Date *2/27/74*

INCINERATORS

We do not use an incinerator - if true, check box and sign below

- 1. Manufacturer's Name _____ Make _____ Model # _____
- 2. Type: single chamber _____ multi _____ pathological _____ Other _____
- 3. Auxilliary Fuel, if any: gas _____ oil _____ number of burners _____
- 4. Flyash Control Devices, if any: type _____
- 5. Loading: type(s) waste _____ max lbs/hr _____ estimated tons/yr _____
- 6. Operating schedule (please circle):

hours of day 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11 12

days of week Mon Tues Wed Thurs Fri Sat Sun

- 7. If incinerator has smoke stack separate from boiler stack:

a.

Stack(s)	1	2	3
Incinerator served	_____	_____	_____
Height (ft)	_____	_____	_____
Inside diameter at top (ft)	_____	_____	_____
Exit Velocity (ft/sec)	_____	_____	_____
Exit temperature (°F)	_____	_____	_____

b. Show location in Section H.

- 8. Has the incinerator(s) been approved by the Bureau? Yes _____ No _____

Date of approval _____

H. Location of Stack(s) and/or Vents

Instructions: It will be necessary to locate your stacks and/or vents on a city or town map. In order to assist us, please sketch out several major and minor streets indicating the approximate location of the stacks and/or vents in respect to them.

CERTIFICATION: I certify that I have examined the above information and that to the best of my knowledge, it is true and complete. (Signature subjects signer to provisions of the General Statutes regarding false and misleading statements).

Signed: Victor W. Morgan Title Plant Mgr. Date 2/17/77



The Commonwealth of Massachusetts
Metropolitan District Commission
20 Somerset Street, Boston 02108

SEWERAGE DIVISION

March 27, 1975

CC - WRC
- file

Victor Morgan, Plant Engineer
Emerson & Cuming
869 Washington Street
Canton, Massachusetts 02021

Re: Process waste discharges into the sanitary sewer.

Dear Mr. Morgan:

This confirms the results of the March 21, 1975 inspection of your company's premises by sanitary engineers from this office.

It is apparent that there is a substantial quantity of rinse water used to clean the chemical mixing tanks, containing mixtures of sulfuric acid and sodium borasilicate which is intermittently discharged into the sanitary sewer system. The backwash water used to rinse particulate matter (powered glass) from six (6) air filter beds is intermittently discharged, as well.

As stated at the time of inspection the plant process discharge is intermittently milky white in color and contains large quantities of suspended matter.

It is our understanding, that neutralization of the acid bearing waste stream is occasionally practiced prior to sewer discharge.

The discharge of the aforementioned process wastes with an unknown pH, containing unknown concentration of suspended solids could be in violation of the Metropolitan District Commission's Rules and Regulations. You are referred to Sections 4.h.1 & 2, and 4.i of the enclosed copy of Rules and Regulations.

The Division is requiring at this time that your company contact an approved testing laboratory to conduct analysis on the process waste discharge.

The analytical data, to include: pH readings, total suspended solids and dissolved solids concentrations, turbidity and any other pertinent information should be submitted to this office prior to June 1, 1975, so that a fair and equitable evaluation of your process waste can be made.

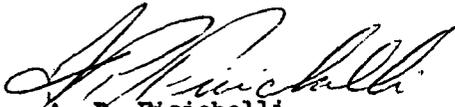
Victor Morgan, Plant Engineer
Emerson & Cuming

- 2 -

March 27, 1975

If this office can be of assistance, please do not hesitate to notify us.

Sincerely,



A. P. Fisichelli
Assistant Director of
Sewerage Engineering

NDB:dln

enc. Rules and Regulations

cc: Thomas C. McMahon, Dir. of W.P.C.
Harold J. Publicover, Super., of Public Works, Canton

**DIVISION OF ENVIRONMENTAL HEALTH, BUREAU OF AIR QUALITY CONTROL, 600 WASHINGTON STREET
ROOM 320 BOSTON, MASSACHUSETTS 02111 (617) 727-2658**

1. APPLICATION NO. 2. STACK NO.

FIRM: EMERSON & CUMMINS, INC.
BUSINESS ADDRESS (NO. AND STREET, CITY, ZIP CODE): 59 WALPOLE ST., CANTON, 02021
PHONE: 828-3300
LEGAL NAME: EMERSON & CUMMINS, INC.
APPLICANT:
INSTALLATION:
EQUIPMENT BEING REGISTERED: TYPE OF EQUIPMENT (e.g. Boiler, Space Heater) BOILER BRAND NAME OF EQUIPMENT DILCON MODEL NUMBER _____ NUMBER OF IDENTICAL UNITS ON THIS FORM 2 AIR POLLUTION CONTROL EQUIPMENT USED? (If Yes, File Form AP-4) YES NO
MAJOR ACTIVITY OF FIRM: MFG. OFFICE RETAIL OR WHLSE. STORE SCHOOL OR CHURCH HOTEL/MOTEL HOSPITAL OR LAB WAREHOUSE RESIDENCE OR APTS. OTHER (Specify)

TYPES OF FUEL USED	FUEL	GRADES (x)	SULFUR CONTENT	ASH CONTENT	ANNUAL USAGE (Tons, Gals., or ft. ³)	MAXIMUM FIRING RATE PER UNIT		SEASONAL USE		FUEL SUPPLIER	
						(Lbs., Gals., ft. ³ /hr.)	(BTU/hr.)	Month	Yr. to Month	Yr.	Name	City or Town
	COAL	<input type="checkbox"/> Bituminous <input type="checkbox"/> Anthracite	%	%							
	OIL	<input checked="" type="checkbox"/> Kerosene <input type="checkbox"/> 2 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input checked="" type="checkbox"/> 6	%		135,000 GAL	30 GAL/HR					WHITE FUEL BOSTON
	NAT. GAS	<input type="checkbox"/>	%	%							
	OTHER	<input type="checkbox"/>	%	%							

FUEL USAGE BREAKDOWN: % OF FUEL USED FOR HEATING 90 % % OF FUEL USED FOR COOLING _____ % % OF FUEL USED FOR POWER _____ % % OF FUEL USED FOR PROCESS 10 %

BURNER EQUIPMENT: ARE OIL HEATERS USED? YES NO OIL TEMPERATURE BEFORE INJECTION 150 °F BURNER MANUFACTURER JOHNYSOIL DATE OF BURNER INSTALLATION OCTOBER 1973 BURNER MODEL NO. L268133

TYPE OF COAL BURNER: HAND FIRED UNDERFEED STOKER TRAVELING GRATE CHAIN GRATE SPREADER STOKER STOKER WITH GAS REINJECTION CYCLONE FURNACE PULVERIZED COAL

TYPE OF OIL BURNER: PRESSURE OR GUN ROTARY CUP STEAM ATOMIZER AIR ATOMIZER TANGENTIALLY FIRED OTHER (Specify)

COMBUSTION: OVERFIRE AIR CONTROL YES NO TYPE OF DRAFT FORCED INDUCED NATURAL TYPE OF AIR FUEL RATIO CONTROL SYSTEM ON-OFF LOW FIRE HIGH-LOW FIRE FULL AUTOMATIC HAND CONTROLLED

EQUIPMENT INFORMATION: BREACHING GAS TEMPERATURE 425 °F DATE EQUIPMENT WAS PUT IN SERVICE MONTH OCTOBER YEAR 1966 EXHAUST GAS FLOW RATE (ACFM): NORMAL _____ MAXIMUM _____ 15' STACK TEST RESULTS _____ FACILITY OPERATING HOURS: HOURS/DAY 16 DAYS/WEEK 6 WEEKS/YEAR 52

STACK INFORMATION: STACK EXIT DIRECTION HORIZ. VERT. SIZE OF STACK EXIT: ROUND STACK Inside Diameter 26 In. RECTANGULAR STACK In. By 26 In. STACK HEIGHT (FEET) 100 IS STACK EQUIPPED WITH RAIN HAT? YES NO TEMPERATURE AT STACK EXIT _____ °F SMOKE INDICATOR IN STACK YES NO MAKE AND MODEL NO. OF SMOKE INDICATOR HEAT-TIMER MODEL-MU STACK LINING: METAL REFRACTORY OTHER (Specify) RED BRICK

STACK LOCATION: NAME OF NEAREST INTERSECTING STREET: WALPOLE ST DISTANCE TO STACK FROM INTERSECTION: 300 FEET DIRECTION FROM INTERSECTION TO STACK: (Circle one) N NE E SE S SW W NW

CERTIFICATION: I certify that I have examined the above information and that to the best of my knowledge it is true and complete. (Signature subjects signer to provisions of the General Statutes regarding false and misleading statements.) SIGNED: Victor Wojcik TITLE: PLANT MGR DATE: 4/4/75

APPLICANT

US EPA ARCHIVE DOCUMENT

1. APPLICATION NO. 2. STACK NO.
 DIVISION OF ENVIRONMENTAL HEALTH, BUREAU OF AIR QUALITY CONTROL, 600 WASHINGTON STREET
 ROOM 320 BOSTON, MASSACHUSETTS 02111 (617) 727-2658

LEGAL NAME: EMERSON & CUMINE, INC. BUSINESS ADDRESS (NO. AND STREET, CITY, ZIP CODE): 80A WASHINGTON ST, CANTON 02021 PHONE: 826-2300

EQUIPMENT REGISTERED: TYPE OF EQUIPMENT (e.g. Boiler, Space Heater): BOILER BRAND NAME OF EQUIPMENT: HODGE MODEL NUMBER: NUMBER OF IDENTICAL UNITS ON THIS FORM: 1 AIR POLLUTION CONTROL EQUIPMENT USED? (If Yes, File Form AP-4) YES NO

MAJOR ACTIVITY OF FIRM: MFG. OFFICE RETAIL OR WHLSE. STORE SCHOOL OR CHURCH HOTEL/MOTEL HOSPITAL OR LAB WAREHOUSE RESIDENCE OR APTS. OTHER (Specify)

TYPES OF FUEL USED	FUEL	GRADES (x)	SULFUR CONTENT	ASH CONTENT	ANNUAL USAGE (Tons, Gals., or ft. ³)	MAXIMUM FIRING RATE PER UNIT		SEASONAL USE		FUEL SUPPLIER	
						(Lbs., Gals., ft. ³ /hr.)	(BTU/hr.)	Month Yr. to	Month Yr.	Name	City or Town
COAL	<input type="checkbox"/>	Bituminous	%	%							
		Anthracite	%	%							
OIL	<input checked="" type="checkbox"/>	Kerosene	%								
		2	0.30%		36,000 GAL	14 GAL/HR				WHITE FUEL	BOSTON
		4	%								
		5	%								
NAT. GAS	<input type="checkbox"/>		%	%							
OTHER	<input type="checkbox"/>		%	%							

FUEL USAGE BREAKDOWN: % OF FUEL USED FOR HEATING: 50% % OF FUEL USED FOR COOLING: % % OF FUEL USED FOR POWER: % % OF FUEL USED FOR PROCESS: 50%

BURNER EQUIPMENT: ARE OIL HEATERS USED? YES NO OIL TEMPERATURE BEFORE INJECTION: 70 °F BURNER MANUFACTURER: WALTHAM DATE OF BURNER INSTALLATION: 12/71 BURNER MODEL NO.: LE

TYPE OF COAL BURNER: HAND FIRED UNDERFEED STOKER TRAVELING GRATE CHAIN GRATE SPREADER STOKER STOKER WITH GAS REINJECTION CYCLONE FURNACE PULVERIZED COAL

TYPE OF OIL BURNER: PRESSURE OR GUN ROTARY CUP STEAM ATOMIZER AIR ATOMIZER TANGENTIALLY FIRED OTHER (Specify)

COMBUSTION: OVERFIRE AIR CONTROL YES NO TYPE OF DRAFT FORCED INDUCED NATURAL TYPE OF AIR FUEL RATIO CONTROL SYSTEM HAND CONTROLLED FULL AUTOMATIC

EQUIPMENT INFORMATION	BREACHING GAS TEMPERATURE °F	DATE EQUIPMENT WAS PUT IN SERVICE MONTH YEAR	TYPE OF POLLUTANT	DATE OF TEST	RATE OF EMISSIONS (Pounds Per Hour)	GROUP CONDUCTING TEST
STACK GAS VELOCITY IN FEET PER SECOND:	EQUIPMENT OPERATING HOURS HOURS PER YEAR	5000				
FACILITY OPERATING HOURS HOURS/DAY	16 DAYS/WEEK	46 WEEKS/YEAR	52			

STACK INFORMATION: STACK EXIT DIRECTION HORIZ. VERT. SIZE OF STACK EXIT: ROUND STACK Inside Diameter In. RECTANGULAR STACK In. By In. STACK HEIGHT (FEET): 60 IS STACK EQUIPPED WITH RAIN HATT? YES NO TEMPERATURE AT STACK EXIT °F: SMOKE INDICATOR IN STACK YES NO MAKE AND MODEL NO. OF SMOKE INDICATOR: STACK LINING METAL REFRACTORY OTHER (Specify): RED BRICK

STACK LOCATION: NAME OF NEAREST INTERSECTING STREET: PEQUIT STREET DISTANCE TO STACK FROM INTERSECTION: 200 FT. DIRECTION FROM INTERSECTION TO STACK: (Circle one) N NE E SE SW W NW

CERTIFICATION: I certify that I have examined the above information and that to the best of my knowledge it is true and complete. (Signature subjects signer to provisions of the General Statutes regarding false and misleading statements). SIGNED: DATE: PLANT MGR. 4/7/75

APPLICANT

108-P-74-08182

DIVISION OF ENVIRONMENTAL HEALTH, BUREAU OF AIR QUALITY CONTROL, 600 WASHINGTON STREET
 ROOM 320 BOSTON, MASSACHUSETTS 02111 (617) 727-2658

111

1

FIRM	LEGAL NAME	BUSINESS ADDRESS (NO. AND STREET, CITY, ZIP CODE)	PHONE
DIVISION	EMERSON & COMING INC	969 WASHINGTON ST., CANTON 02021	529-3300
APPLICANT			
INSTALLATION			
EQUIPMENT BEING REGISTERED	TYPE OF EQUIPMENT (e.g. Boiler, Space Heater)	BRAND NAME OF EQUIPMENT	MODEL NUMBER
	BOILER	HODGE	1
			NUMBER OF IDENTICAL UNITS ON THIS FORM
			1
			AIR POLLUTION CONTROL EQUIPMENT USED? (If Yes, File Form AP-4)
			<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
MAJOR ACTIVITY OF FIRM	<input checked="" type="checkbox"/> MFG. <input type="checkbox"/> OFFICE <input type="checkbox"/> RETAIL OR WHLSE. STORE <input type="checkbox"/> SCHOOL OR CHURCH <input type="checkbox"/> HOTEL/MOTEL <input type="checkbox"/> HOSPITAL OR LAB <input type="checkbox"/> WAREHOUSE <input type="checkbox"/> RESIDENCE OR APTS. <input type="checkbox"/> OTHER (Specify)		

a. TYPES OF FUEL USED	FUEL	GRADES (x)	SULFUR CONTENT	ASH CONTENT	ANNUAL USAGE (Tons, Gals., or ft. ³)	MAXIMUM FIRING RATE PER UNIT		SEASONAL USE		FUEL SUPPLIER	
						(Lbs., Gals., ft. ³ /hr.)	(BTU/hr.)	Month	Yr. to	Month	Yr.	Name	City or Town
COAL	<input type="checkbox"/>	Bituminous	%	%							
		Anthracite	%	%							
OIL	<input checked="" type="checkbox"/>	Kerosene	%	%							
		2	0.30%		33000 GAL	21 GAL/HR.				WHITE FUEL	BOSTON
		4	%								
		5	%								
		6	%								
NAT. GAS	<input type="checkbox"/>										
OTHER	<input type="checkbox"/>										

b. FUEL USAGE BREAKDOWN	% OF FUEL USED FOR HEATING	30%	% OF FUEL USED FOR COOLING	%	% OF FUEL USED FOR POWER	%	% OF FUEL USED FOR PROCESS	70%
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c. BURNER EQUIPMENT	ARE OIL HEATERS USED?	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	OIL TEMPERATURE BEFORE INJECTION	70 °F	BURNER MANUFACTURER	WALTHAM	DATE OF BURNER INSTALLATION	12/71	BURNER MODEL NO.	LF
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1. TYPE OF COAL BURNER	<input type="checkbox"/> HAND FIRED <input type="checkbox"/> UNDERFEED STOKER <input type="checkbox"/> TRAVELING GRATE <input type="checkbox"/> CHAIN GRATE <input type="checkbox"/> SPREADER STOKER <input type="checkbox"/> STOKER WITH GAS REINJECTION <input type="checkbox"/> CYCLONE FURNACE <input type="checkbox"/> PULVERIZED COAL
------------------------	---

2. TYPE OF OIL BURNER	<input checked="" type="checkbox"/> PRESSURE OR GUN <input type="checkbox"/> ROTARY CUP <input type="checkbox"/> STEAM ATOMIZER <input type="checkbox"/> AIR ATOMIZER <input type="checkbox"/> TANGENTIALLY FIRED <input type="checkbox"/> OTHER (Specify)
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13. COMBUSTION	OVERFIRE AIR CONTROL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	TYPE OF DRAFT <input type="checkbox"/> FORCED <input type="checkbox"/> INDUCED <input checked="" type="checkbox"/> NATURAL	TYPE OF AIR FUEL RATIO CONTROL SYSTEM <input type="checkbox"/> HAND CONTROLLED <input checked="" type="checkbox"/> FULL AUTOMATIC
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14. EQUIPMENT INFORMATION	BREACHING GAS TEMPERATURE °F	DATE EQUIPMENT WAS PUT IN SERVICE MONTH 12 YEAR 1971	15. STACK TEST RESULTS	TYPE OF POLLUTANT	DATE OF TEST	RATE OF EMISSIONS (Pounds Per Hour)	GROUP CONDUCTING TEST
	EXHAUST GAS FLOW RATE (ACFM): NORMAL	MAXIMUM					
	STACK GAS VELOCITY IN FEET PER SECOND	EQUIPMENT OPERATING HOURS HOURS PER YEAR 5000					
	FACILITY OPERATING HOURS HOURS/DAY 16 DAYS/WEEK 5 WEEKS/YEAR 52						

16. STACK INFORMATION	STACK EXIT DIRECTION <input type="checkbox"/> HORIZ. <input checked="" type="checkbox"/> VERT.	SIZE OF STACK EXIT ROUND STACK Inside Diameter In. RECTANGULAR STACK In. By In.	STACK HEIGHT (FEET)	IS STACK EQUIPPED WITH RAIN HAT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	TEMPERATURE AT STACK EXIT °F
	SMOKE INDICATOR IN STACK <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	MAKE AND MODEL NO. OF SMOKE INDICATOR	STACK LINING <input type="checkbox"/> METAL <input type="checkbox"/> REFRACTORY <input checked="" type="checkbox"/> OTHER (Specify) RED BRICK		

17. LOCATION	NAME OF NEAREST INTERSECTING STREET: PEQUIT ST	DISTANCE TO STACK FROM INTERSECTION: 200 FT.	DIRECTION FROM INTERSECTION TO STACK: (Circle one) N NE E SE SW W NW
--------------	--	--	--

I certify that I have examined the above information and that to the best of my knowledge it is true and complete. (Signature subjects signer to provisions of the General Statutes regarding false and misleading statements).	SIGNED: [Signature]	TITLE: [Title]	DATE: [Date]
---	---------------------	----------------	--------------

A. PROCESS/MANUFACTURING EQUIPMENT
(see instructions, page 2 and 3)

APPLICATION
NUMBER

PART 1. EQUIPMENT DATA

Major Steps Involved in Process	Type Equipment Used	LOCATION OF EQUIPMENT			RAW MATERIALS			FINISHED MATERIALS		
		Plant	Bldg	Floor	Type	Max/ Hour	Total/ Year	Type	Max/ Hour	Total Year
1. DRY CERAMIC MICRO SPHERES	ROTARY OVEN(2)	2		BASMENT				CERAMIC MICRO SPHERES	250 LBS PER OVEN	500,000
2.										
3.										

PART 2. OPERATING SCHEDULE PART 3. STACK/VENT DATA

No. per day	Days per week	Wks. per yr.	Months in Operation	Stack No.	Stack exit direction (horiz-vert)	Inside diameter at top (ft)	Height above ground (ft.)	Gas Temp. (°F)	Quantity Gaseous Discharge (acfm)	Exit Velocity (ft/sec)	Does Stack have rain cap?
1. 4/HR	5	50	12								
2.											
3.											

PART 4. PROCESS EMISSIONS

PART 5. EMISSION CONTROL SYSTEM, IF APPLICABLE

VENT Stack Number	Type of Contaminant (s) Emitted	Amount Emitted Ton/yr.	Type	Manufacturer	Percent Efficiency	Date of Installation
1. 3	CERAMIC DUST		BAG FILTER	DRAPER BROS.		1976
2.						
3.						

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete. SIGNED: [Signature] TITLE: [Signature] DATE: 12 12 76

A. PROCESS/MANUFACTURING EQUIPMENT
(see instructions, page 2 and 3)

APPLICATION
NUMBER

PART 1. EQUIPMENT DATA

Major Steps Involved in Process	Type Equipment Used	LOCATION OF EQUIPMENT			RAW MATERIALS			FINISHED MATERIALS		
		Plant	Bldg	Floor	Type	Max/ Hour	Total/ Year	Type	Max/ Hour	Total/ Year
1. MANUFACTURE FEED STOCK	CHEMICAL SPRAY DRYER	1	5	1	SODIUM SILICATE BORIC ACID UREA & WATER	62 GAL	3000 GAL	FEED STOCK	186 Lbs	75,000
2. DRYING MICROBALLONS	DRYING OVEN	1	1	BASEMENT	MICROBALLONS			MICROBALLONS	60	100%
3. MANUFACTURE MICROBALLONS	BALLOONING FURNACE (10)	1	5	19.2	FEED STOCK			MICROBALLONS		350,000

PART 2. OPERATING SCHEDULE **PART 3. STACK/VENT DATA**

Hrs. per day	Days per week	Wks. per yr.	Months in Operation	Stack No.	Stack exit direction (horiz-vert)	Inside di- ameter at top (ft)	Height above ground (ft.)	Gas Temp. (°F)	Quantity Gaseous Discharge (acfm)	Exit Velo- city (ft/sec)	Does Stack have rain cap?
1.	PART 4, ITEM 1										
2.	8	3	50	12	#1 VENT HORIZONTAL	6" x 6"	10'	450°F	UNKNOWN	UNKNOWN	NA
3.	PART 4, ITEM 3										

PART 4. PROCESS EMISSIONS

PART 5. EMISSION CONTROL SYSTEM, IF APPLICABLE

Stack Number	Type of Contaminant (s) Emitted	Amount Emitted Ton/yr.	Type	Manufacturer	Percent Efficiency	Date of Installation
1. NA	PARTICULATES	LESS THAN 0.1 LBS/HR	BAGHOUSE (2)	TORIT DIVISION DONALDSON CO.	99.9%	1974
2. #1 VENT	FLUE GAS					
3. NA	PARTICULATES	LESS THAN 0.1 LBS/HR	BAGHOUSE (3)	TORIT DIVISION DONALDSON CO.	99.9%	1975

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete. SIGNED: [Signature] TITLE: [Signature] DATE: 12 17 74

B. PROCESS FUEL BURNING EQUIPMENT
(see instructions, page 5)

PART 1. EQUIPMENT DATA:

Type Equipment Used	LOCATION OF EQUIPMENT			Size of Unit (Indicate Btu/hour or hsp)	BURNER Type (s) (rot, cup, gun, etc)	FUEL DATA		
	Plant	Bldg	Floor			Type Fuel	Amt/yr. (barrels, gals, tons, cu.ft.)	Maximum Hourly Fuel Rate
CHEMICAL SPRAY DRYER	1	5	1	1,250,000 BTU/HR	ATMOSPHERIC TORCH	NATURAL GAS	476,000 cu/ft	1190 cu/ft
2. COPIING UNIT	1	1	BASEMENT	800,000 BTU/HR	ATMOSPHERIC TORCH	NATURAL GAS	1,300,000 cu/ft	723 cu/ft
3. BALLOONING FURNACE	1	5	1	310,000 BTU/HR (EA)	ATMOSPHERIC TORCH	NATURAL GAS	7,085,700 cu/ft	1770 cu/ft
4. BALLOONING FURNACE	1	5	2	310,000 BTU/HR (EA)	ATMOSPHERIC TORCH	NATURAL GAS	1,417,110 cu/ft	1180 cu/ft

PART 2. OPERATING SCHEDULE:

Hrs. per day	Days per week	Wks per yr.	Months in Operation
8	1	50	12
8	3	50	12
16	5	50	12
8	3	50	12

PART 3. STACK/VENT DATA:

Stack No.	Stack Exit Direction (horiz-vert)	Inside Diameter at top (ft)	Height above ground (ft)	Exit gas Temp. (°F)	Quantity gaseous discharge (acfm)	Exit velocity (ft/sec)	Does stack have rain cap?
1. N.A. - SEE SECTION A, PART 5 (EMISSION CONTROL SYSTEM)							
2.	VENT. HORIZONTAL	6" x 6"	10"	450°F	UNKNOWN	UNKNOWN	NA
3. N.A. - SEE SECTION A, PART 5 (EMISSION CONTROL SYSTEM)							
4. N.A. - SEE SECTION A, PART 5 (EMISSION CONTROL SYSTEM)							

PART 4. PROVIDE A ROOF PLAN SHOWING LOCATION OF STACK(S) AND VENT(S).

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete.

SIGNED E. Paul Gandette

TITLE Plant Mgr. DATE 12 17 76

B. PROCESS FUEL BURNING EQUIPMENT

(see instructions, page 5)

PART 1. EQUIPMENT DATA:

Type Equipment Used	LOCATION OF EQUIPMENT			Size of Unit (Indicate Btu/hour or hsp)	BURNER Type (s) (rot. cup, gun, etc)	FUEL DATA		
	Plant	Bldg	Floor			Type Fuel	Amt/yr. (barrels, gals, tons, cu.ft.)	Maximum Hourly Fuel Rate
1. ROTARY DRYING OVEN	2		BASEMENT	180,000 BTU/HR	CONTINUOUS LINE	NATURAL GAS	174,000 CU. FT.	175 CU. FT.
2. ROTARY DRYING OVEN	2		BASEMENT	180,000 BTU/HR	CONTINUOUS LINE	NATURAL GAS	174,000 CU. FT.	175 CU. FT.
3.								
4.								

PART 2. OPERATING SCHEDULE:

PART 3. STACK/VENT DATA:

hrs. per day	Days per week	Wks per yr.	Months in Operation	Stack No.	Stack Exit Direction (horiz-vert)	Inside Diameter at top (ft)	Height above ground (ft)	Exit gas Temp. (°F)	Quantity gaseous discharge (acft)	Exit velocity (ft/sec)	Does stack have rain cap?
4	5	50	12	VENT #1	VERTICAL	10 IN	30	-	-	-	YES
4	5	50	12	VENT #2	VERTICAL	10 IN	30	-	-	-	YES
3.											
4.											

PART 4. PROVIDE A ROOF PLAN SHOWING LOCATION OF STACK(S) AND VENT(S).

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete.

SIGNED *E. Paul Gault*

TITLE *Plant Mgr*

DATE 12 17 76

DEPARTMENT OF ENVIRONMENTAL HEALTH, BUREAU OF AIR QUALITY CONTROL, 600 WASHINGTON STREET
ROOM 320 BOSTON, MASSACHUSETTS 02111 (617) 727-2658

1. APPLICATION NO. 111 2. STACK NO. 2

LEGAL NAME		BUSINESS ADDRESS (NO. AND STREET, CITY, ZIP CODE)				PHONE		
FIRM								
DIVISION								
APPLICANT								
INSTALLATION								
EQUIPMENT REGISTERED	TYPE OF EQUIPMENT (e.g. Boiler, Space Heater)	BRAND NAME OF EQUIPMENT	MODEL NUMBER	NUMBER OF IDENTICAL UNITS ON THIS FORM	AIR POLLUTION CONTROL EQUIPMENT USED? (If Yes, File Form AP-4)			
	Boiler	Waukegan	500 100 100	1	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
MAJOR ACTIVITY OF FIRM	<input checked="" type="checkbox"/> MFG. <input type="checkbox"/> OFFICE <input type="checkbox"/> RETAIL OR WHLSE. STORE <input type="checkbox"/> SCHOOL OR CHURCH <input type="checkbox"/> HOTEL/MOTEL <input type="checkbox"/> HOSPITAL OR LAB <input type="checkbox"/> WAREHOUSE <input type="checkbox"/> RESIDENCE OR APTS. <input type="checkbox"/> OTHER (Specify)							
TYPES OF FUEL USED	FUEL	GRADES (x)	SULFUR CONTENT	ASH CONTENT	ANNUAL USAGE (Tons, Gals., or ft. ³)	MAXIMUM FIRING RATE PER UNIT (Lbs., Gals., ft. ³ /hr.) (BTU/hr.)	SEASONAL USE (Month Yr. to Month Yr.)	FUEL SUPPLIER (Name City or Town)
	COAL	Bituminous	%	%				
		Anthracite	%	%				
	OIL	Kerosene		%				
		2	✓	%		11,000 gal	11,000 gal	
		4		%				
5			%					
NAT. GAS			%					
OTHER			%					
FUEL USAGE BREAKDOWN	% OF FUEL USED FOR HEATING 70%		% OF FUEL USED FOR COOLING		% OF FUEL USED FOR POWER		% OF FUEL USED FOR PROCESS 10%	
BURNER EQUIPMENT	ARE OIL HEATERS USED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	OIL TEMPERATURE BEFORE INJECTION	BURNER MANUFACTURER	DATE OF BURNER INSTALLATION	BURNER MODEL NO.			
TYPE OF COAL BURNER	<input type="checkbox"/> HAND FIRED <input type="checkbox"/> UNDERFEED STOKER <input type="checkbox"/> TRAVELING GRATE <input type="checkbox"/> CHAIN GRATE <input type="checkbox"/> SPREADER STOKER <input type="checkbox"/> STOKER WITH GAS REINJECTION <input type="checkbox"/> CYCLONE FURNACE <input type="checkbox"/> PULVERIZED COAL							
TYPE OF OIL BURNER	<input type="checkbox"/> PRESSURE OR GUN <input type="checkbox"/> ROTARY CUP <input type="checkbox"/> STEAM ATOMIZER <input type="checkbox"/> AIR ATOMIZER <input type="checkbox"/> TANGENTIALLY FIRED <input type="checkbox"/> OTHER (Specify)							
COMBUSTION	OVERFIRE AIR CONTROL <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	TYPE OF DRAFT <input type="checkbox"/> FORCED <input type="checkbox"/> INDUCED <input checked="" type="checkbox"/> NATURAL	TYPE OF AIR FUEL RATIO CONTROL SYSTEM <input type="checkbox"/> HAND CONTROLLED <input checked="" type="checkbox"/> FULL AUTOMATIC					
EQUIPMENT INFORMATION	BREACHING GAS TEMPERATURE 110 °F	DATE EQUIPMENT WAS PUT IN SERVICE MONTH YEAR	15. STACK TEST RESULTS	TYPE OF POLLUTANT	DATE OF TEST	RATE OF EMISSIONS (Pounds Per Hour)	GROUP CONDUCTING TEST	
	EXHAUST GAS FLOW RATE (ACFM): NORMAL	MAXIMUM						
	STACK GAS VELOCITY IN FEET PER SECOND	EQUIPMENT OPERATING HOURS HOURS PER YEAR						
	FACILITY OPERATING HOURS HOURS/DAY DAYS/WEEK WEEKS/YEAR							
STACK INFORMATION	STACK EXIT DIRECTION <input type="checkbox"/> HORIZ. <input checked="" type="checkbox"/> VERT.	SIZE OF STACK EXIT		STACK HEIGHT (FEET)	IS STACK EQUIPPED WITH RAIN HAT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	TEMPERATURE AT STACK EXIT °F		
	SMOKE INDICATOR IN STACK <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	MAKE AND MODEL NO. OF SMOKE INDICATOR	RECTANGULAR STACK In. By In.		STACK LINING <input type="checkbox"/> METAL <input type="checkbox"/> REFRACTORY <input checked="" type="checkbox"/> OTHER (Specify)			
LOCATION	NAME OF NEAREST INTERSECTING STREET			DISTANCE TO STACK FROM INTERSECTION		DIRECTION FROM INTERSECTION (Circle one) TO STACK: N NE E SE S SW W NW		
CERTIFICATION	I certify that I have examined the above information and that to the best of my knowledge it is true and complete. (Signature subjects signer to provisions of the General Statutes regarding false and misleading statements).				SIGNED	TITLE	DATE	

APPLICANT

VISION OF ENVIRONMENTAL HEALTH, BUREAU OF AIR QUALITY CONTROL, 600 WASHINGTON STREET
ROOM 320 BOSTON, MASSACHUSETTS 02111 (617) 727-2658

111

LEGAL NAME		BUSINESS ADDRESS (NO. AND STREET, CITY, ZIP CODE)				PHONE								
FUEL USER		600 WASHINGTON ST. BOSTON MA 02111				727-2658								
EQUIPMENT REGISTERED		TYPE OF EQUIPMENT (e.g. Boiler, Space Heater)		BRAND NAME OF EQUIPMENT	MODEL NUMBER	NUMBER OF IDENTICAL UNITS ON THIS FORM	AIR POLLUTION CONTROL EQUIPMENT USED? (If Yes, File Form AP-4)							
APPLICANT		BOILER		D. D. DILLON		1	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO							
MAJOR ACTIVITY OF FIRM		<input checked="" type="checkbox"/> MFG. <input type="checkbox"/> OFFICE <input type="checkbox"/> RETAIL OR WHLSE. STORE		<input type="checkbox"/> SCHOOL OR CHURCH	<input type="checkbox"/> HOTEL/MOTEL	<input type="checkbox"/> HOSPITAL OR LAB	<input type="checkbox"/> WAREHOUSE <input type="checkbox"/> RESIDENCE OR APTS. <input type="checkbox"/> OTHER (Specify)							
TYPES OF FUEL USED	FUEL	GRADES (x)	SULFUR CONTENT	ASH CONTENT	ANNUAL USAGE (Tons, Gals., or ft. ³)	MAXIMUM FIRING RATE PER UNIT		SEASONAL USE		FUEL SUPPLIER				
	COAL	Bituminous	%	%		(Lbs., Gals., ft. ³ /hr.)	(BTU/hr.)	Month	Yr.	to	Month	Yr.	Name	City or Town
		Anthracite	%	%										
	OIL	Kerosene	%	%										
		2	%	%										
		4	%	%										
	5	%	%											
	6	%	%											
	NAT. GAS		%	%										
	OTHER		%	%										
FUEL USAGE BREAKDOWN	% OF FUEL USED FOR HEATING		% OF FUEL USED FOR COOLING		% OF FUEL USED FOR POWER		% OF FUEL USED FOR PROCESS							
	76%		%		%		%							
BURNER EQUIPMENT	ARE OIL HEATERS USED?		OIL TEMPERATURE BEFORE INJECTION		BURNER MANUFACTURER		DATE OF BURNER INSTALLATION		BURNER MODEL NO.					
	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		400 °F		DILLON		7/77		111-133					
TYPE OF COAL BURNER	<input type="checkbox"/> HAND FIRED	<input type="checkbox"/> UNDERFEED STOKER	<input type="checkbox"/> TRAVELING GRATE	<input type="checkbox"/> CHAIN GRATE	<input type="checkbox"/> SPREADER STOKER	<input type="checkbox"/> STOKER WITH GAS REINJECTION	<input type="checkbox"/> CYCLONE FURNACE	<input type="checkbox"/> PULVERIZED COAL						
TYPE OF OIL BURNER	<input type="checkbox"/> PRESSURE OR GUN		<input checked="" type="checkbox"/> ROTARY CUP		<input type="checkbox"/> STEAM ATOMIZER		<input type="checkbox"/> AIR ATOMIZER		<input type="checkbox"/> TANGENTIALLY FIRED		<input type="checkbox"/> OTHER (Specify)			
COMBUSTION	OVERFIRE AIR CONTROL		TYPE OF DRAFT		TYPE OF AIR FUEL RATIO CONTROL SYSTEM				<input type="checkbox"/> HAND CONTROLLED					
	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		<input type="checkbox"/> FORCED <input type="checkbox"/> INDUCED <input checked="" type="checkbox"/> NATURAL		<input type="checkbox"/> ON-OFF <input type="checkbox"/> LOW FIRE <input checked="" type="checkbox"/> HIGH-LOW FIRE				<input type="checkbox"/> FULL AUTOMATIC					
EQUIPMENT INFORMATION	BREACHING GAS TEMPERATURE		DATE EQUIPMENT WAS PUT IN SERVICE		15. STACK TEST RESULTS	TYPE OF POLLUTANT	DATE OF TEST	RATE OF EMISSIONS (Pounds Per Hour)		GROUP CONDUCTING TEST				
	775 °F		MONTH YEAR											
	EXHAUST GAS FLOW RATE (ACFM):		MAXIMUM EQUIPMENT OPERATING HOURS											
	NORMAL		HOURS PER YEAR											
STACK GAS VELOCITY IN FEET PER SECOND		FACILITY OPERATING HOURS												
HOURS/DAY		HOURS/DAY												
DAYS/WEEK		DAYS/WEEK												
WEEKS/YEAR		WEEKS/YEAR												
STACK INFORMATION	STACK EXIT DIRECTION		SIZE OF STACK EXIT		STACK HEIGHT (FEET)	IS STACK EQUIPPED WITH RAIN HAT?		TEMPERATURE AT STACK EXIT						
	<input type="checkbox"/> HORIZ. <input checked="" type="checkbox"/> VERT.		ROUND STACK Inside Diameter In. RECTANGULAR STACK In. By In.		76	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		°F						
STACK INFORMATION	SMOKE INDICATOR IN STACK		MAKE AND MODEL NO. OF SMOKE INDICATOR		STACK LINING									
	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO				<input type="checkbox"/> METAL <input type="checkbox"/> REFRACTORY <input type="checkbox"/> OTHER (Specify)									
STACK LOCATION	NAME OF NEAREST INTERSECTING STREET:				DISTANCE TO STACK FROM INTERSECTION:		DIRECTION FROM INTERSECTION TO STACK: (Circle one) N NE E SE S SW W NW							
	WASHINGTON ST.				100 FT		N							
CERTIFICATION	I certify that I have examined the above information and that to the best of my knowledge it is true and complete. (Signature subjects signer to provisions of the General Statutes regarding false and misleading statements).				SIGNED		TITLE		DATE					

APPLICANT

AF-1
 DIVISION OF ENVIRONMENTAL HEALTH, BUREAU OF AIR QUALITY CONTROL, 600 WASHINGTON STREET
 ROOM 320 BOSTON, MASSACHUSETTS 02111 (617) 727-2658

LEGAL NAME				BUSINESS ADDRESS (NO. AND STREET, CITY, ZIP CODE)				PHONE					
TYPE OF EQUIPMENT (e.g. Boiler, Space Heater)				BRAND NAME OF EQUIPMENT		MODEL NUMBER		NUMBER OF IDENTICAL UNITS ON THIS FORM		AIR POLLUTION CONTROL EQUIPMENT USED? (If Yes, File Form AP-4) <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO			
<input checked="" type="checkbox"/> MFG. <input type="checkbox"/> OFFICE <input type="checkbox"/> RETAIL OR WHLSE. STORE <input type="checkbox"/> SCHOOL OR CHURCH <input type="checkbox"/> HOTEL/MOTEL <input type="checkbox"/> HOSPITAL OR LAB <input type="checkbox"/> WAREHOUSE <input type="checkbox"/> RESIDENCE OR APTS. <input type="checkbox"/> OTHER (Specify)													
FUEL	GRADES (x)	SULFUR CONTENT	ASH CONTENT	ANNUAL USAGE (Tons, Gals., or ft. ³)	MAXIMUM FIRING RATE PER UNIT		SEASONAL USE				FUEL SUPPLIER		
					(Lbs., Gals., ft. ³ /hr.)	(BTU/hr.)	Month	Yr.	to	Month	Yr.	Name	City or Town
COAL <input type="checkbox"/>	Bituminous Anthracite	% %	% %										
OIL <input checked="" type="checkbox"/>	Kerosene	%											
	2	3.30%		32,000 gal/yr								Williston	VT
	4	%											
	5	%											
NAT. GAS <input type="checkbox"/>		%	%										
OTHER <input type="checkbox"/>		%	%										
% OF FUEL USED FOR HEATING			% OF FUEL USED FOR COOLING			% OF FUEL USED FOR POWER			% OF FUEL USED FOR PROCESS				
ARE OIL HEATERS USED? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		OIL TEMPERATURE BEFORE INJECTION °F		BURNER MANUFACTURER		DATE OF BURNER INSTALLATION		BURNER MODEL NO.					
HAND FIRED <input type="checkbox"/> UNDERFEED STOKER <input type="checkbox"/>		TRAVELING GRATE <input type="checkbox"/> CHAIN GRATE <input type="checkbox"/>		SPREADER STOKER <input type="checkbox"/> STOKER WITH GAS REINJECTION <input type="checkbox"/>		CYCLONE FURNACE <input type="checkbox"/> PULVERIZED COAL <input type="checkbox"/>							
PRESSURE OR GUN <input checked="" type="checkbox"/> ROTARY CUP <input type="checkbox"/>		STEAM ATOMIZER <input type="checkbox"/> AIR ATOMIZER <input type="checkbox"/>		TANGENTIALLY FIRED <input type="checkbox"/> OTHER (Specify) <input type="checkbox"/>									
OVERFIRE AIR CONTROL <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		TYPE OF DRAFT <input type="checkbox"/> FORCED <input type="checkbox"/> INDUCED <input checked="" type="checkbox"/> NATURAL		TYPE OF AIR FUEL RATIO CONTROL SYSTEM <input type="checkbox"/> ON-OFF <input type="checkbox"/> LOW FIRE <input type="checkbox"/> HIGH-LOW FIRE <input type="checkbox"/> FULL AUTOMATIC									
BREACHING GAS TEMPERATURE °F		DATE EQUIPMENT WAS PUT IN SERVICE MONTH YEAR		15. STACK TEST RESULTS		TYPE OF POLLUTANT	DATE OF TEST	RATE OF EMISSIONS (Pounds Per Hour)		GROUP CONDUCTING TEST			
EXHAUST GAS FLOW RATE (ACFM): NORMAL		MAXIMUM EQUIPMENT OPERATING HOURS HOURS PER YEAR											
STACK GAS VELOCITY IN FEET PER SECOND		EQUIPMENT OPERATING HOURS HOURS PER YEAR											
FACILITY OPERATING HOURS HOURS/DAY DAYS/WEEK WEEKS/YEAR													
STACK EXIT DIRECTION <input type="checkbox"/> HORIZ. <input type="checkbox"/> VERT.		SIZE OF STACK EXIT ROUND STACK Inside Diameter In. RECTANGULAR STACK In. By In.		STACK HEIGHT (FEET)		IS STACK EQUIPPED WITH RAIN HAT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		TEMPERATURE AT STACK EXIT °F					
SMOKE INDICATOR IN STACK <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		MAKE AND MODEL NO. OF SMOKE INDICATOR		STACK LINING <input type="checkbox"/> METAL <input type="checkbox"/> REFRACTORY <input type="checkbox"/> OTHER (Specify)									
NAME OF NEAREST INTERSECTING STREET:				DISTANCE TO STACK FROM INTERSECTION:				DIRECTION FROM INTERSECTION TO STACK: (Circle one) N NE E SE S SW W NW					
I certify that I have examined the above information and that to the best of my knowledge it is true and complete. (Signature subjects signer to provisions of the General Statutes regarding false and misleading statements).				SIGNED				TITLE		DATE			

APPLICANT



DAVID STANDLEY
Commissioner
727-5194

The Commonwealth of Massachusetts

Department of Environmental Quality Engineering

Metropolitan Boston - Northeast Region

600 Washington Street, Boston, Ma. 02111

January 1978

Mailed April 18, 1978

Gentlemen:

The Division of Air and Hazardous Materials must develop regulations limiting the quantities of volatile organic compounds emitted from sources in the Commonwealth in order to achieve compliance with applicable ambient air standards.

It is the Division's desire to develop regulations that will provide for the necessary reduction in volatile organic compound emissions without imposing undue economic hardship on the industries in the Commonwealth utilizing these compounds. Toward this end, the Metropolitan Boston Region must update its inventory of commercial and industrial facilities within the Region to determine the types and quantities of volatile organic compounds presently being utilized.

The Region has determined that the nature of operations at your facility involves the use of volatile organic compounds. Your cooperation is requested in completing all applicable parts of the enclosed questionnaire. This is a requirement of the Department's Regulation 12, Registration, Record Keeping and Reporting, of the "Regulations for the Control of Air Pollution in the Metropolitan Boston Air Pollution Control District".

You are requested to complete and return the form within thirty (30) days. If you have any questions or need assistance, please do not hesitate to call, telephone number 727-4609.

Thank you in advance for your cooperation.

Very truly yours,

John A. Desmond

John A. Desmond
Chief

Air Quality Control Section

C- MBAPCD
C- R.E.E.

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF AIR AND HAZARDOUS MATERIALS

FORM FOR THE REGISTRATION OF HYDROCARBON EMISSIONS

Please complete and return this form to the Metropolitan Boston Air Quality Control Region, Room 320, 600 Washington Street, Boston, MA. 02111. Should you have any questions, call 727-4609, 5195

Company Name EMERSON & CUMING INC.

Plant Address 869 WASHINGTON ST, CANTON, MASS. 02021

Mailing Address " " "

Contact JOHN HAGEN title SAFETY DIRECTOR

Telephone Number 828-3300

Approximate number of employees at this plant address 85

Normal Operating Schedule of this facility 8 hr/day 5 days/wk 52 wk/yr

Indicate the percentage of annual production produced per quarter:

First 25 Second 25 Third 25 Fourth 25

How many gallons of material containing volatile hydrocarbons such as cleaning fluids, coatings, adhesives, inks, or solvents are purchased by this facility annually? 6000+ GAL ASSORTED SOLVENTS

Supplier Address of Supplier Type of Materials

AXTON CROSS - CROSS ST. ABLISTON, MASS. - METHYLENE CHLORIDE

DOE & INGALLS - 25 COMMERCIAL ST. MEDFORD, MASS. - TOLUENE

NEW ENGLAND CHEMICAL - P.O. BOX 38, MERRIMACK, NH. 03001 TRICHLOROETHANE

CERTIFICATION to be signed by responsible corporate official: I certify that I have examined the information on this form and that to the best of my knowledge, it is true and complete.

Signed J. Hagen Title Safety Director Date 3/28/78

INSTRUCTIONS

Everyone receiving this form should complete the first page and only those other sections pertaining to their company.

The information submitted should pertain to calendar year 1977 operations.

If the space provided is not adequate, feel free to either copy the form, use a separate sheet or request an additional copy.

Information contained in the Division's files is available to the general public upon request under the provisions of the Freedom of Information Act. Contact the Division (727-4609) immediately if you feel that completion of information requested would compromise proprietary data.

Supply a schematic of your facility indicating the location of all stacks and vents that emit volatile organic compounds.

Please supply as much information as possible to enable accurate calculations to be made and an accurate survey to be conducted.

Please also indicate if you have substituted compounds or installed control equipment in order to comply with the provisions of existing regulations.

STACK INFORMATION AND HYDROCARBON CONTROL INFORMATION

Complete the table below for all stacks which exhaust volatile organic compounds and for all hydrocarbon collection equipment. Number the sources to agree with data submitted on the following pages of this form.

Stack data need not be submitted for stacks which do not emit hydrocarbons.

Source No.	Process or Operation	Type of Process Equipment	No. of Units	Hydrocarbon Control Equipment		Stack Information				
				Type of Control Device	Estimated Control Efficiency	Exit Height above Ground (feet)	Inside Dia. (ft.)	Temp (°F)	Exhaust flowrate (CFM)	Stack Exit Velocity (ft./s)
1	PRODUCT FORMULATION	MIXERS	8	EXHAUST SYSTEM	90%	60	10"	AMB.	UNKNOWN	UNKNOWN
2	CLEAN PIPING		3	EXHAUST SYSTEM	90%	8	N/A	AMB.	UNKNOWN	UNKNOWN
3	R&D		N/A	EXHAUST SYSTEM	90%	8	N/A	VARIOUS	"	"
4	FORMULATION MOLDING	MIXERS/MOLDS	3	EXHAUST SYSTEM	90%	20	6"	AMB.	"	"
5	FORMULATION	" / "	5	EXHAUST SYSTEM	90%	18	N/A	AMB.	"	"
6	FORMULATION SMALL AMTS	MIXERS	5	EXHAUST SYSTEM	90%	18	8"	AMB.	"	"
7	PAINT SPRAY	SPRAY	1	BOOTH EXHAUST SYSTEM	90%	12	N/A	AMB.	"	"
8	FORMULATION PACKAGING	MIXER	1	EXHAUST SYSTEM	90%	15	N/A	AMB.	"	"
9	FORMULATION	MIXERS	6	EXHAUST SYSTEM	90%	50	N/A	AMB.	"	"

COLUMN HEADED. TYPE OF CONTROL DEVICE; ENTRY INDICATES ONLY THAT HYDROCARBON VAPORS ARE EXHAUSTED TO ATMOSPHERE.

SURFACE COATING

Temperature at Which coating is applied or cured	Type of Solvent in Undiluted Coating	Wt. Solvent in Undiluted Coating	Type of Solvent added to Coating	Amount of Solvent added per year, pounds or gallons

How much, if any, solvent is shipped out for recovery or disposal? 500 gal/yr.

What type(s) of cleaning solvent is(are) used? METHYLENE CHLORIDE / 1,1,1 TRICHLOROETHANE

How much cleaning solvent is used per year? 1000 GAL.

CLEANING, DEGREASING AND/OR DRYCLEANING

Complete this page for operations such as cold solvent cleaning, hot solvent cleaning and vapor degreasing. Stoddard solvent, 1,1, 1 trichloroethane, perchloroethylene, methylene chloride and trichloroethylene are examples of solvents that must be reported.

Source Number	Operation	Type of Material Treated	Pounds of Material Treated Annually	Type of Solvent Used	Gallons Used Annually
2	RESIN SYSTEM PIPING CLEANING	RESIN SYSTEM TRANSFER PIPING	N/A	METHYLENE CHLORIDE	200
3/6	CLEANING / DEGREASING	PARTS CLEANING	10,000	1,1,1 TRICHLOROETHANE	55 GAL

Temperature of Solvent in Use. OF.	Type of Emission Control Device	Estimated Control Efficiency	Waste Solvent Disposal Method	Gallons of Solvent Disposed of Annually
AMB.	EXHAUST SYSTEM	90%	LICENSED DISPOSAL	200
AMB	" "	90%	" "	50

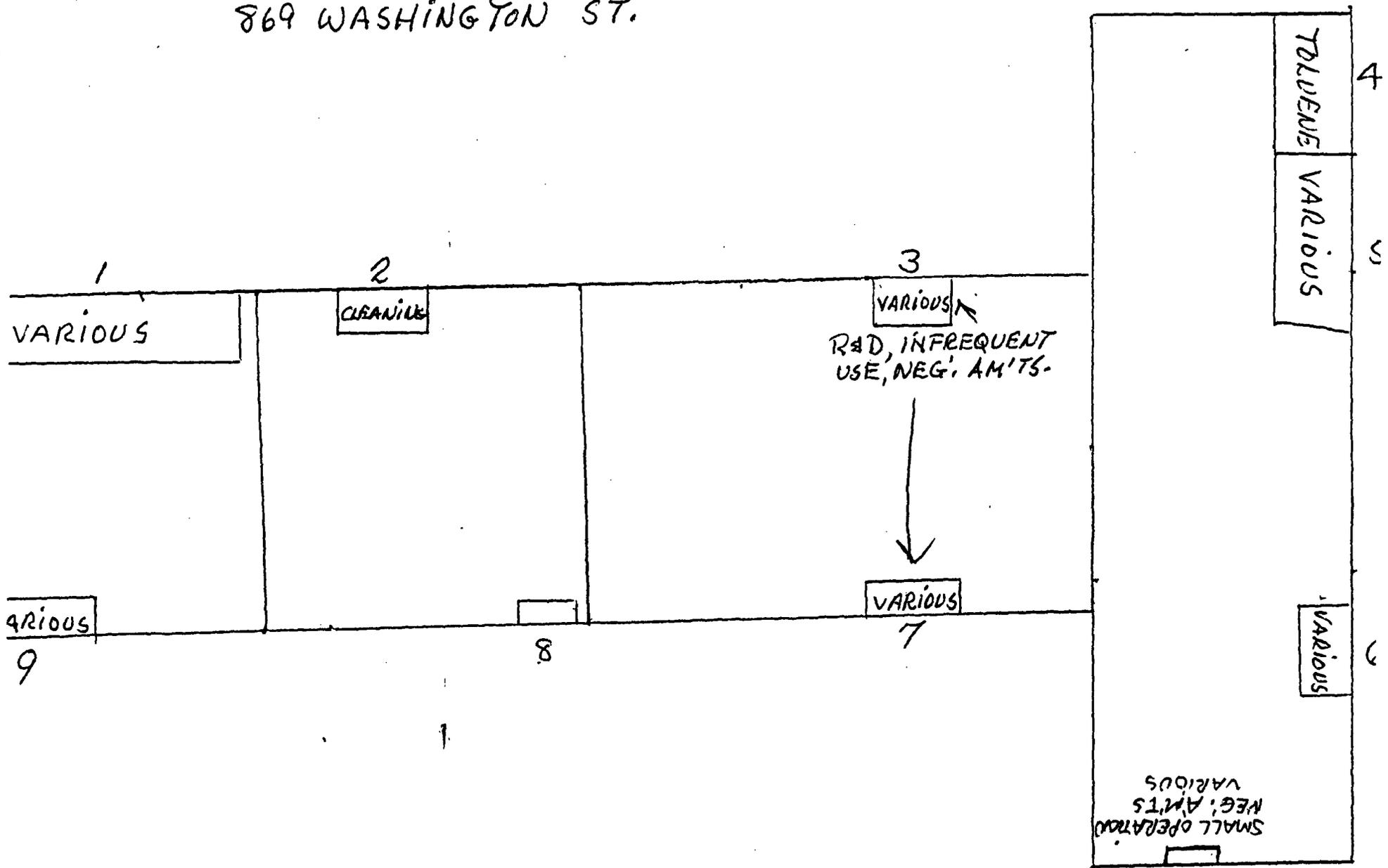
MANUFACTURING

Complete the sheet for all operations which utilize hydrocarbons as a raw material or which produce an end product containing hydrocarbons.

Brief Description of Process ALL ARE VARIOUS COMBINATIONS OF FORMULATION/MIXING/MOLDING AND/OR PACKAGING

Source No.	Process or operation using hydrocarbons	Type of Material Processed	Annual Process Throughput	Type & Weight of Volatile hydrocarbons in processed material	Quantity of Volatile Hydrocarbons lost to Atmosphere during processing lb/yr.	Method Used to determine Emission (est. or direct)
1	FORMULATION, MIXING PLASTICS	RESINS PLASTICS	750,000 LBS	32,000 lbs	6%0	EST
3	R&D	PLASTICS	NEGLIGIBLE	—	—	—
4	FORMULATION, MIXING/MOLDING	PLASTIC FOAMS				
5	FORMULATION, MIXING/MOLDING	RESIN SYSTEMS	INCLUDED IN SOURCE NO. 1 ABOVE	INCLUDED IN SOURCE NO. 1 ABOVE	INCLUDED IN SOURCE NO. 1 ABOVE	EST
6	FORMULATION MIXING	RESIN SYSTEMS	NEGLIGIBLE			
7	SPRAY	MICROWAVE ABSORBERS	NEGLIGIBLE	PRIMARY R&D		
8	FORMULATION, MIXING, PACKAGING	RESIN SYSTEMS	SMALL AMOUNTS	INCLUDED AS PART OF NO. 1 ABOVE	INCLUDED AS PART OF 6%0 LOSS	
9	FORMULATION MIXING	RESIN SYSTEMS	INCLUDED IN SOURCE NO. 1 ABOVE	INCLUDED IN SOURCE NO. 1 ABOVE	INCLUDED IN SOURCE NO. 1 ABOVE	EST

869 WASHINGTON ST.



US EPA ARCHIVE DOCUMENT

LEGAL NAME: **ERLSON & CUMING, INC.**
 BUSINESS ADDRESS (NO. AND STREET, CITY, ZIP CODE): **59 WALPOLE ST, CANTON, 02021**
 PHONE: **628-3300**

MAJOR ACTIVITY OF FIRM:
 MFG.
 OFFICE
 RETAIL OR WHLSE. STORE
 SCHOOL OR CHURCH
 HOTEL/MOTEL
 HOSPITAL OR LAB
 WAREHOUSE
 RESIDENCE OR APTS.
 OTHER (Specify)

FUEL	GRADES (x)	SULFUR CONTENT	ASH CONTENT	ANNUAL USAGE (Tons, Gals., or ft. ³)	MAXIMUM FIRING RATE PER UNIT		SEASONAL USE				FUEL SUPPLIER		
					(Lbs., Gals., ft. ³ /hr.)	(BTU/hr.)	Month	Yr.	to	Month	Yr.	Name	City or Town
COAL <input type="checkbox"/>	Bituminous	%	%										
	Anthracite	%	%										
OIL <input type="checkbox"/>	Kerosene	%											
	2	%											
	4	%											
	5	%											
	6	1.0		226,380 GAL.								WHITE FUEL	BOSTON
NAT. GAS <input type="checkbox"/>		%	%										
OTHER <input type="checkbox"/>		%	%										

FUEL USAGE BREAKDOWN:
 % OF FUEL USED FOR HEATING: _____
 % OF FUEL USED FOR COOLING: _____
 % OF FUEL USED FOR POWER: _____
 % OF FUEL USED FOR PROCESS: _____

BURNER EQUIPMENT:
 ARE OIL HEATERS USED? YES NO
 OIL TEMPERATURE BEFORE INJECTION: _____ °F
 BURNER MANUFACTURER: _____
 DATE OF BURNER INSTALLATION: _____
 BURNER MODEL NO.: _____

TYPE OF COAL BURNER:
 HAND FIRED
 UNDERFEED STOKER
 TRAVELING GRATE
 CHAIN GRATE
 SPREADER STOKER
 STOKER WITH GAS REINJECTION
 CYCLONE FURNACE
 PULVERIZED COAL

TYPE OF OIL BURNER:
 PRESSURE OR GUN
 ROTARY CUP
 STEAM ATOMIZER
 AIR ATOMIZER
 TANGENTIALLY FIRED
 OTHER (Specify)

COMBUSTION:
 OVERFIRE AIR CONTROL: YES NO
 TYPE OF DRAFT: FORCED INDUCED NATURAL
 TYPE OF AIR FUEL RATIO CONTROL SYSTEM:
 ON-OFF
 LOW FIRE
 HIGH-LOW FIRE
 HAND CONTROLLED
 FULL AUTOMATIC

EQUIPMENT INFORMATION	BREACHING GAS TEMPERATURE °F	DATE EQUIPMENT WAS PUT IN SERVICE MONTH YEAR	EXHAUST GAS FLOW RATE (ACFM) NORMAL	MAXIMUM	15. STACK TEST RESULTS	TYPE OF POLLUTANT	DATE OF TEST	RATE OF EMISSIONS (Pounds Per Hour)	GROUP CONDUCTING TEST

STACK INFORMATION:
 STACK EXIT DIRECTION: HORIZ. VERT.
 SIZE OF STACK EXIT:
 ROUND STACK (In. Diameter) _____
 RECTANGULAR STACK (In. By In.) _____
 STACK HEIGHT (FEET) _____
 IS STACK EQUIPPED WITH RAIN HAT? YES NO
 TEMPERATURE AT STACK EXIT: _____ °F
 SMOKE INDICATOR IN STACK: YES NO
 MAKE AND MODEL NO. OF SMOKE INDICATOR: _____
 STACK LINING: METAL REFRACTORY OTHER (Specify)

STACK LOCATION:
 NAME OF NEAREST INTERSECTING STREET: **WALPOLE ST.**
 DISTANCE TO STACK FROM INTERSECTION: **160 FT.**
 DIRECTION FROM INTERSECTION TO STACK: (Circle one) **N N E E S S W W**

CERTIFICATION:
 I certify that I have examined the above information and that to the best of my knowledge it is true and complete. (Signature subject's signer to provisions of the General Statutes regarding false and misleading statements)
 SIGNED: _____
 TITLE: _____
 DATE: _____

APPLICANT

FORM AP-1 DEPARTMENT OF PUBLIC HEALTH
 DIVISION OF ENVIRONMENTAL HEALTH, BUREAU OF AIR QUALITY CONTROL, 600 WASHINGTON STREET, ROOM 320 BOSTON, MASSACHUSETTS 02111 (617) 727-2658

1. APPLICATION NO. 0111
 2. STACK NO.

LEGAL NAME: EMERSON & COMPANY, INC.
 BUSINESS ADDRESS (NO. AND STREET, CITY, ZIP CODE): 869 WASHINGTON ST, CANTON, 02021
 PHONE:

EQUIPMENT REGISTERED: TYPE OF EQUIPMENT (e.g. Boiler, Space Heater): BOILER
 BRAND NAME OF EQUIPMENT: _____
 MODEL NUMBER: _____
 NUMBER OF IDENTICAL UNITS ON THIS FORM: 1
 AIR POLLUTION CONTROL EQUIPMENT USED? (If Yes, File Form AP-4)
 YES NO

MAJOR ACTIVITY OF FIRM: MFG. OFFICE RETAIL OR WHLSE. STORE SCHOOL OR CHURCH HOTEL/MOTEL HOSPITAL OR LAB WAREHOUSE RESIDENCE OR APTS. OTHER (Specify)

TYPES OF FUEL USED	FUEL	GRADES (x)	SULFUR CONTENT %	ASH CONTENT %	ANNUAL USAGE (Tons, Gals., or ft. ³)	MAXIMUM FIRING RATE PER UNIT		SEASONAL USE		FUEL SUPPLIER	
						(Lbs., Gals., ft. ³ /hr.)	(BTU/hr.)	Month Yr. to	Month Yr.	Name	City or Town
COAL	<input type="checkbox"/>	Bituminous	%	%							
		Anthracite	%	%							
OIL	<input checked="" type="checkbox"/>	Kerosene	%	%							
		2	X 0.3 %	%	48352 gal.	14 gal/hr					WHITE FUEL
		4	%	%							
		5	%	%							
		6	%	%							
NAT. GAS	<input type="checkbox"/>		%	%							
OTHER	<input type="checkbox"/>		%	%							

FUEL USAGE BREAKDOWN: % OF FUEL USED FOR HEATING: 90 %
 % OF FUEL USED FOR COOLING: _____ %
 % OF FUEL USED FOR POWER: _____ %
 % OF FUEL USED FOR PROCESS: _____ %

BURNER EQUIPMENT: ARE OIL HEATERS USED? YES NO
 OIL TEMPERATURE BEFORE INJECTION: _____ °F
 BURNER MANUFACTURER: _____
 DATE OF BURNER INSTALLATION: _____
 BURNER MODEL NO.: _____

TYPE OF COAL BURNER: HAND FIRED UNDERFEED STOKER TRAVELING GRATE CHAIN GRATE SPREADER STOKER STOKER WITH GAS REINJECTION CYCLONE FURNACE PULVERIZED COAL

TYPE OF OIL BURNER: PRESSURE OR GUN ROTARY CUP STEAM ATOMIZER AIR ATOMIZER TANGENTIALLY FIRED OTHER (Specify)

COMBUSTION: OVERFIRE AIR CONTROL YES NO
 TYPE OF DRAFT: FORCED INDUCED NATURAL
 TYPE OF AIR FUEL RATIO CONTROL SYSTEM: HAND CONTROLLED ON-OFF LOW FIRE HIGH-LOW FIRE FULL AUTOMATIC

EQUIPMENT INFORMATION	BREACHING GAS TEMPERATURE °F	DATE EQUIPMENT WAS PUT IN SERVICE MONTH YEAR	EXHAUST GAS FLOW RATE (ACFM): NORMAL	MAXIMUM	FACILITY OPERATING HOURS HOURS/DAY DAYS/WEEK WEEKS/YEAR	15' STACK TEST RESULTS	TYPE OF POLLUTANT	DATE OF TEST	RATE OF EMISSIONS (Pounds Per Hour)	GROUP CONDUCTING TEST

STACK INFORMATION: STACK EXIT DIRECTION: HORIZ. VERT.
 SIZE OF STACK EXIT: ROUND STACK (Inside Diameter) _____ In. RECTANGULAR STACK (In. By In.) _____
 STACK HEIGHT (FEET): _____
 IS STACK EQUIPPED WITH RAIN HAT? YES NO
 TEMPERATURE AT STACK EXIT: _____ °F
 SMOKE INDICATOR IN STACK: YES NO
 MAKE AND MODEL NO. OF SMOKE INDICATOR: _____
 STACK LINING: METAL REFRACTORY OTHER (Specify)

STACK LOCATION: NAME OF NEAREST INTERSECTING STREET: WASHINGTON ST.
 DISTANCE TO STACK FROM INTERSECTION: 390 FT.
 DIRECTION FROM INTERSECTION TO STACK: (Circle one) N NE E SE S SW W NW

CERTIFICATION: I certify that I have examined the above information and that to the best of my knowledge it is true and complete. (Signature subject's signer to provisions of the General Statutes regarding false and misleading statements).
 SIGNED: _____ TITLE: _____ DATE: _____

APPLICANT

DATE RECEIVED	APPLICATION NUMBER	COORDINATES
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APPLICATION FOR REGISTRATION OF AIR CONTAMINATION SOURCES
INFORMATION REQUESTED FOR CALENDAR YEAR 1975

- AP-2 A. Process/Manufacturing Equipment
- B. Process Fuel Burning Equipment

OFFICIAL USE ONLY

DATE INSPECTED	INSPECTOR	DATE ACCEPTED	DATE REJECTED	ACKNOWLEDGED
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A. PROCESS/MANUFACTURING EQUIPMENT
(see instructions, page 2 and 3)

APPLICATION
NUMBER

PART 1. EQUIPMENT DATA

Major Steps Involved in Process	Type Equipment Used	LOCATION OF EQUIPMENT			RAW MATERIALS			FINISHED MATERIALS		
		Plant	Bldg	Floor	Type	Max/ Hour	Total/ Year	Type	Max/ DAY ¹	Total/ Year
1. Dry Ceramic Microspheres	Rotary Ovens (3)	2		Basement	Fly Ash	ea. 250 lb	ea. oven 250,000#	Ceramic Microspheres	3000 lbs	750,000#
2.										
3.										

PART 2. OPERATING SCHEDULE **PART 3. STACK/VENT DATA**

Hrs. per day	Days per week	Wks. per yr.	Months in Operation	Stack No.	Stack exit direction (horiz-vert)	Inside di- ameter at top (ft)	Height above ground (ft.)	Gas Temp. (°F)	Quantity Gaseous Discharge (acfm)	Exit Velo- city (ft/sec)	Does Stack have rain cap?
14 ea.	5	50	12	1, 2, & 3	Vert	14"	1 & 3-40' 2-30'	NA	NA		Yes
2.					Stacks	1, 2, & 3	for steam escape				
3.											

PART 4. PROCESS EMISSIONS

PART 5. EMISSION CONTROL SYSTEM, IF APPLICABLE

Stack Number	Type of Contaminant (s) Emitted	Amount Emitted Ton/yr.	Type	Manufacturer	Percent Efficiency	Date of Installation
1.	Fly Ash Dust		Dust Collector	Deltair	98%	2/1978
2.						
3.						

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete. SIGNED: _____ TITLE: _____ DATE: _____

B. PROCESS FUEL BURNING EQUIPMENT
(see instructions, page 5)

PART 1. EQUIPMENT DATA:

Type Equipment Used	LOCATION OF EQUIPMENT			Size of Unit (Indicate Btu/hour or hsp)	BURNER Type (s) (rot. cup, gun, etc)	FUEL DATA		
	Plant	Bldg	Floor			Type Fuel	Amt/yr. (barrels, gals, tons, cu.ft.)	Maximum Hourly Fuel Rate:
Rotary Drying Oven	2		Basement	180,000 BTU/hr	Continuous Line	Naturel Gas	174,000 cu.ft	175 cu ft.
2. "	2		"	"	"	"	"	"
3. "	2		"	"	"	"	"	"
4.								

PART 2. OPERATING SCHEDULE:

PART 3. STACK/VENT DATA:

Hrs. per day	Days per week	Wks per yr.	Months in Operation	Stack No.	Stack Exit Direction (horiz-vert)	Inside Di- ameter at top (ft)	Height above ground (ft)	Exit gas Temp. (°F)	Quantity gaseous discharge (acfu)	Exit velo- city (ft/ sec)	Does stack have rain cap?
1. 4	5	50	24	1	Vert.	14"	40'				Yes
2. 4	5	50	24	2	"	14"	30'				"
3. 4	5	50	1	3	"	14"	40"		STEAM ESCAPE		"
4.											

PART 4. PROVIDE A ROOF PLAN SHOWING LOCATION OF STACK(S) AND VENT(S).

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete.

SIGNED _____ TITLE _____ DATE _____

DATE RECEIVED	APPLICATION NUMBER	COORDINATES
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APPLICATION FOR REGISTRATION OF AIR CONTAMINATION SOURCES
INFORMATION REQUESTED FOR CALENDAR YEAR 1975

AP-5 LIQUID ORGANIC MATERIAL STORAGE

OFFICIAL USE ONLY

DATE INSPECTED	INSPECTOR	DATE ACCEPTED	DATE REJECTED	ACKNOWLEDGE
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LIQUID ORGANIC MATERIAL STORAGE
(see instructions, page 2)

APPLICATION NUMBER

PART 1. MATERIAL STORAGE DATA

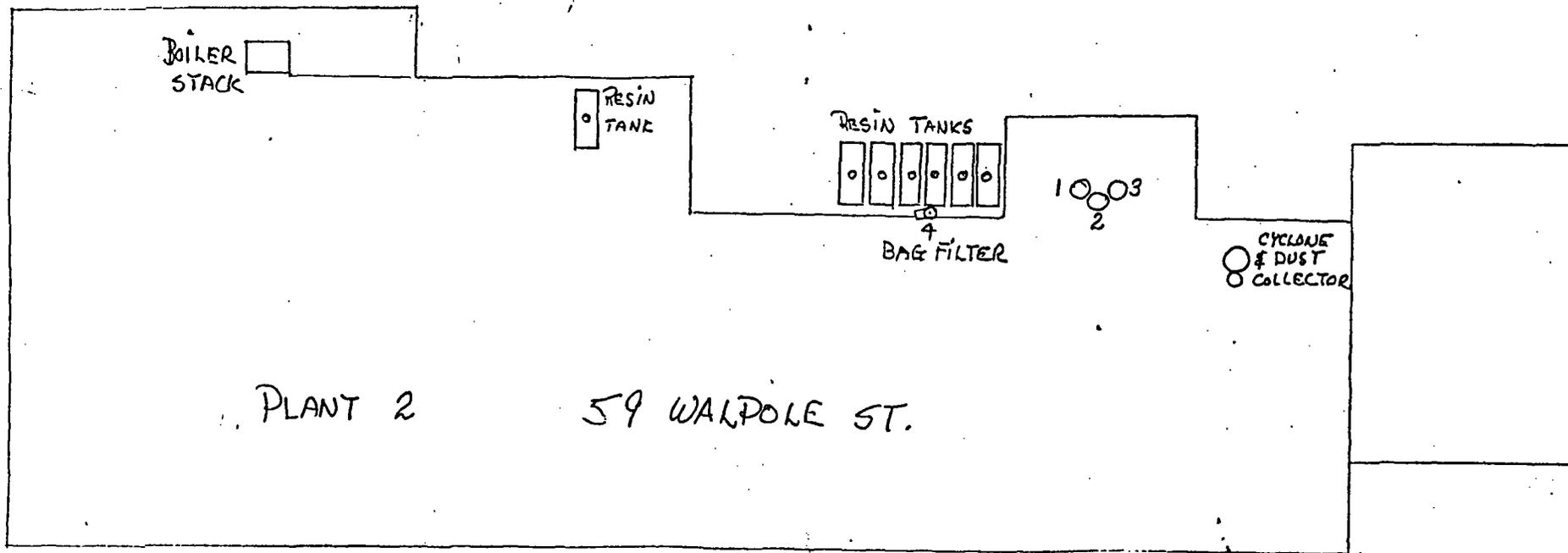
MATERIAL BEING STORED	Annual Thruput (gals)	TYPE OF STORAGE CONTAINER (tank, drum, etc.)	Size of Container (gals)	Number of Identical Containers	Location of Container (Inside or outside of bldg)
1. Resin 828	35,000	Tank	4000	7	6 outside 1 inside
2. Resin (Epoxite 8)	7,000	Drum	55	128	Outside
3.					
4.					

PART 2. STACK/VENT DATA

TYPE OF COVER ON CONTAINERS (none, floating roof, closed with vent to atmosphere, closed with vapor recovery system, other (specify))	STACK DATA: If container is served by a vent or if storage area is served by an area ventilation system, answer these items:				
	Vent Exit Direction (horizontal-vertical)	Does vent have rain cap?	Height above ground (ft)	Quantity of Gaseous Discharge	EMISSION RATE
1. Closed Vented	Vertical	yes	8'	Unknown	Unknown
2.					
3.					
4.					

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete.

SIGNED: _____ TITLE: _____ DATE: _____



DATE RECEIVED	APPLICATION NUMBER	COORDINATES
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APPLICATION FOR REGISTRATION OF AIR CONTAMINATION SOURCES
 INFORMATION REQUESTED FOR CALENDAR YEAR 1975

AP-5 LIQUID ORGANIC MATERIAL STORAGE

OFFICIAL USE ONLY

DATE INSPECTED	INSPECTOR	DATE ACCEPTED	DATE REJECTED	ACKNOWLEDGE
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LIQUID ORGANIC MATERIAL STORAGE
(see instructions, page 2)

APPLICATION NUMBER

PART 1. MATERIAL STORAGE DATA

MATERIAL BEING STORED	Annual Thruput (gals)	TYPE OF STORAGE CONTAINER (tank, drum, etc.)	Size of Container (gals)	Number of Identical Containers	Location of Container (Inside or outside of bldg)
1. Resin 828	20,000	Tank	4000	4	Inside
2.					
3.					
4.					

PART 2. STACK/VENT DATA

TYPE OF COVER ON CONTAINERS (none, floating roof, closed with vent to atmosphere, closed with vapor recovery system, other (specify)

STACK DATA: If container is served by a vent or if storage area is served by an area ventilation system, answer these items:

TYPE OF COVER ON CONTAINERS (none, floating roof, closed with vent to atmosphere, closed with vapor recovery system, other (specify)	Vent Exit Direction (horizontal-vertical)	Does vent have rain cap?	Height above ground (ft)	Quantity of Gaseous Discharge	EMISSION RATE
1. Vented	Horizontal	NA	10	Unknown	Inknown
2.					
3.					
4.					

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete.

SIGNED: _____ TITLE: _____ DATE: _____

DATE RECEIVED	APPLICATION NUMBER	COORDINATES
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APPLICATION FOR REGISTRATION OF AIR CONTAMINATION SOURCES
 INFORMATION REQUESTED FOR CALENDAR YEAR 1975

- AP-2 A. Process/Manufacturing Equipment
 I. Process Fuel Burning Equipment

OFFICIAL USE ONLY

DATE INSPECTED	INSPECTOR	DATE ACCEPTED	DATE REJECTED	ACKNOWLEDGED
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A. PROCESS/MANUFACTURING EQUIPMENT
(see instructions, page 2 and 3)

APPLICATION
NUMBER

PART 1. EQUIPMENT DATA

Major Steps Involved in Process	Type Equipment Used	LOCATION OF EQUIPMENT			RAW MATERIALS			FINISHED MATERIALS		
		Plant	Bldg	Floor	Type	Max/ Hour	Total/ Year	Type	Max/ Hour	Total/ Year
1. Drying Microballoons	Oven	1	1	Basement	Glass Balloons			Micro Balloons	60 lbs	100,00
2. Mfg. Feed Stock	Spray Dried	1	5	1	Sodium silicate boric acid, water, urea	60 gal	3000 gal	Feed stock	185 lbs	75,00
3. Mfg. Glass Balloons	Ballooning furnace	1	5	1&2 c	Feed Stock			Micro Balloons		350,000

PART 2. OPERATING SCHEDULE **PART 3. STACK/VENT DATA**

Hrs. per day	Days per week	Wks. per yr.	Months in Operation	Stack No.	Stack exit direction (horiz-vert)	Inside di- ameter at top (ft)	Height above ground (ft.)	Gas Temp. (°F)	Quantity Gaseous Discharge (acfm)	Exit Velo- city (ft/sec)	Does Stack have rain cap?
1. 8	3	52	12	10	Horiz.	6"x6"	10'	450°			NA
2. 8	1	52	12		SEE PART 4 BELOW - ITEM 2						
3. 8	5&3	52	12		"	"	"	"			

PART 4. PROCESS EMISSIONS

PART 5. EMISSION CONTROL SYSTEM, IF APPLICABLE

Stack Number	Type of Contaminant (s) Emitted	Amount Emitted Ton/yr.	Type	Manufacturer	Percent Efficiency	Date of Installation
1. 10	Flue Gas					
2. NA	Particulates (Glass)	less than 0.1 lbs/hr	Baghouse(2)	Torit Div. Donaldson Co.	99.9%	1974
3. NA	"	"	" (3)	"	99.9%	1975

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete. SIGNED: _____ TITLE: _____ DATE: _____

B. PROCESS FUEL BURNING EQUIPMENT
(see instructions, page 5)

PART 1. EQUIPMENT DATA:

Type Equipment Used	LOCATION OF EQUIPMENT			Size of Unit (Indicate Btu/hour or hsp)	BURNER Type (s) (rot. cup, gun, etc)	FUEL DATA		
	Plant	Bldg	Floor			Type Fuel	Amt/yr. (barrels, gals, tons, cu.ft.)	Maximum Hourly Fuel Rate
1. Drying Oven	1	1	Basement	800,000 BTU/HR	Atmospheric Torch	Natural Gas	1,300,000 cuft	723 cu. ft. /
2. Spray Dryer	1	5	1	1,250,000 BTU/HR	" "	" "	476,000 cu.ft	1190 cu ft
3. Ballooning Furnace	1	5	1	310,000 BTU/HR	" "	" "	7,085,700 cu.ft	1770 cu.ft.
4. Ballooning Furnace	1	5	1	310,000 BTU/HR	" "	" "	1,400,000 cu.ft.	1180 cuft.

PART 2. OPERATING SCHEDULE:

PART 3. STACK/VENT DATA:

Hrs. per day	Days per week	Wks per yr.	Months in Operation	Stack No.	Stack Exit Direction (horiz-vert)	Inside Diameter at top (ft)	Height above ground (ft)	Exit gas Temp. (OF)	Quantity gaseous discharge (acfn)	Exit velocity (ft/sec)	Does stack have rain cap?
1. 8	3	52	12	10	Horiz.	6" sq.	10'	450 ^{OF}	Unk.		NA
2. 8	1	52	12	NA	Exhausts to Dust Collectors						
3. 8	5	52	12	"	"	"	"	"	"	"	"
4. 8	3	52	12	"	"	"	"	"	"	"	"

PART 4. PROVIDE A ROOF PLAN SHOWING LOCATION OF STACK(S) AND VENT(S).

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete.

SIGNED _____ TITLE _____ DATE _____

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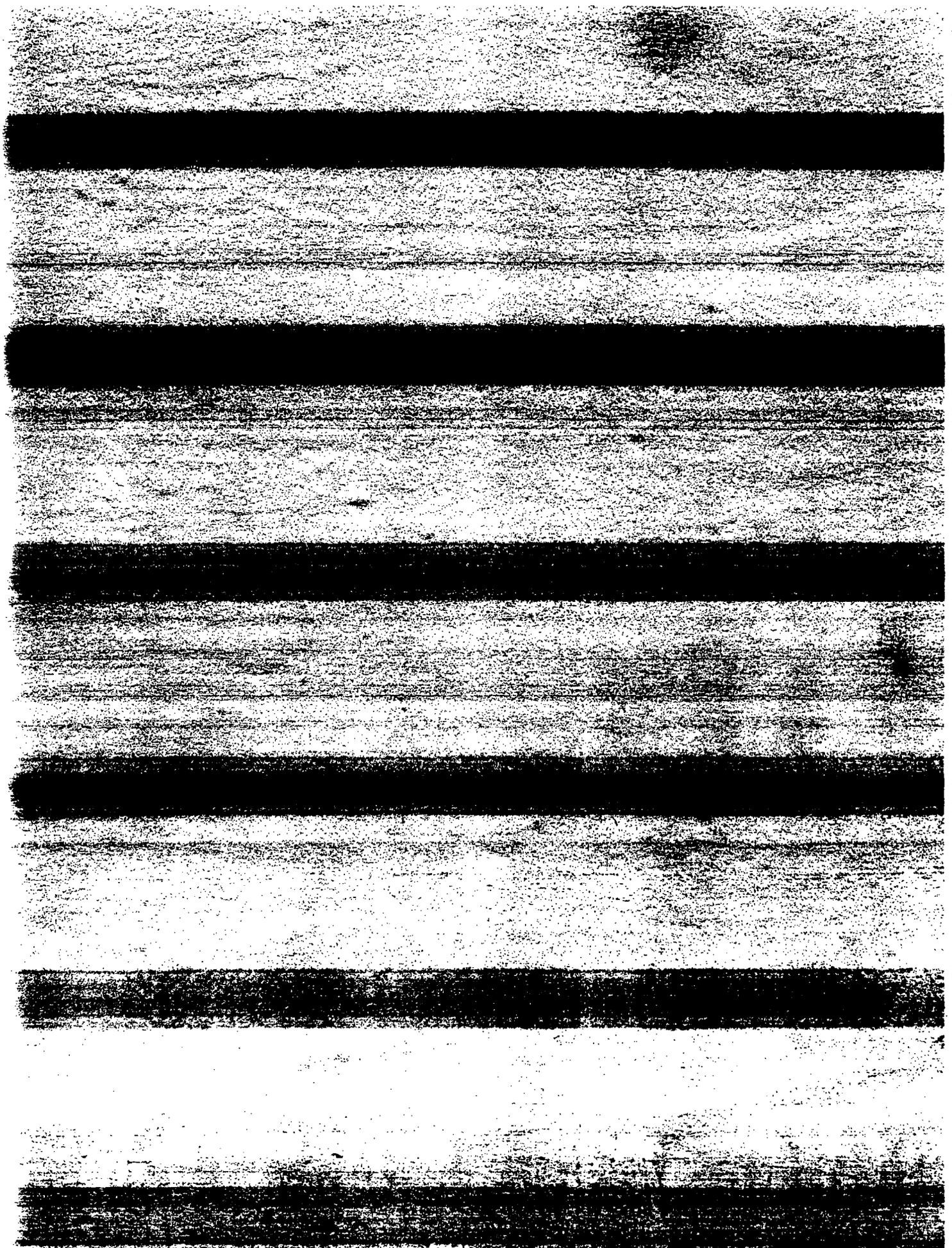
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DATE RECEIVED	APPLICATION NUMBER	COORDINATES
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APPLICATION FOR REGISTRATION OF AIR CONTAMINATION SOURCES
 INFORMATION REQUESTED FOR CALENDAR YEAR 1975

AP-5 LIQUID ORGANIC MATERIAL STORAGE

OFFICIAL USE ONLY				
DATE INSPECTED	INSPECTOR	DATE ACCEPTED	DATE REJECTED	ACKNOWLEDGE

LIQUID ORGANIC MATERIAL STORAGE
(see instructions, page 2)

APPLICATION NUMBER

PART 1. MATERIAL STORAGE DATA

MATERIAL BEING STORED	Annual Thruput (gals)	TYPE OF STORAGE CONTAINER (tank, drum, etc.)	Size of Container (gals)	Number of Identical Containers	Location of Container (Inside or outside of bldg)
1. Resin 828	20,000	Tank	4000	4	Inside
2.					
3.					
4.					

PART 2. STACK/VENT DATA

TYPE OF COVER ON CONTAINERS (none, floating roof, closed with vent to atmosphere, closed with vapor recovery system, other (specify))

STACK DATA: If container is served by a vent or if storage area is served by an area ventilation system, answer these items:

TYPE OF COVER ON CONTAINERS (none, floating roof, closed with vent to atmosphere, closed with vapor recovery system, other (specify))	Vent Exit Direction (horizontal-vertical)	Does vent have rain cap?	Height above ground (ft)	Quantity of Gaseous Discharge	EMISSION RATE
1. Vented	Horizontal	NA	10	Unknown	Inknown
2.					
3.					
4.					

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete.

SIGNED: _____ TITLE: _____ DATE: _____

DATE RECEIVED	APPLICATION NUMBER	COORDINATES
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APPLICATION FOR REGISTRATION OF AIR CONTAMINATION SOURCES
 INFORMATION REQUESTED FOR CALENDAR YEAR 1975

- AP-2 A. Process/Manufacturing Equipment
- I. Process Fuel Burning Equipment

OFFICIAL USE ONLY

DATE INSPECTED	INSPECTOR	DATE ACCEPTED	DATE REJECTED	ACKNOWLEDGED
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A. PROCESS/MANUFACTURING EQUIPMENT
(see instructions, page 2 and 3)

APPLICATION
NUMBER

PART 1. EQUIPMENT DATA

Major Steps Involved In Process	Type Equipment Used	LOCATION OF EQUIPMENT			RAW MATERIALS			FINISHED MATERIALS		
		Plant	Bldg	Floor	Type	Max/ Hour	Total/ Year	Type	Max/ Hour	Total/ Year
1. Drying Microballoons	Oven	1	1	Basement	Glass Balloons			Micro Balloons	60 lbs	100,000
2. Mfg. Feed Stock	Spray Dried	1	5	1	Sodium silicate boric acid, water, urea	60 gal	3000 gal	Feed stock	185 lbs	75,000
3. Mfg. Glass Balloons	Ballooning furnace	1	5	1&2 c	Feed Stock			Micro Balloons		350,000#

PART 2. OPERATING SCHEDULE

PART 3. STACK/VENT DATA

Hrs. per day	Days per week	Wks. per yr.	Months in Operation	Stack No.	Stack exit direction (horiz-vert)	Inside di- ameter at top (ft)	Height above ground (ft.)	Gas Temp. (°F)	Quantity Gaseous Discharge (acfm)	Exit Velo- city (ft/sec)	Does Stack have rain cap?
8	3	52	12	10	Horiz.	6"x6"	10'	450°			NA
8	1	52	12		SEE PART 4 BELOW - ITEM 2						
8	5&3	52	12		"	"	"	"			

PART 4. PROCESS EMISSIONS

PART 5. EMISSION CONTROL SYSTEM, IF APPLICABLE

Stack Number	Type of Contaminant (s) Emitted	Amount Emitted Ton/yr.	Type	Manufacturer	Percent Efficiency	Date of Installation
1. 10	Flue Gas					
2. NA	Particulates (Glass)	less than 0.1lbs/hr	Baghouse(2)	Torit Div. Donaldson Co.	99.9%	1974
3. NA	"	"	" (3)	"	99.9%	1975

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete. SIGNED: _____ TITLE: _____ DATE: _____

B. PROCESS FUEL BURNING EQUIPMENT
(see instructions, page 5)

PART 1. EQUIPMENT DATA:

Type Equipment Used	LOCATION OF EQUIPMENT			Size of Unit (Indicate Btu/hour or hsp)	BURNER Type (s) (rot. cup, gun, etc)	FUEL DATA		
	Plant	Bldg	Floor			Type Fuel	Ant/yr. (barrels, gals, tons, cu.ft.)	Maximum Hourly Fuel Rate
1. Drying Oven	1	1	Basement	800,000 BTU/HR	Atmospheric Torch	Natural Gas	1,300,000 cuft	723 cu.ft.
2. Spray Dryer	1	5	1	1,250,000 BTU/HR	" "	" "	476,000 cu.ft	1190 cu.ft
(6) 3. Ballooning Furnace	1	5	1	310,000 BTU/HR	" "	" "	7,085,700 cu.ft	1770 cu.ft.
(4) 4. Ballooning Furnace	1	5	1	310,000 BTU/HR	" "	" "	1,400,000 cu.ft.	1180 cuft.

PART 2. OPERATING SCHEDULE:

PART 3. STACK/VENT DATA:

Hrs. per day	Days per week	Wks per yr.	Months in Operation	Stack No.	Stack Exit Direction (horiz-vert)	Inside Diameter at top (ft)	Height above ground (ft)	Exit gas Temp. (°F)	Quantity gaseous discharge (scfm)	Exit velocity (ft/sec)	Does stack have rain cap?
1. 8	3	52	12	10	Horiz.	6" sq.	10'	450°F	Unk.		NA
2. 8	1	52	12	NA	Exhausts to Dust Collectors						
3. 8	5	52	12	"	" "	" "					
4. 8	3	52	12	"	" "	" "					

PART 4. PROVIDE A ROOF PLAN SHOWING LOCATION OF STACK(S) AND VENT(S).

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete.

SIGNED _____ TITLE _____ DATE _____

DATE RECEIVED	APPLICATION NUMBER	COORDINATES
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APPLICATION FOR REGISTRATION OF AIR CONTAMINATION SOURCES
 INFORMATION REQUESTED FOR CALENDAR YEAR 1975

- AP-2 A. Process/Manufacturing Equipment
 B. Process Fuel Burning Equipment

OFFICIAL USE ONLY

DATE INSPECTED	INSPECTOR	DATE ACCEPTED	DATE REJECTED	ACKNOWLEDGED
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A. PROCESS/MANUFACTURING EQUIPMENT
(see instructions, page 2 and 3)

APPLICATION
NUMBER

PART 1. EQUIPMENT DATA

Major Steps Involved In Process	Type Equipment Used	LOCATION OF EQUIPMENT			RAW MATERIALS			FINISHED MATERIALS		
		Plant	Bldg	Floor	Type	Max/ Hour	Total/ Year	Type	Max/ Hour	Total/ Year
1. Blending	Mixer	1		1	Resins, Solvent Catalysts					
2. Blending	Mixer	1		2	Resins, Solvent, Catalysts					
3. Blending	Mixer	1		3	Resins, Solvents, Catalysts					

PART 2. OPERATING SCHEDULE **PART 3. STACK/VENT DATA**

Hrs. per day	Days per week	Wks. per yr.	Months in Operation	Stack No.	Stack exit direction (horiz-vert)	Inside diameter at top (ft)	Height above ground (ft.)	Gas Temp. (°F)	Quantity Gaseous Discharge (acfm)	Exit Velocity (ft/sec)	Does Stack have rain cap?
1. 8	5	52	12	4, 5, 6, 8	Horiz	N/A	15-20ft	AMB	Unk	Unk	No (Shuttered fan)
2.											
3. 8	5	52	12	1 & 9	1- Vert 9- Hort.	1	60 ft.	Amb.	Unk.	Unk	Vented Enclosure Shuttered Fan

PART 4. PROCESS EMISSIONS

PART 5. EMISSION CONTROL SYSTEM, IF APPLICABLE

Stack Number	Type of Contaminant (s) Emitted	Amount Emitted Ton/yr.	Type	Manufacturer	Percent Efficiency	Date of Installation
1. 4, 5 & 6	Organic Vapors/ Hydrocarbons	Unk.	None			
2. 8	Organic Vapors/ Hydrocarbons					
1 & 9	Organic Vapors/ Hydrocarbons	Unk	None			

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete. SIGNED: J. H. Stager TITLE: Plant Mgr. DATE: 5/15/78

DATE RECEIVED	APPLICATION NUMBER	COORDINATES
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APPLICATION FOR REGISTRATION OF AIR CONTAMINATION SOURCES
 INFORMATION REQUESTED FOR CALENDAR YEAR 1975

- AP-2 A. Process/Manufacturing Equipment
 I. Process Fuel Burning Equipment

OFFICIAL USE ONLY

DATE INSPECTED	INSPECTOR	DATE ACCEPTED	DATE REJECTED	ACKNOWLEDGED
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A. PROCESS/MANUFACTURING EQUIPMENT
(see instructions, page 2 and 3)

APPLICATION
NUMBER

PART 1. EQUIPMENT DATA

Major Steps Involved in Process	Type Equipment Used	LOCATION OF EQUIPMENT			RAW MATERIALS			FINISHED MATERIALS		
		Plant	Bldg	Floor	Type	Max/ Hour	Total/ Year	Type	Max/ Hour	Total/ Year
1. Blending	Mixer	1		1	Resins, Solvent Catalysts					
2. Blending	Mixer	1		2	Resins, Solvent, Catalysts					
3. Blending	Mixer	1		3	Resins, Solvents, Catalysts					

PART 2. OPERATING SCHEDULE

PART 3. STACK/VENT DATA

Hrs. per day	Days per week	Wks. per yr.	Months in Operation	Stack No.	Stack exit direction (horiz-vert)	Inside di- ameter at top (ft)	Height above ground (ft.)	Gas Temp. (°F)	Quantity Gaseous Discharge (acfm)	Exit Velo- city (ft/sec)	Does Stack have rain cap?
1. 8	5	52	12	4, 5, 6, 8	Horiz	N/A	15-20ft	AMB	Unk	Unk	No (Shuttered fan)
2.											
3. 8	5	52	12	1 & 9	1- Vert 9- Hort.	1	60 ft.	Amb.	Unk.	Unk	Vented Enclosure Shuttered Fan

PART 4. PROCESS EMISSIONS

PART 5. EMISSION CONTROL SYSTEM, IF APPLICABLE

Stack Number	Type of Contaminant (s) Emitted	Amount Emitted Ton/yr.	Type	Manufacturer	Percent Efficiency	Date of Installation
1. 4, 5 & 6	Organic Vapors/ Hydrocarbons	Unk.	None			
2. 8	Organic Vapors/ Hydrocarbons					
3. 1 & 9	Organic Vapors/ Hydrocarbons	Unk	None			

CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete. SIGNED: _____ TITLE: _____ DATE: _____

B. PROCESS FUEL BURNING EQUIPMENT
(see instructions, page 5)

PART 1. EQUIPMENT DATA:

Type Equipment Used	LOCATION OF EQUIPMENT			Size of Unit (Indicate Btu/hour or hsp)	BURNER Type (s) (rot. cup, gun, etc)	FUEL DATA		
	Plant	Bldg	Floor			Type Fuel	Amt/yr. (barrels, gals, tons, cu.ft.)	Maximum Hourly Fuel Rate
1.								
2.								
3.								
4.								

PART 2. OPERATING SCHEDULE:

PART 3. STACK/VENT DATA:

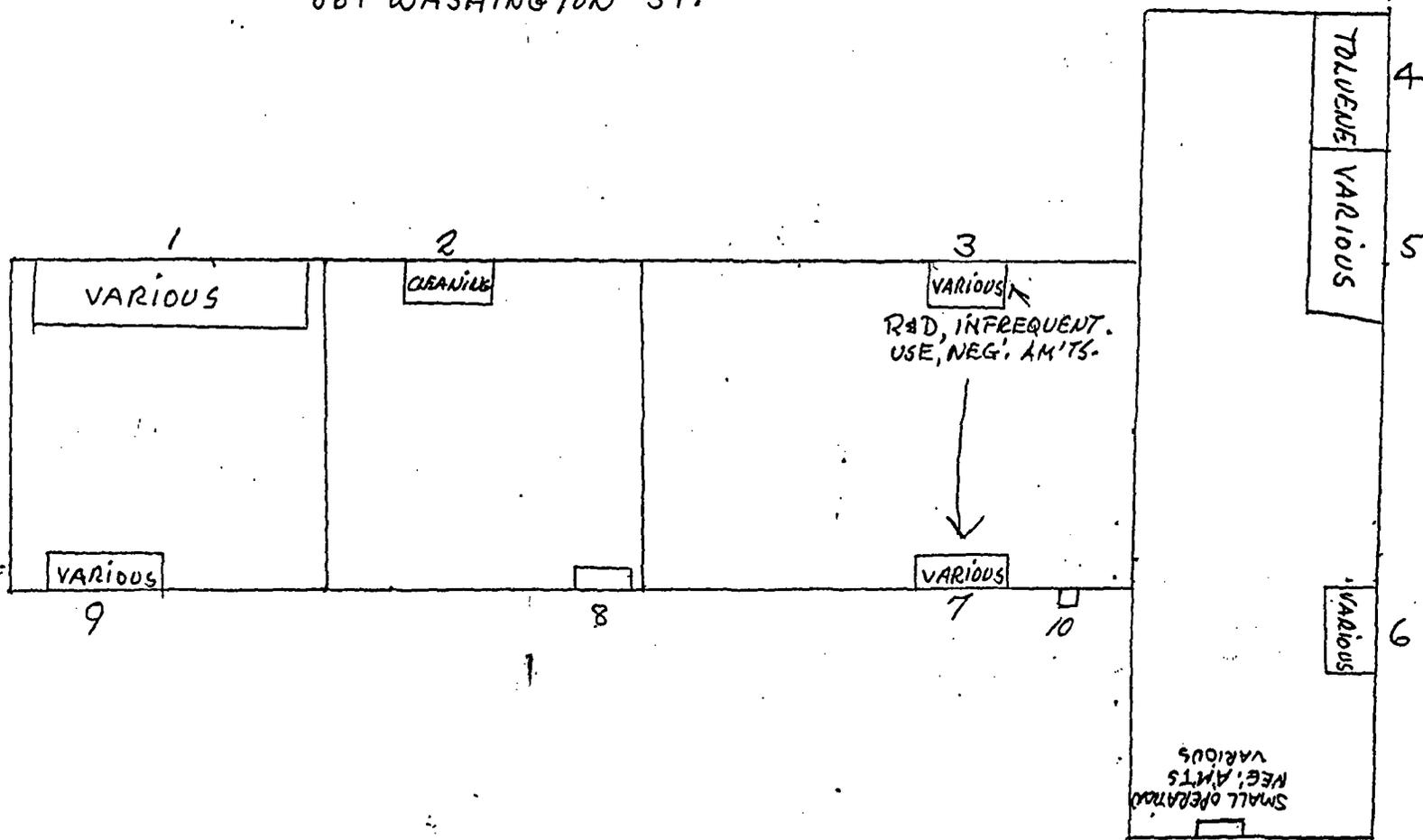
Hrs. per day	Days per week	Wks per yr.	Months in Operation	Stack No.	Stack Exit Direction (horiz-vert)	Inside Diameter at top (ft)	Height above ground (ft)	Exit gas Temp. (°F)	Quantity gaseous discharge (acfm)	Exit velocity (ft/sec)	Does stack have rain cap?
1.											
2.											
3.											
4.											

PART 4. PROVIDE A ROOF PLAN SHOWING LOCATION OF STACK(S) AND VENT(S).

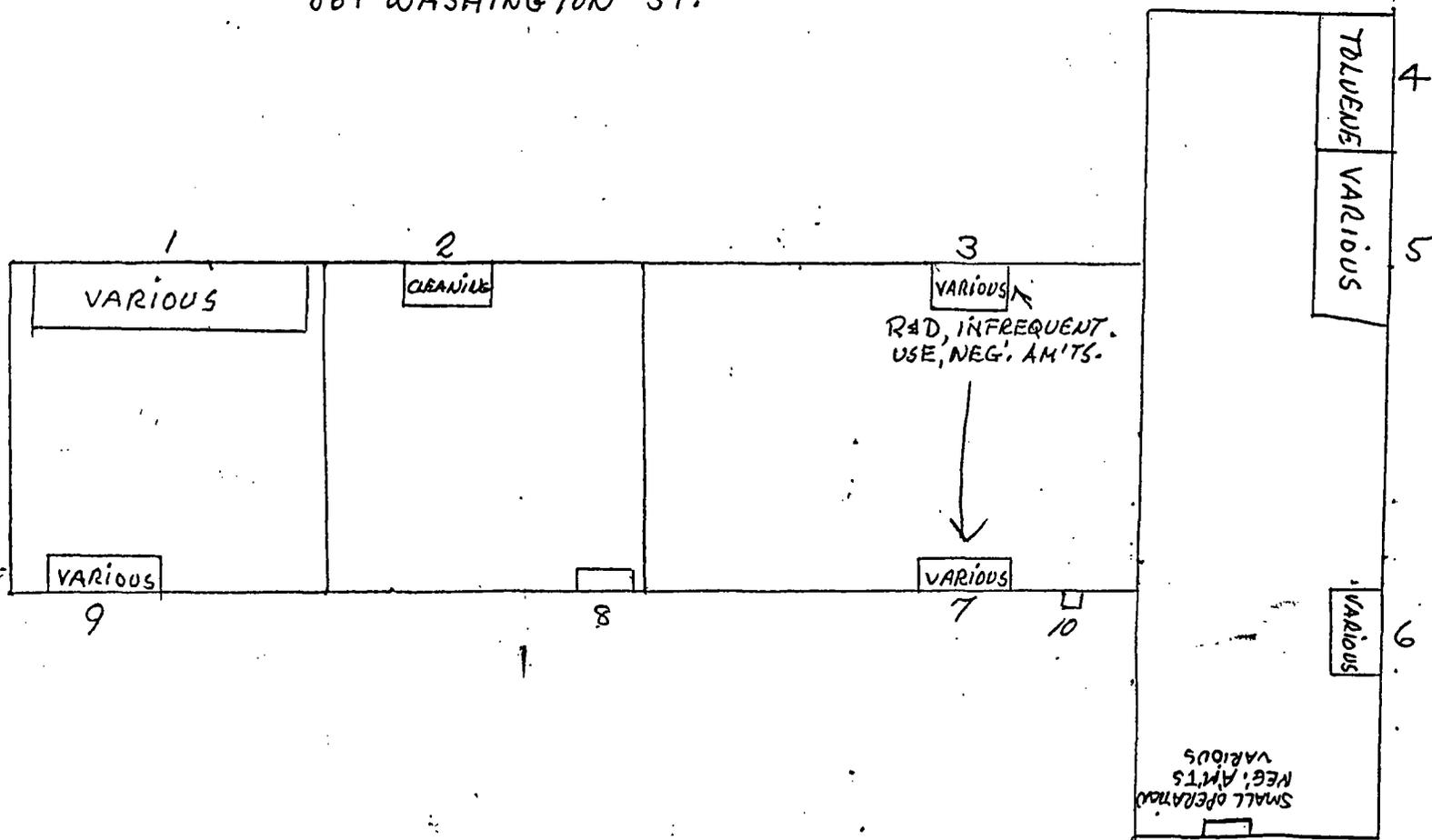
CERTIFICATION: I certify that I have examined the information on this page and that to the best of my knowledge, it is true and complete.

SIGNED _____ TITLE _____ DATE _____

869 WASHINGTON ST.



869 WASHINGTON ST.



PLANT II - CANTON, MASSACHUSETTS

EMERSON & CUMING, INC. FACILITIES DATA PLANT II										
LINE NO.	(1) PLANT II	(2) PRODUCTS MANUFACTURED	(3) INS. APPRAISAL (a) REPRODUCTION COST	(4) SITE SIZE IN ACRES	(5) PROPERTY PURCHASE DATE	(6) BUILDING CONSTRUCTION DATE	(7) TOTAL BLDG. FLOOR SPACE (SQ. FT.)	(8) NUMBER OF STORIES	(9) BLDG. GROUND FLOOR SPACE (SQ. FT.)	(10) BLDG. SPACE UTILIZATION (SQ. FT.)
	59 Walpole St. Canton, Mass.									
(01) (02)	Building 1	None	\$204,800		1959	1924	8,000	2+ part basement	2,900 first floor	Storage - 2,200 Office - 5,800
(03) (04)	Building 2	None	115,100		1959	1940	5,400	2+ basement	1,800	Storage - 1,800 Office - 3,600
(05) (06) (07) (08) (09) (10)	Building 3	Eccoshield Flotation Eccomold Catalysts Resin Based	786,400		1959	1880-1920	55,400	2+ part basement	27,400 first floor	Mfg. - 30,400 Storage - 7,800 Lab - 1,200 Shipping - 4,700 Idle - 8,900 Not Usable - 2,400
(11) (12) (13) (14)	Building 4	Flotation	327,400		1959	1820's	28,700	1 - 3+ basement	18,500	Mfg. - 12,700 Maint. - 5,800 Storage - 3,200 Not Usable - 6,400
(15) (16) (17) (18) (19)	Building 5	Flotation Eccospheres	768,400		1959	1880-1920	48,000	3+ basement	12,000	Mfg. - 12,000 Storage - 13,000 Office - 4,000 Not Usable - 7,000 Idle - 12,000
(20)	Building 6	None	214,600		1959	1880-1920	5,900	1	5,900	Lab - 5,900
(21) (22) (23) (24) (25) (26) (27)	Total Plant II		\$2,416,700	15.34	N.A.	N.A.	150,800	N.A.	68,500	Mfg. - 55,100 Maint. - 5,800 Storage - 20,000 Office/Lab - 20,500 Shipping - 4,700 Not Usable - 15,800 Idle - 20,900

(A) Appraisal by Marshall & Stevens Inc. in October, 1976 adjusted to reflect subsequent inflation.

Checked By: RSH
Date: 10/27/77

Plant II in Canton is a multi-storied, irregular shaped, former mill facility located approximately two miles from the center of Canton, Massachusetts. This facility is the second one acquired by E&C, and the boundaries are shown on the plot plan. The rear portion of the site extends westward in an irregular manner for one-third mile, encompassing approximately ten acres of wetlands area which is unsuitable as a future building site. Also contained on this site is a small dam on the Neponset River, and running through the center of this site, beneath the buildings, is a river tributary which formally provided water power for the mill operations.

With the exception of a portion of building #1 (offices), the construction of the buildings on this site is of rubble stone basements and foundations with timber supporting columns, wood floors, and either wood or rubble stone interior walls. The structural condition and appearance of this facility ranges from unusable/substandard to adequate/average, with approximately 15% of the total building floor space being unsuitable for storage or manufacturing due to its poor structural condition. There is a need for upgrading the usable portion of this facility with an emphasis on electrical, appearance, and structural; and the RCA projections include incremental expenses averaging \$80,000 (pre-tax) per year to improve the condition of this plant. In addition, the RCA capital projections provide \$475,000 over the five year period for facilities improvements, including the installation of a wet automatic sprinkler system and a boiler replacement.

The following two pages present the facilities data and plot plan for Plant III in Gardena, California.

(See Table and Plot Plan on the Following Pages)

REGISTRATION FORM

HAZARDOUS MATERIALS BYLAW

NAME: EMERSON & CUMING DEWEY & ALMY CHEMICAL DIVISION, W.R. GRACE & CO.

ADDRESS: 59 WALPOLE ST., CANTON, MASS. 02021

TEL. NO. 828-3300

TYPE OF BUSINESS: List principle products or services

WE MANUFACTURE: SYNACTIC FOAM FLOTATION PRODUCTS
MICROWAVE ABSORBER PRODUCTS

SIC CODE, IF KNOWN 28 X 21

HAZARDOUS MATERIALS ON SITE

(SUBMISSION of a map contining the following information is sufficient)

<u>MATERIAL NAME & LOCATION</u>	<u>*TYPE OF STORAGE</u>	<u>APPROX. QUANTITY</u>	<u>HAZARDOUS PROPERTIES</u>	<u>SPECIAL HANDLING</u>
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SEE ATTACHED MATERIAL LIST AND HAZARD CODE SHEET

*(Use codes: U=underground tank; AT=Aboveground Tank; AC=Aboveground containers or drums)

EMERGENCY EQUIPMENT

(If map submitted, locate equipment on map)

EQUIPMENT NAME and
LOCATION

USE

THERE ARE NUMEROUS WATER, CARBON DIOXIDE AND DRY CHEMICAL FIRE EXTINGUISHERS LOCATED THROUGHOUT THE PLANT.

POSTING REQUIRED

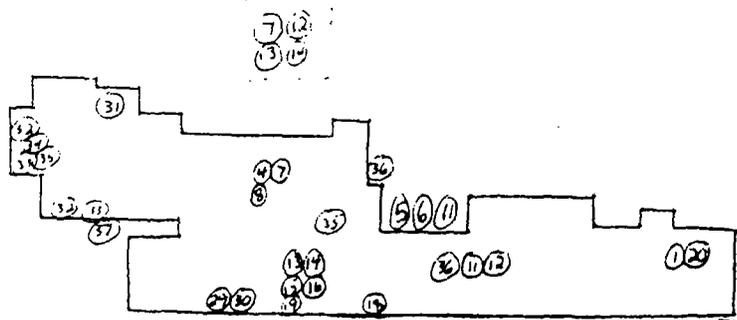
Where is the above listing or map posted on site?

INSIDE
GUARD SHACK _____ FIRE ALARM BOX _____ BOX _____ SPRINKLER RISER _____ X _____
OTHER LOCATION (SPECIFY) _____

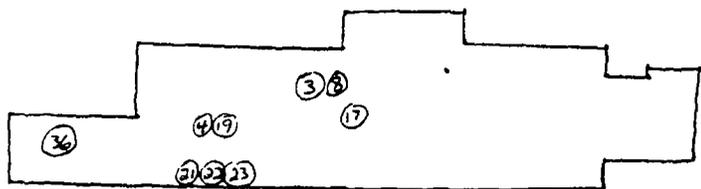
Are all locations where hazardous materials are stored or used in quantities that could cause a hazard, posted with warning signs of bright yellow or other bright color, indicating the potential danger and how to overcome or avoid such danger? _____ HAZARD CODE SHEETS ARE POSTED _____

MATERIALS SAFETY DATA SHEETS
EMERGENCY CONTINGENCY PLAN

Where are the Materials Safety Data Sheets for all hazardous materials kept on file? _____ TECHNICAL SUPERVISOR'S OFFICE _____



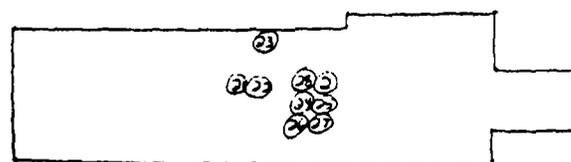
BASEMENT LEVEL



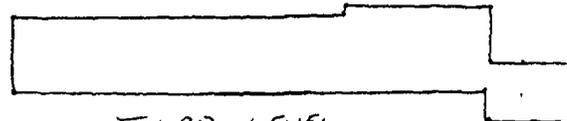
FIRST LEVEL

WALPOLE ST

NEPONSET ST.



SECOND LEVEL



THIRD LEVEL

HAZARDOUS MATERIALS LISTING

<u>Map Location</u>	<u>Material Name</u>	<u>Type of Storage</u>	<u>Approximate Quantity</u>	<u>Hazard Code</u>
1	Araldite 6005 Liquid Epoxy	AC	55 gal	I2S2
2	Methylene Dianiline	AC	200 lbs	I2S2V2X Suspected Carcinoge
3	DER542 Solid Epoxy	AC	40 lbs	D1I1
4	Methylene Chloride	AC	220 gal	I1V1
5	DER324 Liquid Epoxy Resin	AT	4000 gal	I2S2V2
6	Dodecenylsuccinic/Anhydride	AC	4000 gal	I2X For fire, use foam,CO ₂
7	Versamid 140 Resin Catalyst	AC	1650 gal	I2
8	DMP-30 Resin Catalyst	AC	165 gal	I2S2
9	Toluene	AC	55 gal	F3I1V1
10	Isopropyl Alcohol	AC	55 gal	F3I1V1
11	Epon 828 Epoxy Resin	AT	4000 gal	I2S2V2
12	Tetraethylene Pentamine	AC	275 gal	I2S2
13	Tertbutylstyrene	AC	1100 gal	F2I1V1
14	Chemlink 30 Resin Catalyst	AC	55 gal	I1
15	Nuodex Cobalt Naphthanate	AC	55 gal	F2S1V1
16	Silane A-174	AC	55 gal	F1
17	Benzoyl Peroxide Paste	AC	32 lbs	I2V2
18	Lekutherm X-50 Liquid Epoxy Resin	AC	260 gal	I1S2
19	Hardener 906 Resin Catalyst	AC	110 lbs	F1C2V2S2
20	Vorite 63 Chemical Prepolymer	AC	55 gal	I3S3V3

<u>Map Location</u>	<u>Material Name</u>	<u>Type of Storage</u>	<u>Approximate Quantity</u>	<u>Hazard Code</u>
21	Boric Acid	AC	10,000 lbs	X Avoid Breathing Dust
22	Borax 10M	AC	10,000 lbs	I1X Can be absorbed thru to induce boron poisoni
23	Pliobond 2014 Adhesive	AC	550 gal	F2I1V1
24	Neoprene Latex 400	AC	330 gal	I2
25	Darvan Waq	AC	55 gal	I1V1
26	Antimony Trioxide	AC	500 lbs	D2I2
27	Tamol SN	AC	50 lbs	D1I1
28	Sodium Hydroxide Flake	AC	100 lbs	C3
29	Eccocoat 1805A Epoxy Paint	AC	110 gal	F1I1V1
30	Eccocoat 1805B Epoxy Paint	AC	110 gal	F2I2V2
31	Fuel Oil	AT (encased in sand)	5000 gal	F2
32	Compressed Oxygen	AC	8 bottles	
33	Compressed Acetylene	AC	8 bottles	
34	Compressed Argon	AC	1 bottle	
35	Compressed Nitrogen	AC	2 bottles	
36	Compressed Propane	AC	8 bottles	
37	Compressed Propane	AT	1 small tank	

HAZARD CODES

1 – Mild Hazard

2 – Moderate Hazard

3 – Severe Hazard

**V – Vapors can be respiratory irritants
or otherwise toxic.**

**D – Dust can be a respiratory irritant
or otherwise toxic.**

**F1 – Flash point greater than 200°F
(ignitable liquid).**

**F2 – Flash point 100°F-200°F
(combustible liquid).**

**F3 – Flash point less than 100°F
(flammable liquid).**

I – Skin and eye irritant.

C – Corrosive.

E – Explosive.

S – Sensitizer.

X – Special Hazard.

See formula for instructions.

Where is the Emergency Contingency Plan kept on file? (Refer to attachment "A" - Designing a Contingency Plan). PLANT MANAGER'S OFFICE

EMPLOYEE TRAINING

Have all employees been trained to ensure proper handling of all hazardous materials? YES

If so, list instructors' name and describe the training program:
EACH DEPARTMENT SUPERVISOR HAS TRAINED HIS OWN PEOPLE TO UNDERSTAND THE GENERAL HAZARD CODES. THEY WILL ALSO SPECIFICALLY COVER ALL CHEMICALS IN THEIR INDIVIDUAL

If not, when will training be completed? DEPARTMENTS.

HAZARDOUS MATERIALS STORAGE

List all underground tanks, age, size, type, and materials stored within. Give the date on which each tank was last tested and the test schedule now being followed.

NO UNDERGROUND TANKS ON SITE.

Are all incompatible chemicals stored in separate areas? YES
If not, when will compliance be met? _____ (Deadline July 1, 1984).

Are all aboveground containers used to store hazardous materials enclosed by a dike of impermeable construction with the capability of holding a spill equal to or greater than the volume of materials stored within? YES

If not, list the locations where renovations must be made specifying the materials stored and the date renovations will be completed. (Deadline July 1, 1984.)

CONTINGENCY PLAN

EMERGENCY COORDINATORS:

GIORGIO GIRARDI
Technical Supervisor
86 East Main St
Milford, Mass 01757
617-478-4093

JAY McNEFF
Plant Engineer
3 Highland St
Foxboro, Mass 02035
(moving 10/3/83)

All chemical spills from storage or use areas do not constitute an immediate hazard or emergency because the environment (ground, water) has been projected against contamination from spills. Our only real emergency situation would come about in the event of fire. Most of our liquid chemicals will burn and emit toxic fumes, however most of these chemicals will not sustain combustion unless they reach their elevated flash points.

If a fire does arise, the plant's alarm system can be set off in two different ways. First, if and when the sprinkler system goes off, a flow switch in the sprinkler riser automatically sets off a coded alarm throughout the plant and at the fire station. Manual pull stations can also be tripped to turn in a fire alarm. The alarm code tells one the approximate location of the fire within the plant. An annunciator located next to the firebox at the front of the plant will visually display where an alarm has been tripped in the plant. Once a fire location is known, our plant map of hazardous materials can be checked to see if any chemicals may be in the fire area. Hazard Codes and Material Safety Data Sheets can be referred to for specific information, but in general, most of the liquid chemicals have flash points above 200°F. For large fires in which the drums may be heated to their flash points, cooling the drums with a fire hose is normally a good course of action. Obviously, once liquid has leaked and may spread, water will only spread burning liquid further.

As stated earlier, all personnel have been instructed to evacuate the building when the fire alarm is triggered. The alarm codes allow personnel to know where the fire is located so they will not exit in that direction. All areas have two or more exits with which to escape. Individual departments have their local exit routes posted as well as all points which exit from the entire building.

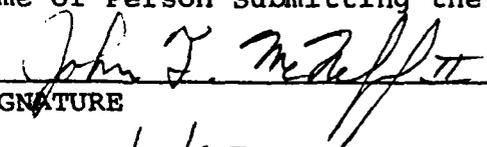
HAZARDOUS WASTE DISPOSAL

Describe the method of disposing of all hazardous waste.

HAZARDOUS WASTE IS STORED IN 55 GALLON DRUMS IN AN OUTDOOR DIKED STORAGE AREA. WHEN WE ACCUMULATE ENOUGH DRUMS FOR A SHIPMENT, CHEMICAL WASTE MANAGEMENT OF NATICK, MASS. IS CALLED TO PROPERLY SHIP OUT THE WASTE. THEIR E.P.A. I.D. NUMBER IS MAD980523203.

JOHN T. McNEFF, II.

Name of Person Submitting the Form


SIGNATURE

10/3/83
DATE

Return To: Canton Board of Health
1492 Washington Street
Canton, Ma. 02021

Enclose \$15.00 FEE

Emerson & Cuming Unit
Dewey & Almy Chemical Div.
W. R. Grace & Co.
59 Walpole Street
Canton, Mass. 02021

March 29, 1984

Jacob Edwards
State Waste Programs
U.S. EPA, Room 1903
JFK Federal Building
Boston, Mass. 02203

Mr Edwards:

Emerson & Cuming formally requests to change our status of Hazardous Waste Storage Facility to Hazardous Waste Generator. Our EPA I.D. Number is MAD 000 361 709. When our Company originally filed its application in November, 1980, the following three process codes were used:

S02 - Tank Storage 600 gallons
T03 - Treatment by incineration 20 gallons per hour
S01 - Drum Storage 1000 gallons

The person who filled out this application is no longer with the Company and was apparently in error when describing our hazardous waste process. We have never incinerated a hazardous waste to the best of my knowledge and have never stored a hazardous waste in a tank. We only accumulate our waste in 55 gallon drums and periodically ship it out to a licensed hazardous waste facility. Our only change is that we will ship all accumulated waste within 90 days.

Thus, Emerson & Cuming, 59 Walpole Street, Canton, Mass., EPA I.D. Number MAD 000 361 709, formally requests to change from Storage Facility status to Generator status.



Randolph M. Olson
Plant Manager

APR 11 1984

RMO/dlg

FEB 14 1984

C E R T I F I C A T I O N

I, RANDOLPH M. OLSON, PLANT MANAGER, hereby

(name)

(position)

certify that EMERSON & CUMING UNIT, DEWEY & ALMY
CHEMICAL DIV., W. R. GRACE & CO., MAD 000 361 709, which

(name of company)

(EPA I.D. #)

notified the U.S. Environmental Protection Agency ("EPA") that it treats, stores and/or disposes of hazardous waste, at all times from this date forward (1) will not accumulate any hazardous waste for more than 90 days; (2) will accumulate hazardous waste in compliance with 310 CMR 30.340; (3) will not store, treat, or dispose of hazardous waste; and (4) will comply with all other applicable requirements of 310 CMR 30.000.

I understand that the Department of Environmental Quality Engineering is deferring applicability of the financial responsibility requirements of 310 CMR 30.900 as a result of EMERSON & CUMING UNIT, DEWEY & ALMY
CHEMICAL DIV., W. R. GRACE & CO. having submitted

(name of company)

a request for change of status and this certification, so long as EMERSON & CUMING UNIT, DEWEY & ALMY
CHEMICAL DIV., W. R. GRACE & CO. abides by the terms of this certification.

(name of company)

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

Randolph M. Olson 2/10/84

(Signature)

59 WALPOLE ST.
CANTON, MASS. 02021

RANDOLPH M. OLSON FEB. 10, 1984

(Name typewritten)



Emerson & Cuming

Dewey and Almy Chemical Division
W. R. Grace & Co.
Canton, Mass. 02021

(617) 828-3300

March 1, 1984

Nanci Siciliano
U. S. Environmental Protection Agency
Region 1
Water Quality Branch
J. F. Kennedy Federal Building
Boston, Mass. 02203

Dear Nanci:

This letter is to confirm our telephone conversation on Thursday, 3/1/84, concerning our facility's status of filing for an N.P.D.E.S. Permit. As I explained, our facility is built on top of an old mill raceway which drains into the Neponset River. Currently, sump pumps and trenches carry basement ground water seepage and non-contact air conditioner cooling water to openings to the raceway. We have authorized funding and are presently working to seal all drains and trenches to the raceway. All ground water and non-contact cooling water is being piped to a central surge tank which will in turn flow into a pool beneath the basement floor which drains to the old mill raceway. We hope to complete this work by the end of March to mid-April. At this point, we will send in our NPDES Permit Application.

This is the last of a series of environmental projects which were defined about one year ago in conjunction with the Town of Canton Health Department, Massachusetts DEQE and independent consultant Camp, Dresser and McKee. Although we have yet to receive a response from Mass. DEQE from Camp, Dresser and McKee's initial report and recommendations; we have proceeded to implement many of the recommended changes while keeping Canton Health Agent, Regina McCarthy, well informed of progress to date.

We are also having a comprehensive site plan of our facility including topographical information being drawn and expect completion around mid to late March. This will give us a much more accurate drawing of our facility and grounds than we currently possess. In addition, the entrance to the raceway which comes off the Old Mill Pond will be permanently sealed off with concrete by this time.

Currently, the entrance is covered by a metal plate. With all old floor drains being sealed by the end of March, water flow into the underground raceway will be much more easily defined and controlled.

At this point, the raceway can only collect water from the following sources:

- Ground water seepage into basement which will be sump pumped to central surge tank.
- Non-contact air conditioner cooling water.
- Three outdoor storm drains, one of which belongs to the Town of Canton.
- Seepage directly into raceway from groundwater.

We feel extremely confident that all of our discharges will be clean water with no pollutants. Our surge tank will give us a good sampling point to confirm this.

I will be in contact concerning final details as we prepare our permit application in early April. We feel good about getting this situation resolved and thank you for your assistance both now and in the near future.

If I can be of any assistance in the meantime, please do not hesitate to contact me at (617) 828-3300.

Sincerely,
Emerson & Cuming
59 Walpole Street
Canton, Mass. 02021


Jay McNeff
Plant Engineer

cc: Edward K. McSweeney, Chief
EPA Water Quality Branch

Regina McCarthy, Health Agent
Town of Canton

GRACE MEMO

file
3480

to: Vance Bakeman
from: Jay McNeff
subject: Monthly Environmental Report

date: April 16, 1984

cc: R. Winterson
R. Marshall
R. Olson
A. Teague
R. Catardi
D. Sadowski

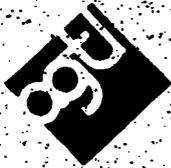
No situation creating an adverse impact on public health or the environment existed at Emerson & Cuming during the month of March, 1984.

Plant I (Canton, Mass.) is continuing to work with the Sewer Department on control of the PH of their micro-balloon wash water.

Plant II (Canton, Mass.) is on the verge of completing a project to seal off all old floor drains which flow to the underground mill race which in turn empties directly into the Neponset River. All clean water (basement seepage and AC non-contact cooling water) has been routed to one controlled outfall. NPDES permit application will be submitted in April.

Jay
Jay McNeff

JM/dlg



Arnold Greene Testing Laboratories Incorporated

Nondestructive • Chemical • Pollution • Metallurgical
Inspection • Evaluation • Analysis
Research • Development



East Natick Industrial Park
6 Huron Drive • Natick, MA 01760
(617) 235-7330, 853-5850
Telex 948458 GREENELAB NTIK

Branch Laboratories:
Springfield, Mass. 01109
(413) 734-8548

Auburn, Mass. 01501
(617) 832-5500

SOLD TO:

SHIPPED TO:

[Handwritten signature]
[Handwritten initials]
[Handwritten circle with 'Feb 34 80']

DATE SHIPPED		SHIPPED VIA		PAGE	OF
OUR ORDER NO.	OUR ORDER DATE	CUSTOMER PURCHASE ORDER NO.	TERMS	PAYMENT RECEIVED WITH ORD	
QUANTITY OUR COUNT	QUANTITY CUSTOMER COUNT	DESCRIPTION, QUANTITY AND TEST			
		1-CHEM WATER SAMPLE FOR ANALYSIS.			

1 1/2% SERVICE CHARGE PER MONTH ON ALL ACCOUNTS OVER 60 DAYS PAST DUE (ANNUAL RATE 18%)

ALL ORDERS ARE ACCEPTED SUBJECT TO THE FOLLOWING CONDITIONS:

Our responsibility for the spoilage of work done by us shall in no event exceed the cost charged by us for the services requested regardless of whether said damage is directly attributable to our services of the articles above enumerated or otherwise. No further warranty, express or implied, or obligations of any kind, contractual or otherwise will be assumed by us either to the original customer or any other person, unless the same has been

reduced to writing and signed by both us and you, in which event a higher charge will be made for our services for which will be gladly quoted to you upon request. No agent or representative is authorized to assume us any liability except as set forth above.

PACKING LIST



Arnold Greene Testing Laboratories Incorporated

East Natick Industrial Park
6 Huron Drive • Natick, MA 01760
(617) 235-7330, 653-5950
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SOLD TO:

SHIPPED TO:

DATE SHIPPED		SHIPPED VIA		PAGE	OF
OUR ORDER NO.	OUR ORDER DATE	CUSTOMER PURCHASE ORDER NO.	TERMS	PAYMENT RECEIVED WITH ORDER	
	1/27/77	1-11877	1/2% 10 DAYS, NET 30		
		194 S-CHEM WATER SAMPLE FOR ANALYSIS			

1 1/2% SERVICE CHARGE PER MONTH ON ALL ACCOUNTS OVER 60 DAYS PAST DUE (ANNUAL RATE 18%)

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reduced to writing and signed by both us and you, in which event a higher charge will be made for our services for which will be gladly quoted to you upon request. No agent or representative is authorized to assume us any liability except as set forth above.

PACKING LIST

GRACE MEMO

to: Distribution date: December 4, 1984

from: R. M. Olson cc:

subject: TRASH HANDLING PROCEDURES

The intent of this memo is to square away and standardize the methods by which we process trash, rubbish and scrap for salvage.

A. Absorber Production

1. Normal absorber trash is collected by absorber production in the portable carts (only) and fed to the baler for baling on a daily basis. Upon discharge of the bales onto pallets in front of the baler; Shipping/Receiving will move the bales as necessary into the BFI dumpster.
2. Clean scrap foam (white) will be collected as it's generated by the profile saw and baled by absorber production. Upon discharge of the clean scrap foam bales from the baler onto pallets; Shipping/Receiving will move the bales to the pallet storage racks in the S/R area. The bales will accumulate here until the next Clark Foam delivery. The bales will be weighed and loaded onto the Clark Foam truck with the appropriate pick-up paperwork.
3. Door fab trash and other absorber non-balable waste (that is not hazardous or chemical waste) shall be collected separately. This material shall be taken by absorber production downstairs and put into one of the flotation tilt dumpsters.

B. Print Shop/Mail Room

1. All paper, cardboard and dry trash from the Print Shop/Mail Room is accumulated outside the mail room (in the basement across from the elevator) in the designated cart. Absorber production will pick up weekly or as required and fed to the baler. This trash will be baled with the absorber trash and handled accordingly.
2. Wet print shop trash shall be handled separately from the paper. This should be handled on a case by case basis.

C. Offices

1. Office trash collected by P&C cleaning is accumulated in the designated cart next to the old S/R area. Absorber production will pick-up this cart daily and process with the absorber and/or print shop/mail room trash.

F. Flotation Production - continued

The empty carts are then returned to the staging area just outside the flotation garage doors.

Note: Upon flotation production clearing up the backlog of solid epoxy waste drums inside and outside the flotation area; the cured epoxy waste slugs using drum liner bags shall be put into the trash carts by flotation production the same as any other flotation trash.

G. Maintenance

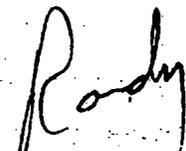
Maintenance generated trash in the shop(s) and at a job site should be arranged on a case by case basis between Maintenance and Shipping/Receiving.

Other General Disposal Notes

1. Shipping/Receiving shall keep a daily eye on the BFI dumpster to make arrangements for BFI pickup. We need to have the dumpster full to the top for each pickup to keep costs down but conversely trash ready to go into the dumpster cannot accumulate outside waiting for room in the dumpster.
2. Empty wooden pallets from production (absorber, flotation and print shop) shall be neatly stacked at your designated area (mezzanine, outside the door(s)) for pickup by Shipping/Receiving. S/R will then move the pallets to the pallet storage area at the back of the yard for accumulation, reuse or disposal.
3. Empty steel drums are to be drained, sealed with the bung cap and stacked upside down on suitable pallets in groups of (4). Pallets of empty drums shall be staged at the mezzanine or just outside the door(s) for pickup by Shipping/Receiving. S/R will then move the pallets of empty drums to the drum storage area for accumulation. When a truckload (approx. 200 drums) are accumulated; Shipping/Receiving shall call in the reconditioner for pickup.
4. Chemical/Hazardous Waste will continue to be handled by the current existing procedures (labelling, dates, drums, closure, identification paperwork, handling, etc). These drums are forwarded/picked-up by Shipping/Receiving to be prepared for Chemical Waste Management shipment.

If there are any glitches, problems, questions or revisions related to these procedures let me know.

R. M. Olson



C. Offices - continued

2. Occasionally, there will be boxes of long term storage records to be disposed of by accounting. These boxes will be picked up outside the front office basement retention area by absorber production and baled with other absorber trash.

D. Nose Cap Production

All Nose Cap trash will be collected in the department in the designated plastic push cart. Weekly or as it becomes full, Nose Cap production will move the cart down to the baler. Absorber production will bale this in with their trash.

E. Shipping/Receiving

General S/R trash is collected in the designated barrel next to the S/R bench. Weekly or as required this barrel will be forwarded to absorber production for baling with absorber trash.

F. Flotation Production

1. Dry EP trash (i.e. - empty FIGLAS bags) is collected in the designated cart. As this cart is filled or periodically during the week it shall be forwarded directly to absorber production for baling with absorber trash.
2. All cardboard is to be kept clean and shall be broken down and stacked into the designated wire frame pallets. As these wire pallets are filled (one by one), flotation production will move the pallets just outside the flotation door to the designated area. At this point Shipping/Receiving shall pick up these cardboard pallets daily and forward to the baler. The space next to the baler shall be kept clear of other materials and used for accumulating pallets of cardboard. As the cardboard accumulates, it will be baled by absorber production. Upon the cardboard bales being discharged onto pallets, Shipping/Receiving will move the bales to the storage racks in the S/R area (by the clean scrap foam bales). The cardboard bales will be accumulated for pick-up by the scrap dealer and processed with the appropriate paperwork (similar to clean scrap foam sales). The empty wire pallets generated by absorber production during cardboard baling will be broken down, filled and stacked. Shipping/Receiving will then return the "empties" to flotation production on a regular basis.
3. General flotation production trash (mold prep. block, EP, mold prep, finishing, etc) is to be accumulated in the appropriate areas tilt dumpster cart. Drums, pails, and boxes are not be used for trash. These carts will be moved out the door to the designated staging area daily. This should occur at standard times such as 7:30-8:30AM during S/R material delivery to flotation and 3:00-3:15PM during shift clean-up. Shipping/Receiving will then pickup the dumpster carts and dump to the BFI dumpster.



AUG 25 1982

Emerson & Cuming

Dewey and Almy Chemical Division
W. R. Grace & Co.
Canton, Mass. 02021

(617) 828-3300

Canton - Billiter

August 23, 1982

Mr. Steven Lipman
Deputy Regional Environmental Engineer
Department of Environmental Quality Engineering
323 New Boston Street
Woburn, MA 01801

Dear Mr. Lipman:

This correspondence is in response to a request by Ted Kaegal (DEQE) for some additional information regarding Emerson & Cuming's plant on Walpole Street in Canton. This information is to follow-up the visit of Ted on Wednesday, July, 21. This information includes the following as requested:

- a. Listing of wastes stored outdoors at the plant site (see Attachment A)
- b. Listing of chemicals stored in the proximity of floor drains (see Attachment B)
- c. Approximate location of all floor drains (See attached digram).
- d. Corrective action plan.

We would like to emphasize that because the Walpole Street plant utilizes "dry" and "self contained" processes there has never been any industrial waste discharged from the facility into either the underground raceway or the Metropolitan District Commission Sewer. All sanity wastes are discharged to the MDC sewer.

We are currently engaged in several corrective activities.

1. Removal of Waste Material. Work is progressing in the removal of the drummed waste stored outdoors. Identification of material is nearly complete. Fourty drums of waste were removed by Chemical Waste Management of Natick on July 26, 1982, and fourty drums on August 19, 1982 by same.

Several more shipments are anticipated by the end of this month. Any drums not yet shipped have been moved to the diked concrete pad storage area.

In June 1982, \$26,000. was allocated for this waste removal.

2. Diking of Resin Tank Storage Area. We are in the process of installing a diked concrete pad for the bulk resin storage tanks. This project is expected to be completed within eight weeks. As part of this project, the bulk storage tanks will be repiped in order to substantially reduce the amount of drummed raw material which must be stored onsite. In addition, the catch basin near the storage area has been sealed in order to prevent any potential spillage from reaching the underground raceway.

Emerson & Cuming has already approved \$89,000 to complete this task.

3. Internal Drainage. The existing floor drainage system was built by earlier operators of the plant during the time of its use as a textile mill. Three of the existing drains (1, 12, and 13 on the attached diagram) are still important to the functioning of the plant. Point number 1 is a ground water sump underneath the elevator shaft. Operation of the sump is essential to prevent flooding of the ground floor of the plant. Point number 12 collect ground water seeping in through the wall of the plant facing Walpole Street. Point number 13 collects ground water seeping in through the wall of the plant facing Neponset Street.

We are currently studying the options for sealing floor drains while at the same time ensuring that groundwater flooding problems will not be created as a result.

We would like to invite Gina McCarthy of the Canton Board of Health and yourself for a return visit to our plant later this month. Please contact us at any time if you have further questions. We intend to cooperate fully with both Gina and DEQE in resolving this matter as soon as possible.

Sincerely,



Randolph M. Olson

Plant Manager
Emerson & Cuming
59 Walpole Street
Canton, MA 02021

see: Mark Holer

Attachment A

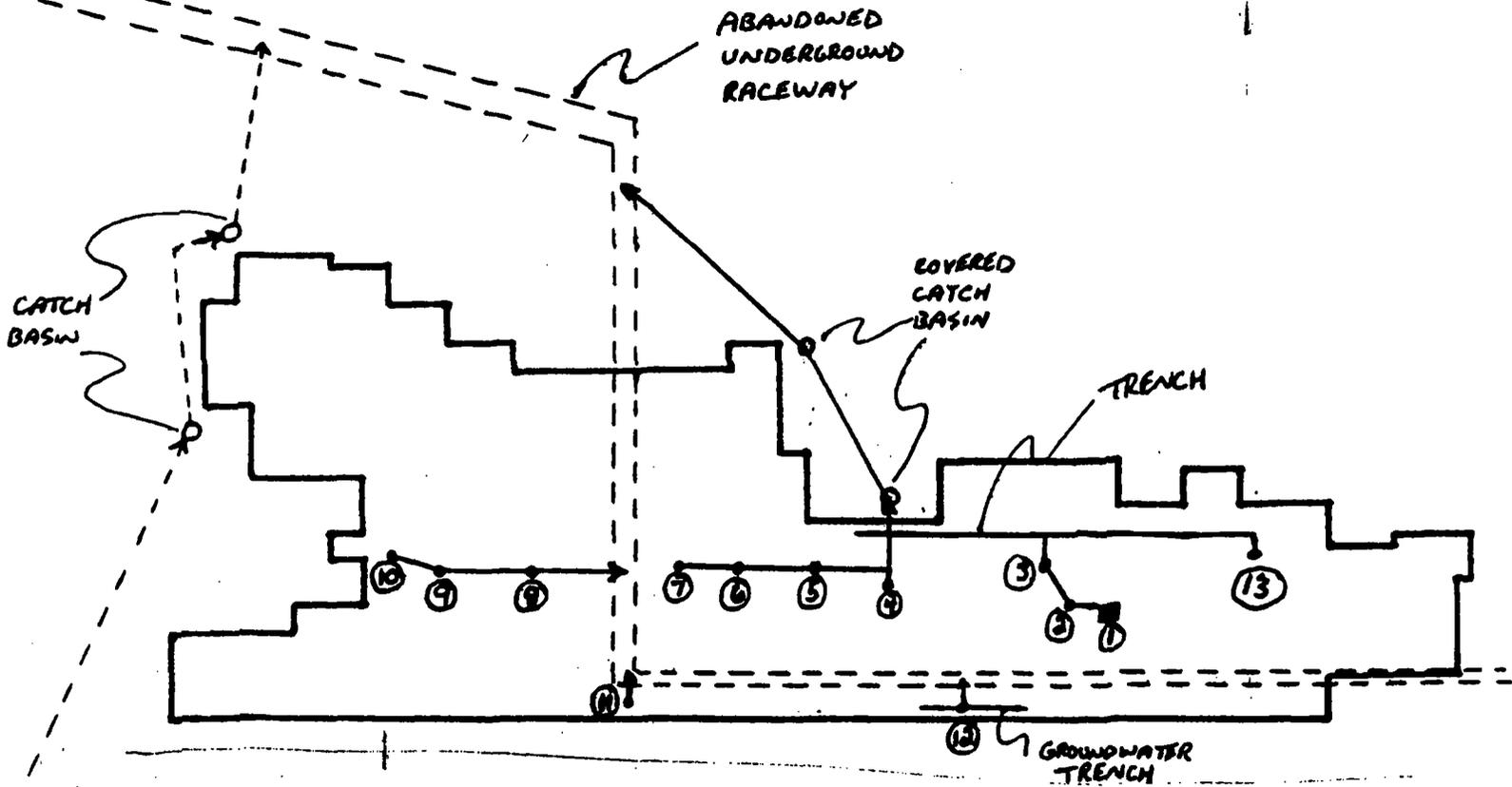
Wastes Identified in Rear Area of Plant

Solid epoxy resin powder
Alcoa aluminum powder 101
Pliobond contact adhesive, methylene chloride
Pyromellitic Dianhydride
Epoxy resin 828 (liquid), glass microballoon,
methylene chloride
Epoxy latex paint
Cured tertbutylstyrene
Alkyl Glycidyl ether (Epoxide 8)
Powdered phenolic resin
Red Iron oxide powder (foxide)
Cured epoxy resin, microballoons
Polyester resin
Tertbutylstyrene resin
Dodecenylsuccinic Anhydride (DDSA)
Isopropyl Alcohol .

Attachment B

Chemicals Stored in Areas of Plant with Floor Drains

Epoxy resin 828
Milled Fiberglass
Tetraethylene Pentamine
Polystyrene beads
Glass beads (1/2" diam.)
Glass microballoons
Methylene Chloride
Alkyl Glycidyl Ether
Trimethylol Propane Trimethacrylate
Gamma Methacryloxypropyltrimethoxysilane (A174)
Tert Butylstyrene
Epoxy Latex paint
Cured Resin Dust
Polyamide resin
Methyl Ethyl Ketone Peroxide
55% Benzoyl Peroxide
Cobalt Napthanate solution
Di-2 Ethyl Hexyl Phthalate (DEHP)(DOP)



NEPONSET ST

WALPOLE ST

ease print or type in the unshaded areas only
 ill-areas are spaced for elite type, i.e., 12 characters/inch

Form Approved OMB No. 158-R0175

FORM 1	EPA	U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION Consolidated Permits Program (Read the "General Instructions" before starting.)	D. NUMBER FMAD000361709	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
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I. LABEL ITEMS	PLEASE PLACE LABEL IN THIS SPACE
• EPA I.D. NUMBER	
• II. FACILITY NAME	
• FACILITY MAILING ADDRESS	
• VI. FACILITY LOCATION	

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'			SPECIFIC QUESTIONS	MARK 'X'		
	YES	NO	FORM ATTACHED		YES	NO	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			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 EMERSON & CUMING, W. R. GRACE AND CO.

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)
2 OLSON, RANDOLPH - PLANT MANAGER	617 828 3300

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX	B. CITY OR TOWN	C. STATE	D. ZIP CODE
3 59 WALPOLE STREET	CANTON	MA	02021

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER	B. COUNTY NAME	C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
5 59 WALPOLE STREET	NORFOLK	CANTON	MA	02021	

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

A. FIRST		SECOND	
7	3079 (specify) Miscellaneous Plastics Products	7	(specify)
C. THIRD		D. FOURTH	
7	(specify)	7	(specify)

VIII. OPERATOR INFORMATION

A. NAME: EMERSON & CUMING, W. R. GRACE & CO.

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.)
 FEDERAL STATE PRIVATE
 M - PUBLIC (other than federal or state) O - OTHER (specify) M (specify)

D. PHONE (area code & no.)
 617 828 3300

E. STREET OR P.O. BOX: 59 WALPOLE STREET

F. CITY OR TOWN: CANTON

G. STATE: MA

H. ZIP CODE: 02021

IX. INDIAN LAND: Is the facility located on Indian lands? YES NO

X. EXISTING ENVIRONMENTAL PERMITS

Permit No.	Agency	Expiry Date	Other (specify)
9 P			
9			
MAD000361709			

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

Describe the facility (provide a brief description):

WE MANUFACTURE SYNTACTIC FOAM FLOTATION PRODUCTS FROM EPOXY RESIN AND GLASS FILLER SYSTEMS. WE ALSO MANUFACTURE MICROWAVE ABSORBER (CARBON IMPREGNATED FOAM) PRODUCTS.

XI. CERTIFICATION (see instructions)

I, the undersigned, under penalty of law that I have personally examined and am familiar with the information submitted in this application and all documents 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): RANDOLPH M. OLSON, PLANT MANAGER

B. SIGNATURE: *Randolph M. Olson*

C. DATE SIGNED: MAY 8, 1984

XII. COMMENTS FOR OFFICIAL USE ONLY

C. Except for storm runoff, leaks, or spills, are any discharges described in Items II-A or B intermittent? YES (complete the following table) NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION'S/ CONTRIBUTING FLOW (list)	3. FREQUENCY		4. FLOW				5. LOCATION (list)
		a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (in mgd)		b. TOTAL VOLUME (specify with units)		
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

III. MAXIMUM PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?
 YES (complete Item III-B) NO (go to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?
 YES (complete Item III-C) NO (go to Section IV)

C. If you answered "Yes" to Item III-B, list the quantity which represents an actual measurement of your maximum level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

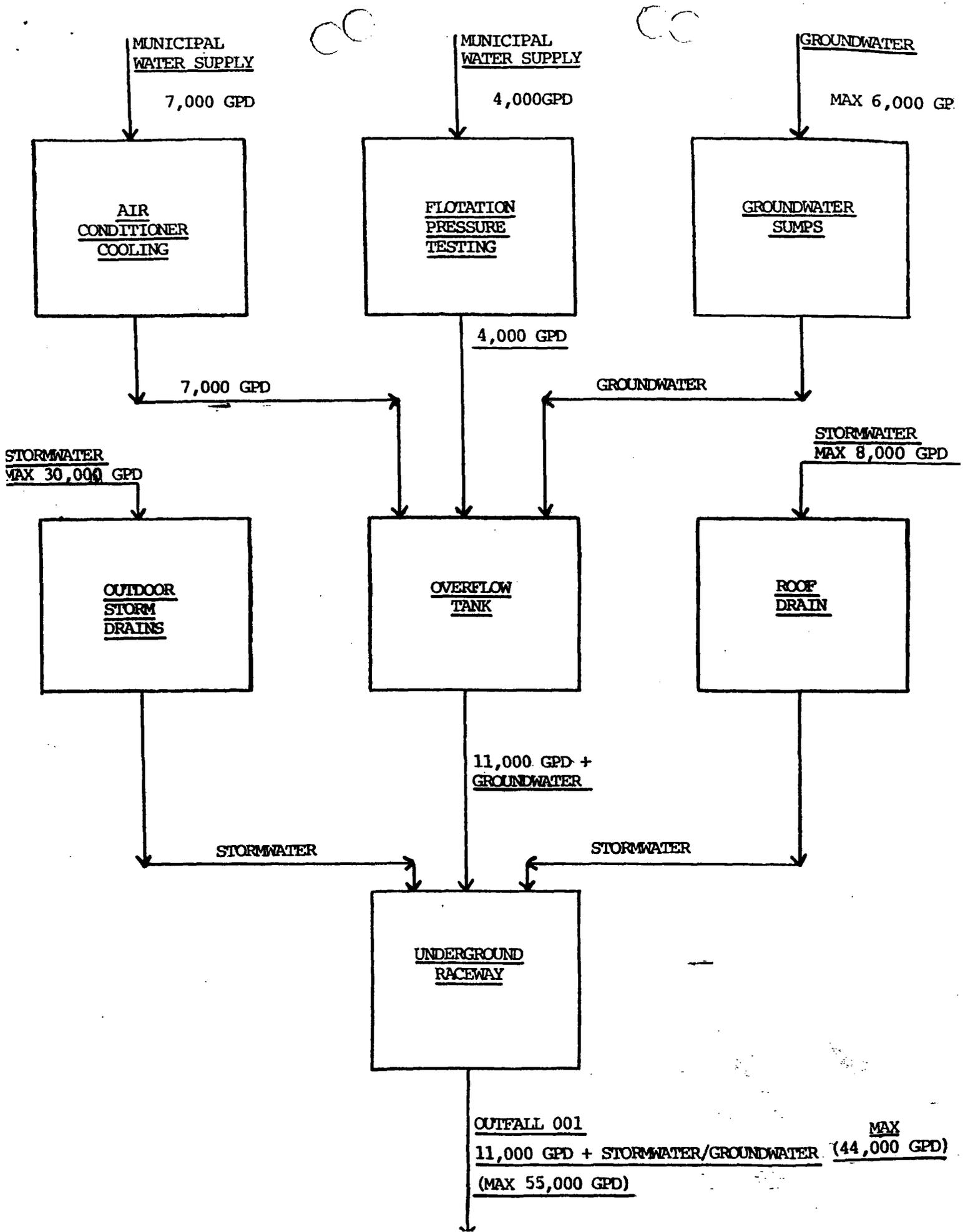
1. MAXIMUM QUANTITY			2. AFFECTED OUTFALLS (list outfall numbers)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL (specify)	

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of wastewater treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.
 YES (complete the following table) NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COMPLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. REQUIRED	b. PROJECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED



OUTFALL 001
 11,000 GPD + STORMWATER/GROUNDWATER (MAX 55,000 GPD)
 MAX 44,000 GPD

V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding - Complete one set of tables for each outfall - Annotate the outfall number in the space provided.
 NOTE: Tables V-A, V-B, and V-C are included on separate sheets numbered V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged or may be discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical data in your possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
NO POLLUTANTS			

VI. ANTICIPATED DISCHARGES NOT COVERED BY ANALYSIS

Yes (fill in each pollutant below)

No (go to Item VII-B)

- 22V METHYLENE CHLORIDE
- 25V TOLUENE
- 27V 1,1,1 TRICHLOROETHANE
- 7M LEAD
- 9M NICKEL
- 11M SILVER
- 29B Di-N-OCTYL PHTHALATE

Are there operations in your plant, materials, processes, or products that you reasonably expect to vary so that your discharges of pollutants may during the next 5 years exceed the maximum values reported in Item VI?

Yes (complete Item VI-C below)

NO (go to Section VII)

If you answered "Yes" to Item VI-B, explain below and describe in detail the sources and expected levels of such pollutants which you anticipate will be discharged from each outfall over the next 5 years, to the best of your ability at this time. Continue on additional sheets if you need more space.

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

YES (Identify the test(s) and describe their purposes below)

NO (go to Section VIII)

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

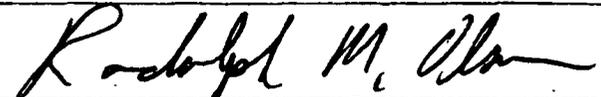
YES (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)

NO (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)

IX. CERTIFICATION

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 individuals immediately responsible for obtaining the information, 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.

<p>A. NAME & OFFICIAL TITLE (type or print)</p> <p>RANDOLPH M. OLSON / PLANT MANAGER</p>	<p>B. PHONE NO. (area code & no.)</p> <p>(617) 828-3300</p>
<p>C. SIGNATURE</p> 	<p>D. DATE SIGNED</p> <p>MAY 8, 1984</p>

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER (copy from Item 1 of Form 1)

MAD 000 361 709

Form Approved
OMB No. 2000-0059
Approval expires 3-31-84

OUTFALL NO
001

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	3. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)	WAIVER	REQUESTED										
b. Chemical Oxygen Demand (COD)	WAIVER	REQUESTED										
c. Total Organic Carbon (TOC)	WAIVER	REQUESTED										
d. Total Suspended Solids (TSS)	WAIVER	REQUESTED										
e. Ammonia (as N)	WAIVER	REQUESTED										
f. Flow	VALUE		VALUE		VALUE					VALUE		
	55,000 GPD											
g. Temperature (winter)	VALUE		VALUE		VALUE			°C		VALUE		
	5°C											
h. Temperature (summer)	VALUE		VALUE		VALUE			°C		VALUE		
	20°C											
i. PH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	 			STANDARD UNITS		 		
	6.8	7.1										

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	3. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)	X													
b. Chlorine, Total Residual	X													
c. Color	X													
d. Fecal Coliform	X													
e. Fluoride (14964-48-8)	X													
f. Nitrate-Nitrite (as N)	X													

POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		1. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	B. RECEIVED PRESENT	D. RECEIVED ASSENT	A. MAXIMUM DAILY VALUE		C. MAXIMUM 30 DAY VALUE		E. AVERAGE VALUE		F. NO. OF ANALYSES	B. CONCENTRATION	D. MASS	G. LONG TERM AVERAGE VALUE		H. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
Nitrogen, Total Organic (N)		X												
Oil and Grease		X												
Phosphorus (P), Total (723-14-0)		X												
Radioactivity														
Alpha, Total		X												
Beta, Total		X												
Radium, Total		X												
Radium 226, Total		X												
Sulfate (SO ₄) (4808-79-8)		X												
Sulfide (S)		X												
Sulfite (SO ₃) (4265-45-3)		X												
Surfactants		X												
Aluminum, Total (429-90-5)		X												
Barium, Total (440-39-3)		X												
Boron, Total (440-42-8)		X												
Cobalt, Total (440-48-4)		X												
Iron, Total (439-89-6)		X												
Magnesium, Total (439-95-4)		X												
Molybdenum, Total (439-98-7)		X												
Manganese, Total (439-96-5)		X												
Tin, Total (440-31-5)		X												
Titanium, Total (440-32-6)		X												

US EPA ARCHIVE DOCUMENT

3

3

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table (all seven pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. TEST-ING RE-QUIR-ED	b. BE-LIEVED PRE-SENT	c. BE-LIEVED AB-SENT	b. MAXIMUM DAILY VALUE		d. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAL-YSES	e. CONCEN-TRATION	f. MASS	h. LONG TERM AVERAGE VALUE		i. NO. OF ANAL-YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCEN-TRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
1A. Antimony, Total (7440-36-0)			X												
2M. Arsenic, Total (7440-38-2)			X												
3M. Beryllium, Total (7440-41-7)			X												
4M. Cadmium, Total (7440-43-9)			X												
5M. Chromium, Total (7440-47-3)			X												
6M. Copper, Total (7550-50-8)			X												
7M. Lead, Total (7439-97-6)			X												
8M. Mercury, Total (7439-97-6)			X												
9M. Nickel, Total (7440-02-0)			X												
0M. Selenium, Total (7782-49-2)			X												
1M. Silver, Total (7440-22-4)			X												
2M. Thallium, Total (7440-28-0)			X												
3M. Zinc, Total (7440-66-5)			X												
4M. Cyanide, Total (57-12-6)			X												
5M. Phenols, Total			X												
DIOXIN															
1,3,7,8-Tetra-chlorodibenzo-P-dioxin (1764-01-6)			X	DESCRIBE RESULTS											

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TEST METHOD	B. BEHAVIORAL PRESENT	C. BEHAVIORAL ABSENT	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		E. LONG TERM AVG. VALUE (if available)		D. NO. OF ANALYSES	B. CONCENTRATION	U. MASS	F. LONG TERM AVERAGE VALUE		G. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GROUPS FRACTION - VOLATILE COMPOUNDS															
V. Acrolein (107-02-8)			X												
V. Acrylonitrile (107-13-1)			X												
V. Benzene (71-43-2)			X												
V. Bis (Chloromethyl) Ether (542-88-1)			X												
V. Bromoform (75-25-2)			X												
V. Carbon tetrachloride (56-23-5)			X												
V. Chlorobenzene (108-90-7)			X												
V. Chlorodibromomethane (124-48-1)			X												
V. Chloroethane (75-00-3)			X												
V. 2-Chloroethylvinyl Ether (110-75-8)			X												
V. Chloroform (67-66-3)			X												
V. Dichlorodibromomethane (75-27-4)			X												
V. Dichlorodifluoromethane (75-71-8)			X												
V. 1,1-Dichloroethane (75-34-3)			X												
V. 1,2-Dichloroethane (107-06-2)			X												
V. 1,1-Dichloroethylene (75-35-4)			X												
V. 1,2-Dichloropropane (78-87-5)			X												
V. 1,3-Dichloropropane (542-75-6)			X												
V. Ethylbenzene (100-41-4)			X												
V. Methyl bromide (74-83-9)			X												
V. Methyl chloride (74-87-3)			X												

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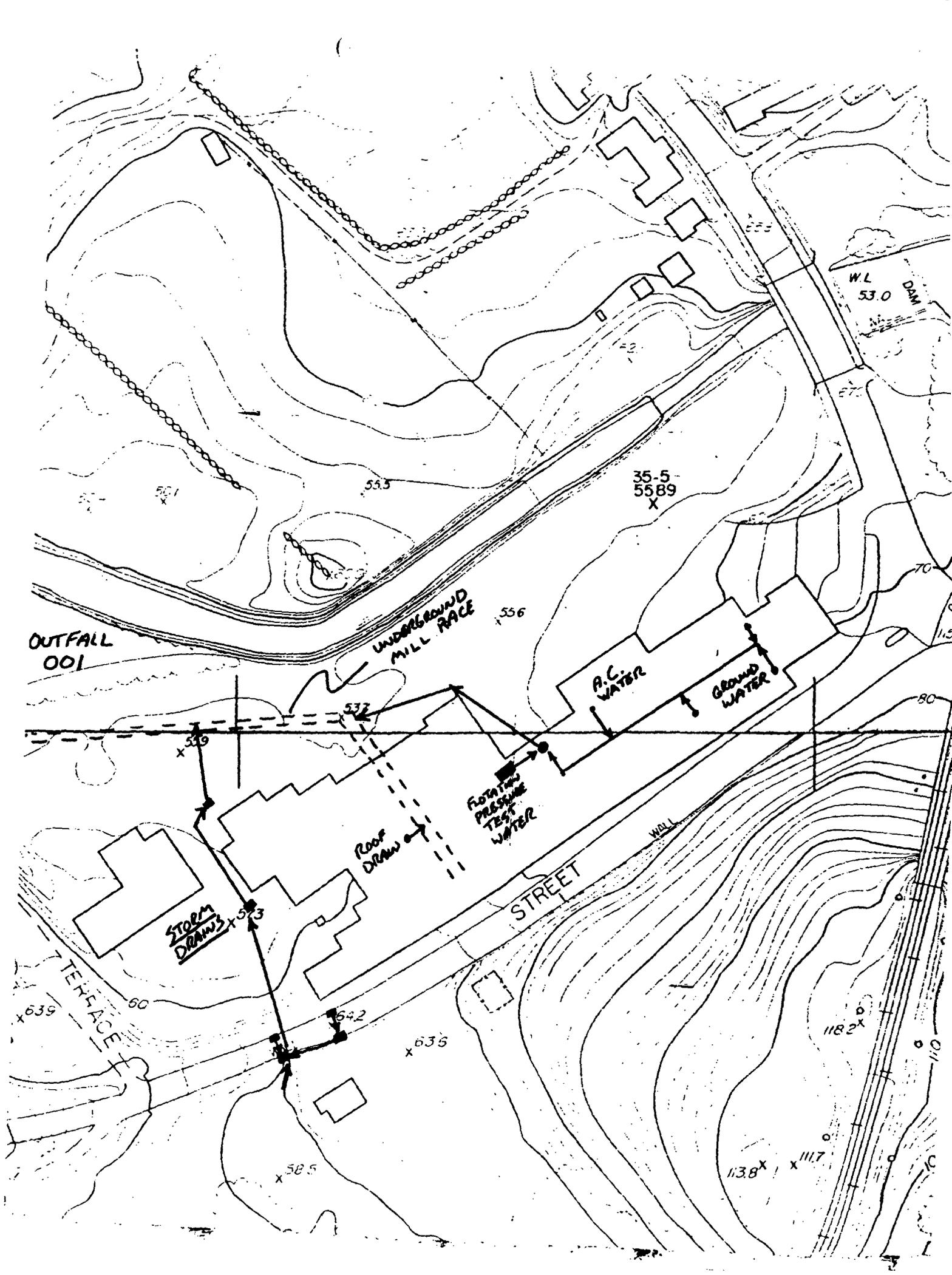
1. POLLUTANT AND CAS NUMBER (Available)	2. MASS			3. MAXIMUM DAILY INTAKE (1) CONCENTRATION	4. UNITS	5. INTAKE (optional)		6. NO. OF ANALYSES	7. CONCENTRATION	8. MASS	8. LONG TERM AVERAGE VALUE		9. NO. OF ANALYSES
	a. TYPE OF MISC. QUANTIFIED	b. OF MISC. QUANTIFIED	c. OF MISC. QUANTIFIED			(1) CONCENTRATION	(1) CONCENTRATION				(2) MASS	(2) MASS	
OOCS FRACTION - BASE/NEUTRAL COMPOUNDS													
16. Benzene (71-43-2)			X										
25. Toluene (108-88-3)			X										
26. Ethylbenzene (100-97-7)			X										
41. Xylene (95-47-5)			X										
55. Benzene (a) Anthracene (50-99-3)			X										
66. Benzene (a) Fluorene (50-99-8)			X										
72. 2,4-Dinitrofluorene (20-90-2)			X										
85. Benzene (a) Pyrene (101-24-2)			X										
95. Benzene (a) Fluoranthene (221-09-9)			X										
104. Bis (3-Chloroethyl) Methane (117-81-3)			X										
118. Bis (3-Chloroethyl) Ether (117-84-4)			X										
129. Bis (3-Chloroisopropyl) Ether (2068-33-4)			X										
139. Bis (3-Ethylhexyl) Phthalate (117-81-7)			X										
145. 4-Bromophenyl Phenyl Ether (101-66-3)			X										
155. Butyl Benzyl Phthalate (85-88-7)			X										
165. 2-Chloronaphthalene (91-66-7)			X										
175. 4-Chlorophenyl Phenyl Ether (2068-72-3)			X										
188. Chrysene (218-01-9)			X										
198. Dibenz (a,h) Anthracene (53-70-3)			X										
205. 1,2-Dichlorobenzene (95-50-1)			X										
215. 1,3-Dichlorobenzene (541-73-1)			X										

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. TESTING REQUIRED	b. ANALYSIS	c. RECOVERED	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	b. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (88-30-6)			X												
44B. Phenanthrene (E5-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Trichlorobenzene (120-82-1)			X												
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α-BHC (319-84-6)			X												
3P. β-BHC (319-85-7)			X												
4P. γ-BHC (58-89-9)			X												
5P. δ-BHC (319-86-8)			X												
6P. Chlordane (57-74-9)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-85-9)			X												
9P. 4,4'-DDD (72-84-8)			X												
10P. Dieldrin (60-37-1)			X												
11P. α-Endosulfan (115-29-7)			X												
12P. β-Endosulfan (115-29-7)			X												
13P. Endosulfan sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TESTING REQUIR-ED	B. DE-RIVATIVES PRE-SENT	C. DE-RIVATIVES AB-SENT	A. MAXIMUM DAILY VALUE		B. MAXIMUM 3-DAY VALUE		C. LONG TERM AVERAGE VALUE		D. NO. OF ANAL- YSES	a. CONCEN- TRATION	b. MASS	b. LONG TERM AVERAGE VALUE		d. NO. OF ANAL- YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
PCBS FRACTION - PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)			X												
18P. PCB-1242 (53499-21-9)			X												
19P. PCB-1254 (11097-69-1)			X												
20P. PCB-1221 (11104-28-2)			X												
21P. PCB-1232 (11141-16-5)			X												
22P. PCB-1248 (12672-29-6)			X												
23P. PCB-1260 (11098-82-8)			X												
24P. PCB-1016 (12674-11-2)			X												
25P. Toxaphene (8001-35-2)			X												



Distribution:

R. P. Porter
J. P. Nardelli
J. J. Cohenno
J. S. Colageo
H. J. Gaffney
R. S. Brooks
R. R. Riolo



CHEMICAL WASTE MANAGEMENT OF MA., INC.
5 Strathmore Rd.
Natick, MA 01760
(617) 655-8863

PCB CRITERIA FOR CHEMICAL WASTE MANAGEMENT, INC., EMELLE, ALABAMA

Thank you for your inquiry concerning Chemical Waste Management, Inc., and the disposal of PCB material. Chemical Waste Management, Inc., a wholly-owned subsidiary of waste management, inc., with corporate offices located in Oak Brook, Illinois, owns and operates a hazardous waste disposal site in Emelle (Sumter County), Alabama.

Chemical Waste Management, Inc., warrants that this site is fully permitted to dispose of the following PCB materials.

- (1) PCB - All solids (Contaminated debris, soil, rags, clothing, etc.) may be landfilled.

Required Information: Indicate the nature of the solid (e.g. "steel piping", dirt and gravel" etc) and the range of concentration of PCB contamination (e.g. 50-500ppm", "0.01 to 0.5%", 20 pounds of PCB's per 1000 pounds of earth", etc.)

- (2) PCB Liquids - PCB contaminated liquids containing less than 500 ppm PCB with a flash point greater than 140° F. may be landfilled.

Required Information: A certification of PCB content and flash point must be supplied prior to shipment.

- (3) PCB Liquids - PCB liquids containing more than 500 ppm PCB and/or a flash point less than 140°F. may be disposed of in accordance with all applicable regulations by incineration on our Chemical Waste Management, Inc., Ocean Incineration Vessel, the MT. "Vulcanus".

Required Information: A statement as to the origin of the material (e.g. PCB liquid and rinse drained from a transformer)

- (4) Transformers - All transformers must be drained and flushed in accordance with U. S. EPA regulations prior to landfilling. Chemical Waste Management can also provide a total turnkey service for transformers, including transportation, draining and flushing, and disposal

Required Information: Manufacturer, serial number if known, weight dimensions, and date removed from service.

- (5) Capacitors - U. S. EPA, has banned the landfilling of PCB capacitors which contains three *(3) pounds or more of dielectric fluid. Small capacitors containing less than three (3) pounds of dielectric fluid may be landfilled.

* A good "rule of thumb" to determine the amount of PCB liquid a capacitor contains, is to weigh the capacitor and use one-fourth (¼) of the total weight as the amount of PCB liquid. Remember...this is just a "rule of thumb"



CHEMICAL WASTE MANAGEMENT, INC.
5 Strathmore Rd.
Natick, MA 01760
(617) 655-8863

Required Information:

- A. The number of the drum or container (i.e. "drum #3").
- B. The number of individual capacitors within a drum.
- C. The outside dimensions of the capacitor(s).
- D. The serial number, make, model, etc., if available.
- E. A certification that each capacitor included contains less than three (3) pounds of dielectric fluid.

Containerization and Marking

40 CFR, Part 761 provides specific requirements for packaging and marking of PCB items for disposal. Attached are copies of parts of sections 761.20, 761.42 and 761.44 which may prove helpful.

Note also that:

1. Solids should be filled to within four inches of the top of the drum with absorbent.
2. Liquids to be incinerated must be free of sludge.
3. Drums with capacitors should be filled within four inches of the top of the drum with absorbent.



CHEMICAL WASTE MANAGEMENT OF MASSACHUSETTS, INC.
5 Strathmore Rd.
Natick, MA 01760
(617) 655-8863

PCB REQUIRED INFORMATION

COMPANY NAME _____

MAILING ADDRESS _____

TYPE OF MATERIAL _____

I hereby certify that the above information is correct and is in compliance with applicable Federal Regulations (40CFR Part 761)

AUTHORIZED SIGNATURE _____ TITLE _____
NAME (Printed or Typed) _____ DATE _____
PHONE NUMBER - AREA CODE () _____



ANNEX V

§ 761.44 Marking formats.

The following formats shall be used for marking:

(a) *Large PCB Mark—M_L*. Mark M_L shall be as shown in Figure 1, letters and striping on a white or yellow background and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB Article, PCB Equipment, or PCB Container. The size of the mark shall be at least 15.25 cm (6 inches) on each side. If the PCB Article or PCB Equipment is too small to accommodate this size, the mark may be reduced in size proportionately down to a minimum of 5 cm (2 inches) on each side.

(b) *Small PCB Mark—M_s*. Mark M_s shall be as shown in Figure 2, letters and striping on a white or yellow background, and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB Article, PCB Equipment, or PCB Container. The mark shall be a rectangle 2.5 by 5 cm (1 inch by 2 inches). If the PCB Article or PCB Equipment is too small to accommodate this size, the mark may be reduced in size proportionately down to a minimum of 1 by 2 cm (.4 by .8 inches).

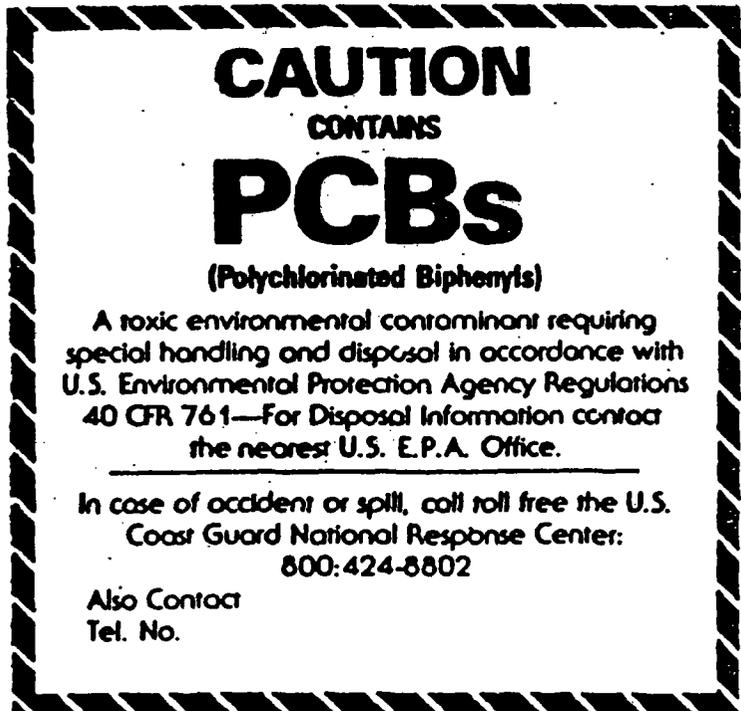


Figure 1

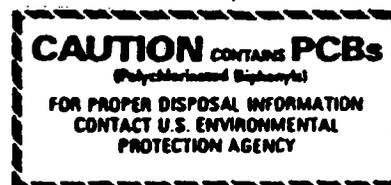
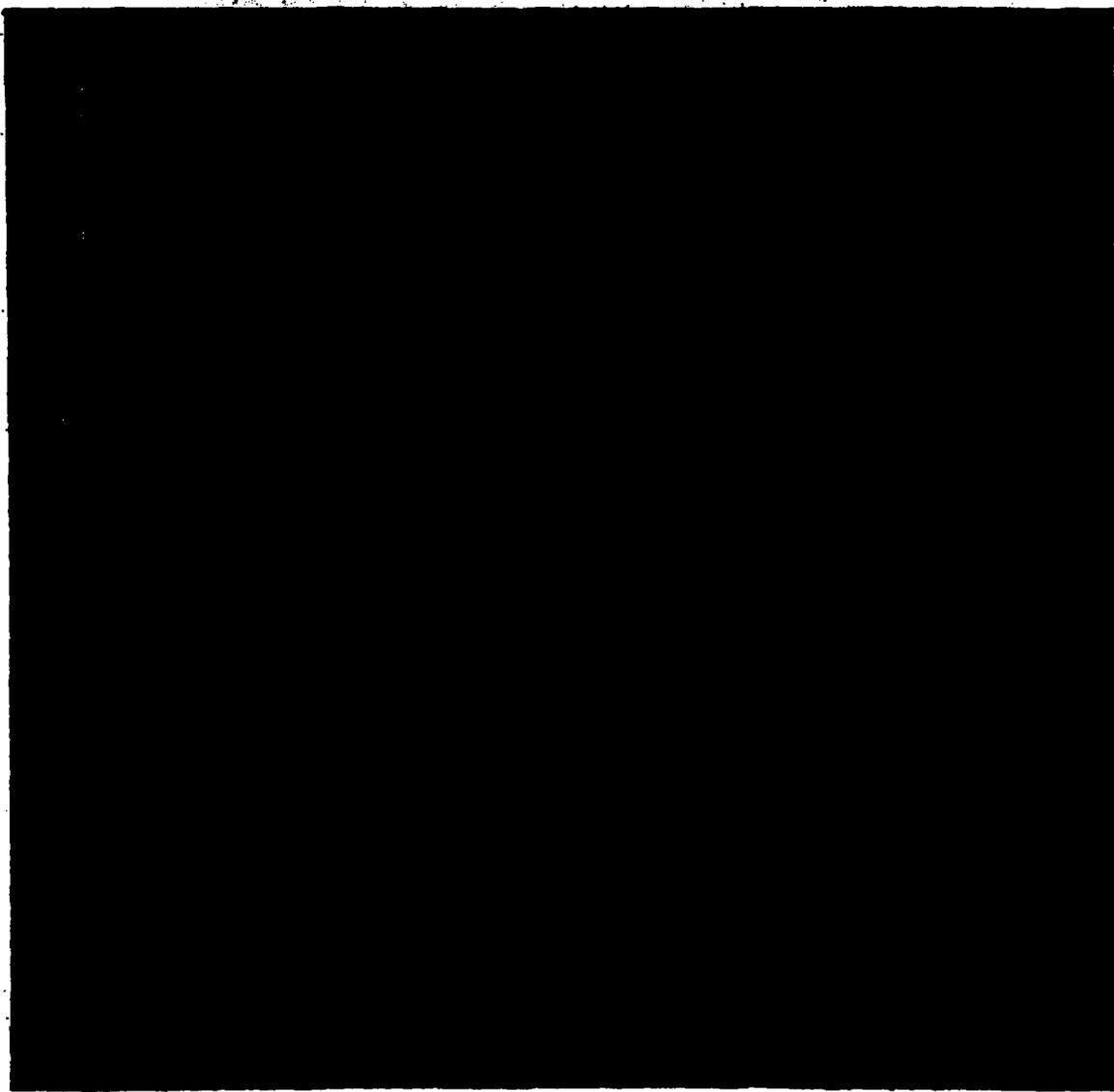
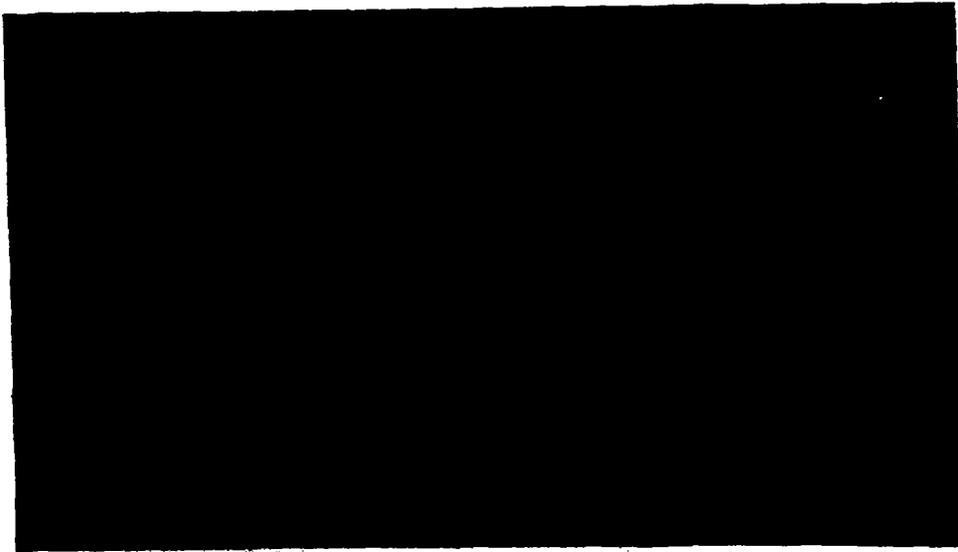


Figure 2



D.O.T. Required Markings for Containers

1. "ORM-E"
2. "RQ"
3. "PCB" or "Polychlorinated Biphenyls"
4. "UN2315" (As of 7/83)

C—Marking of PCBs and PCB Items

1.20 Marking requirements.

(a) Each of the following items in existence on or after July 1, 1978 shall be marked as illustrated in Figure 1 in Annex V—§ 761.44(a): The mark illustrated in Figure 1 is referred to as M_L throughout this subpart.

(1) PCB Containers;
 (2) PCB Transformers at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal

from use if not already marked. Marking of PCB—Contaminated transformers is not required;

(3) PCB Large High Voltage Capacitors at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal from use if not already marked;

(4) Equipment containing a PCB transformer or a PCB Large High Voltage Capacitor at the time of manufacture, at the time of distribution in commerce if not already marked, and at the time of removal of the equipment from use if not already marked;

(5) PCB Large Low Voltage Capacitors at the time of removal from use;

(6) Electric motors using PCB coolants. (See also paragraph (e) of this section).

(7) Hydraulic systems using PCB hydraulic fluid (See also paragraph (e) of this section);

(8) Heat transfer systems (other than PCB Transformers) using PCBs (see also paragraphs (e) of this section);

(9) PCB Article Containers containing articles or equipment that must be marked under paragraphs (a) (1) through (8) above;

(10) Each storage area used to store PCBs and PCB Items for disposal.

(b) As of October 1, 1978, each transport vehicle shall be marked on each end and side with M_L as described in Annex V—§ 761.44(a) if it is loaded with PCB Containers that contain more than 45 kg (99.4 lbs.) of PCBs in a liquid phase or with one or more PCB Transformers (See also paragraph (e) of this section).

(c) As of January 1, 1979, the following PCB Articles shall be marked with mark M_L as described in Annex V—§ 761.44(a):

1) All PCB Transformers not marked under paragraph (a) of this section (marking of PCB—Contaminated Transformers is not required);

2) All PCB Large High Voltage Capacitors not marked under paragraph (a) of this section

3) All PCB Transformers (See also paragraph (e) of this section)

4) All PCB Large High Voltage Capacitors are installed in a protected location such as on a power pole, or structure, or behind a fence;

the pole, structure, or fence shall be marked with mark M_L , and a record or procedure identifying the PCB Capacitors shall be maintained by the owner or operator at the protected location.

(d) As of January 1, 1979, all PCB Equipment containing a PCB Small Capacitor shall be marked at the time of manufacture with the statement, "This equipment contains PCB Capacitor(s)". The mark shall be of the same size as the mark M_L .

(e) As of October 1, 1979, applicable PCB Items in paragraphs (a)(1), (6), (7), and (8) containing PCBs in concentrations of 50 to 500 ppm and applicable transport vehicles in paragraph (b) loaded with PCB Containers that contain more than 45 kg (99.4 lbs.) of liquid PCBs in concentrations of 50 ppm to 500 ppm shall be marked with mark M_L as described in Annex V—§ 761.44(a).

(f) Where mark M_L is specified but the PCB Article or PCB Equipment is too small to accommodate the smallest permissible size of mark M_L , mark M_s as described in Annex V—§ 761.44(b), may be used instead of mark M_L .

(g) Each large low voltage capacitor, each small capacitor normally used in alternating current circuits, and each fluorescent light ballast manufactured ("manufactured", for purposes of this sentence, means built) between July 1, 1978 and July 1, 1998 that do not contain PCBs shall be marked by the manufacturer at the time of manufacture with the statement, "No PCBs". The mark shall be of similar durability and readability as other marking that indicate electrical information, part numbers, or the manufacturer's name. For purposes of this paragraph marking requirement only is applicable to items built domestically or abroad after June 30, 1978.

(h) All marks required by this subpart must be placed in a position on the exterior of the PCB Items or transport vehicles so that the marks can be easily read by any persons inspecting or servicing the marked PCB Items or transport vehicles.

(i) Any chemical substance or mixture that is manufactured after the effective date of this rule and that contains less than 500 ppm PCB (0.05% on a dry weight basis), including PCB that is a byproduct or impurity, must be marked in accordance with any requirements contained in the exemption granted by EPA to permit such manufacture and is not subject to any other requirement in this subpart unless so specified in the exemption. This paragraph applies only to containers of chemical substances or mixtures. PCB articles and equipment into which the chemical substances or mixtures are processed, are subject to the marking requirements contained elsewhere in this subpart.

CONTAINERS

§ 761.42

~~marked non-leaking containers. Any spilled or leaked material shall be immediately cleaned up using solvents or other adequate means, and the PCB-contaminated material and residue shall be disposed of in accordance with § 761.102(b)(4).~~

(6) Except as provided in paragraph (c)(7) below, any container used for the storage of liquid PCBs shall comply with the Shipping Container Specification of the Department of Transportation (DOT), 49 CFR 178.80 (Specification 5 container without removable head), 178.82 (Specification 5B container without removable head), 178.102 (Specification 6D overpack with Specification 2S(§ 178.35) or 2SL(§ 178.35a) polyethylene containers) or 178.116 (Specification 17E container). Any container used for the storage of non-liquid PCBs shall comply with the specifications of 49 CFR 178.80 (Specification 5 container), 178.82 (Specification 5B container) or 178.115 (Specification 17C container). As an alternate, containers larger than those specified in DOT Specifications 5, 5B, or 17C may be used for non-liquid PCBs if the containers are designed and constructed in a manner that will provide as much protection against leaking and exposure to the environment as the DOT Specification containers, and are of the same relative strength and durability as the DOT Specification containers.

(7) Storage containers for liquid PCBs can be larger than the containers specified in paragraph (c)(6) above provided that:



Chemical Waste Management, Inc.
555 Metro Place North Suite 525
Dublin, Ohio 43017
614/766-1100

April 9, 1984

Mr. Jay McNeff
Emerson & Cuming Unit
W. R. Grace & Company
59 Walpole Street
Canton, Massachusetts 02021

Dear Mr. McNeff:

Due to the lengthy delays in obtaining an EPA permit for our ocean incineration vessel, the VULCANUS, and not wanting to exceed our permit limitations on PCB storage, we have implemented a new policy and procedure for handling the incineration of PCB materials.

PCB materials requiring incineration will be shipped first to our facility in Emelle, Alabama, where all necessary servicing and consolidation will be performed and the portions requiring incineration will be delivered by Chemical Waste Management, Inc. to an EPA approved PCB incinerator. Once destruction takes place, incineration certificates will be issued upon request.

Thank you for considering Chemical Waste Management, Inc. for your disposal needs.

Sincerely,

CHEMICAL WASTE MANAGEMENT, INC.

Bret Dyer

Bret Dyer
Sales Engineer

BD:sh



... '84 REFERENCE NUMBER NAT D82566

WASTE TRANSPORTATION AND DISPOSAL AGREEMENT

WIT W.R. GRACE & CO.
PUBLICLY HELD CORP.

On this 7th day of March 1984, the parties, Emerson and Cuming a corporation with its principal offices at 1114 AVENUE OF THE AMERICANS NEW YORK, NY 10036 (hereinafter called "Generator"), and Chemical Waste Management, Inc., a Delaware corporation with its principal offices at 3003 Butterfield Road, Oak Brook, Illinois 60521, (hereinafter referred to as "Disposer"), have agreed as follows:

1. WASTE MATERIALS. During the term of this Agreement, Generator will provide to Disposer Generator's entire output of certain waste materials generated at Emerson and Cuming, Canton, Massachusetts, (up to a maximum of one load per one time), the chemical composition and physical characteristics of which materials are described in the "Generator's PCB Waste Material Description Sheet", Code designation Reference Number D82566, attached hereto, and incorporated herein.

NAT
PREVIOUSLY SUBMITTED NUMBER

2. DISPOSER SERVICES. Disposer agrees to provide Generator the following services, as described in one or more of the following sections:

a. Transportation of (2) two five gallon pails containing PCB liquid (greater than 500 ppm) from Emerson and Cuming, Canton, Massachusetts to the disposal facility as listed in Section b. following.

b. Transportation and disposal of the PCB liquid containing more than 500 ppm, in a manner permitted by law, at the following facility: MT "Vulcanus", Ocean Incineration Vessel, at the U.S.E.P.A. designated burn site.

3. FEES AND BILLING. For those services provided by Disposer, Generator will pay Disposer a fee as follows:

Transportation and disposal of (2) two five gallon pails containing PCB liquid (greater than 500 ppm).....\$150.00

Chemical Waste Management, Inc., will not accept any PCB materials for incineration which have been in storage for disposal by Generator for more than six months at the time of delivery to Chemical Waste Management, Inc.

The fees set forth are subject to change at any time during the term hereof upon Disposer providing Generator with at least thirty (30) days advance written notice.

The fee stated above shall be increased to include any amounts which Disposer is required to pay to local, state or Federal governments or agencies by virtue of a tax, tariff, fee, surcharge or other charge on the transportation, storage, treatment or disposal of the described waste materials. Such amounts will be invoiced to the Generator as a separate item on monthly statements. Disposer shall submit statements to Generator which shall be paid not later than thirty (30) days from date of receipt. Disposer shall retain copies of statements for at least five (5) years, as a record of disposal.

4. TERM. This Agreement shall have a term of one year from the date hereof, unless some shorter period is hereafter entered: May 7, 1984. Either party may terminate this Agreement, with or without cause, upon thirty (30) days' written notice to the other party.

5. TRANSFER OF WASTES AND TITLE. Generator's waste materials, so described, will be transferred to Disposer at the following place, times, frequencies and quantities.

Emerson and Cuming
Canton, Massachusetts

As scheduled between the parties.
During normal business hours Monday thru Friday excluding legal holidays.

At the time Disposer takes possession of, and removes, waste materials from the place of transfer, or at the time Disposer accepts delivery of the waste materials at the designated storage or disposal facility, whichever circumstance is applicable, title, risk of loss and all other incidents of ownership to the waste materials shall be transferred from Generator and vested in Disposer.

In the event waste materials are discovered to be nonconforming, Disposer may revoke its acceptance of the materials. A justified revocation of acceptance shall operate to re-vest title, risk of loss and all other incidents of ownership in Generator, at the time revocation is communicated to Generator. Waste materials shall be considered nonconforming, for purposes of this Agreement: (i) if they are not in accordance with the descriptions, limitations or specifications stated in the attached Waste Material Description Sheet; or (ii) if they have constituents or components, not specifically identified in the Generator's PCB Waste Material Description Sheet, (a) which increase the nature or extent of the hazard and risk undertaken by Disposer in agreeing to handle, load, transport, store, treat or dispose of the waste materials, or (b) for whose storage, treatment or disposal the Disposal Facility is not designed or permitted.

Waste Materials discovered by Disposer to be nonconforming, if they are in Disposer's possession, shall be prepared for lawful transportation and returned to Generator within a reasonable time, not to exceed seven days, after notice of revocation of acceptance has been communicated to Generator, unless within such time the parties agree to some alternative lawful manner of materials disposition. Generator shall pay Disposer its reasonable expenses and charges for handling, loading, preparing, transporting, storing and caring for nonconforming waste materials returned to Generator under this paragraph.

6. DISPOSER WARRANTIES. Disposer warrants that: it understands the currently known hazards which are presented to persons, property and the environment in the transportation, storage and disposal of the described waste materials; it will transport, store and dispose of such materials in full compliance with all governmental laws, regulations and orders; the storage and disposal facilities above described are now licensed and permitted to store and dispose of waste materials within the description of Paragraph 1; and, in the event the storage or disposal facility loses its permitted status hereafter during the term of this Agreement, disposer will promptly notify Generator of such loss.

7. GENERATOR WARRANTIES. Generator warrants that: the description of its waste materials, made in Paragraph 1, is true and correct; waste materials to be transferred to Disposer will conform to such description; containers of waste materials transferred to Disposer will be marked, labeled and otherwise in conformance with governmental laws, regulations and orders; he holds clear title to all waste materials to be transferred hereunder; he is under no legal restraint or order which would prohibit transfer of possession or title to such materials to

Disposer for transportation and storage or disposal; he has, and will during the term hereof, communicate to Disposer those hazards and risks known or learned by the Generator to be incident to the handling, transportation, storage and disposal of the waste materials; if the waste materials are hazardous wastes as defined pursuant to Section 3001 of the Resource Conservation and Recovery Act, the Generator has made any notifications required by Section 3010 of that Act and the Generator will comply with pertinent regulatory requirements established pursuant to Section 3002 of that Act, including the manifest requirement; he will comply with the relevant requirements of 40 CFR, Part 761; if the waste materials are, or contain, hazardous substances as defined pursuant to Section 101 (14) of the Federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980, the Generator will advise Disposer, in writing, prior to tendering or delivering to Disposer any vehicular load of waste materials containing a reportable quantity of any hazardous substance or substances pursuant to Section 102 of said Act, specifying those hazardous substances present in a reportable quantity.

8. **INDEMNIFICATION.** Disposer agrees to indemnify, save harmless and defend the Generator from and against any and all liabilities, claims, penalties, forfeitures, suits, and the costs and expenses incident thereto, (including costs of defense, settlement and reasonable attorneys' fees), which it may hereafter incur, become responsible for or pay out as a result of death or bodily injuries to any person, destruction or damage to any property, contamination of or adverse effects on the environment, or any violation of governmental laws, regulations or orders, caused, in whole or in part, by (i) Disposer's breach of any term or provision of this Agreement; or, (ii) any negligent or willful act or omission of the Disposer, its employees or subcontractors in the performance of this Agreement.

Generator agrees to indemnify, save harmless and defend the Disposer from and against any and all liabilities, claims, penalties, forfeitures, suits, and the costs and expenses incident thereto, (including costs of defense, settlement and reasonable attorneys' fees), which it may hereafter incur, become responsible for or pay out as a result of death or bodily injuries to any person, destruction or damage to any property, contamination of or adverse effects on the environment, or any violation of governmental laws, regulations or orders, caused, in whole or in part, by (i) Generator's breach of any term or provision of this Agreement; or, (ii) any negligent or willful act or omission of the Generator, its employees or subcontractors in the performance of this Agreement.

9. **INSURANCE.** Disposer shall procure and maintain, at its expense, during the term of this Agreement, at least the following insurance, covering activities, performed under, and contractual obligations undertaken in this Agreement:

<u>COVERAGE</u>	<u>LIMITS</u>
(a) Workmen's Compensation	Statutory
(b) Employer's Liability	\$500,000 each occurrence
(c) Public Liability (bodily injury)	\$5,000,000 combined single limit
(d) Public Liability (property damage)	Same as (c) above

- | | | |
|-----|---|--|
| (e) | Automobile Liability
(bodily injury) | \$200,000 each person
\$500,000 each occurrence |
| (f) | Automobile Liability
(property damage) | \$50,000 each occurrence |

Disposer agrees to furnish insurance certificates, showing Disposer's compliance with this Section, upon written request of the Generator.

10. WORK ON GENERATOR'S PREMISES. Generator agrees to provide Disposer, its employees and subcontractors a safe working environment for any work, in performance of this Agreement, which must be undertaken on premises owned or controlled by the Generator. Disposer, its employees and subcontractors shall comply with the Generator's safety procedures while on the Generator's premises, provided such procedures are conspicuously and legibly posted in the working area or have been delivered, in writing, to Disposer prior to the commencement of work on the Generator's premises.

11. INDEPENDENT CONTRACTOR. Disposer is and shall perform this Agreement as an independent contractor, and as such, shall have and maintain complete control over all of its employees, agents, and operations. Neither Disposer nor anyone employed by it shall be, represent, act, purport to act or be deemed to be the agent, representative, employee or servant of the Generator.

12. INSPECTIONS. The Generator shall have the right to inspect and obtain copies of all written licenses, permits or approvals, issued by any governmental entity or agency to Disposer or its subcontractors which are applicable to the performance of this Agreement; to inspect and test, at its own expense, transportation vehicles or vessels, containers or disposal facilities provided by Disposer; and to inspect the handling, loading, transportation, storage or disposal operations conducted by Disposer in the performance of this Agreement. Such inspections are encouraged by Disposer.

13. EXCUSE OF PERFORMANCE. The performance of this Agreement, except for the payment of money for services already rendered, may be suspended by either party in the event the delivery or transportation of the described waste materials by Generator, or transportation, storage or disposal of such materials by Disposer are prevented by a cause or causes beyond the reasonable control of such party. Such causes shall include, but not be limited to, acts of God, acts of war, riot, fire, explosion, accident, flood, or sabotage; lack of adequate fuel, power, raw materials, labor or transportation facilities; governmental laws, regulations, requirements, orders or actions; breakage or failure of machinery or apparatus; national defense requirements; injunctions or restraining orders; labor trouble, strike, lockout or injunction (provided that neither party shall be required to settle a labor dispute against its own best judgment).

14. DELEGATION AND ASSIGNMENT. Disposer may at any time, upon written notice to the Generator, delegate, orally or in writing, the performance of the work, or any portion thereof, which is by this Agreement undertaken by Disposer; provided, however, Disposer may not, without the prior written consent of Generator, cause the storage or disposal of the waste materials at any facility other than those specified in Section 2 (b) of this Agreement. Any such delegation shall not operate to relieve Disposer of its responsibilities hereunder and, notwithstanding any such delegation, Disposer shall remain obligated to the Generator in these undertakings.

Either party may, at any time, upon written notice to the other party, assign its rights under this Agreement.

15. NOTICE. Any notice to be given under this Agreement shall be in writing and delivered to the address of the respective party below:

GENERATOR:

Emerson and Cuming
59 Walpole Street
Canton, Massachusetts 02021
Attn: Mr. Jay McNeff

DISPOSER:

Chemical Waste Management, Inc.
Five Strathmore Road
Natick, Massachusetts 01760
Attn: Bret Dyer

16. LAW TO APPLY. The validity, interpretation and performance of this Agreement shall be governed and construed in accordance with the laws of Alabama.

17. ENTIRE AGREEMENT. This Agreement represents the entire understanding and agreement between the parties hereto relating to the transportation, storage, treatment, processing and disposal of the described waste materials and supersedes any all prior agreements, whether written or oral, that may exist between the parties regarding same and supersedes any and all terms and conditions which may be contained in any purchase orders, issued by the Generator prior or subsequent to this Agreement.

In no event shall the preprinted terms or conditions found on any Disposer or Generator purchase or work order be considered an amendment or modification of this Agreement, even if such documents are signed by representatives of both parties; such preprinted terms or conditions shall be considered null and of no effect.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed by their duly authorized representatives as of the day and year first above written.

GENERATOR:

EMERSON AND CUMING

By: John F. McNeill II

Title: PLANT ENGINEER

DISPOSER:

CHEMICAL WASTE MANAGEMENT, INC.

By: George M. Simmons
George M. Simmons 4/6/84

Title: Region Manager

bd

CHEMICAL WASTE MANAGEMENT, INC.

GENERATOR'S PCB WASTE MATERIAL DESCRIPTION SHEET

Reference Number NAT D82566

Transportation and disposal of (2) two five gallon pails containing PCB liquid (greater than 500 ppm).

PCB LIQUIDS

PCB liquids must be contained in DOT 17E drums according to EPA specifications, or shipped in bulk, 2,000 gallons or more.

For the incineration of PCB liquids containing greater than 500 ppm PCB and/or a flash point less than 140° F., please send any analytical data to Chemical Waste Management, Inc. prior to shipment.

All containers must be labeled in accordance with the Toxic Substance Control Act, PL 94-469, Subpart "C" and the Federal Register (49 CFR, Part 172.316).

NOTE: In accordance with U.S.E.P.A. regulations, all materials designated for disposal must have notation on the container indicating the date the materials were placed in storage.

RANDY,

Rob
Russ
Jen
Wade

5/31

HERE IS PCB CONTRACT
(MY COPY - PLEASE RETURN)

IT WON'T HELP US

I TALKED TO MARK STOLER WHO
REFERRED ME TO PETER MATONIS
HE SAID S.C.A. WOULD BE O.K.
IF FINAL INCINERATION LOCATION IS
G.E. IN MASS. - COULD BE DONE SOON
OVERALL WE SHOULD GO BY FINAL
INCINERATION POINT TO DECIDE FACILITY
IS GOOD / REPUTABLE

FIND OUT WHERE S.C.A. WILL HAVE
THESE PCB'S INCINERATED.

ALSO, WE SHOULD REQUEST INCINERATION
CERTIFICATE TO VERIFY DESTRUCTION

GIVE ME A CALL ON THIS

JAY

in 55 gal
w/ speedi drag

SCA → Chicago incinerator

manifest

to SCA Brantree

✓ EWM as transporter

SCA incinerator disposal

special instruction on manifest

↑
↓ require incinerator certification

SCA Chemical Services Inc.

SCA MAD # 053 45 2637

Quincy Ave

Brantree MA

GRACE MEMO

RECEIVED
MAY 10 1984
EMERSON & CUMING
CANTON, MASS. VERMONT

to: Randy Olson

date: May 10, 1984

from: Paul E. Firestone

cc: G. F. Winterson
J. J. Cohenno
J. S. Colageo

subject: P C B's at Plant II

I have talked to Chemical Waste Management regarding the disposal of the P C B's (Araclor 1254) at plant II.

The problem you have been having with C. W. M. disposing of the P C B is that C. W. M.'s storage facilities for P C B's is completely full, as is most other waste compounds around the country, and the E P A will not give anyone permission to dispose of it.

However, C W M would be able to dispose of this for us through S C A services in Braintree, Mass. C W M would act as a hazardous waste transporter for us in this case. The price for disposal of these two 5 gallon pails would be \$375.00. The hazardous waste manifest would have to be made out directly to S C A services.

According to C W M, the \$375.00 price is high, but that is the brokerage price that C W M would have to pay to S C A. If we deal directly with S C A, the price will be higher.

In the mean time, the two five gallon pails should be placed in a 55 gallon drum and packed with oil dry or Speedi Dri (So not use vermiculite) on the bottom, sides and top of the pails.

If you decide to go this way, contact Pat Russo, General Manager, C W M. 431-7942 for details. If you do not want to go this way, the material will have to be put in storage and documented records kept.

Paul E. Firestone

P.S.

S.C.A. Services is the waste disposal company Maureen Dalton used until the time when she was on an inspection trip of their facility, a drum of chemicals exploded, showering her and her party with a gooey liquid. Right after that she switched to C W M.

I have heard several stories and reports about S C A Services in general and the Braintree operation in particular when I started handling the hazardous waste. I don't recall any of the records were ever documented, but from my own point of view, I just have an uneasy feeling about doing business with the Braintree branch of S C A Services.

PEF:mec

Emerson & Cuming
Dewey and Almy Chemical Division

MATERIAL ORDERED FOR:

GRACE

EMERSON & CUMING
Dewey and Almy Chemical Division
 W.R. Grace & Co.
 Canton, Massachusetts 02021

PURCHASE ORDER NO.

2-49405

THIS NO. TO APPEAR ON ALL PACKAGES AND CORRESPONDENCE PERTAINING TO THIS ORDER.

SHIP & BILL TO THE LOCATION INDICATED BELOW

- 888 WASHINGTON ST., CANTON, MASS. 02021
- 58 WALPOLE ST., CANTON, MASS. 02021
- 804 WEST 182nd ST., GARDENA, CALIF. 90248
- 3480 COMMERCIAL AVE., NORTHBROOK, ILL. 60062
- 2401 ELLIOTT AVE., TROY, MI 48064

To . **Chemical Waste Management, Inc.**
 5 strathmore Road
 Natick, Mass. 01760

ATTN: Bret Dyer

- SUBJECT TO STATE SALES TAX
- NOT SUBJECT TO STATE SALES TAX
- MASS. CERTIFICATE 135-114-230
- CALIF. CERTIFICATE SYOHS 98-0388-48
- ILLINOIS CERTIFICATE 318-813-2
- MICHIGAN CERTIFICATE ME-010-0086

PAYMENT TERMS Net 30		F.O.B. Canton	TRANSPORT TERMS Pickup	REQUISITIONER J. McNEFF	REQUIREMENT DATE within a month	
SHIP VIA Your pickup			VENDOR NUMBER	ORDER DATE 2-23-84	ALLOCATION	
ITEM	QTY. ORDERED	UNIT OF MEASURE	DESCRIPTION OF GOODS AND/OR SERVICES TO BE RENDERED.	CODE	UNIT PRICE	ALLOCATION
A	2 (5 gal.)	ea.	Pails waste polychlorinated Biphenyls <i>D 82566</i>		75.00	2608700
Confirming						

EMERSON & CUMING
Dewey and Almy Chemical Division
 W.R. Grace & Co.

By *Christine Harrington*
 Buyer
Christine Harrington

RECEIVING SCHEDULE

DATE RECD	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME	DATE RECD	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME
A				I			
B				J			
C				K			
D				L			
E				M			
F				N			
G				O			
H				P			



Chemical Waste Management

Of Massachusetts, Inc.

Five Strathmore Road
Natick, MA 01760
617/431-7942 617/655-8863

February 23, 1984

Emerson+Cuming, W.R. Grace Co.
59 Walpole St.
Canton Ma 02021

Attn; Jay McNeff

Dear Jay McNeff,

In Compliance with Section 310 CMR 30.512 of the Commonwealth of Massachusetts Hazardous Waste Regulations, this letter will serve to inform you that Chemical Waste Management of Massachusetts, Inc. has all the appropriate permits and licenses for, and will accept those wastes specified on Generators Waste Material Profile Sheets with the codes listed below.

Please note that should you desire to ship materials types other than those covered by the codes listed, a Generators Waste Material Profile Sheet must be completed for each material and submitted for acceptance. If acceptable it will be added to the list and a new letter will be sent to you prior to shipment of the material.

Very truly yours,

P. F. Russo
General Manager

Approved Codes:

NAT D82555 Potassium Oxalate
NAT D82558 Iron Oxide Pigment
NAT D82559 Spent Boric Acid
NAT D82560 Sodium Alkyl Sulfate
NAT D82561 Spent Diammonium Phosphate
NAT D82563 Titanium Dioxide
NAT D82564 Diglycidyl Ether
NAT D82565 Pliobond Adhesive
NAT D82566 Waste Polychlorinated Biphenyls
NAT D82567 Tertbutystyrene + Sand



Chemical Waste Management, Inc.

Five Strathmore Road
Natick, MA 01760
617/431-7942 617.655-8863

October 28, 1983

Emerson + Cuming
59 Walpole St.
Canton, Ma 02021

Dear Paul Firestone

In Compliance with Section 310 CMR 30.512 of the Commonwealth of Massachusetts Hazardous Waste Regulations, this letter will serve to inform you that Chemical Waste Management of Massachusetts, Inc. has all the appropriate permits and licenses for, and will accept those wastes specified on Generators Waste Material Profile Sheets with the codes listed below.

Please note that should you desire to ship materials types other than those covered by the codes listed, a Generators Waste Material Profile Sheet must be completed for each material and submitted for acceptance. If acceptable it will be added to the list and a new letter will be sent to you prior to shipment of the material.

Very truly yours,

P. F. Russo
General Manager

Approved Codes:

- 8 NAT B02697 Styrene Monomer(Inhibited)
- NAT A68803 Dodecenyl Succinil Anhydride And Water
- 4 NAT B02691 Carbon Sludge
- 5 NAT B02692 Waste Oil
- 3 NAT B02690 Carbon Solution
- 6 NAT B02693 Paint Sludge (Absorber)
- 7 NAT B02694 Resin Powder

~~RESIN~~
~~ADHESIVE~~

RESIN
 ① ~~B02678~~ METHYLENE CHLORIDE, BEARING WASTES
 ② B02680 TBS
~~ADHESIVE~~ ~~Free out~~

THIS FORM HAS BEEN DEVELOPED BY AND FOR THE USE OF CHEMICAL WASTE MANAGEMENT, INC. AND OTHER WASTE MANAGEMENT, INC. COMPANIES.

SALES CODE

NAT	B 02692
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WASTE PROFILE SHEET CODE



GENERATOR'S WASTE MATERIAL PROFILE SHEET

GENERAL DIRECTIONS: In order for us to determine whether we can lawfully, safely and environmentally transport, store, treat or dispose of your waste stream, we must ask certain information about your waste. All of the information we seek is necessary, for our purposes and yours. Be complete in your answers: if your response is "none," so indicate. Answers must be in ink or typewritten. Information you provide will be maintained in strictest confidence. Please make a copy of this form for your records, returning the original to the location indicated below.

THIS FORM AND ANY SUPPLEMENTAL INFORMATION SHOULD BE RETURNED TO:

CHEMICAL WASTE MANAGEMENT
5 STRATHMORE RD.
NATICK, MA 01760

- GENERATOR NAME: EMERSON + CUMING
- GENERATING FACILITY NAME/ADDRESS/USEPA FACILITY I.D. NUMBER (IF ANY):
EMERSON + CUMING 59 WALPOLE ST. CANTON, MA 02021
MAD 000 361 709
- COMPANY CONTACTS:

GENERAL <u>PAUL FIRESTONE</u>	TITLE <u>TRAFFIC MGR.</u>	PHONE <u>828-3300</u>
TECHNICAL <u>JAY MCNEFF</u>	TITLE <u>PLANT ENGR.</u>	PHONE <u>828-3300</u>
	TITLE _____	PHONE _____
- WASTE NAME: WASTE OIL
- PROCESS GENERATING WASTE: PUMP LUBRICATION
- WASTE CHARACTERISTICS:

A. PHASES/LAYERS: BILAYERED <input type="checkbox"/>	MULTILAYERED <input type="checkbox"/>	NONE <input checked="" type="checkbox"/>
B. PHYSICAL STATE AT 70°F: SOLID <input type="checkbox"/>	SEMI-SOLID <input type="checkbox"/>	LIQUID <input checked="" type="checkbox"/>
	POWDER <input type="checkbox"/>	OTHER: _____
C. SOLIDS: TOTAL (%): _____	TOTAL DISSOLVED (ppm or %): _____	
D. SPECIFIC WEIGHT (AS # PER UNIT): _____		
E. pH: _____ (Show the following as range of %)		
AS: H ₂ SO ₄ _____ %	H ₃ PO ₄ _____ %	
HCl _____ %	NaOH _____ %	
HF _____ %	NH ₄ OH _____ %	
HNO ₃ _____ %	Ca(OH) ₂ _____ %	
OTHER: _____ %	_____ %	
_____ %	_____ %	
- FLASH POINT: 315 °F (CLOSED CUP TEST ONLY)
- VAPOR PRESSURE (in mm of Hg at 25°C): _____
- BTU PER #: _____ ASH CONTENT _____ %
- CHARACTERISTIC COLOR AMBER DISTINCTIVE ODOR _____
- HALOGENATED? _____ % SULFONATED? _____ %
- ALPHA RADIATION AS pCi/l: _____

7. WASTE COMPOSITION:

A. ORGANIC COMPONENTS (WITH RANGES — INDICATE WHETHER % OR ppm)

WASTE OIL = 100%

_____ = _____

_____ = _____

_____ = _____

(ATTACH ADDITIONAL PAGES IF NECESSARY)

DOES THIS WASTE CONTAIN ENDRIN, LINDANE, METHOXYCHLOR, TOXAPHENE, 2,4-D, 2,4,5-TP SILVEX, OR ANY OTHER ORGANIC COMPOUNDS LISTED BY USEPA AT 40 CFR 261.24? NO IF SO, PLEASE NOTE ABOVE.

B. HEAVY METALS (WITH ppm RANGES):

TOTAL	TOTAL LEACHABLE	TOTAL	TOTAL LEACHABLE
Ag _____	_____	Hg _____	_____
As _____	_____	Ni _____	_____
Ba _____	_____	Pb _____	_____
Cd _____	_____	Se _____	_____
Cr _____	_____	Zn _____	_____
Cu _____	_____	Other (ATTACH ADDITIONAL PAGES)	

(IF YOU HAVE DETERMINED TOTAL LEACHABLES USING USEPA'S "EP TOXICITY TEST PROCEDURE" — AT 40 CFR, PART 261, APPENDIX II — SO INDICATE BY MARKING "EP" AFTER THE RESULT SHOWN ABOVE.)

C. INORGANIC COMPONENTS (WITH % RANGES):

OTHER

<u>TOTAL CYANIDE</u> _____ %	_____ %
<u>FREE CYANIDE</u> _____ %	_____ %
<u>SULFIDE AS:</u> _____ %	_____ %
<u>BISULFITE AS:</u> _____ %	_____ %
<u>SULFITE AS:</u> _____ %	_____ %

(ATTACH ADDITIONAL PAGES IF NECESSARY)

D. DOES THIS WASTE STREAM CONTAIN BIOLOGIC MATERIALS, PATHOGENS, OR ETIOLOGICAL AGENTS? NO
IF SO, ATTACH ADDITIONAL PAGES DESCRIBING SUCH MATERIALS.

E. IS THE WASTE A PESTICIDE OR PRODUCED BY A PESTICIDE MANUFACTURING PROCESS? NO
IF SO, INDICATE WHETHER IT CONTAINS:

- ORGANOPHOSPHATES — CONTAINING SULFUR YES NO
- CARBAMATES
- CHLORINATED HYDROCARBONS

8. HAZARDOUS COMPONENTS AND CHARACTERISTICS

A. HAZARDOUS PROPERTIES (INSERT NUMBER CODES PER INSTRUCTIONS ON LAST PAGE)

(1) TOXICITY RATING: INHALATION 1 DERMAL 1 ORAL 2

Flammability

(2) HAZARD IDENTIFICATION SYSTEM:

Health



Reactivity

Special Instructions

B. LIST ANY OTHER ACUTE OR CHRONIC HAZARDS ASSOCIATED WITH OR ALLEGED TO BE ASSOCIATED WITH HUMAN CONTACT WITH OR EXPOSURE TO THE WASTE: _____

9. REGULATORY CLASSIFICATION OF WASTE

A. IS THIS WASTE A "HAZARDOUS MATERIAL" AS DEFINED BY REGULATIONS OF THE U.S. DEPARTMENT OF TRANSPORTATION PURSUANT TO THE HAZARDOUS MATERIALS TRANSPORTATION ACT? YES
(SEE 49 CFR 172.101 AND 173 FOR "HAZARDOUS MATERIALS" LIST AND CHARACTERISTICS.) IF SO, PLEASE ADVISE OF THE FOLLOWING:

- (1) CORRECT SHIPPING DESCRIPTION: WASTE OIL N.O.S. (MACHINE LUBRICANT)
- (2) HAZARD CLASS(ES): ~~HAZARDOUS LIQUID~~
- (3) MATERIAL I.D. NO.(S) UN1270

B. DOES THIS WASTE CONTAIN ANY "HAZARDOUS SUBSTANCE" AS DEFINED BY REGULATIONS OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY PURSUANT TO SECTION 311 OF THE CLEAN WATER ACT? NO
(SEE 40 CFR 117 FOR "HAZARDOUS SUBSTANCES" AND CATEGORIES.) IF SO, PLEASE ADVISE OF THE FOLLOWING:

- (1) THE NAMES OF EACH HAZARDOUS SUBSTANCE PRESENT IN THE WASTE, THE HAZARD CATEGORY (X, A, B, C OR D) AND THE APPROXIMATE CONCENTRATION OF THE SUBSTANCE BY WEIGHT IN THE WASTE:

(ATTACH ADDITIONAL PAGES IF NECESSARY)

C. IS THIS WASTE A "HAZARDOUS WASTE" AS DEFINED BY REGULATIONS OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY PURSUANT TO SECTION 3001 OF THE RESOURCE CONSERVATION AND RECOVERY ACT? NO (SEE 40 CFR, PART 261 FOR WHAT IS A "HAZARDOUS WASTE.") IF SO, STATE:

- (1) THE USEPA HAZARDOUS WASTE NUMBER(S): 3001
- (2) DO YOU CLAIM TO BE A SMALL QUANTITY GENERATOR? NO (SEE 40 CFR 261.5.)

D. IS THIS WASTE A "HAZARDOUS WASTE" AS DEFINED BY THE ENVIRONMENTAL REGULATORY AGENCY IN YOUR STATE? YES IF SO, STATE WHY IT IS SO DEFINED AND ANY STATE HAZARDOUS WASTE CODE NUMBERS ASSIGNED: MO01

10. IS THE INFORMATION PROVIDED IN SECTIONS 6-9 BASED UPON LABORATORY ANALYSIS OF THE WASTE MATERIAL? NO IF SO, PLEASE ADVISE OF THE DATE OF THE MOST RECENT ANALYSIS: _____

11. HAVE YOU OBTAINED TOXICITY STUDIES OF THIS WASTE STREAM? NO IF SO, PLEASE ATTACH A COPY OF THE RESULTS.

12. QUANTITY/SHIPPING REQUIREMENTS:

ANTICIPATED VOLUME IS: ~ 2

GALLONS TONS CUBIC YARDS DRUMS OTHER

PER: DAY WEEK MONTH YEAR ONE TIME

TRANSPORTATION EQUIPMENT REQUIRED: _____

SERVICE/SCHEDULING REQUIREMENTS: _____

GENERATOR'S AUTHORIZED SIGNATORY: John F. McNeill II TITLE PLANT ENG. DATE 10/19/83

CONFIDENTIALITY AGREEMENT: _____
as consideration for the Generator's release of the above information, and any other supplemental data provided, agrees to treat such information as confidential property and will not disclose such information to others except as is required by law, and in such circumstances only after first giving notice to the Generator.

By: JAY McNEFF
Name
PLANT ENGINEER
Title



Chemical Waste Management of Massachusetts, Inc.
 5 Strathmore Rd.
 Natick, MA 01760
 617/431-7942 617/655-8863

INDICATED BY CHECKMARK, THE HAZARDOUS ITEMS OR CONDITIONS LISTED BELOW PRESENT IN YOUR CHEMICAL WASTE. PLEASE QUANTIFY EACH ITEM INDICATING WHETHER PRESENT IN ppm,, gms/liter, oz/gallons, % etc. A GIVEN RANGE OR QUANTITY ESTIMATE IS ACCEPTABLE

TOXIC METALS & THEIR COMPOUNDS:

Mercury _____
 Chromium _____
 Cadmium _____
 Lead _____
 Zinc _____
 Arsenic _____
 Antimony _____
 Beryllium _____
 Selenium _____
 Silver _____
 Barium _____

Cancer Suspect Agents _____
 Highly reactive materials _____
 E.G. Sodium metal
 Magnesium Metal
 Organosilanes
 Benzoyl Peroxide
 Pesticides/Herbicides _____
 Radioactive Materials _____
 Polychlorinated biphenyls or PCB's _____
 Polybrominated biphenyls or PBB's _____
 Cyanides _____

CONDITIONS:

Air Reactive _____ Water Reactive _____

CAPABLE OF RAPID POLYMERIZATION, DECOMPOSITION, OR OTHER REACTION _____

e.g. Monomers capable of severe polymerization at any possible storage or transportation temperatures.

SHOCK SENSITIVE _____

e.g. Materials capable of severe reaction under normal handling and transport conditions.

NONE OF THE ABOVE ITEMS OR CONDITIONS ARE PRESENT

John J. McReff II
 Signature
PLANT ENGINEER
 Title

EMERSON & CUMINGS
 Company
10/19/83
 Date



RECONDITIONERS - DEALERS IN
ALL TYPES OF STEEL CONTAINERS
SPECIALIZING IN
OPEN HEAD CONTAINERS FEATURING
CHEMICAL-SOLVENT PROOF-BAKED-ON
LININGS

Ryan Barrel Co., Inc.

56 PULASKI STREET, P.O. BOX 589, PEABODY, MASS. 01960
NORTH SHORE AREA CALL 532-1130 - BOSTON AREA CALL 322-9110

"SERVING INDUSTRY FOR OVER HALF A CENTURY"

December 29, 1986

Emerson & Cuming
869 Washington Street
Canton, Massachusetts 02021

Attention: Ann Fish

Dear Mrs. Fish:

Please be advised that the price of removing your scrap drums will be increased to \$6.00 (six dollars) each, effective January 1, 1987.

We regret this course of action, but find it is necessary if we are to remain viable in keeping your premises clean within existing DEQE guidelines.

Thanking you for the opportunity to be of service to you we remain,

Very truly yours,

Harvey Aronson, Sales
Ryan Barrel Co., Inc.

HA/jrc

US EPA ARCHIVE DOCUMENT

RYAN BARREL



Ryan Barrel Co., Inc.

RECONDITIONERS - DEALERS IN
ALL TYPES OF STEEL CONTAINERS
SPECIALIZING IN

OPEN HEAD CONTAINERS FEATURING
CHEMICAL-SOLVENT PROOF-BAKED-ON
LININGS.

56 PULASKI STREET, P.O. BOX 589, PEABODY, MASS. 01960
NORTH SHORE AREA CALL 532-1130 - BOSTON AREA CALL 322-9110

"SERVING INDUSTRY FOR OVER HALF A CENTURY"

SUBJECT ENVIRONMENTAL MANAGEMENT

At a recent meeting of NABADA dealers, the board discussed at length the pressures being placed upon drum dealers by certain attitude changes taking place in drum emptying companies. Basically, strict environmental regulation and expanded standards of liability are causing most companies to take far more interest in the ultimate destination of their empty containers. This interest includes, in most cases, considerable concern over drum plant processing operations and their environmental management. Many emptiers now want assurances that their containers-whether processed for recycling or re-use-are being handled in strict compliance with all current environmental laws.

As a result, some emptiers have expressed a desire to work directly with the reconditioning plants processing their drums, bypassing the services of a drum dealer. In addition to this problem, it appears some dealers are especially troubled by certain NABADA initiatives and compliance programs which do, indeed, encourage drum emptiers to pay more attention to the downstream disposition of their empty containers. While there appears little doubt that these NABADA programs are of great value to the used steel drum industry and are here to stay, care must be taken to ensure that no needless burdens are placed on drum dealers. Drum dealers perform a variety of valuable functions in many commercial situations and they would not succeed were there not a need for their respective services.

The immediate agreement reached is to be sure that statements when referring to the process of shipments of empty drums to processing plants-use references such as "drums destined for reconditioning", instead of "drums sent to a reconditioner's plant."

It was pointed out, however, that changing environmental rules of today's industrial packaging scenes require drum dealers to take a long, hard look at their methods of doing business. Satisfying drum emptiers who have new, justified concerns about proper disposition of their empty containers may require some additional assurances, more expensive documentation, and some new dealer strategies. Clearly, the days of drum trucks going into plants, picking up a load of drums, and driving off into the sunset (with the emptiers having absolutely no idea where these drums will end up) is coming to a rapid close. With adjustments to the new requirements of doing business in an environmentally sensitive age, dealers certainly can continue performing their unique services in the drum industry.

US EPA ARCHIVE DOCUMENT

page 2

Lawrence W. Bierlein, P.C.

"Emptiers' Liability; Superfund"

The drum emptier who arranges for the discard of uncleaned drums at any site from which there is a release of a hazardous substance can be held liable for all clean-up costs and for any damage to the natural environment caused by that release. There is no time limit on this liability. There are virtually no defenses, other than acts of God or war. The emptier cannot escape liability by causing title to the drums to pass to the scrap dealer or the landfill or disposal site operator. In short, a discarded dirty drum is a perpetual liability for the emptier.

This major new liability under Superfund, when contrasted with the emptiers' substantially lessened liability when the drums have been cleaned, properly reconditioned, and reused, should encourage every emptier to seek responsible reconditioning rather than disposal.

While theoretically there may be some product liability involving the drum as long as it exists, this exposure is greatly lessened for the emptier after reconditioning, especially with reference to waste, residue, etc., whereas he has a permanent exposure to liability under environmental laws for discarded raw drums containing waste and residue.

Please let me know if you have any questions on my interpretation of these liability laws.

Very truly yours,

Lawrence W. Bierlein

Lawrence W. Bierlein, P.C.
Law Offices
910 Seventeenth Street, N.W.
Washington, D.C. 20006
(202) 659-9475

June 21, 1982



Ryan Barrel Co., Inc.

RECONDITIONERS - DEALERS IN
ALL TYPES OF STEEL CONTAINERS
SPECIALIZING IN
OPEN HEAD CONTAINERS FEATURING
CHEMICAL-SOLVENT PROOF-BAKED-ON
LININGS

56 PULASKI STREET (WATERS RIVER PLANT) PEABODY, MASS. 01960
NORTH SHORE AREA CALL 532-1130 - BOSTON AREA CALL 322-9110

"SERVING INDUSTRY FOR OVER HALF A CENTURY"

To: NABADA Members

Re: "Emptiers' Liability; Superfund"
Lawrence W. Bierlein, P.C.
Law Offices, Washington, D.C.

As you know, liability is a major factor in decisions made by business today. I recently heard of a large firm which is discarding its emptied drums rather than having them reconditioned, because of its concern with liability.

I believe this emptier's concerns are misplaced. Liability, in fact, encourages effective reconditioning and reuse of drums, not the discard of them. That is the message in the title of EPA's hazardous waste law -- the Resource Conservation and Recovery Act.

An emptier whose drums are handled by a competent reconditioner is assured of several things, each of which can lessen his liability:

- (1) The drum is cleaned, and the long-term threat of public exposure to the raw drum in a landfill or elsewhere is eliminated.
- (2) The drum is marked by the reconditioner indicating that it has been properly reconditioned, and this mark serves as a certification which may result in the reconditioner sharing any liability involving the drum.
- (3) The residue removed from the drum is handled properly by a known party -- the reconditioner.

Under the Comprehensive Environmental Response, Compensation and Liability Act (Superfund), P.L. 96-510, 42 U.S.C. 9601, 9607, substantial new liability is imposed on any party dealing with "hazardous substances." These substances are defined to include hazardous wastes. Out of concern for the environment, and particularly with regard to past waste disposal practices, the government created a massive and absolute liability for any person who arranges for disposal of a hazardous substance at any site from which there is an actual or threatened release of a hazardous substance that damages the environment, or that incurs response costs. Being careful is no defense. One can be held liable for all costs of removal, response, or remedial action and for all damage to natural resources caused by the release of hazardous substances from that site.

REUSE OF CONTAINERS,
RECONDITIONING OF STEEL DRUMS,
CONVERSION OF STEEL DRUMS,
AND
EMPTY PACKAGINGS
(Continued)

§ 173.29 Empty packagings, portable tanks, cargo tanks, and tank cars: (a) Empty cylinders, barrels, kegs, drums, or other containers except carboys (see paragraph (b) of this section) previously used for the shipment of any hazardous materials, as defined in this part, if authorized for reuse must have all openings including removable heads, and filling and vent holes, tightly closed before being offered for transportation. Small quantities of the material with which containers were loaded may remain in "empty" containers. When the vapors remaining therein are unstable, it is permissible to add sufficient inert gas to render the vapors stable. They may be loaded in open or stock cars when desired. Cars should not be placarded but lighted open-flame lanterns or other open-flame lights should be kept away.

(d) Any packaging or accessory which has been used for a shipment of radioactive materials and which contains residual internal radioactive contamination, when shipped as empty, must be securely closed. The external surface must be free of significant removable radioactive contamination as provided in § 173.397(a). The radiation at the external surface of the packaging must not exceed 0.5 millirem per hour. The "Empty" label, described in § 172.450, must be affixed to the packaging.

(e) Unless otherwise specifically provided, any empty packaging offered for transportation (see paragraph (a) of this section) bearing labels described in §§ 172.411 through 172.446 (except § 172.450 of this subchapter) must have these labels removed, obliterated, or completely covered. The label described in § 172.450 is authorized for the latter purpose. Each packaging which last contained explosives and on which the word "EXPLOSIVES" or the shipping name is printed, stenciled, or otherwise marked or applied, when shipped as empty, must have this marking completely covered or obliterated if shipped in less-than-carload or less-than-truckload lots, or on open-top or flat cars or on open-top or flat bed motor vehicles or trailers. Covering or obliteration of these labels and markings is not required for carload or truckload shipments made in closed cars or van-type motor vehicles when loaded by the shipper and unloaded by the consignee or their authorized agents.

(6) Parts 270 and 124 of this chapter, with respect to storage facilities.

15 FR 33119, May 19, 1980, as amended at 15 FR 44973, Sept. 8, 1981; 48 FR 2532, Jan. 6, 1983; 48 FR 14294, Apr. 1, 1983

261.7 Residue of hazardous waste in empty containers.

(a)(1) Any hazardous waste remaining in either (i) an empty container or (ii) an inner liner removed from an empty container, as defined in paragraph (b) of this section, is not subject to regulation under Parts 261 through 265, or Part 270 or 124 of this chapter or to the notification requirements of Section 3010 of RCRA.

(2) Any hazardous waste in either (i) a container that is not empty or (ii) an inner liner removed from a container that is not empty, as defined in paragraph (b) of this section, is subject to regulation under Parts 261 through 265, and Parts 270 and 124 of this chapter and to the notification requirements of Section 3010 of RCRA.

(b)(1) A container or an inner liner removed from a container that has held any hazardous waste, except a waste that is a compressed gas or that is identified in § 261.33(c) of this chapter, is empty if:

(i) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and

(ii) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container or inner liner, or

(iii)(A) No more than 3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is less than or equal to 110 gallons in size, or

(B) No more than 0.3 percent by weight of the total capacity of the container remains in the container or inner liner if the container is greater than 110 gallons in size.

(2) A container that has held a hazardous waste that is a compressed gas is empty when the pressure in the container is at or below atmospheric.

Title 40—Protection of Environment

a hazardous waste identified in § 261.33(c) of this chapter is empty if:

(i) the container or inner liner has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing chemical intermediate;

(ii) the container or inner liner has been cleaned by another method that has been shown in the scientific literature, or by tests conducted by the generator, to achieve equivalent removal; or

(iii) in the case of a container, the inner liner that prevented contact of the commercial chemical product or manufacturing chemical intermediate with the container, has been removed.

[45 FR 78529, Nov. 25, 1980, as amended at 47 FR 36097, Aug. 18, 1982; 48 FR 14294, Apr. 1, 1983]

Subpart B—Criteria for Identifying the Characteristics of Hazardous Waste and for Listing Hazardous Waste

§ 261.10 Criteria for identifying the characteristics of hazardous waste.

(a) The Administrator shall identify and define a characteristic of hazardous waste in Subpart C only upon determining that:

(1) A solid waste that exhibits the characteristic may:

(i) Cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or

(ii) Pose a substantial present or potential hazard to human health or the environment when it is improperly treated, stored, transported, disposed of or otherwise managed; and

(2) The characteristic can be:

(i) Measured by an available standardized test method which is reasonably within the capability of generators of solid waste or private sector laboratories that are available to serve generators of solid waste; or

(ii) Reasonably detected by generators of solid waste through their knowledge of their waste.

Chapter I—Environmental Protection Agency

§ 261.11 Criteria for listing hazardous waste.

(a) The Administrator shall list a solid waste as a hazardous waste only upon determining that the solid waste meets one of the following criteria:

(1) It exhibits any of the characteristics of hazardous waste identified in Subpart C.

(2) It has been found to be fatal to humans in low doses or, in the absence of data on human toxicity, it has been shown in studies to have an oral LD 50 toxicity (rat) of less than 50 milligrams per kilogram, an inhalation LC 50 toxicity (rat) of less than 2 milligrams per liter, or a dermal LD 50 toxicity (rabbit) of less than 200 milligrams per kilogram or is otherwise capable of causing or significantly contributing to an increase in serious irreversible, or incapacitating reversible, illness. (Waste listed in accordance with these criteria will be designated Acute Hazardous Waste.)

(3) It contains any of the toxic constituents listed in Appendix VIII unless, after considering any of the following factors, the Administrator concludes that the waste is not capable of posing a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of, or otherwise managed:

(i) The nature of the toxicity presented by the constituent.

(ii) The concentration of the constituent in the waste.

(iii) The potential of the constituent or any toxic degradation product of the constituent to migrate from the waste into the environment under the types of improper management considered in paragraph (a)(3)(vii) of this section.

(iv) The persistence of the constituent or any toxic degradation product of the constituent.

(v) The potential for the constituent or any toxic degradation product of the constituent to degrade into non-harmful constituents and the rate of degradation.

(vi) The degree to which the constituent or any degradation product of the constituent bioaccumulates in eco-

(vii) The plausible types of improper management to which the waste could be subjected.

(viii) The quantities of the waste generated at individual generation sites or on a regional or national basis.

(ix) The nature and severity of the human health and environmental damage that has occurred as a result of the improper management of wastes containing the constituent.

(x) Action taken by other governmental agencies or regulatory programs based on the health or environmental hazard posed by the waste or waste constituent.

(xi) Such other factors as may be appropriate.

Substances will be listed on Appendix VIII only if they have been shown in scientific studies to have toxic, carcinogenic, mutagenic or teratogenic effects on humans or other life forms.

(Wastes listed in accordance with these criteria will be designated Toxic wastes.)

(b) The Administrator may list classes or types of solid waste as hazardous waste if he has reason to believe that individual wastes, within the class or type of waste, typically or frequently are hazardous under the definition of hazardous waste found in Section 1004(5) of the Act.

(c) The Administrator will use the criteria for listing specified in this section to establish the exclusion limits referred to in § 261.5(c).

Subpart C—Characteristic of Hazardous Waste

§ 261.20 General.

(a) A solid waste, as defined in § 261.2, which is not excluded from regulation as a hazardous waste under § 261.4(b), is a hazardous waste if it exhibits any of the characteristics identified in this Subpart.

[Comment: § 262.11 of this chapter sets forth the generator's responsibility to determine whether his waste exhibits one or more of the characteristics identified in this Subpart.]

(b) A hazardous waste which is identified by a characteristic in this subpart, but is not listed as a hazardous



Ryan Barrel Co., Inc.

RECONDITIONERS - DEALERS IN
ALL TYPES OF STEEL CONTAINERS
SPECIALIZING IN
OPEN HEAD CONTAINERS FEATURING
CHEMICAL-SOLVENT PROOF-BAKED-ON
LININGS

56 PULASKI STREET, P.O. BOX 589, PEABODY, MASS. 01960
NORTH SHORE AREA CALL 532-1130 - BOSTON AREA CALL 322-9110

"SERVING INDUSTRY FOR OVER HALF A CENTURY"

EMPTY DRUM CERTIFICATION

I hereby certify that these drums are "empty" as that term is defined in the national Environmental Protection Agency regulations, 40 CFR 261.7*, and that they have been properly prepared for transportation under the regulations of the U.S. Department of Transportation, 49 CFR 173.29.**

Date: 3/4/87 Slip number: 21913

Company Name: Emerson & Cuming Signed By: Charles J. [Signature]

*With regard to most regulated residues, EPA's 40 CFR 261.7 says: "A container...is empty if:

- (i) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and
- (ii) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container...."

EPA has explained this rule, saying that "one inch of waste material is an overriding constraint and may remain in an empty container only if it cannot be removed by normal means. The rationale for this provision is that there are certain tars and other extremely viscous materials that will remain in the container even after the container is emptied by normal means."

For residues of products specifically listed by name in 40 CFR 261.33(e), EPA says the container is empty only "if the container... has been triple-rinsed using a solvent capable of removing" the product, or has been cleaned by another method shown to achieve equivalent removal.

**DOT's 49 CFR 173.29 says that all openings on the empty container must be closed, and that all markings and labels must be in place as if the drum were full of its original contents. A DOT shipping paper is not required for transportation of a drum for reconditioning via contract or private motor carrier. DOT placarding is not required for vehicles carrying empty containers.



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NORTH SHORE AREA CALL 532-1130 - BOSTON AREA CALL 322-9110

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I hereby certify that these drums are empty, as that term is defined in the national Environmental Protection Agency regulations, 40 CFR 261.7**, and that they have been properly prepared for transportation under the regulations of the U.S. Department of Transportation, 49 CFR 173.29.**

Date: 2/25/87 Slip number: 21891

Company Name: Emerson & Cuming Signed By: [Signature]

*With regard to most regulated residues, EPA's 40 CFR 261.7 says: "A container... is empty if:

- (i) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and
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RYAN BARREL CO., INC.

RECONDITIONERS • DEALERS IN ALL TYPES OF STEEL CONTAINERS

No. 56 PULASKI ST. PEABODY, MASS. PHONE BOSTON AREA 322-9110 NORTHSHORE AREA 532-1130 or 1134

30240 URGENT BY 2/26/87

FROM EMERSON - Cummings D.V. of W.C. DATE 2/25/87

59 WALPOLE ST. CANTON MA 02021 CALLED 2/23/87 VIA #7

QUANTITY	DESCRIPTION	#
4	55 GAL. O. H. NIC	# 2-576-36
	55 GAL. 17 H.	
	#1 55 GAL. C. H.	
20	#2 55 GAL. C. H.	
	30 GAL. O. H.	
	30 GAL. 17H	
	30 GAL. C. H.	
	MISC.	
32	CUTS @ 6.00 = 192.00	
	JUNK	
	REJECTS/RETURNS	dispose
TOTAL:		

*As per Mass. Statute 30.010: We are forbidden by law to accept any heavy drums.

Value and quantity subject to inspection

REC'D BY _____

equivalent removal.

**DOT's 49 CFR 173.29 says that all openings on the empty container must be closed, and that all markings and labels must be in place as if the drum were full of its original contents. A DOT shipping paper is not required for transportation of a drum for reconditioning via contract or private motor carrier. DOT placarding is not required for vehicles carrying empty containers.

Inc.

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RYAN BARREL CO., INC.

RECONDITIONERS • DEALERS IN ALL TYPES OF STEEL CONTAINERS

No. 56 PULASKI ST. PEABODY, MASS. PHONE BOSTON AREA 322-9110 NORTHSHORE AREA 532-1130 or 1134

25 disp

FROM Emerson - Cummings DATE 3/14/87

59 Walpole St. Canton MA CALLED 3/3/87 VIA #7

QUANTITY	DESCRIPTION	#
2	55 GAL. O. H. NIC # 2-576-36	
1	55 GAL. 17 H. NIC	
	#1 55 GAL. C. H.	
20	#2 55 GAL. C. H. dispose	
	30 GAL. O. H.	
	30 GAL. 17H	
	30 GAL. C. H.	
	MISC.	
6	CUTS @ 6.00 = 36.00	
	JUNK	
	REJECTS/RETURNS	dispose
TOTAL:		

*As per Mass. Statute 30.010: We are forbidden by law to accept any heavy drums.

Value and quantity subject to inspection

REC'D BY _____

Inc.

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40 CFR ainer... the eve

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RECONDITIONERS - DEALERS IN
ALL TYPES OF STEEL CONTAINERS
SPECIALIZING IN
OPEN HEAD CONTAINERS FEATURING
CHEMICAL-SOLVENT PROOF-BAKED-ON
LININGS

Ryan Barrel Co., Inc.

56 PULASKI STREET, P.O. BOX 589, PEABODY, MASS. 01960
NORTH SHORE AREA CALL 532-1130 - BOSTON AREA CALL 322-9110

"SERVING INDUSTRY FOR OVER HALF A CENTURY"

March 16, 1987

Emerson-Cummings Co.,
59 Walpole St.,
Canton, Mass., 02021

Att: Mr. Randy Olson:

Dear Mr. Olson:

Enclosed please find all literature you requested relative to the disposition of the empty drums from your plant.

Most of it is self-explanatory, and some of it is recent literature recently released by our office. If there is anything else you might need along these lines, please do not hesitate to contact us.

Thanking you for the opportunity to be of service to you, we remain

Very truly yours

RYAN BARREL CO., INC.

Harvey Aronson, Sales

Harvey Aronson

JOHN COHENNO

EMERSON & CUMING

Emerson & Cuming, Inc.
A GRACE CO.

PURCHASE ORDER **P** 41420

SHIP & BILL TO THE
LOCATION INDICATED BELOW

Ryan Barrel Co.
56 Pulaski St.
Peabody, Ma. 01760

2/26/87

2/24/87



Removal of Empty Barrels



X526

Emerson & Cuming, Inc.
A GRACE CO.

RECEIVING SCHEDULE

I	DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME	I	DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME
A	2/25/87	<i>Charles...</i>	36		I				
B					J				
C					K				
D					L				
E					M				
F					N				
G					O				
H					P				

JUNE COBBING

EMERSON & CUMING

Emerson & Cuming, Inc.
A GRACE Co

PURCHASE ORDER NO. **P** 41420

SHIP & BILL TO THE
LOCATION INDICATED BELOW

- SHIP TO THE LOCATION INDICATED BELOW
- SHIP TO THE LOCATION INDICATED BELOW
- SHIP TO THE LOCATION INDICATED BELOW

To: Ryan Barrel Co.
56 Pulaski St.
Peabody, Ma. 01760

H

As Requested

3/2/87

A	Ea.	Removal of empty barrels		X5260
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Emerson & Cuming, Inc.
A GRACE Co

RECEIVING SCHEDULE

By: _____

DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME	DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME
A 3/4/87	<i>Ch. St. [Signature]</i>	29		I			
B				J			
C				K			
D				L			
E				M			
F				N			
G				O			
H				P			

COMPANY CONFIDENTIAL

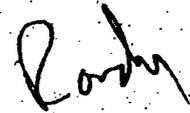
GRACE MEMO

to: M. Stoler
from: R. M. Olson
subject: EMPTY DRUMS - RYAN

date: March 18, 1987

cc:

Attached is the initial response requested from Ryan Barrel.



R. M. Olson

RMO/dd
attachment

65
418

North East Solvents Reclamation Corp.
221 SUTTON STREET
NO. ANDOVER, MASS. 01845
TEL (617) 683-1002

CREDIT MEMO

NO 700

CREDIT TO

Emerson & Cuming
59 Walpole St.
Canton, MA 02021

Attn: Accounts Payable

APPROVED BY: *an*

DATE	OUR INVOICE NO.	SALESMAN	REASON FOR CREDIT	CUST. ORDER
			Accounting Error	
QUAN.	DESCRIPTION	PRICE	AMOUNT	
	WE CREDIT YOUR ACCOUNT			
9	Empty drum deposit	\$20	\$180	
	CREDIT MEMORANDUM			\$180

GRACY BUSINESS FORMS - LOWELL, MASS. - TEL. 400-2000 - 17100

WHITE COPY - CUSTOMER COPY • CANARY COPY - ACCOUNTS RECEIVABLE • PINK COPY - FILE

PROCESS DESCRIPTION

The primary process is molding of large marine riser modules. The modules are typically 15 ft. long and 4 ft. diameter. The modules consist of epoxy filled with glass microballoons. This is done utilizing steel molds to define the shape of the part. The epoxy resin and epoxy hardener are mixed together with the glass microballoon powder and injected into the mold. The mold is then placed into an oven to cure the epoxy. After curing, the mold is opened and the module is removed. The molded part is then finished by patching and painting the surfaces.

Other parts are molded to various sizes and shapes utilizing different types of epoxy resins and hardener. Some include glass microballoons whereas others may include fiberglass reinforcement. These items essentially follow the same process of: mixing the ingredients, filling the mold, oven curing and finishing.

No date - looks
to be 1987
time frame

BACKGROUND OF "BERMED AREA IN YARD"

In November 1982, an investigation of this site was initiated with the DEQE and the Canton Board of Health. This investigation was prompted by an observation of the raceway discharge pipe sticking out of the ground behind the plant. Emerson & Cuming then retained Camp Dresser & McKee, Inc. to make a complete investigation and audit of this site. This program started in November 1982 and was finalized and completed in March 1985. The result of the joint program by the DEQE, Canton Board of Health, Camp Dresser & McKee, and Emerson and Cuming was complete satisfaction to the DEQE and Canton Board of Health. Various reports and correspondence of this program are on file with the Canton Board of Health and the Massachusetts DEQE.

One aspect of this program was a request by the DEQE and the Canton Board of Health to install a berm around a section of the yard area where drummed chemicals were stored at that time. The berm was then installed, as requested, in mid 1983. To the best of our knowledge a building permit was obtained by the contractor for this work.

Following the installation of the berm, Emerson & Cuming followed a program to discontinue drum storage of materials in the yard area. This was done by conversion of existing bulk tank systems, altering formulations and products, purchasing smaller quantities more frequently to store less material in total and to shift the remaining small quantity of drum storage into the main building. This in fact

required relocating several production departments. By the middle of 1984 this project was completed and drummed chemical storage no longer existed in that bermed yard area. At that point the bermed area was of no specific use and impractical for other materials. We then relocated to this area the accumulation of empty drums from the other end of the yard. Empty drums were accumulated from regular production operations for regular pickup and removal by a licensed drum reprocessor. Since then the total volume of drum material usage has decreased such taht the generation of empty drums tends to be less than 3 dozen per month. We have just recently shifted the accumulation of empty drums into the Shipping and Receiving building to improve the visual appearance of the yard area. Currently there are no empty drums accumulated in the yard area.

DRUM OF KEROSENE & DRUM OF DIESEL FUEL

Emerson & Cuming has recently (in the past several months) begun purchase and usage of the kerosene and diesel fuel. Two existing pieces of equipment (a fork truck & a water heater) were previously fueled with #2 heating fuel from our main fuel tank. This equipment was converted to kerosene and diesel fuel respectively due to a history of clogging from the #2 fuel oil. To the best of our knowledge we weren't aware of any problems using these drums where they were. We have purchased safety storage cabinets to install inside the building for these materials.

MATERIAL CURRENTLY IN YARD AREA

A. In-Process Production Materials

- Marine Riser Modules
- Plastic Tubing for Modules
- Plastic Tube Sheets for Modules
- Steel Module Molds
- 1 Drum Kerosene & 1 Drum Diesel Fuel (Moved Inside)

B. Accumulation of Materials for Removal

- Clean, Baled Cardboard for Reprocessing
- Empty Drums for Reprocessing (Moved Inside)
- Scrap Metal for Reprocessing

C. Other

Forklift Truck

Bobcat Tractor

BFI Trash Disposal Dumpster

HAZARDOUS WASTE

As a hazardous waste generator we are licensed by the Massachusetts DEQE (MAD 000361709). Hazardous Waste is handled in accordance with 310 CMR 30.000. The waste is accumulated in a proper hazardous waste storage room within the Shipping/Receiving area inside the plant. On the average there are 5-6 drums per month of hazardous waste generated and accumulated in the storage room for removal. Disposal is provided by Clean Harbor which is licensed for hazardous waste. The primary waste generated is EPOXY-MCL Still Bottoms. There is also approximately 1-2 drums per year of waste lubricating oil generated. A contingency plan and management system are in place as prescribed by Massachusetts and Town of Canton regulations. To the best of our knowledge the handling of hazardous waste is in compliance with the regulations.

MATERIALS USED AND STORED IN THE PLANT

Epoxy Resins

Epoxy Hardeners

Fiberglass Powders

Glass Microballoons

Fiberglass Fabrics

MCL Solvent

Mold Release Soap

Waterbased Latex Paint

Polyurethane Resin

Polyurethane Foam

Carbon Black

Vinyl Latex Resin

Fire Retardant Salts

Contact Cement

Fabricated Steel Components

Lumber Products

#2 Fuel Heating Oil

Kerosene

Diesel Fuel Oil

Lubricating Oils

A detailed technical listing of materials is on file with the Board of Health.

HAZARDOUS WASTE MANIFEST

ORIGINAL - NOT NEGOTIABLE

213

MANIFEST DOCUMENT NUMBER

MA 99

SHIPPER NUMBER

Chemical Waste Management

NAME OF CARRIER

(SCAC)

CARRIER NUMBER

IDENTIFICATION

	12 DIGIT EPA ID #	COMPANY NAME, MAILING ADDRESS, AND TELEPHONE NUMBER	DATE SHIPPED OR RECEIVED
GENERATOR SHIPPER	MAD 000 361 709	Emerson & Cuming 59 Walpole St., Canton, MA 828-3300	8-27-82
TRANSPORTER # 1	MAD 980 523 203	Chemical Waste Management 5 Strathmore Rd., Natick, MA 655-8863	8-27-82
TRANSPORTER # 2 (if required)			
TSDF TREATMENT STORAGE OR DISPOSAL FACILITY	MAD 980 523 203	Chemical Waste Management 5 Strathmore Rd., Natick, MA 655-8863	8-27-82
TSDF TREATMENT STORAGE OR DISPOSAL FACILITY		ALTERNATE	

WASTE INFORMATION

NO. OF UNITS & CONTAINER TYPE	HM	EPA HAZ. WASTE ID #	DESCRIPTION AND CLASSIFICATION (Proper Shipping Name, Class and Identification Number per 172.101, 172.202, 172.203)	UN # or NA #	EXEMPTION OR NO LABELS REQUIRED	FLASH POINT (IN °C) WHEN REQ'D	UNITS WT/VOL	TOTAL QUANTITY	RATE	CHARGES (For Carrier Use Only)
36 50 gallon Drums	x	--	Hazardous Waste Solid N.O.S. HAZ WASTE 1	NA9189			Gal	1980		
4 50 gallon Drums	x	--	Hazardous Waste Liquid N.O.S. HAZ WASTE 1	NA9189			Gal	220		

SPECIAL HANDLING INSTRUCTIONS

If an RC commodity is spilled on a waterway or adjoining land, the incident must be promptly reported to the Federal government at 1-800-424-8802 (toll free) or 202-426-2675 (toll call). If other DOT Hazardous Materials are discharged creating a serious situation, call shipper's telephone number or Chemrec 1-800-424-9300 immediately.

COMMENTS

On "Collect on Delivery" shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1

PLACARDS TENDERED

Yes No

REMIT C.O.D. TO: ADDRESS

COD

Amt: \$

C.O.D. FEE: PREPAID COLLECT \$

Note: Where the rate is dependent on value, shippers are required to state specifically in writing the agreed or declared value of the property.
The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \$ _____ per _____

"If the shipment moves between two ports by a carrier by water, the law requires that the bill of lading shall state whether it is "carrier's or shipper's weight."

Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement:
The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.

TOTAL CHARGES: \$

FREIGHT CHARGES

FREIGHT PREPAID except when box is right as checked Check box if charges are to be collect

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or

any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.

Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CERTIFICATION

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the U.S. Environmental Protection Agency

This is to certify acceptance of the hazardous waste shipment.

Paul E. Firestone 8-27-82
TRANSPORTER #1 SIGNATURE & DATE

TRANSPORTER #2 SIGNATURE & DATE (if required)

This is to certify acceptance of the hazardous waste for treatment, storage or disposal.

Paul E. Firestone 8-27-82
GENERATOR'S SIGNATURE DATE

Paul E. Firestone 8/27/82
TSDF SIGNATURE DATE

HAZARDOUS WASTE MANIFEST

213

MANIFEST DOCUMENT NUMBER

MA 99

SHIPPER NUMBER

Chemical Waste Management

NAME OF CARRIER

(SCAC)

CARRIER NUMBER

IDENTIFICATION

	12 DIGIT EPA ID #	COMPANY NAME, MAILING ADDRESS, AND TELEPHONE NUMBER	DATE SHIPPED OR RECEIVED
GENERATOR SHIPPER	MA 000 361 709	Emerson & Cuming 59 Walpole St., Canton, MA 828-3300	8-27-82
TRANSPORTER # 1	MAD 980 523 203	Chemical Waste Management 5 Strathmore Rd., Natick, MA 655-8863	8-27-82
TRANSPORTER # 2 (if required)			
TSDF TREATMENT STORAGE OR DISPOSAL FACILITY	MAD 980 523 203	Chemical Waste Management 5 Strathmore Rd., Natick, MA 655-8863	8-27-82
TSDF TREATMENT STORAGE OR DISPOSAL FACILITY	A L T E R N A T E		

WASTE INFORMATION

D. OF UNITS & CONTAINER TYPE	HM	EPA HAZ. WASTE ID #	DESCRIPTION AND CLASSIFICATION (Proper Shipping Name, Class and Identification Number per 172.101, 172.202, 172.203)	UN # or NA #	EXEMPTION OR NO LABELS REQUIRED	FLASH POINT (IN °C) WHEN REQ'D	UNITS WT/VOL	TOTAL QUANTITY	RATE	CHARGES (For Carrier Use Only)
36 <i>36 110 Drums</i>	X	--	Hazardous Waste Solid N.O.S.	NA9189			Gal	1980		
4 <i>4 Drums</i>	X	--	Hazardous Waste Liquid N.O.S.	NA9189			Gal	220		

SPECIAL HANDLING INSTRUCTIONS

If an RQ commodity is spilled on a waterway or adjoining land, the incident must be promptly reported to the Federal government at 1-800-424-8802 (toll free) or 202-426-2675 (toll call). If other DOT Hazardous Materials are discharged creating a serious situation, call shipper's telephone number or Chemtrec 1-800-424-9300 immediately.

COMMENTS

On "Collect on Delivery" shipments, the letters "COD" must appear before consignee's name or as otherwise provided in Item 430, Sec. 1

PLACARDS TENDERED

Yes No

REMIT TO: ADDRESS <small>Note—Where the rate is dependent on value, shipper is required to state specifically in writing the agreed or estimated value of the property. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding.</small>	COD Amt: \$ <small>Subject to Section 7 of the conditions, if this shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges.</small>	C.O.D. FEE: PREPAID <input type="checkbox"/> COLLECT <input type="checkbox"/> \$ TOTAL CHARGES: \$ FREIGHT CHARGES <small>FREIGHT PREPAID except when box at right is checked</small> <input type="checkbox"/> <small>Check box if charges are to be correct</small>
---	--	---

RECEIVED, subject to the classifications and tariffs in effect on the date of the issue of this Bill of Lading, the property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to another carrier on the route to said destination. It is mutually agreed as to each carrier of all or

any of, said property over all or any portion of said route to destination and as to each party at any time interested in all or any said property, that every service to be performed hereunder shall be subject to all the bill of lading terms and conditions in the governing classification on the date of shipment.
Shipper hereby certifies that he is familiar with all the bill of lading terms and conditions in the governing classification and the said terms and conditions are hereby agreed to by the shipper and accepted for himself and his assigns.

CERTIFICATION

This is to certify that the above-named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the U.S. Environmental Protection Agency

This is to certify acceptance of the hazardous waste shipment.

Paul E. Firestone 8-27-82
 GENERATOR'S SIGNATURE DATE

[Signature]
 TRANSPORTER #1 SIGNATURE & DATE
 This is to certify acceptance of the hazardous waste for treatment, storage or disposal.
 TRANSPORTER #2 SIGNATURE & DATE (if required)
 TSDf SIGNATURE DATE

4

BRET,

HERE IS THE EPOXY 828 PROFILE SHEET
AND A FINAL TALLY ON THIS SHIPMENT.

7 ELOMOLOD 4170A RESIN POWDER
1 LIQUID LATEX PAINT
2 SOLID LATEX PAINT
1 FOSXIDE - RED IRON OXIDE POWDER
6 CARBON SOLID
1 CARBON LIQUID
~~16~~ 10 TBS SOLID (+ SAND) (4 ADDED
TO ORIGINAL)
1 PMDA
1 WASTE OIL
1 PHENOLIC RESIN POWDER
2 ALUMINUM POWDER + OIL
1 LIQUID EPOXY RESIN 828 (1 ADDED
TO ORIGINAL)

40 DRUMS TOTAL

JAY McNEFF

Manifest # 213

WASTE PRODUCT SURVEY



CHEMICAL WASTE MANAGEMENT
of MASSACHUSETTS, Inc.
5 Strathmore Road
Natick, MA 01760

PLEASE PROVIDE ALL INFORMATION REQUESTED BELOW.

(617) 655-8863
(617) 431-7942

THEN RETURN THIS FORM

COMPANY EMERSON + CORNING PLANT LOCATION 59 WALPOLE ST
MAILING ADDRESS 59 WALPOLE ST CAUTION, MA 02021 PRODUCT CODE

DESCRIPTION OF WASTE PRODUCT WASTE OIL INDICATE PROCESS WHICH GENERATES THIS WASTE (BE SPECIFIC)
OIL CHANGES - FORK + PALLET TRUCKS

VOLUME 1 DRUM FREQUENCY: PER MONTH, PER YEAR, ONE TIME, PACKING: IN DRUMS, IN BULK

CIRCLE APPROPRIATE BLOCKS

PHYSICAL STATE @ 70° F: SOLID, LIQUID, SEMISOLID
VISCOSITY @ 70° F: LOW, MEDIUM, HIGH

LAYERING: NONE, BILAYERED, MULTILAYERED
WASTE IS NOT COMPATIBLE WITH THE FOLLOWING PRODUCTS

SUSPENDED SOLIDS: < 5%, 5-20%, > 20% WEIGHT OR VOLUME
DISSOLVED SOLIDS BY WEIGHT: < 5%, 5-20%, > 20%

SPECIFIC GRAVITY @ 60° F: 0.8-1.0, 1.0-1.2, 1.2-1.4, 1.4-1.7, > 1.7
FLASH POINT (cc): > 140° F, < 60° F, 60-140° F, NONE

THOUSANDS OF BTU'S / LB.: < 1, 1-5, 5-9, 9-12, 12-16, 16-20
ORGANICALLY BOUND CHLORINE (WT.%): NONE, TRACE, 1-10%, 10-30%, > 30%

ORGANICALLY BOUND SULFURIC (WT. %): NONE, TRACE, 0.5-5%, > 5%
PH: 7, 1-4, 4-7, 7-10, 10-13

TOXICITY: LOW, HIGH, MEDIUM, UNKNOWN
PH: < 1, 1-5, 5-9, 9-12, 12-16, 16-20

PLEASE IDENTIFY AND QUANTIFY ALL KNOWN COMPONENTS AND/OR CONTAMINANTS. IF ANALYSIS WAS PERFORMED OTHER THAN REQUESTED, PLEASE AMEND ACCORDINGLY.

VOLATILE ORGANICS	%	%	%	%
NON VOLATILE ORGANICS	<u>100</u> %	%	%	%
ACIDS OR ALKALIS	%	%	%	%
SALTS	%	%	%	%
METALLICS (ppm)	ppm MG	ppm Cu	ppm Cr +3	ppm Zn
	ppm Mn	ppm Pb	ppm Cr +6	ppm Ni
	ppm Fe	ppm Hg	ppm Cd	ppm As
CYANIDES, PESTICIDES, CARCINOGENS, OTHER TOXICS	ppm	ppm	ppm	ppm
TOTAL ORGANIC CARBON (TOC)	TOTAL INORGANIC CARBON (TIC)			

DOES THE WASTE MATERIAL CONTAIN ANY OF THE FOLLOWING? IF YES, GIVE % BY WT.

	YES	NO
1. Chloro-organic compounds	---	<input checked="" type="checkbox"/>
2. Halogenated aromatic compounds	---	<input checked="" type="checkbox"/>
3. Aromatic amines (incl. azo & hydrazo comp.)	---	<input checked="" type="checkbox"/>
4. Carbamates	---	<input checked="" type="checkbox"/>
5. Aromatic Ureas or Thioureas	---	<input checked="" type="checkbox"/>
6. Cyclic nitrogen compounds	---	<input checked="" type="checkbox"/>
7. Phenols	---	<input checked="" type="checkbox"/>

- Other chlorinated organics (molecule contains more than 30% chlorine by weight)
- 0. Bromine containing compounds
- 1. Phosphates or Phosphorous containing compounds
- 2. Sulfur containing compounds
- 3. Polycyclic organic material
- 4. Silicon containing compounds
- 5. Asbestos
- 6. Adhesive, glue or resins
- 7. Rubber, Plastic Compounds

_____ ✓
 _____ ✓
 _____ ✓
 _____ ✓
 _____ ✓
 _____ ✓
 _____ ✓
 _____ ✓

PLEASE ATTACH ANY ADDITIONAL HAZARD AND HANDLING INFORMATION TO THIS SHEET
 TO THE BEST OF MY KNOWLEDGE AND ABILITY TO DETERMINE, THIS IS A COMPLETE
 AND ACCURATE DESCRIPTION OF THIS WASTE MATERIAL:

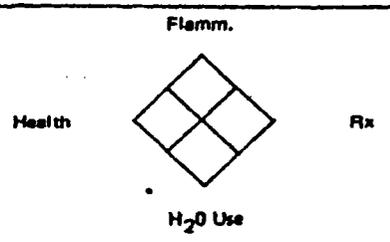
SIGNATURE _____	TITLE _____
ONE NUMBER (INCLUDE AREA CODE) _____	DATE _____

SAMPLE EVALUATION (COMPLETED BY LAB)

CUSTOMER NO. _____ PRODUCT CODE NO. _____ NAME _____ DATE RECEIVED _____

TEST RESULTS:

DISPOSAL PROCEDURE:



HS _____ DATE COMPLETED _____ ANALYST _____

DISPOSAL EVALUATION

DISPOSAL SITE:	<u>OUR COST</u>	<u>CUSTOMER COST</u>
USE:		
COMMENTS:	DISPOSAL:	DISPOSAL:
	FREIGHT:	FREIGHT:

Signature _____ Date _____

INDICATE BY A CHECKMARK, THE HAZARDOUS ITEMS OR CONDITIONS LISTED BELOW PRESENT IN YOUR CHEMICAL WASTE. PLEASE QUANTIFY EACH ITEM INDICATING WHETHER PRESENT IN ppm, gms/liter, oz/gallon, % etc. A GIVEN RANGE OR QUANTITY ESTIMATE IS ACCEPTABLE.

TOXIC METALS & THEIR COMPOUNDS:

Mercury _____

Chromium _____

Cadmium _____

Lead _____

Zinc _____

Arsenic _____

Antimony _____

Beryllium _____

Selenium _____

Silver _____

Barium _____

Cancer Suspect Agents _____

Highly reactive
Materials _____

E. G. Sodium metal
Magnesium Metal
Organosilanes
Benzoyl Peroxide

Pesticides _____

Radioactive Materials _____

Polychlorinated biphenyls
or PCB's _____

Polybrominated biphenyls
or PBB's _____

Cyanides _____

CONDITIONS:

Air Reactive _____.

Water Reactive _____.

CAPABLE OF RAPID POLYMERIZATION, DECOMPOSITION, OR OTHER REACTION _____

e.g. Monomers capable of severe polymerization at any possible storage or transportation temperatures.

SHOCK SENSITIVE _____.

e.g. Materials capable of severe reaction under normal handling and transport conditions.

NONE OF THE ABOVE ITEMS OR CONDITONS ARE PRESENT _____.

Emerson + Cuming
Company

8/25/82
Date

John T. McNeill II
AUTHORIZED SIGNATURE & TITLE

GRACE

EMERSON & CUMING
 Dewey and Almy Chemical Division
 W.R. Grace & Co.
 Canton, Massachusetts 02021

PURCHASE ORDER NO.

2- **42401**

THIS NO. TO APPEAR ON ALL PACKAGES AND CORRESPONDENCE PERTAINING TO THIS ORDER.

SHIP & BILL TO THE LOCATION INDICATED BELOW

To • **Chemical Waste Management**
5 Strathmore Road
Natick, Mass. 01760

- 869 WASHINGTON ST., CANTON, MASS. 02021
- 59 WALPOLE ST., CANTON, MASS. 02021
- 804 WEST 182nd ST., GARDENA, CALIF. 90248
- 3450 COMMERCIAL AVE., NORTHBROOK, ILL. 60062
- SUBJECT TO STATE SALES TAX
- NOT SUBJECT TO STATE SALES TAX
- MASS. CERTIFICATE 135-114-230
- CALIF. CERTIFICATE SY08B 98-038849
- ILLINOIS CERTIFICATE 318-813-2

PAYMENT TERMS Net 30		F.O.B. Natick		TRANSPORT TERMS Delivered		REQUISITIONER J. McNEFF		REQUIREMENT DATE Advise	
SHIP VIA Your Pickup						VENDOR NUMBER		ORDER DATE 11-15-82	
ITEM	QTY. ORDERED	UNIT OF MEASURE	DESCRIPTION OF GOODS AND/OR SERVICES TO BE RENDERED.			CODE	UNIT PRICE	ALLOCATION	
A	28 drums	LOT	Drums of chemical waste as follows				Advise	9997460	
			6 drums Carbon liquid 1 drum Carbon solid 14 drums 828 resin, water 4 drums Resin, microballoons, methylene chloride 2 drums waste oil 1 drum plicbond liners 1 pallet of empty transformer casings.						

Confirming

Manifest # MA 0048272

EMERSON & CUMING
 Dewey and Almy Chemical Division
 W.R. Grace & Co.

By *[Signature]*

RECEIVING SCHEDULE

DATE RECD	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME	DATE RECD	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME
A				I			
B				J			
C				K			
D				L			
E				M			
F				N			
G				O			
H				P			

Manifest 215-212 & 210

HAZARDOUS WASTE SHIPMENTS

RECEIVED
AUG 26 1982

<u>MANIFEST #</u>	<u>DRUM #</u>	<u>DESCRIPTION</u>	<u>SHIP DATE</u>
210	1-29	LIQUID CARBON BLACK	7/26/82
210	30-40	SOLID CARBON BLACK	7/26/82
212	41	METHYLENE CHLORIDE	8/18/82
212	42-50	UNCURED RESIN, METHYLENE CHLORIDE	8/18/82
212	51-58	CARBON LIQUID	8/18/82
212	59-70	PLIOBOND WASTE	8/18/82
212	71	EPOXIDE 8	8/18/82
212	72	LIQUID LATEX PAINT	8/18/82
212	73-76	CARBON SOLID	8/18/82
212	77-80	CURED EPOXY, MICROBALLONS	8/18/82
213	101-107	ECONOLD 4120A RESIN POWDER	8/27/82
213	108	LIQUID LATEX PAINT	8/27/82
213	109, 110	SOLID LATEX PAINT	8/27/82
213	111	FOXIDE	8/27/82
213	112-117	CARBON SOLID	8/27/82
213	118	CARBON LIQUID	8/27/82
213	119-134	TBS SOLID	8/27/82
213	135	PMDA	8/27/82
213	136	WASTE OIL	8/27/82
213	137	PHENOLIC RESIN POWDER	8/27/82
213	138, 139	ALUMINUM POWDER & OIL	8/27/82
213	140	LIQUID EPOXY 828	8/27/82

EMERSON & CUMING
TRAFFIC DEPARTMENT

HAZARDOUS WASTE MANIFEST AND SHIPPING PAPER

NAME	MAILING ADDRESS	PHONE NUMBER	STATE/E.P.A. I.D. NO.
Emerson & Cuming	59 Walpole St., Canton, MA 02021	(617) 828-3300	
INSURER			
Local Waste Management	5 Strathmore Rd., Natick, MA 01760	(617) 655-8863	
TRANSPORTER			
Local Waste Management	5 Strathmore Rd., Natick, MA 01760	(617) 655-8863	

AN ONE MANIFEST / TOTAL NO. OF THIS FORM MANIFEST NO. OF FIRST FORM DATE SHIPPED MONTH DAY YEAR EXPECTED ARRIVAL
 OPER IS USED: FORMS ARE NO. IS DATE 11 16 82 DATE

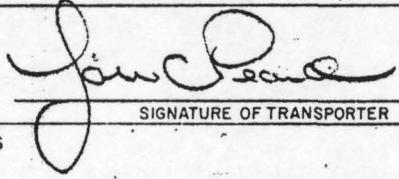
U.S. D.O.T. SHIPPING NAME	D.O.T. HAZARD CLASS	U.N. / N.A. NO.	WT. / VOL.	UNITS	UNIT CODE	CONTAINER		E.P.A. WASTE NO.	DESCRIPTION OR WASTE ANALYSIS IF WASTE IS N.O.S.
						NO.	TYPE		
Hazardous waste Liquid N.O.S.	ORM-E	9189	0.0330	Gal	G	006	DR	NA	Waste Carbon Liquid
Hazardous Waste Solid N.O.S.	ORM-E	9189	0.0055	Gal	G	001	DR	NA	Waste Carbon Solid
Hazardous Waste Liquid N.O.S.	ORM-C	9189	0.0770	Gal	G	014	DR	NA	Waste Epoxy Resin &
Hazardous Waste Liquid N.O.S.	ORM-E	9189	0.0220	Gal	G	004	DR	NA	Waste Epoxy Resin, balloons, Methylene
Motor Oil : N.O.S. *	COMBUSTIBLE LIQUID	UN 1270	0.0110	Gal	G	002	DR	NA001	
Hazardous Waste Solid N.O.S.	ORM-E	9189	0.0055	Gal	G	001	DR	NA	Waste Pliobond Adhesive Plastic Liners

SPECIAL HANDLING INSTRUCTIONS INCLUDING ANY CONTAINER EXEMPTION; AND EMERGENCY RESPONSE INFORMATION.

NA = NO NUMBER AVAILABLE

* MANIFEST CORRECTION

IN THE EVENT OF A SPILL, CONTACT THE NATIONAL RESPONSE CENTER, U.S. COAST GUARD 1-800-424-8802

LABELS <input type="checkbox"/> NO <input type="checkbox"/> REQUIRED	THIS IS TO CERTIFY THAT I AM THE PRIMARY TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	SIGNATURE OF TRANSPORTER 	DATE SHIPMENT ACCEPTED MONTH DAY YEAR 11 16 82	STATE VEHICLE I.D. MA A43133	COMP. NO. 1111
	THIS IS TO CERTIFY THAT I AM THE CONTINUING TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	SIGNATURE OF TRANSPORTER	DATE SHIPMENT ACCEPTED MONTH DAY YEAR	STATE VEHICLE I.D.	COMP. NO.

INDICATE ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT AND LIST REJECTED MATERIALS, INDICATE DISPOSITION OF REJECTED SHIPMENT

I CERTIFY THAT THE DESCRIBED WASTE(S) WAS DELIVERED BY THE AFOREMENTIONED DELIVERING TRANSPORTER AND THAT THE INFORMATION ON THIS

MANIFEST IS CORRECT TO THE BEST OF MY KNOWLEDGE.

SIGNATURE


DATE
 MONTH DAY YEAR
 11 16 82



5 STRATHMORE ROAD
 NATICK, MA 01760
 (617) 431-7942
 (617) 655-8863

Invoice

No. 3819
 Date 7/12/83
 Your Order No. 2-43714
 Shipped to

old To Emerson & Cuming
 869 Washington St.
 Canton, MA 02021
 Attn: Paul Firestone

Your Order No.		Salesman	Terms	F.O.B.	Date Shipped	Shipped VIA	
		D	Net 30 da.	SP	7/11/83	OT	
Quantity Ordered	Quantity Shipped	Stock Number/Description			Unit Price	Unit	Amount
	1	55 gal waste PCB's (arachlors)			250 00		250 00
Reference Mass manifest No. MA0087313							
<p>RECEIVED OK TO PAY <i>J. McKee</i></p> <p>EMERSON & CUMING CANTON, MASS. 02021</p>							



HAZARDOUS WASTE MANIFEST

08815

IDENTIFICATION INFORMATION

NAME	ADDRESS	PHONE	EPA ID CODE
GENERATOR SCOTT CUMMINS (C.W.M.) MA.	54 Walpole St. CANTON MA. 02021	(617) 828-3300	MA1000023617019
SHIPPER NO. 1 WASTE MANAGEMENT	5 STRITHMORAE RD. NATICK MA. 01760	(617) 655-8863	MA1000023617019
SHIPPER NO. 2 HARBORS INC.	100 JOSEPH ST. P.O. BOX 193 KINGSTON MA. 02364	(617) 585-5111	MA1000023617019
DISPOSER Chemical Waste Management, Inc. Emelle Facility	P. O. Box 55 Emelle, Alabama 35459	205-652-9531	AL1010101622464

WASTE INFORMATION

CONTAINER	DESCRIPTION/CLASS	TOTAL QUAN.	UNIT	EPA Hazardous Waste ID No.		C W M A WASTE CODE	WEIGHT
				1	2		
55 GAL. DRUM	WASTE Polychlorinated biphenyls ORM-E UN2315 (LIQUID > 500 ppm)	55	gals	AL10	111		~500 lbs
				111	111		
				111	111		
				111	111		
				111	111		

EMERGENCY INFORMATION

EMERGENCY NOS.: DISPOSER — (205) 652-9531 ; GENERATOR — () — US COAST GUARD 1-800-424-8802

SPECIAL INSTRUCTIONS:

CERTIFICATION

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, the U.S. Environmental Protection Agency:

Frank Bellini
Generator

Shipper
Title

7-11-83
Date

This is to certify acceptance of the hazardous waste shipment described above:

Robert Jones
Transporter #1
Robert Jones
Transporter #2

DRIVER
Title
DRIVER
Title

7/11/83
Date
7/11/83
Date

This is to certify acceptance of the hazardous waste shipment described above for treatment, storage or disposal:

Matt Hammond
Disposer

Emelle Tech
Title

7/14/83
Date

DISPOSAL INFORMATION

C W M A WASTE CODE	QUANTITY	UNIT	PROCESS CODE	LOCATION			COMMENTS
				TRENCH	LEVEL	QUAD	
CLASS F	1	55	S01	INC	Ship		

PRODUCER NO. 2

HAZARDOUS WASTE MANIFEST AND SHIPPING PAPER

NAME	MAILING ADDRESS	PHONE NUMBER	STATE/E.P.A. I.D. NO.
DELIVERING TRANSPORTER CWM of Mass.	59 Walpole St. Canton, MA 02021	(617) 828-3300	MA 0361
RECEIVING TRANSPORTER Chemical Waste Management	5 Strathmore Rd. Natick, MA 01760	(617) 655-8863	MA 052
RECEIVING TRANSPORTER Harbor, Inc.	P. O. Box 193 Kingston, MA 02364	(617) 585-5111	MA 084
RECEIVING TRANSPORTER Chemical Waste Management	P. O. Box 55 Emelle, AL 35459	(205) 652-9531	AL 062

MORE THAN ONE MANIFEST / TOTAL NO. OF THIS FORM MANIFEST NO. OF FIRST FORM DATE SHIPPED MONTH DAY YEAR EXPECTED ARRIVAL MONTH DAY
 SHIPPING PAPER IS USED: FORMS ARE NO. IS NO. IS 07 11 83 07 11

U.S. D.O.T. SHIPPING NAME	D.O.T. HAZARD CLASS	U.N. / N.A. NO.	WT. / VOL.	UNITS	UNIT CODE	CONTAINER		E.P.A. WASTE NO.	DESCRIPTION OR WASTE ANALYSIS IF WASTE IS N.O.
						NO.	TYPE		
Polychlorinated Biphenyls	ORM - E	UN2315	0.005	Gal.	G	201	DR	M002	Arachlors H.O.S. (One-third full)

SPECIAL HANDLING INSTRUCTIONS INCLUDING ANY CONTAINER EXEMPTION, AND EMERGENCY RESPONSE INFORMATION:

IN THE EVENT OF A SPILL, CONTACT THE NATIONAL RESPONSE CENTER, U.S. COAST GUARD 1-800-424-8802

RED LABELS <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE PRIMARY TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	DATE SHIPMENT ACCEPTED MONTH DAY YEAR 7 11 83	STATE MA	COMPANY NO. FOR TRUCK OR RAIL 03105
ADDITIONAL LABELS REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE CONTINUING TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	DATE SHIPMENT ACCEPTED MONTH DAY YEAR 7 11 83	STATE ME	COMPANY NO. FOR TRUCK OR RAIL 7311

INDICATE ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT AND LIST REJECTED MATERIALS, INDICATE DISPOSITION OF REJECTED SHIPMENT

I CERTIFY THAT THE DESCRIBED WASTE(S) WAS DELIVERED BY THE AFOREMENTIONED DELIVERING TRANSPORTER AND THAT THE INFORMATION ON THIS MANIFEST IS CORRECT TO THE BEST OF MY KNOWLEDGE.

 Signature: *Mat Hammond* Date: 07 14 83

HAZARDOUS WASTE MANIFEST AND SHIPPING PAPER

NAME	MAILING ADDRESS	PHONE NUMBER	STATE / E.P.A. I.D.
GENERATOR Person & Cuming	59 Walpole St. Canton, MA 02021	(617) 828-3300	MA 000 361
PRIMARY TRANSPORTER Chemical Waste Management	5 Strathmore Rd. Natick, MA 01760	(617) 655-8863	MA 980 523
CONTINUING TRANSPORTER			
F. Chemical Waste Management	5 Strathmore Rd. Natick, MA 01760	(617) 655-8863	MA 980 523

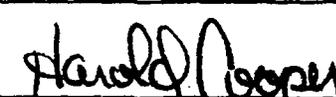
IF MORE THAN ONE MANIFEST / SHIPPING PAPER IS USED: TOTAL NO. OF FORMS ARE THIS FORM NO. IS MANIFEST NO. OF FIRST FORM DATE SHIPPED MONTH 06 DAY 30 YEAR 83 EXPECTED ARRIVAL MONTH 06 DATE 05

U.S. D.O.T. SHIPPING NAME	D.O.T. HAZARD CLASS	U.N. / N.A. NO.	WT. / VOL.	UNITS	UNIT CODE	CONTAINER		E.P.A. WASTE NO.	DESCRIPTION OR WA ANALYSIS IF WASTE IS
						NO.	TYPE		
Waste Polychlorinated Biphenyls *	ORM-E	UN2315	0.0055	Gal	G	001	DR	M002	
Hazardous Waste Liquid N.O.S.	ORM-E	NA9189	0.0385	Gal	G	007	DR	D001	Tertbutylstyrene Pliobond Adhesive
Hazardous Waste Liquid N.O.S.	ORM-E	NA9189	0.0380	Gal	G	015	DR	D001	Tertbutylstyrene
Hazardous Waste Solid N.O.S.	ORM-E	NA9189	0.0385	Gal	G	003	DR	D001	Tertbutylstyrene and sand
Hazardous Waste Liquid N.O.S.	ORM-E	NA9189	0.0385	Gal	G	015	DR	D001	Carbon Solution

SPECIAL HANDLING INSTRUCTIONS INCLUDING ANY CONTAINER EXEMPTION, AND EMERGENCY RESPONSE INFORMATION:

LINE ITEM No. 1 UNACCEPTABLE AT THIS TIME - RETURNED TO GENERATOR THIS DATE 6-30-83 & 7.

IN THE EVENT OF A SPILL, CONTACT THE NATIONAL RESPONSE CENTER, U.S. COAST GUARD 1-800-424-8802

REQUIRED LABELS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE PRIMARY TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F. <div style="text-align: center;">  SIGNATURE OF TRANSPORTER </div>	DATE SHIPMENT ACCEPTED MONTH <u>6</u> DAY <u>30</u> YEAR <u>83</u>	STATE <u>MA</u> COMPANY NO. FOR MARINE OR RAIL <u>AA663</u> VEHICLE I.D. <u>AA663</u>
CARDS REQUIRED <input type="checkbox"/> YES <input type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE CONTINUING TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F. <div style="text-align: center;"> SIGNATURE OF TRANSPORTER </div>	DATE SHIPMENT ACCEPTED MONTH <input type="checkbox"/> DAY <input type="checkbox"/> YEAR <input type="checkbox"/>	STATE <input type="checkbox"/> COMPANY NO. FOR MARINE OR RAIL <input type="checkbox"/> VEHICLE I.D. <input type="checkbox"/>

INDICATE ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT AND LIST REJECTED MATERIALS, INDICATE DISPOSITION OF REJECTED SHIPMENT

I CERTIFY THAT THE DESCRIBED WASTE(S) WAS DELIVERED BY THE AFOREMENTIONED DELIVERING TRANSPORTER AND THAT THE INFORMATION ON THIS MANIFEST IS CORRECT TO THE BEST OF MY KNOWLEDGE.


 SIGNATURE

MONTH 06 DAY 30 YEAR 83

return
6/30

HAZARDOUS WASTE MANIFEST AND SHIPPING PAPER

NAME	MAILING ADDRESS	PHONE NUMBER	STATE / E.P.A. I.D. NO.
DRIVER PERSON Cummins	59 Walpole St. Canton	(617) 848-3300	MA 01921
PRIMARY TRANSPORTER et Line Services	441-R Canton St. Stoughton	(617) 843-2829	MA 01921
CONTINUING TRANSPORTER et Line Services	441-R Canton St. Stoughton	(617) 843-2829	MA 01921

MORE THAN ONE MANIFEST / SHIPPING PAPER IS USED: TOTAL NO. OF FORMS ARE: THIS FORM NO. IS: MANIFEST NO. OF FIRST SHIPPED: MONTH: **4** DAY: **29** YEAR: **85** DATE:

U.S. D.O.T. SHIPPING NAME	D.O.T. HAZARD CLASS	U.N. / N.A. NO.	WT. / VOL.	UNITS	UNIT CODE	CONTAINER		E.P.A. WASTE NO.	DESCRIPTION OR WASTE ANALYSIS IF WASTE IS N.I.
						NO.	TYPE		
Waste Petroleum oil 105	Flammable	ORME-NA-1000	1000	39					Waste GREASE water Flash Point 140°F.

SPECIAL HANDLING INSTRUCTIONS INCLUDING ANY CONTAINER EXEMPTION, AND EMERGENCY RESPONSE INFORMATION:

IN THE EVENT OF A SPILL, CONTACT THE NATIONAL RESPONSE CENTER, U.S. COAST GUARD 1-800-424-8802

REQUIRED LABELS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE PRIMARY TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F. <div style="text-align: center; margin-top: 20px;"> SIGNATURE OF TRANSPORTER </div>	DATE SHIPPED MONTH: <input type="checkbox"/> DAY: <input type="checkbox"/> YEAR: <input type="checkbox"/>
COPIES REQUIRED one	THIS IS TO CERTIFY THAT I AM THE CONTINUING TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F. <div style="text-align: center; margin-top: 20px;"> SIGNATURE OF TRANSPORTER </div>	

INDICATE ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT AND LIST REJECTED MATERIALS, INDICATE DISPOSITION OF REJECTED SHIPMENT

I CERTIFY THAT THE DESCRIBED WASTE(S) WAS DELIVERED BY THE FOREMENTIONED DELIVERING TRANSPORTER AND THAT THE INFORMATION ON THIS MANIFEST IS CORRECT TO THE BEST OF MY KNOWLEDGE.

SIGNATURE

MONTH: DAY: YEAR:

HAZARDOUS WASTE MANIFEST AND SHIPPING PAPER

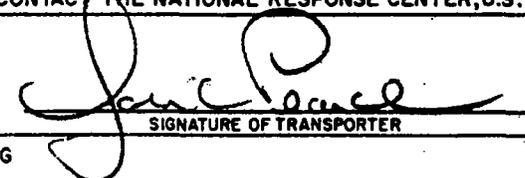
NAME	MAILING ADDRESS	PHONE NUMBER	STATE / E.P.A.
GENERATOR Emerson & Cuming	59 Walpole St. Canton, MA 02021	(617) 828-3300	MA D 000 50
PRIMARY TRANSPORTER Chemical Waste Management	5 Strathmore Rd. Natick, MA 01760	(617) 655-8863	MA D 980 50
CONTINUING TRANSPORTER			
H.W.F. Chemical Waste Management	5 Strathmore Rd. Natick, MA 01760	(617) 655-8863	MA D 980 50

IF MORE THAN ONE MANIFEST / SHIPPING PAPER IS USED: TOTAL NO. OF FORMS ARE 1 THIS FORM NO. IS MANIFEST NO. OF FIRST FORM DATE SHIPPED MONTH 10 DAY 28 YEAR 83 EXPECTED ARRIVAL MONTH DATE 10

U.S. D.O.T. SHIPPING NAME	D.O.T. HAZARD CLASS	U.N. / N.A. NO.	WT. / VOL.	UNITS	UNIT CODE	CONTAINER		E.P.A. WASTE NO.	DESCRIPTION OR ANALYSIS IF WASTE
						NO.	TYPE		
1. Waste Oil N.O.S.	Combustible Liquid	UN1270	0 0 1 1 0	Gal	G	002	DR	M 0 0 1	Waste Lubricat
2. Waste Methylene Chloride	ORM-A	UN2315	0 0 2 7 5	Gal	G	005	DR	F 0 0 2	
3. Waste DDSA (Non-hazardous)	NONE	NONE	0 0 7 1 5	Gal	G	013	DR	NONE	
4. Waste Carbon Water & Sludge (5 DR) (2 DR) (NON-HAZARDOUS)	NONE	NONE	0 0 3 0 5	Gal	G	007	DR	NONE	
5. Waste Pliobond Adhesive (NON-HAZARDOUS)	NONE	NONE	0 0 2 7 5	Gal	G	005	DR	NONE	
6. Waste Paint, Sludge (NON-HAZARDOUS)	NONE	NONE	0 0 2 7 5	Gal	G	005	DR	NONE	

SPECIAL HANDLING INSTRUCTIONS INCLUDING ANY CONTAINER EXEMPTION; AND EMERGENCY RESPONSE INFORMATION:

IN THE EVENT OF A SPILL, CONTACT THE NATIONAL RESPONSE CENTER, U.S. COAST GUARD 1-800-424-8802

REQUIRED LABELS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE PRIMARY TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	 SIGNATURE OF TRANSPORTER	DATE SHIPMENT ACCEPTED MONTH <u>10</u> DAY <u>28</u> YEAR <u>83</u>	STATE <u>MA</u>	COMPANY NO. F MARINE OR RA <u>Ad31</u>
PLACARDS REQUIRED	THIS IS TO CERTIFY THAT I AM THE CONTINUING TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	_____ SIGNATURE OF TRANSPORTER	DATE SHIPMENT ACCEPTED MONTH <u> </u> DAY <u> </u> YEAR <u> </u>	STATE <u> </u>	COMPANY NO. F MARINE OR RA <u> </u>

INDICATE ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT AND LIST REJECTED MATERIALS, INDICATE DISPOSITION OF REJECTED SHIPMENT

I CERTIFY THAT THE DESCRIBED WASTE(S) WAS DELIVERED BY THE AFOREMENTIONED DELIVERING TRANSPORTER AND THAT THE INFORMATION ON THIS MANIFEST IS CORRECT TO THE BEST OF MY KNOWLEDGE.



 DATE 10 28 83

ANNUAL HAZARDOUS WASTE REPORT

PART I

This form must be used for submission of Annual Reports by:

- Generators who meet the definition of Large Quantity Generator, or who generate any amount of PCB wastes in concentrations of 50 ppm or greater.
- Facilities which treat, store, use or dispose of hazardous waste at the site of generation.
- Owners/operators of wastewater treatment units (as defined in 310 CMR 30.605).

Please refer to the Part I Instructions before completing this form.

Type of Report (s): check where applicable

() Generator (X) Treatment, Storage, Disposal Facility and/or Wastewater Treatment Unit

Reporting Year: Year ending 19 83

EPA Identification Number: MAD000361709

Installation's Name: EMERSON & CUMING UNIT, DEWEY & ALMY CHEMICAL DIVISION, W.R. GRACE & CO.

Installation's Address: 59 WALPOLE STREET CANTON, MASS. 02021

Installation Contact: JAY McNEFF Tel. No.: 828-3300

Does your installation discharge process wastewater? Yes No (X) No If No, continue to question 8. If Yes, complete the appropriate line(s):

1) NPDES Permit Number (b) Municipal sewerage system (Name)

Do any of the wastewater discharges indicated in (a) or (b) involve hazardous waste activity? Yes Which? (a) (b)

Is your installation listed as an Air Quality Source Registration? (X) Yes No

Transportation Services Used: (List name and EPA ID number of each.)

CHEMICAL WASTE MANAGEMENT

JET LINE SERVICES

5 STRATHMORE ROAD

441-R-CANTON ST.

NATICK, MASS. 01760

STOUGHTON, MASS. 02072

MAD 980 523 203

MAD 062 179 890

Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document 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.

In addition, I understand that any material supplied with this application will not be considered confidential unless I have specifically requested that such material be kept confidential and the Department has made a determination of confidentiality in accordance with 310 CMR 3.00, Regulations Governing Access to and Confidentiality of Department Records and Files under the Hazardous Waste Management Act.

Authorized Signature of Owner/Operator or Designated Official

Date Signed

RANDOLPH M. OLSON

PLANT MANAGER

Print or Type Name

Title of Person Signing

ATTACH MAILING LABEL IF INCORRECT

JET-LINE

PART 2

GENERATOR ANNUAL REPORT

Reproduce additional pages as necessary. Enter the page number of each sheet, as well as the total number of pages, in the lower right corner.

11. Generator's EPA Identification Number:

M	A	D	0	0	0	3	6	1	7	0	9
---	---	---	---	---	---	---	---	---	---	---	---

12. On-Site Treatment as an Integral Part of the Manufacturing Process:
(This is an optional question.)

A Description of Waste	B Hazardous Waste Number	C Amount of Waste	D Unit of Measure	E Handling Method

13. Waste Shipped Off-Site: (Complete a separate Part 2 Form for each facility to which waste was shipped.)

a) Name of Facility: CHEMICAL WASTE MANAGEMENT

b) EPA ID Number:

A	L	D	0	0	0	6	2	2	4	6	6
---	---	---	---	---	---	---	---	---	---	---	---

c) Address (Street or P.O. Box): P. O. BOX 55

(City, State and Zip Code): EMELLE, AL. 35459

Line Number	A Description of Waste	B Hazardous Waste Number	C Amount of Waste	D Unit of Measure	E Handling Method
1	WASTE PCB'S	M002	20	G	S01

14. Comments (refer to line number):

PART 2

(Continued)

13. Waste Shipped Off-Site: (Complete a separate Part 2 form for each facility to which waste was shipped.)

a) Name of Facility: CHEMICAL WASTE MANAGEMENT

b) EPA ID Number:

M	A	D	9	8	0	5	2	3	2	0	3
---	---	---	---	---	---	---	---	---	---	---	---

c) Address (Street or P.O. Box): 5 STRATHMORE ROAD

(City, State and Zip Code): NATICK, MASS. 01760

Line Number	A Description of Waste	B Hazardous Waste Number	C Amount of Waste	D Unit of Measure	E Handling Method
1	HAZARDOUS WASTE LIQUID N.O.S.	D001	2035	G	S01
2	HAZARDOUS WASTE SOLID N.O.S.	D001	165	G	S01
3	WASTE OIL N.O.S.	M001	110	G	S01
4	WASTE METHYLENE CHLORIDE	F002	275	G	S01

14. Comments: (refer to line number)

LINE 1 385 Gal WASTE ADHESIVE
 880 Gal WASTE TERTBUTYLSTYRENE, INHIBITED
 770 Gal WASTE CARBON SOLUTION

LINE 2 165 Gal WASTE TERTBUTYLSTYRENE, ASPHALT AND SAND (FROM SPILL)

PART 2

(Continued)

13. Waste Shipped Off-Site: (Complete a separate Part 2 form for each facility to which waste was shipped.)

a) Name of Facility: JET LINE SERVIES

b) EPA ID Number:

M	A	D	0	6	2	1	7	9	8	9	0
---	---	---	---	---	---	---	---	---	---	---	---

c) Address (Street or P.O. Box): 441 - R - CANTON ST.

(City, State and Zip Code): STOUGHTON, MASS. 02072

Line Number	A Description of Waste	B Hazardous Waste Number	C Amount of Waste	D Unit of Measure	E Handling Method
1	WASTE OIL N.O.S.	M001	1000	G	S02

14. Comments: (refer to line number)

LINE 1 CLEAN-UP OF RAW SEWAGE OVERFLOW FROM MDC SEWER - HAD GREASE/OIL FILM ON TOP.

PART 3

FACILITY ANNUAL REPORT

15. Facility's EPA Identification Number:

M	A	D	0	0	0	3	6	1	7	0	9
---	---	---	---	---	---	---	---	---	---	---	---

16. Waste Identification:

Line Number	A Description of Waste	B Hazardous Waste Number	C Handling Method	D Amount of Waste	E Unit of Measure
1	WASTE PCB's	M002	S01	20	G
2	WASTE OIL N.O.S.	M001	S01	110	G
3	WASTE OIL N.O.S.	M001	S02	1000	G
4	WASTE METHYLENE CHLORIDE	F002	S01	275	G
5	HAZARDOUS WASTE LIQUID N.O.S.	D001	S01	2035	G
6	HAZARDOUS WASTE SOLID N.O.S.	D001	S01	165	G
7					
8					

17. Recovered Materials: (Optional)

Line Number	A Description of Material	B Handling Method	C Amount	D Unit of Measure

PART 3

FACILITY ANNUAL REPORT

18. Most Recent Closure Cost Estimate: \$6,000.
19. Most Recent Post-Closure Cost Estimate: \$0.
20. Summary of Incidents When the Contingency Plan was Implemented:

21. Comments (refer to question and line number):

LINE 16 (LINE NUMBERS 5&6) SINCE WE SHIPPED THESE MATERIALS, WE HAVE DETERMINED THEM TO BE NON-HAZARDOUS WASTES. WE STILL SHIP THESE TYPES OF CHEMICAL WASTES TO CHEMICAL WASTE MANAGEMENT OF NATICK, MASS., ALTHOUGH THEY ARE CONSIDERED NON-HAZARDOUS BY DEFINITION OF CHARACTERISTICS.

GRACE

EMERSON & CUMING
Dewey and Almy Chemical Division
 W.R. Grace & Co.
 Canton, Massachusetts 02021

PURCHASE ORDER NO.

2- **51744**

THIS NO. TO APPEAR ON ALL PACKAGES AND CORRESPONDENCE PERTAINING TO THIS ORDER.

SHIP & BILL TO THE LOCATION INDICATED BELOW

- 869 WASHINGTON ST., CANTON, MASS. 02021
- 50 WALPOLE ST., CANTON, MASS. 02021
- 804 WEST 182nd ST., GARDENA, CALIF. 90248
- 3450 COMMERCIAL AVE., NORTHBROOK, ILL. 60062

To .

Chemical Waste Management
 5 Strathmore Road
 Natick, MA 01760

- SUBJECT TO STATE SALES TAX
- NOT SUBJECT TO STATE SALES TAX
- MASS. CERTIFICATE 135-114-230
- CALIF. CERTIFICATE SYOHB 08-038848
- ILLINOIS CERTIFICATE 318-813-2

PAYMENT TERMS Net 30		F.O.B. Canton	TRANSPORT TERMS Delivered	REQUISITIONER J. COHENNO	REQUIREMENT DATE 6/12/84	
SHIP VIA Your delivery			VENDOR NUMBER	ORDER DATE 6/6/84		
ITEM	QTY. ORDERED	UNIT OF MEASURE	DESCRIPTION OF GOODS AND/OR SERVICES TO BE RENDERED	CODE	UNIT PRICE	ALLOCATION
A	55 Gal.	drums	Chemical waste transported to SCA Chemical Services, Quincy, Ave, Braintree, MA and then to SCA, Illinois for incineration as follows:		Advise	2608700
	2x5 gal.		(Haz) waste polychlorinated Biphenyls D82566			
			2x5 gallon 17E pails overpacked in a 55 Gallon Drum with Speedi Dri			
			Incineration Certificate to verify destruction must be returned to Emerson & Cuming			
			All hazardous waste to be properly transported for disposal, and disposed of in accordance with all Federal, State and Local requirements.			

Confirming

EMERSON & CUMING
Dewey and Almy Chemical Division
 W.R. Grace & Co.

By *[Signature]*

BUYER

RECEIVING SCHEDULE

DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME	DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME
A				I			
B				J			
C				K			
D				L			
E				M			
F				N			
G				O			
H				P			

NAME	MAILING ADDRESS	PHONE NUMBER	STATE / E.P.A. I.D. NO.
GENERATOR RSON & CUMING, W.R. GRACE & CO.	59 WALPOLE STREET, CANTON, MA 02021	(617) 828-3300	MA D.O.00.3.6.
PRIMARY TRANSPORTER CHEMICAL WASTE MANAGEMENT	5 STRATHMORE ROAD, NATICK, MA 01760	(617) 655-8863	MA D.9.80.5.2.
CONTINUING TRANSPORTER CHEMICAL SERVICES INC	QUINCY AVENUE, BRAINTREE, MA	(617) 849-1800	MA D.0.53.45.2.

IF MORE THAN ONE MANIFEST / CONTINUING PAPER IS USED: TOTAL NO. OF FORMS ARE THIS FORM NO. IS MANIFEST NO. OF FIRST FORM DATE SHIPPED MONTH 06 DAY 12 YEAR 84 EXPECTED ARRIVAL MONTH 06 DAY 12 YEAR 84

U.S. D.O.T. SHIPPING NAME	D.O.T. HAZARD CLASS	U.N. / N.A. NO.	WT. / VOL.	UNITS	UNIT CODE	CONTAINER		E.P.A. WASTE NO.	DESCRIPTION OR WASTE ANALYSIS IF WASTE IS N.C.
						NO.	TYPE		
TWO POLYCHLORINATED BIPHENYLS	ORM-E	UN2315	10	GAL	17E	17E	17E	17E	ARACHLOR 1254 CWM #D82566

SPECIAL HANDLING INSTRUCTIONS INCLUDING ANY CONTAINER EXEMPTION, AND EMERGENCY RESPONSE INFORMATION:
**INCINERATION CERTIFICATE TO VERIFY DESTRUCTION MUST BE RETURNED TO GENERATOR
 TWO FIVE GALLON 17E PAILS OVERPACKED IN A 55 GALLON DRUM WITH SPEEDI DRI**

IN THE EVENT OF A SPILL, CONTACT THE NATIONAL RESPONSE CENTER, U.S. COAST GUARD 1-800-424-8802

<input type="checkbox"/> RED LABELS REQUIRED <input checked="" type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE PRIMARY TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	DATE SHIPMENT ACCEPTED: MONTH <u>06</u> DAY <u>12</u> YEAR <u>84</u>	VEHICLE I.D. <u>MA 1B6925</u>	STATE <u>MA</u> COMPANY NO. FOR TRAILER, MARINE OR RAIL <u>1B6925</u>
<input checked="" type="checkbox"/> RED LABELS REQUIRED <input type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE CONTINUING TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	DATE SHIPMENT ACCEPTED: MONTH <u> </u> DAY <u> </u> YEAR <u> </u>	VEHICLE I.D. <u> </u>	STATE <u> </u> COMPANY NO. FOR TRAILER, MARINE OR RAIL <u> </u>

Charlie Neutle
SIGNATURE OF TRANSPORTER

SIGNATURE OF TRANSPORTER

INDICATE ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT AND LIST REJECTED MATERIALS, INDICATE DISPOSITION OF REJECTED SHIPMENT

I CERTIFY THAT THE DESCRIBED WASTE(S) WAS DELIVERED BY THE AFOREMENTIONED DELIVERING TRANSPORTER AND THAT THE INFORMATION ON THIS MANIFEST IS CORRECT TO THE BEST OF MY KNOWLEDGE.

Stukey
SIGNATURE

DATE: MONTH 06 DAY 12 YEAR 84

REQUEST FOR TRANSFER OF CHEMICAL WASTE

REQUESTING DEPARTMENT: MAINT II
DEPARTMENT CONTACT: H. GAFFNEY
DATE OF REQUEST: 10-29-84
DATE TRANSFER REQUIRED: 11-2-84

WASTE INFORMATION

Chemical Identity

OIL, LUBRICATING

Quantity

55 GAL DRUM

	<u>YES</u>	<u>NO</u>
Liquid Waste?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Solid Waste?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Any Leaks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Any Residue on Drum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is Drum Sealed Tight?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is Drum Identified With Weatherproof Label?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is Drum Full?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is There any refuse or garbage in drum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is Profile Sheet on File?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Supervisor's Signature:

Henry A. Gaffney

REQUEST FOR TRANSFER OF CHEMICAL WASTE

REQUESTING DEPARTMENT: MAINT II
DEPARTMENT CONTACT: H. GAFFNEY
DATE OF REQUEST: 10-29-84
DATE TRANSFER REQUIRED: 11-2-84

WASTE INFORMATION

<u>Chemical Identity</u>	<u>Quantity</u>
<u>OIL, LUBRICATING</u>	<u>55 GAL DRUM</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

	<u>YES</u>	<u>NO</u>
Liquid Waste?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Solid Waste?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Any Leaks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Any Residue on Drum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is Drum Sealed Tight?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is Drum Identified With Weatherproof Label?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is Drum Full?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is There any refuse or garbage in drum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is Profile Sheet on File?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Supervisor's Signature: James A. Galbraith

REQUEST FOR TRANSFER OF CHEMICAL WASTE

REQUESTING DEPARTMENT: MAINT II
DEPARTMENT CONTACT: H. GAFFNEY
DATE OF REQUEST: 10-29-84
DATE TRANSFER REQUIRED: 11-2-84

WASTE INFORMATION

<u>Chemical Identity</u>	<u>Quantity</u>
<u>OIL, LUBRICATING</u>	<u>55 GAL. DRUM</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

	<u>YES</u>	<u>NO</u>
Liquid Waste?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Solid Waste?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Any Leaks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Any Residue on Drum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is Drum Sealed Tight?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is Drum Identified With Weatherproof Label?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is Drum Full?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is There any refuse or garbage in drum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is Profile Sheet on File?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Supervisor's Signature: David A. H.

REQUEST FOR TRANSFER OF CHEMICAL WASTE

REQUESTING DEPARTMENT: MAINT II
DEPARTMENT CONTACT: H. GAFFNEY
DATE OF REQUEST: 10-29-84
DATE TRANSFER REQUIRED: 11-2-84

WASTE INFORMATION

<u>Chemical Identity</u>	<u>Quantity</u>
<u>OIL, LUBRICATING</u>	<u>155 GAL DRUM</u>
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

	<u>YES</u>	<u>NO</u>
Liquid Waste?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Solid Waste?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Any Leaks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Any Residue on Drum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is Drum Sealed Tight?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is Drum Identified With Weatherproof Label?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is Drum Full?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Is There any refuse or garbage in drum?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Is Profile Sheet on File?	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Supervisor's Signature: Henry J. Gaffney

GRACE

EMERSON & CUMING
Dewey and Almy Chemical Division
 W.R. Grace & Co.
 Canton, Massachusetts 02021

PURCHASE ORDER NO.

2- **54563**

THIS NO. TO APPEAR ON ALL PACKAGES AND CORRESPONDENCE PERTAINING TO THIS ORDER.

SHIP & BILL TO THE LOCATION INDICATED BELOW

- 899 WASHINGTON ST., CANTON, MASS. 02021
- 59 WALPOLE ST., CANTON, MASS. 02021
- 604 WEST 182nd ST., GARDENA, CALIF. 90248
- 3450 COMMERCIAL AVE., NORTHBROOK, ILL. 60062

To . **Chemical Waste management**
5 Strathmore Road
Natick, Mass. 01760

- SUBJECT TO STATE SALES TAX
- NOT SUBJECT TO STATE SALES TAX
- MASS. CERTIFICATE 135-114-230
- CALIF. CERTIFICATE SYOHB 99-038848
- ILLINOIS CERTIFICATE 318-813-2

PAYMENT TERMS Net 30		F.O.B. Canton Pickup		TRANSPORT TERMS OF		REQUISITIONER JOHN COHENNO		REQUIREMENT DATE Advise	
SHIP VIA Your Pickup				VENDOR NUMBER		ORDER DATE 11-26-84			
ITEM	QTY. ORDERED	UNIT OF MEASURE	DESCRIPTION OF GOODS AND/OR SERVICES TO BE RENDERED:			CODE	UNIT PRICE	ALLOCATION	
A	4 drs.	ea.	Hazardous waste Oil M.O.S. (pump lubrication) NAT E10133				Advise	2608700	
B	6 drs.	ea.	Drums Hazardous Waste, methylene chloride, NAT E10136				"		
C	1 Dr.	ea.	Pliobond adhesive NAT D82565 (non haz.)				"		
D	15 drs.	ea.	Epoxy resin with filler, NAT D66278 (non- haz.)				"		
Please call Anne Fish with prices TEL: 828-3300, ext. 126. Confirming									

EMERSON & CUMING
Dewey and Almy Chemical Division
 W.R. Grace & Co.

RECEIVING SCHEDULE

By *W.R. Callahan* BUYER

DATE RECD	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME	DATE RECD	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME
A				I			
B				J			
C				K			
D				L			
E				M			
F				N			
G				O			
H				P			

GRACE

EMERSON & CUMING
Dewey and Almy Chemical Division
 W.R. Grace & Co.
 Canton, Massachusetts 02021

PURCHASE ORDER NO.

2- 54563

THIS NO. TO APPEAR ON ALL PACKAGES AND CORRESPONDENCE PERTAINING TO THIS ORDER.

SHIP & BILL TO THE LOCATION INDICATED BELOW

- 889 WASHINGTON ST., CANTON, MASS. 02021
- 59 WALPOLE ST., CANTON, MASS. 02021
- 804 WEST 182ND ST., GARDENA, CALIF. 90248
- 3450 COMMERCIAL AVE., NORTHBROOK, ILL. 60062

- SUBJECT TO STATE SALES TAX
- NOT SUBJECT TO STATE SALES TAX
- MASS. CERTIFICATE 135-114-230
- CALIF. CERTIFICATE SY018 98-038849
- ILLINOIS CERTIFICATE 318-813-2

To . Chemical Waste Management
 5 Strathmore Road
 Hatick, Mass. 01760

PAYMENT TERMS Net 30		F.O.B. Canton pickup	TRANSPORT TERMS Pickup	REQUISITIONER JOHN COHENNO	REQUIREMENT DATE Advise	
SHIP VIA Your Pickup			VENDOR NUMBER	ORDER DATE 11-28-84		
ITEM	QTY. ORDERED	UNIT OF MEASURE	DESCRIPTION OF GOODS AND/OR SERVICES TO BE RENDERED.	CODE	UNIT PRICE	ALLOCATION
			CHANGE ORDER #I			
			Please add to the above order Item E.			
E	2 drums	ea.	Carbon solution NAT #10132		Advise	2608700
Confirming						

EMERSON & CUMING
Dewey and Almy Chemical Division
 W.R. Grace & Co.

RECEIVING SCHEDULE

By *Anna C. Rich* BUYER

A	DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME	I	DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME
B					J				
C					K				
D					L				
E					M				
F					N				
G					O				
H					P				



COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA AD 01 00 3 61 7 09 00 0 0 2		Manifest Document No. 2		2. Page 1 of 2		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address EMERSON & CUNING W. R. GRACE & CO. 59 WALPOLE STREET BANTON, MA. 02021						A. State Manifest Document Number MA B082553							
4. Generator's Phone (617) 828-3360						B. State Gen. ID None							
5. Transporter 1 Company Name CHEMICAL WASTE MANAGEMENT			6. US EPA ID Number MA D9 8 05 2 32 0 3			C. State Trans. ID MA AB 169 271							
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone (617) 1655-8863							
9. Designated Facility Name and Site Address CHEMICAL WASTE MANAGEMENT 10 MERCER ROAD NATICK, MA 01760			10. US EPA ID Number MA D9 8 05 2 32 0 3			E. State Trans. ID							
11. US DOT Description Including Proper Shipping Name, Hazard Class, and ID Number						12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. WASTE OIL N.O.S. COMBUSTIBLE LIQUID, NA1270 (PUMP LUBRICATION) E 10133						4		20		GAL		MA 01 1	
b. WASTE METHYLENE CHLORIDE, ORM-A UN1593 * Waste Spent E 10130						6		30		GAL		MA 02	
c. PLIOBOND ADHESIVE (NON-HAZ) * D 82565						1		55		GAL		* UR	
d. EPOXY RESIN WITH FILLER (NON-HAZ) * D 82565						1		82.5		GAL		* UR	
J. Additional Descriptions for Materials Listed Above (include physical state and other pertinent information)						K. Handling Codes for Wastes Listed Above							
a.						a. S101		c. S101					
b.						b. S101		d. S101					
15. Special Handling Instructions and Additional Information * 9U * UR - UN regulated													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations, and all applicable State laws/regulations.													
Printed/Typed Name JOHN J. COHENNO				Signature John J. Cohenno		Date 11/20/84							
17. Transporter 1 Acknowledgement of Receipt of Materials				Signature Mark J. Purcell		Date 11/20/84							
18. Transporter 2 Acknowledgement of Receipt of Materials				Signature		Date							
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name William J. Gibson				Signature William J. Gibson		Date 1/20/85							

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

GENERATOR

TRANSPORTER

FACILITY

MA B082553

UN1593

US EPA ARCHIVE DOCUMENT

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2000-0461. Expires 7-31-86

WMS

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)		21. Generator's US EPA ID No. MA AD 0 0 03 6 1709	Manifest Document No. 0 0 02	22. Page Information in the shaded areas is not required by Federal law. 2	
23. Generator's Name EMERSON & CUMING W.R. GRACE & CO. 59 WALPOLE STREET CANTON, MA 02021		25. US EPA ID Number MA D980523203		L. State Manifest Document Number MA B082553	
24. Transporter Company Name Chemical Waste Management		27. US EPA ID Number MA A066827		M. State Generator's ID * Same	
26. Transporter Company Name		27. US EPA ID Number		N. State Transporter's ID	
				O. Transporter's Phone	
				P. State Transporter's ID	
				Q. Transporter's Phone	
28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		29. Containers No.	30. Total Quantity	31. Unit Wt. Vol.	R. Waste No.
a. CARBON SOLUTION (NON-HAZ) * E 10132		2	DM	110 GAL	* NR
b.					
c.					
d.					
e. Waste spent					
f.					
g.					
h.					
i.					
S. Additional Descriptions for Materials Listed Above		T. Handling Codes for Wastes Listed Above			
		A) sol			
32. Special Handling Instructions and Additional Information * RFL ** non-regulated					
33. Transporter Acknowledgement of Receipt of Materials				Date	
Printed/Typed Name MARK J. PURCELL		Signature <i>Mark J Purcell</i>		Month Day Year 12/04 87	
34. Transporter Acknowledgement of Receipt of Materials				Date	
Printed/Typed Name		Signature		Month Day Year	
35. Discrepancy Indication Space					

COPY>3: GENERATOR-MAILED BY TSDF

TRANSMITTAL STATEMENT

to be mailed with the Annual Report

EMERSON + CUMING / W.R. GRACE

Name of Installation

MAD 000361709

EPA Identification No.

Please check the appropriate response(s):

1. We are submitting the Annual Report as required.
2. We are submitting Part 1 of the Annual Report but do not feel we are required to complete Parts 2 or 3 for the following reasons:

We did not manifest any hazardous waste (in quantities described in Who Must File) but will retain our status as a Generator for possible future use.

We did not manifest hazardous waste in the quantities described in Who Must File and would like to change our status to Small Quantity Generator.*

We did not manifest any hazardous waste, or did not generate as much as 20 kilograms of non-acutely hazardous waste in any one month, at this address and request that our EPA ID Number be withdrawn.*

We moved our operation during 1984 and are now located at:

New EPA Identification Number: _____

We generate only waste oil.

* Companies requesting a change of status will be sent a Certification Statement to be completed. The change of status will be confirmed by DEQE in writing. Companies contemplating a move during 1985 should apply for a new EPA Identification Number and Certification Statement to withdraw their existing ID prior to the move.

ANNUAL HAZARDOUS WASTE REPORT

PART 1

Part 1 of the Annual Report is to be completed by all respondents.

1. Current Status of Installation: check where applicable

() Generator () Treatment, Storage, Disposal Facility () Wastewater Treatment Unit

2. Reporting Year: Year ending 19 84

3. EPA Identification Number:

M	A	D	0	0	0	3	6	1	7	0	9
---	---	---	---	---	---	---	---	---	---	---	---

4. Installation's Name: EMERSON + COMING / W.R. GRACE + CO

5. Installation's Address: S9 WALPOLE STREET
CANTON, MA 02021

6. Installation Contact: J.J. COHENNO / R. N. OLSON Tel. No.: 823-3300

7. Does your installation discharge process wastewater? ___ Yes No

If yes: (a) NPDES Permit Number _____

(b) Municipal sewerage system _____

Is the wastewater considered hazardous prior to processing?

___ Yes ___ No (If yes, complete Part 3, line 16.)

8. Is your installation registered with the Division of Air Quality Control?

___ Yes ___ No (For verification, contact your DEQE Regional office.)

9. Transportation Services Used: (List name and EPA ID Number of each.)

CHEMICAL WASTE MANAGEMENT - MAD980523203

10. Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document 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.

In addition, I understand that any material supplied with this application will not be considered confidential unless I have specifically requested that such material be kept confidential and the Department has made a determination of confidentiality in accordance with 310 CMR 3.00, Regulations Governing Access to and Confidentiality of Department Records and Files under the Hazardous Waste Management Act.

Authorized Signature of Owner/Operator or Designated Official

Date Signed

Print or Type Name

Title of Person Signing

ATTACH MAILING LABEL
IF INCORRECT

PART 2

GENERATOR ANNUAL REPORT

To complete this part of the report, refer to all your manifests for the calendar year. Separate your manifests by receiving facility.

11. Generator's EPA Identification Number: MAD000361709

12. Waste Shipped Off-Site: (Complete a separate page for each facility to which waste was shipped. Reproduce additional pages as necessary.)

a) Name of Receiving Facility: CHEMICAL WASTE MANAGEMENT

b) Facility EPA ID Number: MAD780523203

c) Facility Address: 10 MERCER ROAD, NATICK, MA
(Street or P.O. Box) (City) (State)

(If the waste was exported to a foreign country, enter Waste Exported on line b. and identify the U.S. border point of departure in Comments, line 13.)

Line Number	A Description of Waste	B EPA Waste Number	C Quantity of Waste	D Unit Code (G,P,T,Y)	E Receiving Facility Handling Code
1	METHYLENE CHLORIDE	F002	2860	G	S01
2	OIL N.O.S.	M001	220	G	S01
3	STYRENE MONOMER INHIBITED	D001	110	G	S01
4	METHYL ETHYL KEYTONE	U159	55	G	S01

Instructions:

- A. To identify your wastes, refer to your manifests. The description will usually be the U.S. DOT shipping name. Use a separate line for each type of waste. Number lines consecutively. Duplicate page as necessary.
- B. The EPA Waste Number (Block I. on the Uniform Manifest Form) can also be found in Massachusetts regulations, 310 CMR 30.120-30.136. The number will be a 4-digit code, beginning with a letter, followed by 3 numbers.
- C. Enter the total amount of this particular waste which was shipped to this facility during the calendar year.
- D. The unit codes are: G - gallons; P - pounds; T - tons; Y - cubic yards. If you shipped waste in 55 gal. drums, multiply number of drums by 55, enter G.
- E. Receiving facility handling codes are found in Block K on the Uniform Manifest. This code will be a letter (S, T, or D), followed by 2 numbers.

PART 2

GENERATOR ANNUAL REPORT

To complete this part of the report, refer to all your manifests for the calendar year. Separate your manifests by receiving facility.

11. Generator's EPA Identification Number: MA0000361709
12. Waste Shipped Off-Site: (Complete a separate page for each facility to which waste was shipped. Reproduce additional pages as necessary.)
- a) Name of Receiving Facility: SCA CHEMICAL SERVICES INC
- b) Facility EPA ID Number: MA0063452637
- c) Facility Address: QUINCY AVENUE, BRAINTREE, MA
(Street or P.O. Box) (City) (State)

(If the waste was exported to a foreign country, enter Waste Exported on line b. and identify the U.S. border point of departure in Comments, line 13.)

Line Number	A Description of Waste	B EPA Waste Number	C Quantity of Waste	D Unit Code (G,P,T,Y)	E Receiving Facility Handling Code
5	POLYCHLORINATED BIPHENYLS	M002	10	G	S01

Instructions:

- A. To identify your wastes, refer to your manifests. The description will usually be the U.S. DOT shipping name. Use a separate line for each type of waste. Number lines consecutively. Duplicate page as necessary.
- B. The EPA Waste Number (Block I. on the Uniform Manifest Form) can also be found in Massachusetts regulations, 310 CMR 30.120-30.136. The number will be a 4-digit code, beginning with a letter, followed by 3 numbers.
- C. Enter the total amount of this particular waste which was shipped to this facility during the calendar year.
- D. The unit codes are: G - gallons; P - pounds; T - tons; Y - cubic yards. If you shipped waste in 55 gal. drums, multiply number of drums by 55, enter G.
- E. Receiving facility handling codes are found in Block K on the Uniform Manifest. This code will be a letter (S, T, or D), followed by 2 numbers.

EMERSON & CUMING

Emerson & Cuming, Inc.
A GRACE Co.

PURCHASE ORDER NO.

2-68731

THIS NO. TO APPEAR ON ALL PACKAGES AND CORRESPONDENCE PERTAINING TO THIS ORDER.

To • Clean Harbors of Natick
5 Strathmore Road
Natick, MA 01760

SHIP & BILL TO THE
LOCATION INDICATED BELOW

- 869 WASHINGTON ST., CANTON, MA 02021 579364*0000*02-
- 59 WALPOLE ST., CANTON, MA 02021 "
- 10 RAMAH CIR., AGAWAM, MA 01001 "
- 804 WEST 182nd ST., GARDENA, CA 90248 SROH B30-665644
- 3450 COMMERCIAL AVE., NORTHBROOK, IL 60062 1553-9266
- 1301 ELLIOT ST., TROY, MI 48083-4596 U22-231-2556

TAX
EXEMPTION
NUMBERS

PAYMENT TERMS Net 30		F.O.B. Canton		TRANSPORT TERMS Pickup		REQUIREMENT DATE Advise	
SHIP VIA Your Pickup				SUBJECT TO STATE AND LOCAL SALES & USE TAX		YES	NO
						10-15-85	
ITEM	QTY. ORDERED	U/M	DESCRIPTION OF GOODS AND/OR SERVICES TO BE RENDERED.	CODE	UNIT PRICE	ALLOCATION	
A	17 drums	ea.	Hazardous waste - Methylene Chloride NAT E10136		Advise	2608700	
B	1 drum	ea.	Waste Oil N.O.S. (pump solution) NAT E10133		"		
C	1 Drum	ea.	Carbon sludge, non-hazardous NAT E10134		"		
<p>All hazarouse waste to be properly transported for disposal and disposed of in accordance with all Federal, State and Local requirements.</p> <p>Advise price to A. Fish Tel: 828-3300, ect. 126</p> <p>Confirming</p>							

Emerson & Cuming, Inc.
A GRACE Co.

By *W.E. Callahan*

BUYER

RECEIVING SCHEDULE

DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME	DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME
A				I			
B				J			
C				K			
D				L			
E				M			
F				N			
G				O			
H				P			

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108



Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. M A D 0 0 0 3 6 1 7 0 9 0 0 0 9		Manifest Document No. 1 of 1	2. Page 1 Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address EMERSON & CORNING INC A GRACE CO 59 WALPOLE STREET CAMDEN, MA. 02021				A. State Manifest Document Number MA 8082561		
4. Generator's Phone (617) 828-3300				B. State Gen. ID * Same		
5. Transporter 1 Company Name CLEAN HARBORS OF NATICK INC		6. US EPA ID Number M A D 9 8 0 5 2 3 2 0 3		C. State Trans. ID MA 616 9271		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone (617) 655-8803		
9. Designated Facility Name and Site Address CLEAN HARBORS OF NATICK INC FIVE CEMENTS ROAD 10 MARLER RD. NATICK, MA. 01760		10. US EPA ID Number M A D 9 8 0 5 2 3 2 0 3		E. State Trans. ID		
				F. Transporter's Phone ()		
				G. State Facility ID Not Required		
				H. Facility's Phone (617) 655-8803		
11. US DOT Description Including Proper Shipping Name, Hazard Class, and ID Number				12. Containers No.	13. Total Quantity	14. Unit Wt/Vol
a. WASTE METHYLENE CHLORIDE, ORG-A UN 1593				1	935	GAL
b. WASTE OIL N.O.S. COMBUSTIBLE LIQUID NA1270 E10133 (PUMP LUBRICATION)				1	55	GAL
c. *Non-regulated material CARBON SLUDGE (NON-HAZ) E10134				1	55	GAL
d. *Waste						
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)				K. Handling Codes for Wastes Listed Above		
a.				a. S101		
b.				b. S101		
c.				c. S101		
d.				d. S101		
15. Special Handling Instructions and Additional Information *collectors "Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage or disposal currently available to me which minimizes the present and future threat to human health and the environment."						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations, and all applicable State laws/regulations.						
Printed/Typed Name JOHN J. COHENNO				Signature <i>John J. Cohenno</i>		Date 10/18/85
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Mark S. Russell				Signature <i>Mark S. Russell</i>		Date 10/18/85
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature		Date
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name William J. Green				Signature <i>William J. Green</i>		Date 10/18/85

Form Approved OMB No. 2000-0404. Expires 7-31-88
EPA Form 8700-22 (3-84)

COPY > 3: GENERATOR-MAILED BY TSDF

MA 8082561 COPY 3: GENERATOR-MAILED BY TSDF

TRANSMITTAL STATEMENT

to be mailed with the Annual Report

EMERSON & CUMING/W.R. GRACE

MAD000361709

Name of Installation

EPA Identification No.

Please check the appropriate response(s):

1. XXX We are submitting the Annual Report as required.
2. _____ We are submitting Part 1 of the Annual Report but do not feel we are required to complete Parts 2 or 3 for the following reasons:

_____ We did not manifest any hazardous waste (in quantities described in Who Must File) but will retain our status as a Large Quantity Generator for possible future use, or

_____ We did not manifest hazardous waste in the quantities described in Who Must File and would like to change our status to Small Quantity Generator,* or

_____ We did not manifest any hazardous waste, or did not generate as much as 20 kilograms of non-acutely hazardous waste in any one month, at this address and request that our EPA ID Number be withdrawn.*

_____ We moved our operation during 1985 and are now located at:

_____ New EPA Identification Number: _____

_____ We generate only waste oil.

* Companies requesting a change of status will be sent a Certification Statement to be completed. The change of status will be confirmed by DEQE in writing. Companies contemplating a move during 1986 should apply for a new EPA Identification Number and complete a Certification Statement to withdraw their existing ID prior to the move.

ANNUAL HAZARDOUS WASTE REPORT

PART 1

Part 1 of the Annual Report is to be completed by all respondents.

- 1. Current Status of Installation: (check where applicable) Generator
 Treatment, Storage, Disposal Facility Wastewater Treatment Unit Recycling Permittee

2. Reporting Year: Year ending 1985

3. EPA Identification Number:

M	A	D	0	0	0	3	6	1	7	0	9
---	---	---	---	---	---	---	---	---	---	---	---

4. Installation's Name: EMERSON & CUMING/ W.R. GRACE CO

5. Installation's Address: 59 WALPOLE STREET
CANTON, MA. 02021

6. Installation Contact: J.J. COHENNO/R.M. OLSON Tel. No.: 828-3300

- 7. Does your installation discharge process wastewater? Yes No
 If yes: (a) NPDES Permit Number _____ or
 (b) Groundwater discharge permit _____ or
 (c) Name of municipal sewerage system _____

Is the wastewater considered hazardous prior to processing?
 Yes No (If yes, complete Part 3, line 16.)

- 8. Is your installation registered with the Division of Air Quality Control?
 Yes No (For verification, contact your DEQE Regional office.)

9. Transportation Services Used: (list name and EPA ID number of each)
CLEAN HARBORS OF NATICK - MAD980523203

10. Certification:

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document 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.

In addition, I understand that any material supplied with this application will not be considered confidential unless I have specifically requested that such material be kept confidential and the Department has made a determination of confidentiality in accordance with 310 CMR 3.00, Regulations Governing Access to and Confidentiality of Department Records and Files under the Hazardous Waste Management Act.

John J. Cohenno
Authorized Signature of Owner, Operator or Designated Official

1/13/86
Date Signed

JOHN J. COHENNO
Print or Type Name

SHIPPING SUPERVISOR
Title of Person Signing

ATTACH MAILING LABEL
IF INCORRECT

Generator's EPA Identification Number: MAD000361709

13. Comments (refer to line number): Use this space to explain any entry in (12).

14. Waste Reduction and On-Site Recovery by Generator (required for recycling permittees):

Manifests from large quantity generators must contain a certification that the volume and/or quantity and toxicity of the waste have been reduced to the maximum degree economically practicable and the method used to manage the waste minimizes risk to the extent practicable.

A. Type of activity: (Check where appropriate)

- 1) Treatment as an integral part of the manufacturing process XXX
(as defined in Mass. regulations, 310 CMR 30.010)
- 2) Recycling by permit (as defined in 310 CMR 30.143) _____
- 3) Oil and water separation (as defined in 310 CMR 30.202:10) _____
- 4) Other (please specify, for example, substitution, process modification, sludge reduction, etc.)

PROCESS MODIFICATION TO REDUCE GENERATION

B. Amount: (estimated annual quantity)

- 1) Total waste entered for processing: APPROX. 12,000 gallons
- 2) Total amount of product: APPROX. 600 gallons

C. Description of waste and process:

DISTILLATION OF METHYLENE CHLORIDE/EPOXY SLUDGE. DISTILLED MCL REUSED. STILL BOTTOM EPOXY SLUDGE DISPOSED AS HAZARDOUS WASTE.

If you have more than one recovered or reduced material, duplicate this page for each.



S. Russell Sylva
Commissioner

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Quality Engineering
Division of Solid and Hazardous Waste
One Winter Street, Boston, Mass. 02108

December 31, 1985

Dear Generator or Operator of a Hazardous Waste Facility:

An annual report of your 1985 hazardous waste activity must be received by the Department no later than March 1, 1986. Failure to comply with this reporting requirement may result in enforcement action.

I encourage you to examine carefully the instructions and the transmittal statement to determine the portions of the report which your company should submit.

Hazardous waste regulations, amended through July, 1985, (310 CMR 30.000) can be obtained at the State House Bookstore, Room 116 at the State House, Boston, 02133, or by telephoning (617) 727-2834.

Your cooperation is greatly appreciated.

Very truly yours,

A handwritten signature in cursive script, appearing to read "William F. Cass".

William F. Cass
Director

WFC/nw

Enclosure: Annual Report for 1985

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING

GENERAL INSTRUCTIONS

ANNUAL HAZARDOUS WASTE REPORT

WHO MUST FILE

- o Large Quantity Generators, defined as those who generate in a month more than
 - 1,000 kilograms of non-acutely hazardous waste; or
 - 1 kilogram of acutely hazardous waste; or
 - 10 kilograms of inner liners from hazardous waste containers; or
 - 100 kilograms of any residue resulting from an acutely hazardous spill; or
 - any amount of polychlorinated byphenyl (PCB) wastes in concentrations of 50 ppm or greater; orwho accumulated more than these amounts at any one time during the year.

You must submit a written response if you notified EPA as a Generator, even if your activity during this reporting year was less than these amounts.
- o Facilities which are authorized to treat, store, or dispose of hazardous waste generated on-site. (Facilities which receive any hazardous waste from an off-site source are required to file monthly reports and are exempt from all Annual Report requirements.)
- o Owners/operators of wastewater treatment units (as defined in Massachusetts regulations, 310 CMR 30.605).
- o Installations which have permits for recycling (as defined in 310 CMR 30.143).

WHEN YOU MUST FILE

The Annual Report is due at the Department of Environmental Quality Engineering no later than March 1st for the previous calendar year's hazardous waste activity(ies).

WHAT TO FILE

- PART 1 - Identification and Certification: completed by all filers
- PART 2 - Summary of Wastes Shipped and Recycled or Reduced: completed by Generators and Recyclers
- PART 3 - Summary of Wastes Treated, Stored or Disposed on site: completed by authorized facilities and wastewater treatment units

You may request that any information, records, or particular part thereof be kept confidential and not considered to be public record when such information, record, or report relates to secret processes, methods of manufacture, or production and, if made public, would divulge a trade secret.

WHERE TO FILE

Mail the Annual Report with the Transmittal Statement to:

Compliance Branch
DEQE - Division of Solid & Hazardous Waste
One Winter Street
Boston, Massachusetts 02108

For further assistance, call (617) 292-5851.

Sample:	June 1, 1984		July 11, 1984		
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
<u>Test</u>					
BOD (mg/l)	< 5	< 2	< 2	< 1	< 2
COD (mg/l)	27	21	20	5.5	22
pH	6.4	6.7	7.2	6.6	7.2
Ammonia (mg/l)	0.25	0.12	0.26	0.25	0.12
Total Suspended Solids (mg/l)	6	9	39	-	25
Silver (mg/l)	0.02	0.02	< 0.02	< 0.02	< 0.02
Nickle (mg/l)	0.05	< 0.02	< 0.02	< 0.02	< 0.02
Lead (mg/l)	0.05	0.05	< 0.25	< 0.25	< 0.25
Total Organic Carbon (mg/l)	< 10	< 10	13	6.5	11
DOP (μ g/l)	< 50	< 50	< 50	< 50	< 50
Methylene Chloride (μ g/l)	-	-	-	4.2	10.1
1, 1, 1, Trichloroethane (μ g/l)*	-	-	-	-	-
Toluene (μ g/l)*	-	-	-	-	-
Dichloroethane (μ g/l)*	-	21	-	-	-

A= Taken at non contact cooling water & ground water collection sump.

B= Taken at raceway discharge to river.

C= Taken at pond above plant (river spillway).

D= Taken at non contact cooling water & ground water collection sump.

E= Taken at raceway discharge to river.

* Detection threshold limits were 5 μ g/l (5 pph)

CDM

environmental engineers, scientists,
planners, & management consultants

CAMP DRESSER & MCKEE INC

One Center Plaza
Boston, Massachusetts 02108
617 742-5151

January 25, 1983

Mr. Randolph Olson
Emerson & Cuming
Dewey & Almy Chemical Division
W. R. Grace & Company
59 Walpole Street
Canton, Massachusetts 02021

Dear Mr. Olson:

In accordance with your Purchase Order No. 2-42521, Camp Dresser & McKee is pleased to submit six (6) copies of the enclosed final report entitled "Spill Control Audit, Emerson & Cuming Plant No. 2". We have made a number of changes to the draft in response to your January 24, 1983 discussion with Jaret Johnson of our staff.

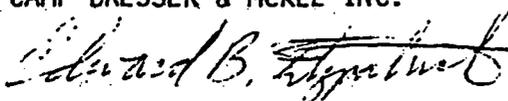
For ease in future reference, we have letter-coded, in the margin, each of our text recommendations.

Two items that have been deleted from the previous draft merit your attention. First, while CDM understands Emerson & Cuming's reluctance to raise the issue of sampling with DEQE, we do recommend sampling of the lower raceway discharge so that you will know its quality. Second, we wish to emphasize that state and federal regulations are the basis for the recommendations in our report. Deletion of Section VII removes from the report the recognition of that basis.

Please contact me, Jaret Johnson or Robert Dangel if you have further questions on the enclosed report.

Very truly yours,

CAMP DRESSER & MCKEE INC.



Edward B. Fitzpatrick
Associate

EBF/JCJ/m

Enclosures



ALABAMA HAZARDOUS WASTE MANIFEST

PCD

CWMA

NO 09105

IDENTIFICATION INFORMATION

NAME	ADDRESS	PHONE	EPA ID CODE
GENERATOR PERSON + CUMING (C.W.M.) MA	59 WALPOLE ST. CANTON MA. 02021	(617) 828-3300	MA 000003617019
TRANSPORTER NO. 1 TECHNICAL WASTE MANAGEMENT	5 STRATHMORE RD. NATICK, MA. 01760	(617) 655-8863	MA 000805232031
TRANSPORTER NO. 2 OILY HARBORS INC.	100 JOSEPH ST. P.O. BOX 193 KINGSTON MA. 02364	(617) 585-5111	MA 000005463522
DISPOSER Chemical Waste Management, Inc. Emelle Facility	P. O. Box 55 Emelle, Alabama 35459	205-652-9531	AL 000006224644

WASTE INFORMATION

CONTAINER NO.	TYPE	DESCRIPTION/CLASS	TOTAL QUAN.	UNIT	EPA Hazardous Waste ID No.		C W M A WASTE CODE	WEIGHT
					1	2		
1	55 GAL. DRUM	WASTE Polychlorinated biphenyls ORM-E UN2315 (Liquid > 500 mm)	55	gals	NA	NA		~500 lbs

EMERGENCY INFORMATION

EMERGENCY NOS.: DISPOSER — (205) 652-9531 ; GENERATOR — () — US COAST GUARD 1-800-424-8802
SPECIAL INSTRUCTIONS:

CERTIFICATION

I hereby certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation, the U.S. Environmental Protection Agency:

Frank Williams Generator Title Shipper Date 7-11-83

I hereby certify acceptance of the hazardous waste shipment described above:

Robert Jones Transporter #1 Title DRIVER Date 7/11/83
Robert Jones Transporter #2 Title DRIVER Date 7/11/83

I hereby certify acceptance of the hazardous waste shipment described above for treatment, storage or disposal:

Matt Hammond Disposer Title Emelle Tech Date 7/14/83

DISPOSAL INFORMATION

CWMA WASTE CODE	QUANTITY	UNIT	PROCESS CODE	LOCATION			COMMENTS
				TRENCH	LEVEL	QUAD	
ASS F	1	55	S01	INC	Ship		

GENERATOR COMPLETES

NAME	MAILING ADDRESS	PHONE NUMBER	STATE / E.P.A. I.D. NO.
GENERATOR Emerson & Cuming	59 Walpole St. Canton, MA 02021	(617) 828-3300	MA 000 361 707
PRIMARY TRANSPORTER Chemical Waste Management	5 Strathmore Rd. Natick, MA 01760	(617) 655-8863	MA 980 523 203
CONTINUING TRANSPORTER			
H.W.F. Chemical Waste Management	5 Strathmore Rd. Natick, MA 01760	(617) 655-8863	MA 980 523 203

IF MORE THAN ONE MANIFEST / SHIPPING PAPER IS USED:	TOTAL NO. OF FORMS ARE	THIS FORM NO. IS	MANIFEST NO. OF FIRST FORM	DATE SHIPPED MONTH DAY YEAR	EXPECTED ARRIVAL MONTH DAY YEAR
				06 30 83	06 30 83

U.S. D.O.T. SHIPPING NAME	D.O.T. HAZARD CLASS	U.N. / N.A. NO.	WT. / VOL.	UNITS	UNIT CODE	CONTAINER		E.P.A. WASTE NO.	DESCRIPTION OR WASTE ANALYSIS IF WASTE IS N.O.S.
						NO.	TYPE		
1. Waste Polychlorinated Biphenyls	ORM-E	UH2315	00055	Gal	G	001	DR	D002	
2. Hazardous Waste Liquid N.O.S.	ORM-E	NA9189	00385	Gal	G	007	DR	D001	Tertbutylstyrene Eliobond Adhesive
3. Hazardous Waste Liquid N.O.S.	ORM-E	NA9189	00880	Gal	G	015	DR	D001	Tertbutylstyrene
4. Hazardous Waste Solid N.O.S.	ORM-E	NA9189	00165	Gal	G	003	DR	D001	Tertbutylstyrene, asphalt and sand
5. Hazardous Waste Liquid N.O.S.	ORM-E	NA9189	00115	Gal	G	015	DR	D001	Carbon Solution
6.									

SPECIAL HANDLING INSTRUCTIONS INCLUDING ANY CONTAINER EXEMPTION, AND EMERGENCY RESPONSE INFORMATION:

IN THE EVENT OF A SPILL, CONTACT THE NATIONAL RESPONSE CENTER, U.S. COAST GUARD 1-800-424-8802

REQUIRED LABELS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE PRIMARY TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F. <i>Richard Cooper</i> SIGNATURE OF TRANSPORTER	DATE SHIPMENT ACCEPTED MONTH DAY YEAR 6 30 83	VEHICLE ID	STATE MA	COMPANY NO. FOR TRAILER, MARINE OR RAIL	DATE OF DELIVERY MONTH DAY YEAR 6 30 83
PLACARDS REQUIRED <input type="checkbox"/>	THIS IS TO CERTIFY THAT I AM THE CONTINUING TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F. SIGNATURE OF TRANSPORTER	DATE SHIPMENT ACCEPTED MONTH DAY YEAR	VEHICLE ID	STATE	COMPANY NO. FOR TRAILER, MARINE OR RAIL	DATE OF DELIVERY MONTH DAY YEAR

INDICATE ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT AND LIST REJECTED MATERIALS, INDICATE DISPOSITION OF REJECTED SHIPMENT

1 55 GAL PCB'S REJECTED BECAUSE C.W.M. NOT READY TO RECEIVE. RETURNED TO E+C ON 6/30/83

11:05 AM 6/30/83
J. McNeil 6/30

I CERTIFY THAT THE DESCRIBED WASTE(S) WAS DELIVERED BY THE AFOREMENTIONED DELIVERING TRANSPORTER AND THAT THE INFORMATION ON THIS MANIFEST IS CORRECT TO THE BEST OF MY KNOWLEDGE.

SIGNATURE _____ MONTH DAY YEAR

F NE
LABELMASTER
CHICAGO, IL 60626

HANDLING METHOD	
1	
2	
3	
4	
5	
6	

THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

GENERATOR'S EMERGENCY PHONE IF DIFFERENT FROM ABOVE

DATE

GENERATOR SIGNATURE

HAZARDOUS WASTE MANIFEST AND SHIPPING PAPER

MA MANIFEST NUMBER

NAME	MAILING ADDRESS	PHONE NUMBER	STATE/E.P.A. I.D. NO.
GENERATOR Emerson & Cuning <i>(CWM of Mass.)</i>	59 Walpole St. Canton, MA 02021	(617) 828-3300	MA D 00361709
PRIMARY TRANSPORTER Chemical Waste Management	5 Stratmore Rd. Natick, MA 01760	(617) 655-8863	MA D 0080523203
CONTINUING TRANSPORTER Clean Harbors, Inc.	P. O. Box 193 Kingston, MA 02364	(617) 585-5111	MA D 000846352
H.W.F. Chemical Waste Management	P. O. Box 55 Enelle, AL 35459	(205) 652-9531	AL D 000622466

IF MORE THAN ONE MANIFEST / SHIPPING PAPER IS USED: TOTAL NO. OF FORMS ARE THIS FORM NO. IS MANIFEST NO. OF FIRST FORM DATE SHIPPED MONTH DAY YEAR EXPECTED ARRIVAL DATE MONTH DAY YEAR

07 11 83 07 11 83

U.S. D.O.T. SHIPPING NAME	DOT HAZARD CLASS	U.N. / N.A. NO.	WT. / VOL.	UNITS	UNIT CODE	CONTAINER		E.P.A. WASTE NO.	DESCRIPTION OR WASTE ANALYSIS IF WASTE IS N.O.S.
						NO.	TYPE		
1. Waste Polychlorinated Biphenyls	ORM - E	UN2315	0.0055	Gal.	G	D 01	DR	M 0.0.2	Arachlors N.O.S. (One-third full)
2.									
3.									
4.									
5.									
6.									

SPECIAL HANDLING INSTRUCTIONS INCLUDING ANY CONTAINER EXEMPTION; AND EMERGENCY RESPONSE INFORMATION:

IN THE EVENT OF A SPILL, CONTACT THE NATIONAL RESPONSE CENTER, U.S. COAST GUARD 1-800-424-8802

REQUIRED LABELS <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	THIS IS TO CERTIFY THAT I AM THE PRIMARY TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	SIGNATURE OF TRANSPORTER <i>Joe P...</i>	DATE SHIPMENT ACCEPTED MONTH DAY YEAR 7 11 83	STATE MA	COMPANY NO. FOR TRAILER, MARINE OR RAIL D031256	DATE OF DELIVERY MONTH DAY YEAR 7 11 83
			PLACARDS REQUIRED	THIS IS TO CERTIFY THAT I AM THE CONTINUING TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.	SIGNATURE OF TRANSPORTER <i>Robert J...</i>	DATE SHIPMENT ACCEPTED MONTH DAY YEAR 7 11 83

INDICATE ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT AND LIST REJECTED MATERIALS. INDICATE DISPOSITION OF REJECTED SHIPMENT

I CERTIFY THAT THE DESCRIBED WASTE(S) WAS DELIVERED BY THE AFOREMENTIONED DELIVERING TRANSPORTER AND THAT THE INFORMATION ON THIS MANIFEST IS CORRECT TO THE BEST OF MY KNOWLEDGE.

Mat Hammond
SIGNATURE

07 14 83
MONTH DAY YEAR

F NE LABELMASTER CHICAGO, IL 60626

3. GENERATOR COMPLETED COPY

THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

Joseph M. ...
GENERATOR SIGNATURE

DATE

GENERATOR'S EMERGENCY PHONE IF DIFFERENT FROM ABOVE

COMPLETES

NAME	MAILING ADDRESS	PHONE NUMBER	STATE/E.P.A. I.D. NO.
GENERATOR EMERSON & CUMING, W.R. GRACE & CO.	59 WALPOLE STREET, CANTON, MA 02021	(617) 828-3300	MA D 0 00 3 6 1 7 0 9
PRIMARY TRANSPORTER CHEMICAL WASTE MANAGMENT	5 STRATHMORE ROAD, NATICK, MA 01760	(617) 655-8863	MA D 9 80 5 2 32 03
CONTINUING TRANSPORTER		()	
H.W.F. SCA CHEMICAL SERVICES INC	QUINCY AVENUE, BRAINTREE, MA	(617) 849-1800	MA D 0 53 45 2 6 3 7

IF MORE THAN ONE MANIFEST / SHIPPING PAPER IS USED: TOTAL NO. OF FORMS ARE THIS FORM NO. IS MANIFEST NO. OF FIRST FORM DATE SHIPPED MONTH DAY YEAR 06 12 84 EXPECTED ARRIVAL MONTH DAY YEAR 06 12 84

U.S. D.O.T. SHIPPING NAME	D.O.T. HAZARD CLASS	U.N. /N.A. NO.	WT. /VOL.	UNITS	UNIT CODE	CONTAINER		E.P.A. WASTE NO.	DESCRIPTION OR WASTE ANALYSIS IF WASTE IS N.O.S.
						NO.	TYPE		
WASTE POLYCHLORINATED BIPHENYLS	ORM-E	UN2315	10	GAL	69	0 0 4	17E	M 0 0 2	ARACHLOR 1254 CWM #D82566
2.									
3.									
4.									
5.									
6.									

SPECIAL HANDLING INSTRUCTIONS INCLUDING ANY CONTAINER EXEMPTION, AND EMERGENCY RESPONSE INFORMATION:
INCINERATION CERTIFICATE TO VERIFY DESTRUCTION MUST BE RETURNED TO GENERATOR
TWO FIVE GALLON 17E PAILS OVERPACKED IN A 55 GALLON DRUM WITH SPEEDI DRI
 IN THE EVENT OF A SPILL, CONTACT THE NATIONAL RESPONSE CENTER, U.S. COAST GUARD 1-800-424-8802

REQUIRED LABELS
 YES NO

PLACARDS REQUIRED
None

THIS IS TO CERTIFY THAT I AM THE PRIMARY TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.

Charlie Fentile
 SIGNATURE OF TRANSPORTER

THIS IS TO CERTIFY THAT I AM THE CONTINUING TRANSPORTER AND HAVE ACCEPTED THE DESCRIBED SHIPMENT IN PROPER CONDITION FOR TRANSPORT TO THE IDENTIFIED H.W.F.

 SIGNATURE OF TRANSPORTER

DATE SHIPMENT ACCEPTED: MONTH DAY YEAR 06 12 84

VEHICLE I.D. STATE COMPANY NO. FOR TRAILER, MARINE OR RAIL DATE OF DELIVERY: MONTH DAY YEAR 06 12 84

VEHICLE I.D. STATE COMPANY NO. FOR TRAILER, MARINE OR RAIL DATE OF DELIVERY: MONTH DAY YEAR

INDICATE ANY DIFFERENCES BETWEEN MANIFEST AND SHIPMENT AND LIST REJECTED MATERIALS, INDICATE DISPOSITION OF REJECTED SHIPMENT

I CERTIFY THAT THE DESCRIBED WASTE(S) WAS DELIVERED BY THE AFOREMENTIONED DELIVERING TRANSPORTER AND THAT THE INFORMATION ON THIS MANIFEST IS CORRECT TO THE BEST OF MY KNOWLEDGE.

Shuler
 SIGNATURE

MONTH DAY YEAR 06 12 84

HANDLING METHOD

1	<input type="checkbox"/>
2	<input type="checkbox"/>
3	<input type="checkbox"/>
4	<input type="checkbox"/>
5	<input type="checkbox"/>
6	<input type="checkbox"/>

THIS IS TO CERTIFY THAT THE ABOVE NAMED MATERIALS ARE PROPERLY CLASSIFIED, DESCRIBED, PACKAGED, MARKED AND LABELED AND ARE IN PROPER CONDITION FOR TRANSPORTATION ACCORDING TO THE APPLICABLE REGULATIONS OF THE DEPARTMENT OF TRANSPORTATION AND THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

GENERATOR SIGNATURE: *John J. Corbett* DATE: 6 12 84 GENERATOR'S EMERGENCY PHONE: 617 828-3300 IF DIFFERENT FROM ABOVE

COMPLETES

GRACE MEMO

to: Distribution

date: July 17, 1985

from: Muhammad R. Ahsan

cc: ~~Paul Drury~~
~~Rick Winterson~~

subject: Hazardous Waste Management System
And Contingency Plan.

Attached is a copy of the Hazardous Waste Management System for Emerson & Cuming Inc., (Plant 2) Canton, Mass.

Please be sure to comply with all federal, state and local regulations when handling and disposing of the hazardous waste. These regulations are defined by EPA under CFR 40 Part 261 and by the Commonwealth of Massachusetts under 310 CMR 30-100.

It also includes the Contingency Plan and Emergency Procedures for this facility.

If you have any questions, please contact me.

Distribution:

~~John J. Cohenno~~
~~John S. Colagee~~
Tim Cummings
Randy M. Olson
Randy P. Porter

Muhammad

MA/pldc:

HAZARDOUS WASTE MANAGEMENT SYSTEM

-EPA I.D. NO. MAD 000361709-

EMERSON & CUMING, INC.

A Subsidiary of
W. R. GRACE CO.
59 Walpole Street
Canton, MA 02021
-PLANT #2-

Revised July 1985

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July 1985

Hazardous Waste Management System General
(40 CFR Part 262)

PURPOSE & SCOPE

Subpart A 262.10-12:

The Resource Conservation and Recovery Act (RCRA) of 1976, created a Federal Regulatory Program for handling hazardous wastes.

The Act encourages States to create Waste Regulatory Programs, reserving to E.P.A., the regulation of hazardous waste, until State programs are approved. The company must file notices and permit applications with the E.P.A., or State for the storage, treatment and disposal sites it operates, and identify any hazardous waste it generates.

This part provides definitions of terms, general standards, and overview information applicable to Hazardous Waste Management system.

Applicability:

The W. R. Grace & Co., Emerson & Cuming, Inc., Canton, Massachusetts facility is a registered generator of hazardous waste.

Hazardous Waste Determination:

Some of the waste generated by the facility is hazardous waste. The waste is not analyzed for each unit generated but is segregated according to the chemicals involved and processed as hazardous waste according to the category as generated at this facility.

E.P.A. Identification Number:

The Canton facility (Plant #2) E.P.A. Identification Number is MAD 000361709.

GENERAL REQUIREMENTS

Environmental Protection Agency (E.P.A.) has exempted "small quantity generators" from hazardous waste regulations.

"Small Quantity Generators" are those generating less than 1000 kilograms per month of hazardous waste.

Generators that transport, or offer for transportation, hazardous waste for off-site treatment, storage, or disposal must prepare a manifest before transporting the waste off-site.

The generator must package, label and mark hazardous wastes in accordance with U. S. Department of Transportation (D.O.T.) regulations. The generator must also placard, or offer placards, as specified in D.O.T. regulations.

GENERAL WASTE ANALYSIS

(265.13)

Waste placed in storage will be generated on the premises. The composition of this waste will be known based on the chemicals used and analysis of the waste is not required.

When the composition of a waste product is not known, it will be the responsibility of the Plant Hazardous Waste Coordinator to obtain a representative sample and have that sample analyzed to determine its hazardous classification. The Plant Hazardous Waste Coordinator will maintain a record of such sampling and the results of the analysis.

When the composition of the waste is known, the generating department will fill out a "WASTE PROFILE SHEET", (copy attached), or "REQUEST FOR TRANSFER OF CHEMICAL WASTE", and submit to the Shipping and Receiving Department for storage in a designated Hazardous Waste Storage Area.

THE MANIFEST

(Subpart B 262.20)

The manifest must contain, among other things, the following items:

- 1) Generator's Name,
- 2) Generator's Address,
- 3) Generator's E.P.A. Identification Number,
- 4) The name and Identification Number of each transporter,
- 5) The name, address and E.P.A. Identification Number of the designated facility.

Manifests are prepared according to the requirements. This is done by the Plant Hazardous Waste Coordinator (John Cohermo). Copies are retained in the Shipping/Receiving Department for, at least, three (3) years.

PRE-TRANSPORT REQUIREMENTS

(Subpart C 262.30-34)

Packaging:

Hazardous wastes are packaged in accordance with the Department of Transportation (DOT) regulations. The wastes are packed in DOT approved drums (17E or 17H), according to 49 CFR 173.119.

Labelling & Marking:

The appropriate DOT labels and markings are affixed to each container or package, (copy attached).

Placarding:

Placards are available in the Shipping & Receiving Office and are available to the transporter, if not already affixed.

Accumulation Time:

The Canton facility has generator status, only. The hazardous waste will be removed from the site ninety (90) days after it is generated, or sooner.

RECORDKEEPING AND REPORTING

(Subpart D 262.40-42)

Recordkeeping:

The Plant Hazardous Waste Coordinator keeps manifests and annual reports in his file for, at least, three (3) years.

Annual Reports:

One annual report as a generator, is submitted yearly. The report contains the amount of hazardous waste generated, shipped and stored on-site, etc.

Exception Report:

The manifest copy is received within thirty (30) days after the waste has been shipped.

If the copy has not been received within forty-five (45) days, the Plant Hazardous Waste Coordinator will file an exception report, if needed.

TREATMENT, STORAGE & DISPOSAL (TSD) FACILITY REQUIREMENTS

(40 CFR PART 265)

The Canton facility does not store the hazardous waste it generates for longer than 90 days. Therefore, the facility has a generator only status.

The hazardous waste is shipped according to DOT regulations to Clean Harbor, Inc., a permitted disposal facility at Natick, Massachusetts (MAD #980523203), and at Braintree, Massachusetts (MAD #053452637).

The Canton facility maintains the hazardous waste storage area adjacent to the Shipping & Receiving office, where flammables such as organic solvents, or other hazardous materials are also stored.

The empty drum must be labelled with the accumulation start date and name of chemical waste to be accumulated in the container. The compatible wastes can be placed into the same container. When full, the manufacturing personnel will properly close the drum and complete a Waste Profile Sheet/Chemical Waste Transfer form. The "generation" date will be marked on the drum label and the profile sheet upon being full and capped. The completed Waste Profile Sheet will be submitted to the Shipping and Receiving Supervisor who will arrange the transfer of hazardous waste container(s) from the manufacturing to the hazardous waste storage area, and prepare for proper disposal off-site.

GENERAL INSPECTION

(265.15)

The facility's hazardous waste/materials storage area is inspected once a week for the following:

- 1) Any spills, bulged drums, leaking containers, etc.
If a container holding hazardous waste, or material is not in good condition, or if it begins to leak, the inspecting personnel must transfer the waste to a container in good condition. Any spill, or leak, must be cleaned up using proper absorbing material, and contaminated material must be placed in a (open head) DOT approved drum for proper disposal off-site. A recovery drum should be used, if necessary.
- 2) To prevent waste cross contamination, hazardous waste must be segregated according to type.
- 3) For the presence and availability of shovels, absorbent, and empty or recovery drums.
- 4) For the presence and availability of all types of necessary protective apparatus.

Personnel designated to make the above inspections will maintain a record log of inspections. The log will be retained in the Plant Hazardous Waste Coordinator's office for, at least, three (3) years.

The inspection log will record any remedial actions which have been taken.

Designated Inspection Personnel:

1. John Cohermo, Plant Hazardous Waste Coordinator
2. Frank Helmuth, Shipping & Receiving Department
3. Charles Moore, Jr., Shipping & Receiving Department

PERSONNEL TRAINING

The personnel involved in hazardous waste handling are as follows:

John Cohermo Plant Hazardous Waste Coordinator
Shipping & Receiving Supervisor
Experience
Seminar

~~Michael Sommers~~

{ Charles Moore

{ ~~Frank Hellmuth~~

John Cohermo is thoroughly familiar with the Canton facility and with the hazardous waste storage area. He inspects the storage area on a regular basis to ensure safe practices are being followed.

In addition, the following personnel have been trained, in-house, for handling hazardous waste to ensure their own safety, the safety of their fellow employees, and to respond to emergencies as well as to maintain our compliance with EPA and DEQE regulations.

Waste Handlers

Steve Gaffney
Paul Scanlon
John Cohermo
Frank Hellmuth
Charles Moore, Jr.
~~Michael Sommers~~

Fork Lift Drivers

Paul Scanlon
~~Michael Sommers~~
Charles Moore, Jr.

These individuals have been instructed in the safe handling and loading of hazardous waste. The purpose of this training is to minimize hazards to human health, or the environment from fires, explosions, or any unplanned release of hazardous waste, or waste constituents into the air, soil, or surface water.

In-House Training:

- a. Emergency procedures for fire or explosion are posted throughout the facility. For response to fire or explosion, refer to Fire Plan attached.
- b. The regular pick up provided by the hazardous waste contractors occurs at least every ninety (90) days.

- c. No employees are permitted to perform unsupervised duties in handling hazardous waste without the required training.
- d. The new employees get on-the-job training before they start handling hazardous wastes.
- e. Procedures for handling hazardous wastes are reviewed with operating personnel, as needed.

Shipping and Receiving Department personnel will prepare hazardous waste for off-site disposal. Their duties are as follows:

1. Maintain a log of waste (Waste Profile Sheet), submitted for disposal.
2. Maintain a supply of appropriate labels, etc., and apply proper labels and placards on waste containers.
3. Prepare Manifest for waste. Maintain file for shipping copies and copies returned by transporter.
4. Contact disposal contractor for removal of waste.
5. Maintain clean and safe housekeeping.
6. Keep supply of absorbent for emergency spills.
7. Inspection of hazardous waste storage area for spills, leaks, etc.
8. Maintain and retain the documents as required by regulatory agencies.

The waste handlers have further been instructed in their duties that ensure their own safety and the facility's compliance to the regulations. Personnel training also includes, but is not limited to the following:

- A. Identification of waste hazardous class.
- B. How to store waste.
- C. Protection from fire or explosion and violent reaction.
- D. Use and inspection of necessary protective apparatus.
- E. Familiarization with CFR 40, CFR 49, Emerson & Cuming waste, DOT containers, and Waste Profile Sheets, etc.

EMERGENCY COORDINATORS

<u>Name</u>	<u>Title</u>	<u>Extension</u>
Randy M. Olson	Plant Manager ...	#330
John Colageo	Safety Coordinator ...	#377
John Cohenno	Plant Hazardous Waste Coordinator ...	#357

These individuals are thoroughly familiar with the Canton facility and with the hazardous waste storage area.

ALTERNATE CONTACTS:

Muhammad Ahsan	Process/Environmental Engineer ...	#346
Randy Porter	Production Supervisor ..	#376
Stan Brooks	Assistant Production Supervisor ...	#369

GENERAL REQUIREMENTS FOR IGNITABLE,
REACTIVE OR INCOMPATIBLE WASTE

(265.17)

Ignitable and reactive wastes are stored in an area designed for storage of flammable materials.

The entire hazardous waste storage area is explosion proof, and is designed for storage of flammable, ignitable, reactive, or incompatible materials and wastes.

All appropriate precautions have been taken to ensure that waste is protected from heat, sparks and open flames. The storage room is equipped with ventilation, sprinklers, and portable fire extinguisher.

PREPAREDNESS AND PREVENTION

(Subpart C 265.30-34)

MAINTENANCE AND OPERATION OF THE FACILITY:

The designated hazardous waste/material storage area is maintained to minimize the possibility of a fire or release of stored materials to the air, soil, or surface water which could threaten human health or environment. Any discrepancies, noted between weekly inspections will be reported to Emergency Coordinator.

REQUIRED EQUIPMENT:

The following equipment/supplies are located in or adjacent to the hazardous waste/materials storage area:

- a. Fire Extinguisher
- b. Absorbent in bags
- c. DOT approved Transfer/Recovery drums (open/closed head)
- d. Shovels
- e. Necessary safety apparatus.

TESTING & MAINTENANCE OF EQUIPMENT:

- a. Fire Extinguishers are checked monthly, but outside contractor checks the equipment every six month for complete services.
- b. Absorbent material bags are checked at each weekly inspection.
- c. Drums and safety apparatus are checked on weekly basis.
- d. Outside fire hose connections will be checked visually for damage to threads and corrosion.

ACCESS TO COMMUNICATION OR ALARM SYSTEM:

In case of emergency, coordinate or alternate will take the necessary steps and contact the appropriate emergency agencies as needed.

- 1. Mr. James A. Fitzpatrick, Canton Fire Department ... 828-1313/828-1314
- 2. Mr. Joseph Buckley, Canton Police Department 828-1212
- 3. Hospitals:
 - Norwood Hospital 769-4000
 - Goddard Hospital, Stoughton 344-5100
 - Poison Information Center, Boston 232-2120

4. Doctors:

Dr. Batchelder-General	.....	828-2515
Dr. Violin-Eyes	.....	762-9018

REQUIRED AISLE SPACE:

Materials will not be stored in the immediate vicinity outside of the hazardous waste storage area. The entrance door and the space around the hazardous waste area shall be kept unobstructed at all times.

ARRANGEMENT WITH LOCAL AUTHORITIES

(265.37)

Emerson & Cuming, Inc., facility is in the process of sending letters to the Town of Canton Fire and Police Departments, and a copy of these standards will be offered to them.

The Fire, Police and Rescue Squad will be informed of the hazardous wastes/materials (list attached) stored here, and precautions necessary in responding to any emergency. These agencies are familiar with the facility, access to the facility, emergency procedures, and layout of the facility.

CONTINGENCY PLAN AND EMERGENCY PROCEDURES

(Subpart D)

PURPOSE AND IMPLEMENTATION OF CONTINGENCY PLAN

(265.51)

The Canton facility stores its hazardous chemical waste/materials in an explosion proof room located within the warehouse/shipping and receiving building.

There are two situations that could occur in our hazardous waste/materials storage area, and possibly threaten health or the environment. One is fire or explosion, the other is a spill resulting from a leaking drum. The contingency plan is designed to describe emergency procedures in handling both these events.

RESOURCE CONSERVATION RECOVERY ACT (RCRA)
CONTINGENCY PLAN

EMERSON & CUMING, INC.
Division of W. R. Grace & Co.

59 Walpole Street
Canton, MA 02021
(617) 828-3300

EPA Facility No. MAD 000361709

EMERGENCY COORDINATORS

John Cohermo Plant Hazardous Waste Coordinator
Extension #357
Home: #344-2874

Randy Olson Plant Manager
Extension #330
Home: #545-3288

ALTERNATE CONTACTS

Randy Porter Production Supervisor
Extension 376
Home: #1-585-4286

~~John Colageo~~ Safety Coordinator
Extension #377
Home: #784-6428

The Canton facility maintains the hazardous waste/materials storage area in an explosion proof room, located in the Shipping & Receiving area adjacent to Walpole Street. The hazardous wastes/materials are stored in DOT approved, 55 gallon, steel drums.

EMERGENCY PLAN FOR ACCIDENTAL SPILLS

In the building where hazardous waste is stored, containers of flammables such as organic solvents are also stored. The largest container in the building is a 55-gallon drum. The magnitude of the largest anticipated accidental spill would be approximately fifty (50) gallons. The following provisions have been made to handle such an emergency.

Laboratory tests (see Memo dated December 31, 1980), have shown that 150 lbs. (12 bags) of Vermiculite will absorb fifty (50) gallons of solvent. Accordingly, a reasonable supply of Vermiculite will be maintained in hazardous waste/solvent materials storage area. Two (2) large shovels are available which can be used to pick up the contaminated absorbing material. The plan also calls for the availability of empty open-head, 55 gallon drums, or recovery drums which can be used to contain the absorbent and waste/solvent etc.

A self-contained breathing apparatus is on hand in the nearby Maintenance Supervisor's office.

The employees in the Shipping & Receiving area, are familiar with emergency procedures in case of an accidental spill.

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A self-contained breathing apparatus is on hand in the nearby Maintenance Supervisor's office.

The employees in the Shipping & Receiving area, are familiar with emergency procedures in case of an accidental spill.

MANIFEST RECORDKEEPING AND REPORTING

(Subpart E 265.71-77)

Use of Manifest System:

The facility stores only that waste which is generated on site, hence this section is not applicable.

Operating Record:

A log is kept in Shipping & Receiving Supervisor's office of each delivery of hazardous waste to the storage area. This consists of the following entries: (See Waste Profile Sheet)

Date
DOT - Proper shipping name
EPA name
Amount of waste
Department

All waste is stored in drums and in the same area. Records, reports, etc., discussed in previous sections.

Ground Water Monitoring:

(Subpart F)

Not applicable

CLOSURE AND POSTCLOSURE

(Subpart G 265. 111, 112, 117)

Closure Performance Standard:

If this facility is moved to another location or the hazardous waste storage activity is closed, all packaged hazardous waste will be removed and the storage area cleaned to remove all traces of hazardous wastes.

Closure Plan:

The hazardous waste storage portion of the facility will close if:-

1. The facility closes,
2. It becomes unnecessary, or unfeasible to store hazardous waste.

In either case, closure of the hazardous waste storage activity would involve arranging for disposal of the hazardous waste stored.

Because the hazardous waste is stored indoors in drums, the only testing or monitoring that could be done is to assure that all the waste has been completely removed from the facility.

The only decontamination step needed would be washing of the floor of the hazardous waste storage area to remove any material that has been spilled and had gone unnoticed during the storage period.

If the operation closes completely, the hazardous waste must be removed thirty (30) days prior to the last days of operation of the Canton facility. The facility supervisor must submit this closure plan to the EPA Regional Administrator. After the closure plan has been approved, the Plant Hazardous Waste Coordinator will:-

3. Prepare all drums of hazardous waste for disposal by an approved disposal contractor,
4. Clean by washing scrubbing with soap and water, the floor of the hazardous waste storage area. Any residue must also be disposed of as a hazardous waste.
5. When closure is completed, the Emerson & Cuming, Inc., representative and an independent, registered professional engineer must notify the EPA Regional Administrator.

PostClosure Plan:

Because of the limited nature of this facility's hazardous waste activity, storage of from fifteen to twenty-five (15-25) 55-gallon drums, a post-closure plan is not necessary. After the hazardous waste is shipped to a disposal facility, and the floor of the storage area is cleaned, there will be no residual hazardous waste to monitor.

FINANCIAL REQUIREMENTS

(Subpart H 265.142)

-Plant #2-

Cost Estimate for Facility Closure:

The cost of shipping a typical ninety (90) day collection of hazardous waste stored in the storage area is about \$5500.00 (Fifty-five Hundred Dollars).

The maximum cost would be as follows:

Ship 90 day accumulation of hazardous waste	\$5,500.00
Floor cleaning-washing	400.00
Closure certification by registered Professional Engineer	150.00
Contingency	700.00
Total	<u>\$6,750.00</u>

USE AND MANAGEMENT OF CONTAINERS

(Subpart I 265.171-174)

Condition of Containers:

The hazardous waste containers must be in good condition. The containers are inspected for leaks and bulges on a weekly basis.

Compatibility of Waste with Containers: ;

Hazardous waste is stored in the container in which it will, ultimately, be shipped; hence, the containers comply with DOT regulations.

Management of Containers:

Containers are kept closed during storage and are handled carefully to minimize damage to the container.

Inspections:

Inspections are conducted weekly. A log of findings and remedial actions is maintained.

APPENDIX I -- CONTINGENCY PLAN

EMERGENCY COORDINATORS NAMES, TITLES, ADDRESSES & TELEPHONE NUMBERS:

Randolph M. Olson 447 First Parish Road Scituate, Mass. 02066	Plant Manager	.... Plant Ext. #330 Res: #545-3288
Randolph P. Porter 34 Winthrop Street Kingston, Mass. 02364	Production Supervisor	.... Plant Ext. #376 Res: #1-585-4286
John J. Coherno 94 Rockland Street Stoughton, Mass. 02072	Plant Haz. Waste Coordinator	.. Plant Ext. #357 Res: #344-2874
John F. Colageo 60 Pleasant Street Sharon, Mass. 02067	Safety Coordinator	.... Plant Ext. #377 Res: #784-6428
Muhammad Ahsan 11 Canal Street Billerica, Mass. 01821	Tech.-Envir. Coordinator	.... Plant Ext. #346 Res: #1-663-4616
Rudolph S. (Stan) Brooks 64-A Endicott Street Canton, Mass. 02021	Ass't. Prod. Supervisor	Plant Ext. #369 Res: #828-6857

All chemical spills from storage, or use areas, do not constitute an immediate hazard or emergency because the environment (ground, water) has been protected against contamination from spills. The only real emergency situation would come about in the event of fire.

Most of our liquid chemicals will burn and emit toxic fumes; however, most of these chemicals will not sustain combustion unless they reach their elevated flash points.

If a fire does arise, the plant's alarm system can be set off in two (2) different ways. First, if and when the sprinkler system goes off, a flow switch in the sprinkler riser automatically sets off a CODED ALARM throughout the plant and at the fire station. Manual pull-stations can also be tripped to turn in a fire alarm. The Alarm Code tells the approximate location of the fire within the plant. An annunciator located next to the firebox at the front of the plant will visually display where an alarm has been tripped in the plant.

ONCE A FIRE LOCATION IS KNOWN, OUR PLANT MAP OF HAZARDOUS WASTE/MATERIALS CAN BE CHECKED TO SEE IF ANY CHEMICALS MAY BE IN THE AREA.

Hazard Codes and Material Safety Data Sheets (MSDS), can be referred to for specific information but, in general, most of the liquid chemicals have flash points above 200° F.

For large fires in which the drums may be heated to their flash points, cooling the drum with a fire hose is, normally, a good course of action.

All personnel have been instructed to evacuate the building when a fire alarm is triggered. The Alarm Codes allow personnel to know where the fire is located so they will not exit in that direction. All areas have two (2) or more exits from which to escape. Individual departments have their local exit routes posted as well as all points which exit from the entire building.

The facility floor plans are posted on every floor indicating the locations of the following:

- a. Exit Doors,
- b. Fire Extinguishers,
- c. Fire Alarms,
- d. Protective Safety-Apparatus,
- e. Telephone,
- f. Hazardous Waste-Materials Storage Area, and
- g. Hazard Codes.

The Contingency Plan includes the layout of the facility, properties and hazards of wastes-materials, working areas, roads in and around the facility, and the home telephone numbers and addresses of the Emergency Coordinators.

In addition, each of the following individuals have been invited to visit our facility:

Mr. James A. Fitzpatrick, Fire Chief Town of Canton Fire Department	.....	#828-1313 (Bus. Hours)
Mr. Joseph Buckley, Police Chief Town of Canton Police Department	.....	#828-1212 (Bus. Hours)
Mr. Warren Rutherford, Executive Secretary Town of Canton Board of Selectmen	.....	#828-0184 (Bus. Hours)
Mr. Patrick Maloney, Health Agent Town of Canton Board of Health	.....	#828-0615 (Bus. Hours)
Mr. Bruce Komiske, Administrator Norwood Hospital, Norwood	.....	#769-4060 (Bus. Hours)

APPENDIX II

DESIGNATED EMERGENCY PERSONNEL

Randy Olson	- Plant Manager
John Coherno	- Plant Hazardous Waste Coordinator
John Colageo	- Safety Coordinator

The above-named personnel will be instructed in responding to leaks, spills and/or fire situations. They will, also, be instructed in the proper handling and securing of drums, pails, etc., in preparation of moving and storing hazardous chemical waste prior to removal by a licensed hauler.

Emergency Procedures:

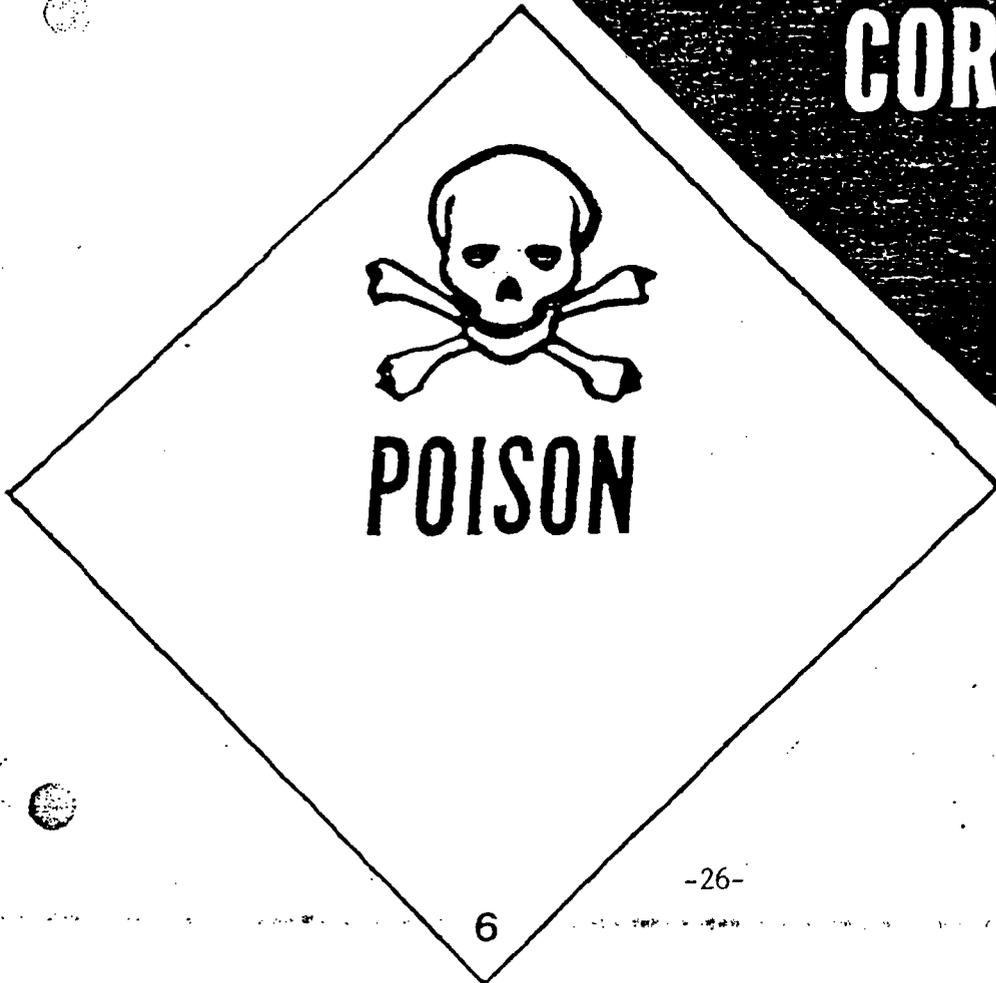
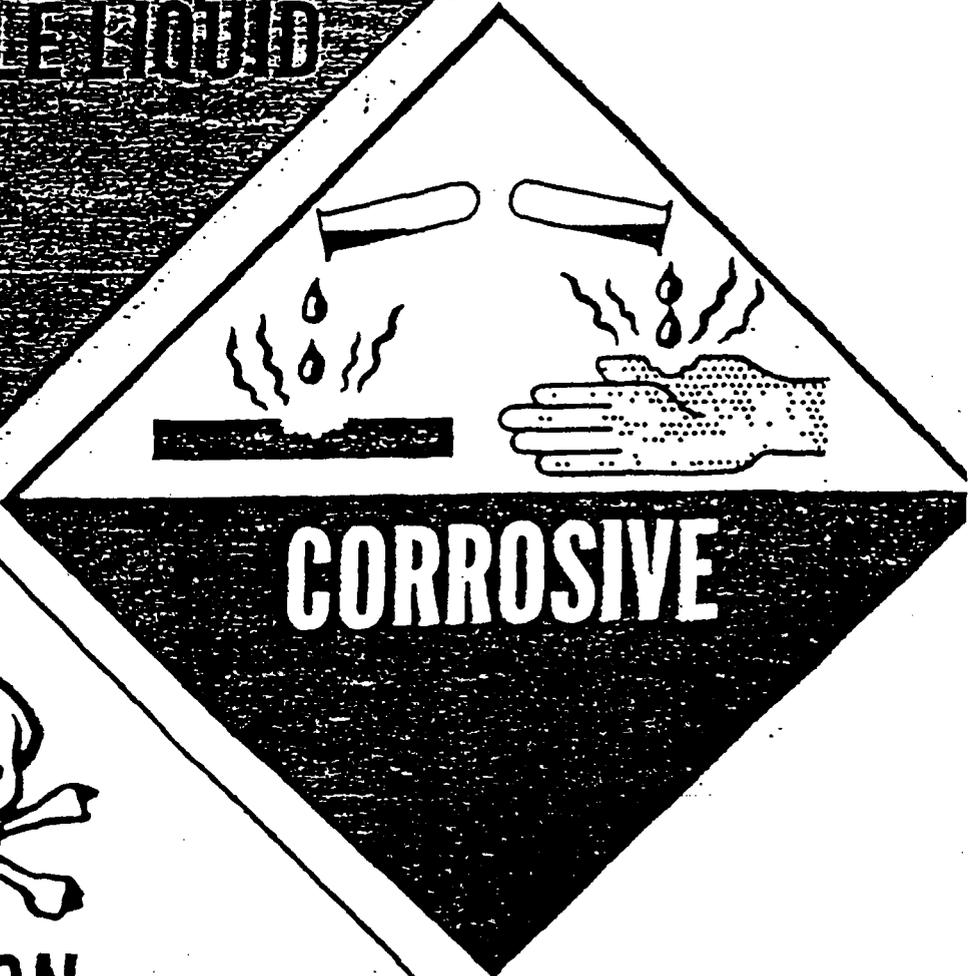
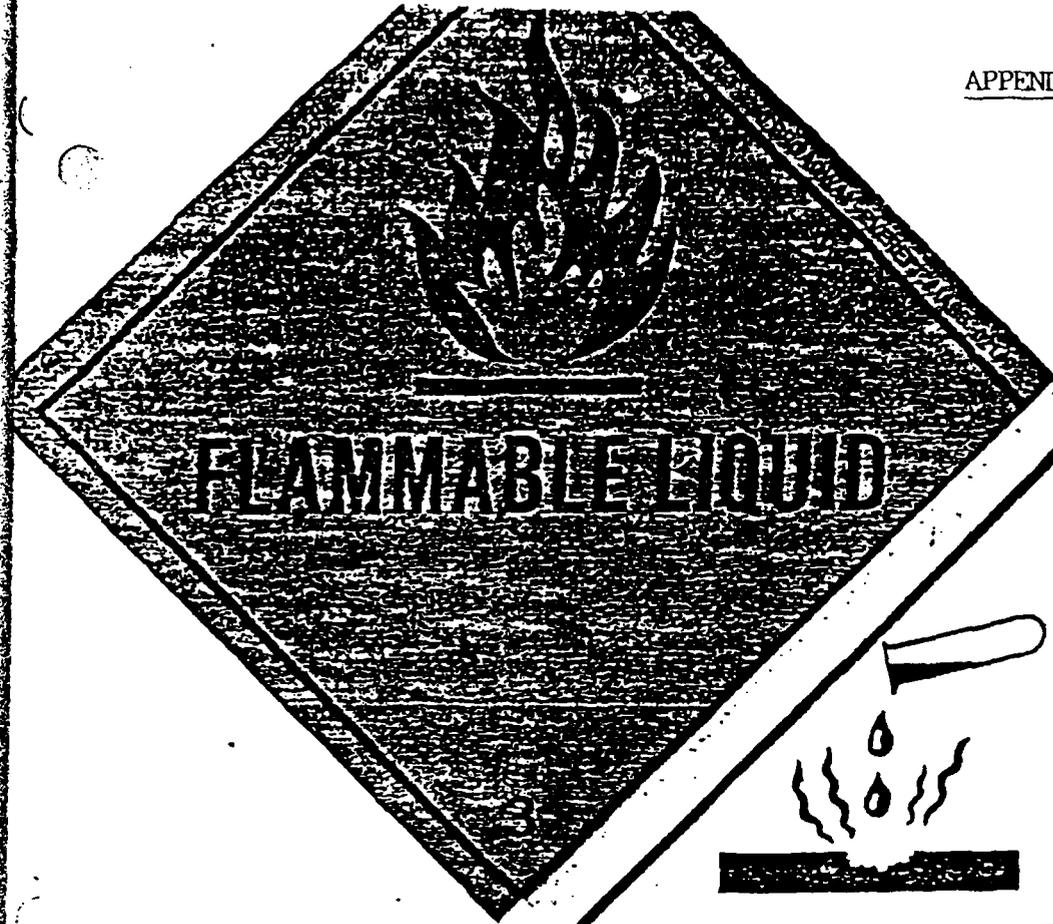
- a. Leaking drums, etc., will be detected during weekly inspections. Designated personnel will clean up the spill(s) by using any absorbent and the contaminated absorbing material will be placed in a DOT approved drum for proper disposal off-site. Further, the remaining contents of the leaking drum(s) will be transferred to another DOT approved drum.
- b. Fire in any container in the storage area or anywhere within the plant:

The Security Guard, designated personnel, or any person detecting the ignition will respond as follows:

1. During normal working hours:
Call Emerson & Cuming, Inc., Switchboard IMMEDIATELY and tell Switchboard Operator the nature of emergency.
The Telephone operator will call Canton Fire Dept. #828-1313.
2. Designated personnel will stand by the Main Gate on Neponset Street to await the arrival of the Canton Fire Dept., to direct them to the scene. The Fire and Police Departments will have access to the plant property during this emergency.
3. The Switchboard Operator shall call the Canton Police Department #828-1212, after notifying the Canton Fire Department.
4. The Switchboard Operator and employees detecting the fire will notify the other employees in the plant.
5. During off hours, weekends, Holidays, the reporting of a fire to the appropriate Emergency agencies will be the responsibility of the Maintenance Department.

EMERGENCY COORDINATORS SHOULD BE NOTIFIED ALSO.

6. The notification of a fire to plant personnel will be done in a quiet and orderly manner to prevent panic and keep disorder to a minimum.
7. Security personnel stationed at the gates will direct nearby everyone to stay clear of the area.
8. After the fire is out the emergency personnel will direct the clean up, repackaging and arrange for plant security to the affected area.
9. All plant personnel will gather in a pre-designated area during such emergency.



HAZARDOUS WASTE		
FEDERAL LAW PROHIBITS IMPROPER DISPOSAL IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY		
MANIFEST # _____		
D.O.T. SHIPPING NAME _____		
UN OR NA # _____		
EPA NAME _____		
EPA # _____		
GENERATOR INFORMATION:		
NAME _____		
ADDRESS _____		
CITY _____	STATE _____	ZIP _____
DATE OF GENERATION/ACCUMULATION _____		
HANDLE WITH CARE!		

HAZARDOUS WASTE PROFILE SHEET

Generator Name: _____ Physical State _____
Facility Address: _____ Solid _____ Liquid _____
_____ Semisolid _____ Other _____
E.P.A. Identification Number: _____ Specific Gravity _____
Name of the Waste: _____ Boiling Point _____ PH _____
E.P.A. Hazardous Waste Number: _____ Flash Point _____
Process Generating Waste: _____ Vapor Pressure _____
Quantity Generated: Lb _____ Gals _____ Other _____
Composition: Weekly _____ Monthly _____ One Time _____ Other _____
Components _____ Percentage (Wt) Hazardous Characteristics _____
1. _____ Reactive _____ Corrosive _____
2. _____ Flammable _____ Combustible _____
3. _____ E.P. Toxic _____ Other _____
4. _____
5. _____

SHIPPING INFORMATION

Proper Shipping Name _____ D.O.T. Hazardous Yes _____
Hazardous Class - I.D. No. _____ R.Q. _____
Quantity: Lb. _____ Gals. _____ Cu Ft/Cu Yd _____ Other _____
Method of Shipment: Bulk _____ 55 Gal. Drum _____ Other _____
Special Handling Instructions: _____

APPENDIX III---(iii)

INSPECTION LOG SHEET

DATE	TIME	FINDINGS	REMEDIAL ACTIONS	INSPECTED BY

US EPA ARCHIVE DOCUMENT

HAZARD CODES

1 - Mild Hazard

2 - Moderate Hazard

3 - Severe Hazard

**V - Vapors can be respiratory irritants
or otherwise toxic.**

**D - Dust can be a respiratory irritant
or otherwise toxic.**

**F1 - Flash point greater than 200°F
(ignitable liquid).**

**F2 - Flash point 100°F-200°F
(combustible liquid).**

**F3 - Flash point less than 100°F
(flammable liquid).**

I - Skin and eye irritant.

C - Corrosive.

E - Explosive.

S - Sensitizer.

X - Special Hazard.

See formula for instructions.

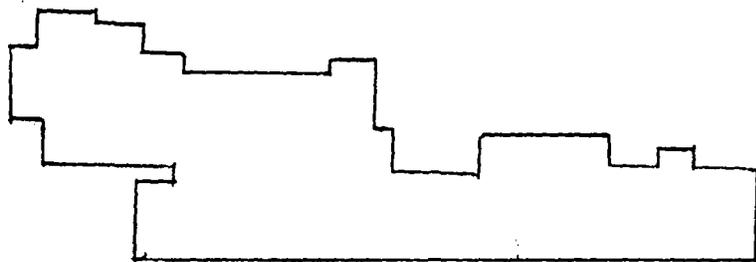
RAW MATERIALS & CHEMICALS LIST @ PLANT #2

APPENDIX III - (v)

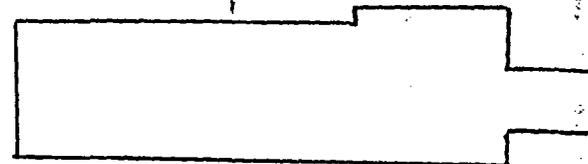
<u>Raw Material-Chemicals Name</u>	<u>Annual Use in lbs.</u>	<u>COMMENTS</u>
Acrylate Copolymer Latex	..... 80,000	
Acrylis Latex	..... 100,000	
Butyl Carbitol	..... 7,000	
Butyl Cellusolve	..... 30,000	
Castor Oil, USP Grade AA	..... 500	
Cellusolve Acetate	..... 500	
Cobalt Naphthanate in Mineral Spirits	..... 100	
DiAcetyl Alcohol	..... 5,000	
DiButyl Phalate	..... 3,000	
Dodecylsuccinieanhydride	..... 400,000	
Epoxy curing agent (Amine)	..... 30,000	
Epoxy curing agent (VERSAMID)	..... 10,000	
Epoxy Paint Hardener	..... 2,000	
Epoxy PAINT RESIN	..... 20,000	
Epoxy Resin	..... 5,000	
Liquid Epoxy Resins	..... 200,000	
Liquid Expsy Resins	..... 400,000	
Lubricating Oils	..... 2,000	
MEK Peroxide	..... 200	
Methylene Chloride	..... 30,000	
Nadic Methyl Anhydride	..... 1,000	

<u>Raw Materials-Chemicals Name</u>	<u>Annual Use in lbs.</u>	<u>COMMENTS</u>
Napthalatic Defoamer	..... 3,000	
Neoprene Latex 400	..... 6,000	
Nonionic Surfactant	..... 1,000	
Pliobond Adhesive	..... 2,000	
Silicone Defoamer	..... 2,000	
Silicone Resins	..... 10,000	
Silicone Surfactant	..... 200	
Sodium Polyacrylate	..... 1,000	
Styrene Monomer PM	..... 1,000	
Tertbutylstyrene	..... 40,000	
Tetraethylinepentamine	..... 20,000	
Trimethylol Propane Trimethacrylate	..... 2,000	
Toluene	..... 500	
Xylene	..... 5,000	

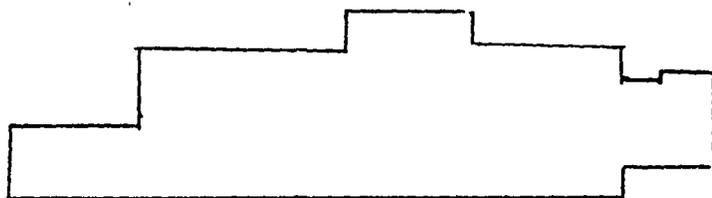
EMERSON & CUMING INC. PLANT #2



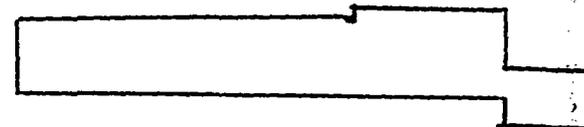
BASEMENT



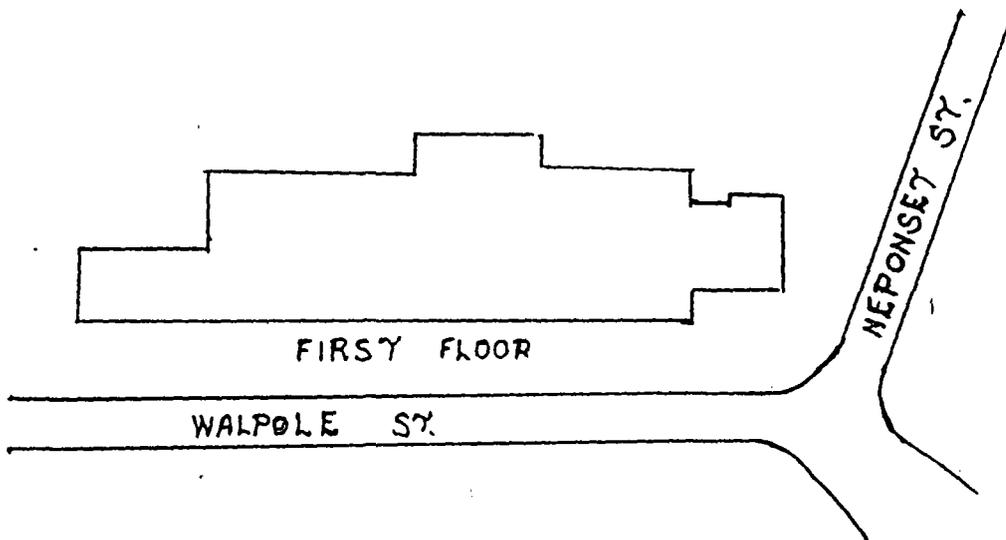
SECOND FLOOR



FIRST FLOOR



THIRD FLOOR



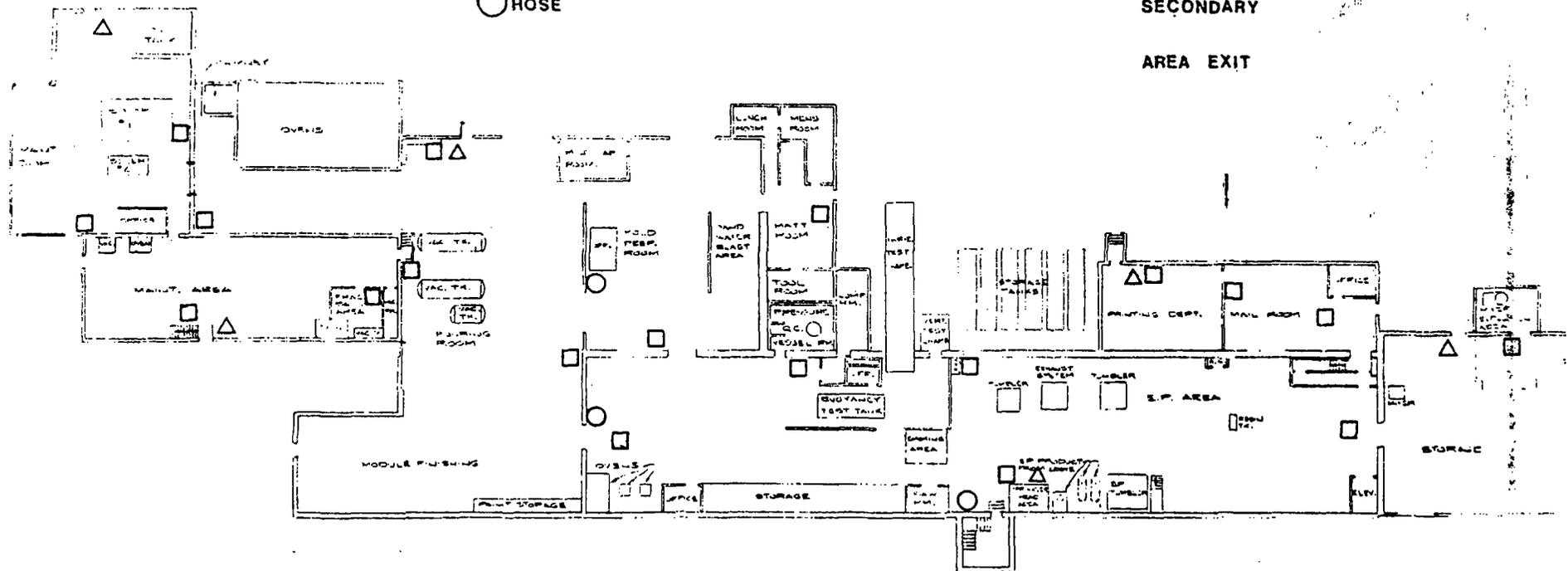
WALPOLE ST.

NEPONSET ST.

- FIRE EXTINGUISHER
- △ FIRE ALARM
- HOSE

FIRE ESCAPE ROUTE

- PRIMARY
- SECONDARY
- AREA EXIT

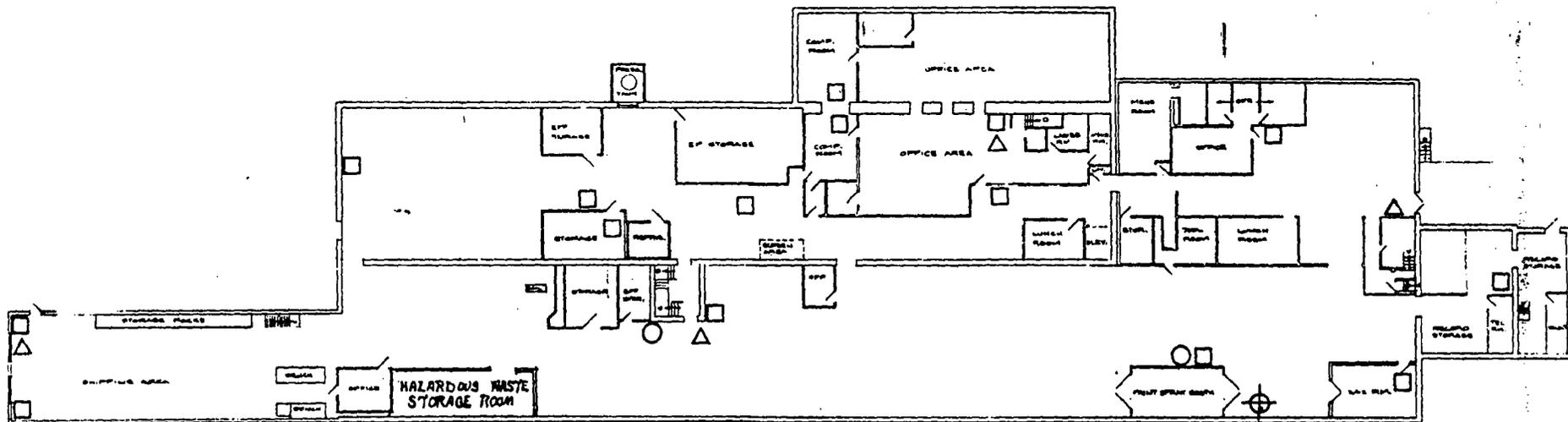


YELLOW SPRINKLER AREA
 GREEN SPRINKLER AREA
 BLUE SPRINKLER AREA

BASEMENT

- HORN ZONE CODE
- | | |
|----------------------------------|--|
| ① 1-1 BARN | ⑨ 5-1 YELLOW SPRINKLER RISER |
| ② 2-1 SHIPPING/RECEIVING | ⑩ 5-2 GEN. OFFICE BLD. |
| ③ 3-1 MAINTENANCE BLD. | ⑪ 5-3 ABSORBER 2 nd FL. WEST |
| ④ 3-2 BOILER ROOM | ⑫ 5-4 ABSORBER 3 rd FL. |
| ⑤ 4-1 GREEN SPRINKLER RISER | ⑬ 5-5 BASEMENT FLOTATION |
| ⑥ 4-2 1 st FLOOR WEST | ⑭ 6-1 BLUE SPRINKLER RISER |
| ⑦ 4-3 EXECUTIVE OFFICES | ⑮ 6-2 NOSE CAPS 1 st FL. EAST |
| ⑧ 4-4 BLOCK & TUMBLER AREA | ⑯ 6-3 ABSORBER 2 nd FL. EAST |
- PANEL ZONE NUMBERS

- FIRE EXTINGUISHER
- △ FIRE ALARM
- HOSE
- ⊕ FIRE HYDRANT



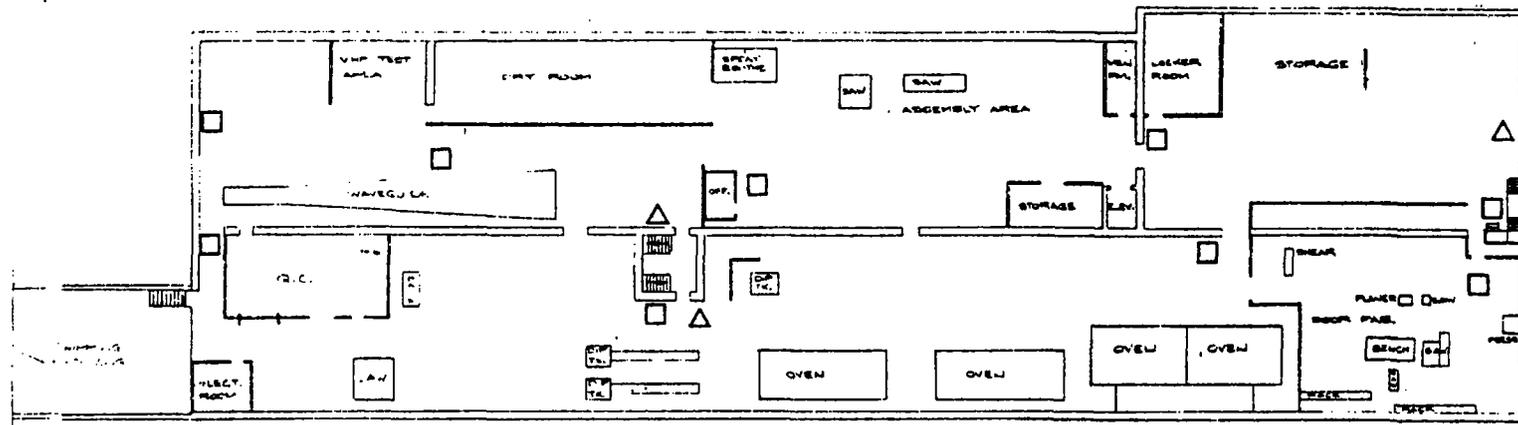
FIRST FLOOR

□ FIRE EXTINGUISHER
 △ FIRE ALARM

FIRE ESCAPE ROUTE

PRIMARY

SECONDARY



YELLOW SPRINKLER AREA
 GREEN SPRINKLER AREA
 BLUE SPRINKLER AREA

HORN ZONE CODE		
① 1-1 BARN	⑦ 4-3 EXECUTIVE OFFICES	⑬ 5-5 BASEMENT FLOTATION
② 2-1 SHIPPING/RECEIVING	⑧ 4-4 BLOCK & TUMBLER AREA	⑭ 6-1 BLUE SPRINKLER RISER
③ 3-1 MAINTENANCE BLD.	⑨ 5-1 YELLOW SPRINKLER RISER	⑮ 6-2 NOSE CAPS 1 st FL. EAST
④ 3-2 BOILER ROOM	⑩ 5-2 GEN. OFFICE AREA	⑯ 6-3 ABSORBER 2 nd FL. EAST
⑥ 4-1 GREEN SPRINKLER RISER	⑪ 5-3 ABSORBER 2 nd FL. WEST	
⑥ 4-2 1 st FLOOR WEST	⑫ 5-4 ABSORBER 3 rd FL.	
PANEL ZONE NUMBERS		

SECOND FLOOR

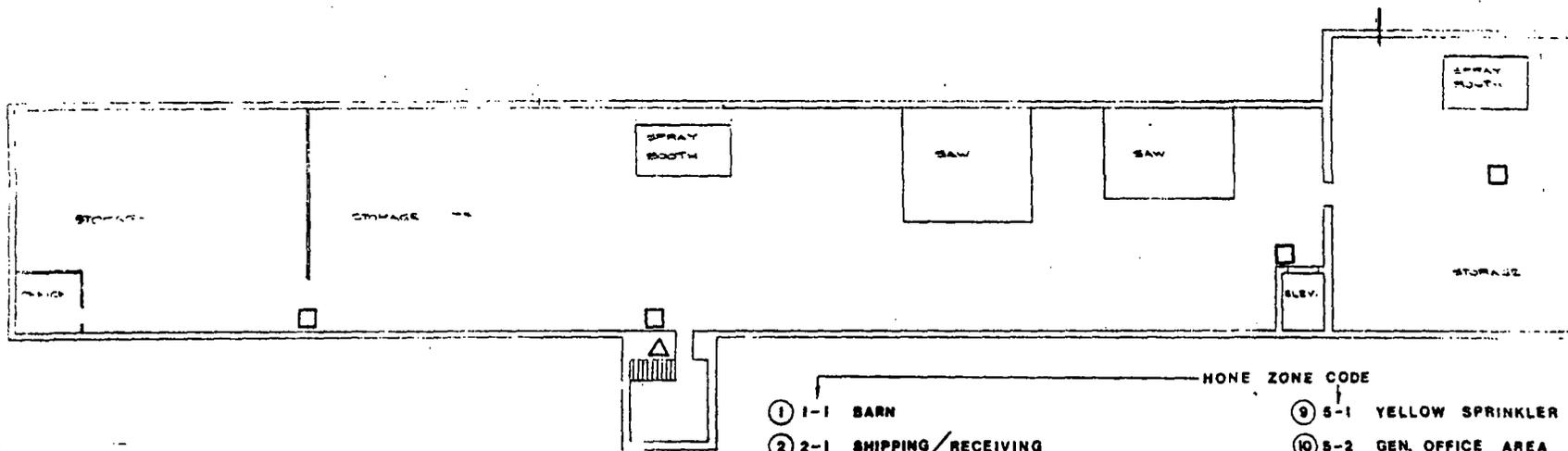
△ FIRE ALARM

□ FIRE EXTINGUISHER

FIRE ESCAPE ROUTE

PRIMARY

SECONDARY



YELLOW SPRINKLER AREA
 GREEN SPRINKLER AREA
 BLUE SPRINKLER AREA

THIRD FLOOR

- PHONE ZONE CODE
- | | |
|----------------------------------|--|
| ① 1-1 BARN | ⑨ 5-1 YELLOW SPRINKLER RISER |
| ② 2-1 SHIPPING/RECEIVING | ⑩ 5-2 GEN. OFFICE AREA |
| ③ 3-1 MAINTENANCE BLD. | ⑪ 5-3 ABSORBER 2 nd FL. WEST |
| ④ 3-2 BOILER ROOM | ⑫ 5-4 ABSORBER 3 rd FL. |
| ⑤ 4-1 GREEN SPRINKLER RISER | ⑬ 5-5 BASEMENT FLOTATION |
| ⑥ 4-2 1 st FLOOR WEST | ⑭ 6-1 BLUE SPRINKLER RISER |
| ⑦ 4-3 EXECUTIVE OFFICES | ⑮ 6-2 NOSE CAPS 1 st FL. EAST |
| ⑧ 4-4 BLOCK & TUMBLER AREA | ⑯ 6-3 ABSORBER 2 nd FL. EAST |
- PANEL ZONE NUMBERS

File
3480

EMERSON & CUMING

W.R. Grace & Co.

Canton, Massachusetts 02021
Telephone (617) 828-3300

November 20, 1984

Mr. Michael A. Walsh
Sanitary Engineering Section
Sewerage Division
Metropolitan District Commission
20 Somerset Street
Boston, Mass. 02108

Dear Mr. Walsh:

Please find attached the permit application for 1985, per our meeting October 15, 1984. I enjoyed meeting with you for your audit on that day and was pleased that you found everything acceptable and in order.

Sincerely,



Randolph M. Olson
Plant Manager

IP-2103

UN 13 1984

Randolph M. Olson, Plant Manager
Person & Cuming
Walpole Street
Boston, MA 02021

: NPDES Application No.

Dear Mr. Olson:

Your application for a National Pollutant Discharge Elimination System (NPDES) permit has been reviewed and appears to be complete. You may be contacted for additional information as the permit is developed, should it be necessary to clarify, modify or supplement previously submitted information. By copy of this letter, your State Water Pollution Control Agency is being furnished a copy of your complete application for certification pursuant to Section 301(a)(1) of the Clean Water Act, as amended, 33 U.S.C §1341(a)(1).

A draft permit and statement of basis or fact sheet will be prepared at this office and forwarded to you for comment prior to the opening of the public comment period. The draft permit will then be publicized and forwarded for state certification if certification has previously been received on the application. If it is deemed necessary, a public hearing will be held, in which case, the comment period will be extended until the close of the hearing. After the close of the public comment period, your final permit will be issued providing no new substantial questions are raised. If new questions develop during the comment period, it may be necessary to draft a new permit, revise the statement of basis or fact sheet and/or reopen the public comment period.

A waiver of testing requirements requested in your letter of August 8, 1984 for Outfall 001 has been granted for the following parameters: BOD, COD, TOC, TSS and Ammonia.

If you have any questions concerning the permit issuance process, do not hesitate to contact Nanci Siciliano, of my staff. She may be reached at 617/223-3940.

*File
3/2/84*



Emerson & Cuming

Dewey and Almy Chemical Division
W. R. Grace & Co.
Canton, Mass. 02021

(617) 828-3300

May 8, 1984

Ms. Nanci Siciliano
U. S. Environmental Protection Agency
Region 1
Water Quality Branch
J. F. Kennedy Federal Building
Boston, Mass. 02203

Dear Nanci:

Enclosed is our application for an N.P.D.E.S. Permit. We would like to request a waiver on the testing requirements for Section V, Part A. We have no reason to believe that our discharge water could be contaminated. One water sample taken on 5/8/84 was 13°C with a pH of 6.92. Thus, we have estimated temperature and pH ranges as well as estimating a maximum flow based on estimated 2 inches of rainfall in one day (maximum).

Please contact myself or Jay McNeff for any additional information which may be needed. We look forward to having our permit application approved in the near future. Thank-you for your assistance in this matter.

Sincerely,
Emerson & Cuming
59 Walpole Street
Canton, Mass. 02021

Randolph M. Olson
Plant Manager

RMO/dlg
enclosure

GENERAL INFORMATION

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

PERMIT NUMBER
F A A D 0 0 0 3 6 1 7 0 9

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.

PLEASE PLACE LABEL IN THIS SPACE

CHARACTERISTICS

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

QUESTIONS	MARK 'X'			SPECIFIC QUESTIONS	MARK 'X'		
	YES	NO	FORM ATTACHED		YES	NO	FORM ATTACHED
Publicly owned treatment works discharges to waters of the U.S.?		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	
Facility currently results in discharges other than those described in 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	
Facility treat, store, or dispose of (FORM 3)	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	
Facility inject at this facility any produced fluids which are brought to the surface conventional oil or natural gas produced for enhanced recovery of oil or inject fluids for storage of liquid (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	
Facility is a proposed stationary source which is in 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	

N & C U M I N G, W. R. GRACE AND CO.

A. NAME & TITLE (last, first, & title)		B. PHONE (area code & no.)		
D O L P H - P L A N T M A N A G E R		6 1 7	8 2 8	3 3 0 0

A. STREET OR P.O. BOX				
E S T R E E T				
B. CITY OR TOWN		C. STATE	D. ZIP CODE	
		M A	0 2 0 2 1	

A. FIRST		E. SECOND	
Miscellaneous Plastics Products		(specify)	
C. THIRD		D. FOURTH	
7		(specify)	

IDENTIFICATION

A. NAME
 CUMING, W. R. GRACE & CO.

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

OPERATOR (Enter the appropriate letter into the answer box, if "Other", specify.)
 M - PUBLIC (other than federal or state)
 O - OTHER (specify)

M (specify)

D. PHONE (area code & no.)
 617 828 3300

E. STREET OR P.O. BOX
 E STREET

F. CITY OR TOWN
 G. STATE
 MA

H. ZIP CODE
 02021

IX. INDIAN LAND
 Is the facility located on Indian lands?
 YES NO

ENVIRONMENTAL PERMITS

Discharges to Surface Water	D. PSD (Air Emissions from Proposed Sources)
9 P	
Injection of Fluids	E. OTHER (specify)
9	(specify)
Hazardous Wastes	E. OTHER (specify)
0361709	(specify)

DESCRIPTION OF FACILITY

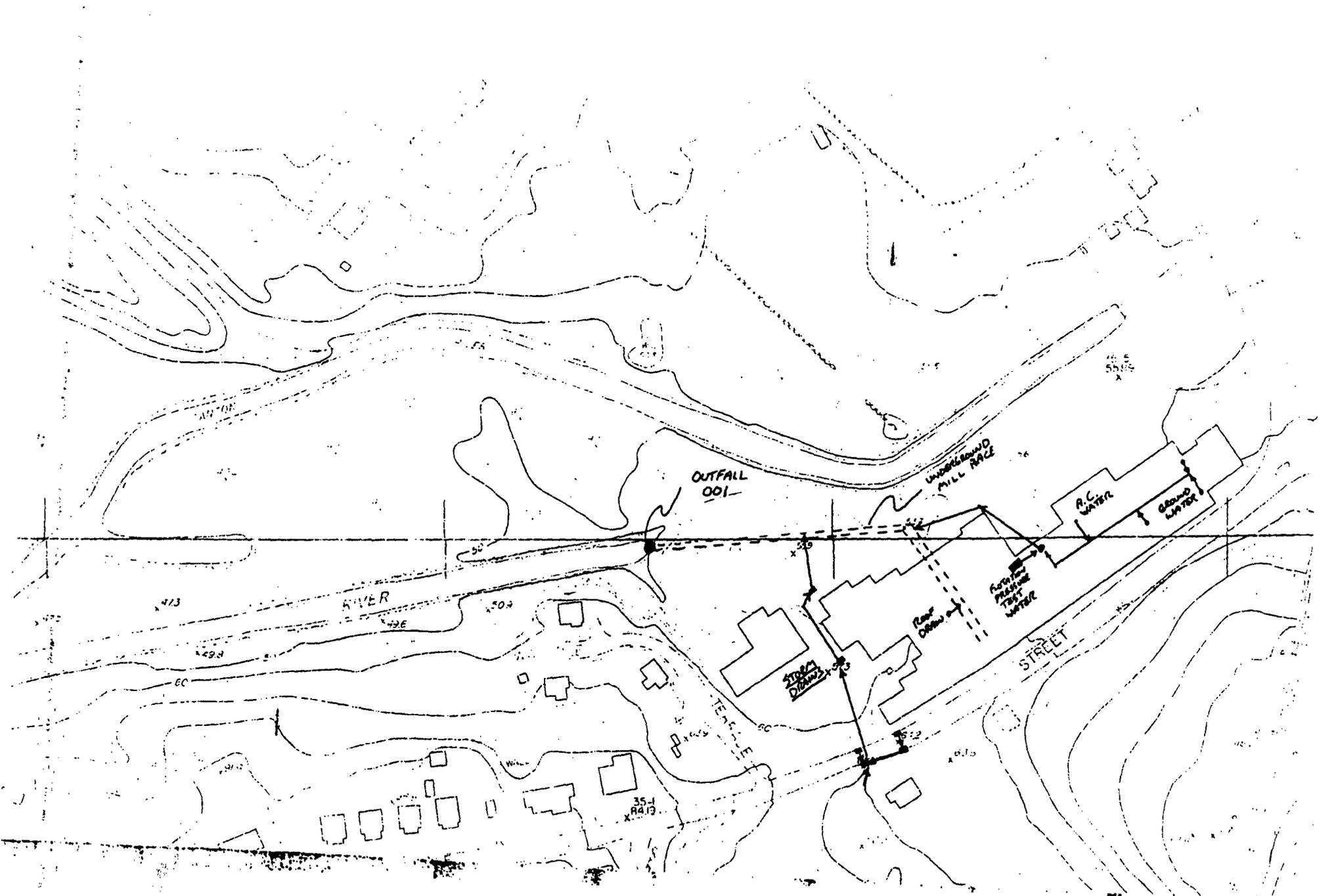
Attach a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste disposal facilities, and each well where it injects fluids underground. Include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

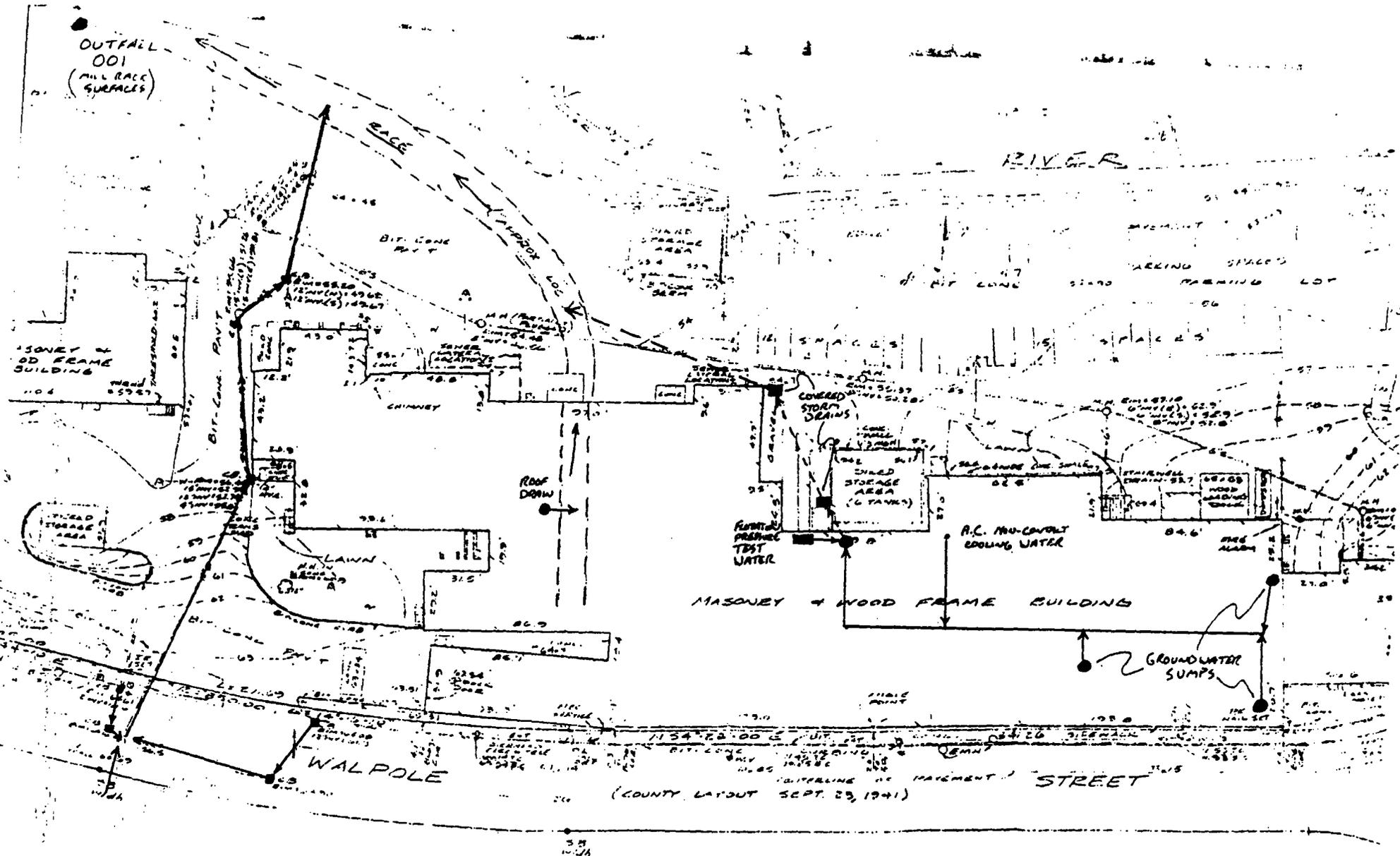
DESCRIPTION OF PRODUCTS

NON-REACTIVE FOAM FLOTATION PRODUCTS FROM EPOXY RESIN AND GLASS FILLER SYSTEMS.
 MICROWAVE ABSORBER (CARBON IMPREGNATED FOAM) PRODUCTS.

STATEMENT OF ACCURACY

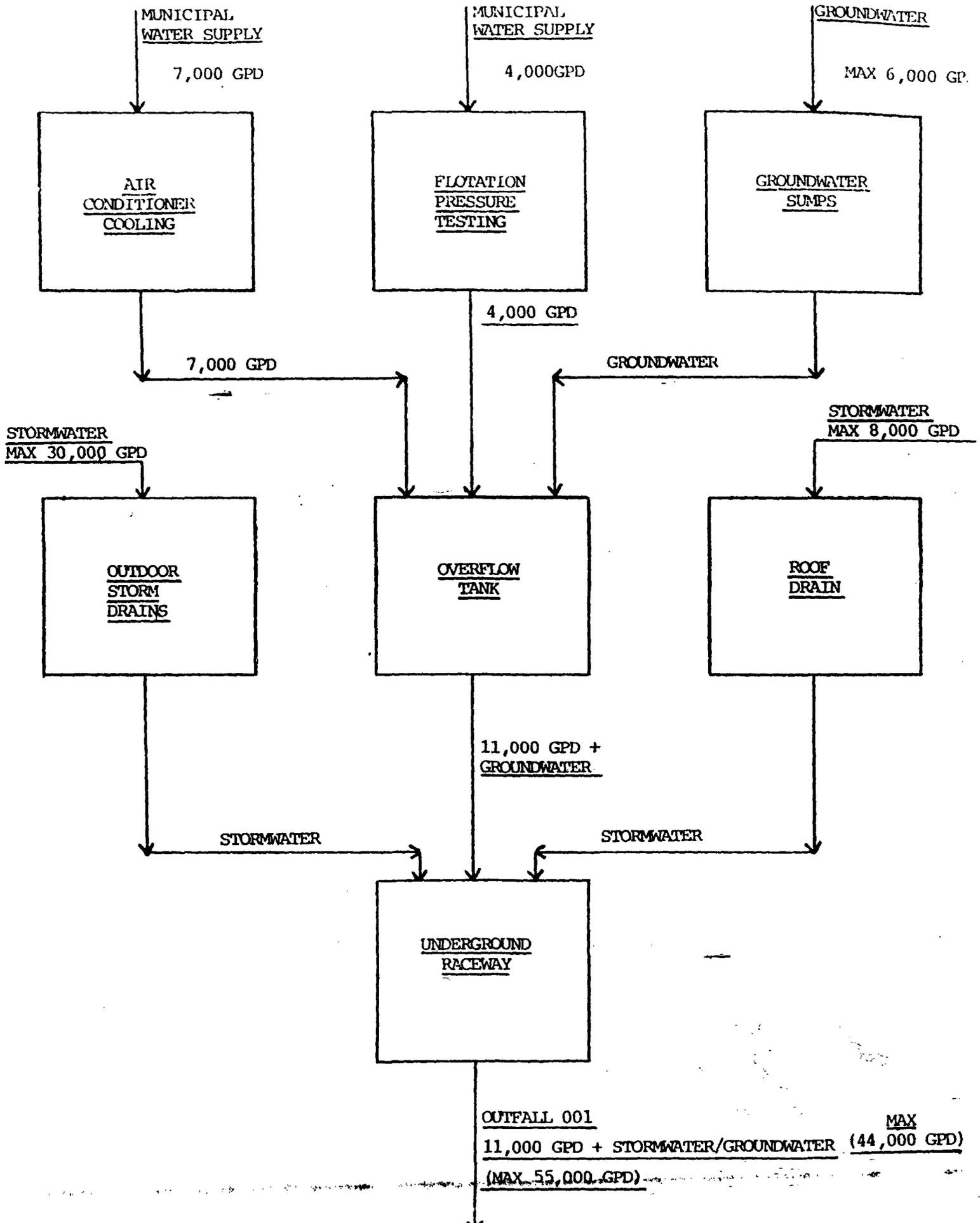
I declare under penalty of perjury that I have personally examined and am familiar with the information submitted in this application and all information based on my inquiry of those persons immediately responsible for obtaining the information contained in the application is true, accurate and complete.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





(COUNTY LAYOUT SEPT. 23, 1941)

STREET



V. INTAKE AND EFFLUENT CHARACTERISTICS

A, B, & C: See instructions before proceeding — Complete one set of tables for each outfall — Annotate the outfall number in the space provided
 NOTE: Tables V-A, V-D, and V-C are included on separate sheets numbers J V-1 through V-9.

D. Use the space below to list any of the pollutants listed in Table 2c-3 of the instructions, which you know or have reason to believe is discharged from any outfall. For every pollutant you list, briefly describe the reasons you believe it to be present and report any analytical possession.

1. POLLUTANT	2. SOURCE	1. POLLUTANT	2. SOURCE
NO POLLUTANTS			

VI. POTENTIAL DISCHARGES NOT COVERED BY ANALYSIS

Are you aware of any substances or a component of a substance which you do or expect that you will over the next 5 years use in your operations which are not listed in Table 2c-3 of the instructions? YES (list all such pollutants below) NO (go to Item VI-B)

- 22V METHYLENE CHLORIDE
- 25V TOLUENE
- 27V 1,1,1 TRICHLOROETHANE
- 7M LEAD
- 9M NICKEL
- 11M SILVER
- 29B Di-N-OCTYL PHTHALATE

Are your operations such that your raw materials, processes, or products can reasonably be expected to vary so that your discharges of pollutants may exceed two times the maximum values reported in Item V? YES (complete Item VI-C below) NO (go to Section VII)

C. If you answered "Yes" to Item VI-B, explain below and describe in detail the sources and expected levels of such pollutants which you anticipate discharged from each outfall over the next 5 years, to the best of your ability at this time. Continue on additional sheets if you need more space.

... RECEIVING WATER RELATION. HAS YOUR DISCHARGE INCREASED IN THE LAST 3 YEARS?

YES NO **X** NO (GO TO SECTION IX)

VIII CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

YES (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below) NO (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)

IX. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application, attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that 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.

<p>A. NAME & OFFICIAL TITLE (Type or print)</p> <p>RANDOLPH M. OLSON / PLANT MANAGER</p>	<p>B. PHONE NO. (area code & no.)</p> <p>(617) 828-3300</p>
<p>C. SIGNATURE</p> 	<p>D. DATE SIGNED</p> <p>MAY 8, 1984</p>

F. - WASTEWATER INFORMATION

Units in the table below may be expressed in the following units: check the units you will use and complete the table

gallons per day cubic feet per day per cent of total daily usage

Type	Quantity	Pretreatment		Sanitary Sewer Connection Number*				Discharge Location		
		Yes	No	1	2	3	Other	Storm Drain/ Surface Water	No Dis- charge	Other (Specify)
(domestic)	<u>10,000</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>4</u>	<input type="checkbox"/>	<input type="checkbox"/>	
	<u>300</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>	Evaporation To Atm.
Water/ minated	<u>2,000</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	To Raceway-To Ri
	<u>50</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>4</u>	<input type="checkbox"/>	<input type="checkbox"/>	
et		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	
ecify):		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	

batch, and intermittent discharges. Check applicable boxes.

	Frequency (check one)				Quantity per Discharge (include units)	Pretreatment		Discharge to Connection Number*			
	Daily	Weekly	Monthly	Yearly		Yes	No	1	2	3	Other
n	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>50 GPD</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>4</u>
ystem	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
n	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
ic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
mical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



**Arnold Greene
Testing Laboratories
Incorporated**

East Natick Industrial Park
6 Huron Drive • Natick, MA 01760
(617) 235-7330, 653-5950
Telex 948459 GREENELAB NTIK

Industrial • Chemical • Pollution • Environmental
Inspection • Evaluation • Analysis
Research • Development

DIVISION OF CONAM INSPECTION

Branch Laboratories:
Springfield, Mass. 01104
(413) 734-6548

Auburn, Mass. 01501
(617) 832-5500

To: Emerson & Cuming, Inc.

Date: 6/06/84

Material: Water sa

59 Walpole Street

Job No. 49637-2

Heat No. None

Canton, MA 02021

Lab No. 1143

Specifications: No

Attn:

Order No. 2-51579

Purpose: To analyze two water samples for DiOctylphthalate.

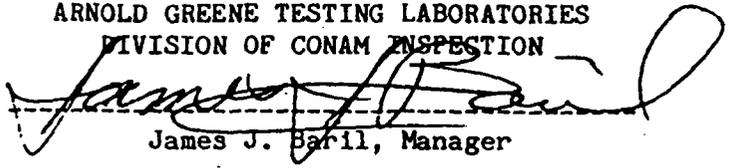
Method: The samples were liquid/liquid extracted in accordance with the EPA's Analytical procedure for Base/Neutral Extractable compounds and Acid Extractable compounds. The extracts were then analyzed by Gas Chromatographic/Mass Spectrometric technique. (EPA Method 625)

Results: Sample #1 <50 ug/l

Sample #2 <50 ug/l

IN WITNESS WHEREOF, I HAVE HEREUNTO SET MY HAND THIS
6th DAY OF JUNE 1984

ARNOLD GREENE TESTING LABORATORIES
DIVISION OF CONAM INSPECTION


James J. Baril, Manager

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

EPA I.D. NUMBER (copy from Item 1 of Form 1)

MAD 000 361 709

Form Approved
OASIS No. 2030-0055
Approval expires 3-31-83

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

001

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (specify if blank)		
	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	B. CONCENTRATION	D. MASS	5. LONG TERM AVERAGE VALUE	
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS
a. Biochemical Oxygen Demand (BOD)	WAIVER	REQUESTED									
b. Chemical Oxygen Demand (COD)	WAIVER	REQUESTED									
c. Total Organic Carbon (TOC)	WAIVER	REQUESTED									
d. Total Suspended Solids (TSS)	WAIVER	REQUESTED									
e. Ammonia (as N)	WAIVER	REQUESTED									
f. Flow	VALUE		VALUE		VALUE					VALUE	
	55,000 GPD										
g. Temperature (winter)	VALUE		VALUE		VALUE			°C		VALUE	
	5°C										
h. Temperature (summer)	VALUE		VALUE		VALUE			°C		VALUE	
	20°C										
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	VALUE			STANDARD UNITS		VALUE	
	6.8	7.1									

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2-a for any pollutant, you must provide the results of at least one analysis for that pollutant. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		3. EFFLUENT						4. UNITS		5. INTAKE (specify if blank)		
	a. PRESENT	b. ABSENT	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	B. CONCENTRATION	D. MASS	5. LONG TERM AVERAGE VALUE	
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS
a. Bromide (24959-67-9)	X												
b. Chlorine, Total Residual	X												
c. Color	X												
d. Fecal Coliform	X												
e. Fluoride (16964-48-8)	X												
f. Nitrate-Nitrite (as N)	X												

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (secondary industries, non-process wastewater outfalls, and non-required GC/MS fractions), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe to be absent. If you mark either columns 2-a or 2-b for any pollutant, you must provide the results of at least one analysis for that pollutant. Note that there are seven pages to this part; please review each carefully. Complete one table (all seven pages) for each outfall. See instructions for additional details and requirements.

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. IN TAKE		
	A. TESTING REQUIRED	B. DEFENSE PRESENT	C. DEFENSE ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	E. CONCENTRATION	F. MASS	G. LONG TERM AVERAGE VALUE (1) CONCENTRATION	H. MASS
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS					
METALS, CYANIDE, AND TOTAL PHENOLS														
1A. Antimony, Total (7440-36-0)			X											
2A. Arsenic, Total (7440-38-2)			X											
3A. Beryllium, Total (7440-41-7)			X											
4A. Cadmium, Total (7440-43-9)			X											
5A. Chromium, Total (7440-47-3)			X											
6A. Copper, Total (7550-50-8)			X											
7A. Lead, Total (7439-97-5)			X											
8A. Mercury, Total (7439-97-5)			X											
9A. Nickel, Total (7440-02-0)			X											
10A. Selenium, Total (7782-49-2)			X											
11A. Silver, Total (7440-22-4)			X											
12A. Thallium, Total (7440-28-0)			X											
13A. Zinc, Total (7440-66-6)			X											
14A. Cyanide, Total (57-12-5)			X											
15A. Phenols, Total			X											
POXIN														
16.7.B-Tetra-chlorodibenzo-P-dioxin (1784-01-6)			X	DESCRIBE RESULTS										

CONTINUED FROM THE FRONT

POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. STATE REGULATORY AGENCY VALUE (if available)	
	D. 15 MINUTE AVERAGE	U. 60 MINUTE AVERAGE	C. 24 HOUR AVERAGE	A. MAXIMUM DAILY VALUE		B. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVG. VALUE (if available)		NO. OF ANALYSES	CONCENTRATION		MASS
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				
VCMs FRACTION - VOLATILE COMPOUNDS													
V. Acrolein (107-02-8)			X										
V. Acrylonitrile (107-13-1)			X										
V. Benzene (71-43-2)			X										
V. Bis (Chlorophenyl) Ether (542-88-1)			X										
V. Bromoform (75-26-2)			X										
V. Carbon tetrachloride (75-23-5)			X										
V. Chlorobenzene (106-90-7)			X										
V. Chlorodichloromethane (75-48-1)			X										
V. Chloroethane (75-00-3)			X										
V. 2-Chloroethylvinyl Ether (107-75-8)			X										
V. Chloroform (75-66-3)			X										
V. Dichlorodichloromethane (75-27-4)			X										
V. Dichlorodichloromethane (75-71-8)			X										
V. 1,1-Dichloroethane (75-34-3)			X										
V. 1,2-Dichloroethane (107-06-2)			X										
V. 1,1-Dichloroethylene (75-35-4)			X										
V. 1,2-Dichloroethane (78-87-5)			X										
V. 1,3-Dichloroethylene (542-75-6)			X										
V. Ethylbenzene (100-41-4)			X										
V. Methyl amide (74-83-9)			X										
V. Methyl fluoride (74-87-3)			X										

LITAN DISTRICT COMMISSION
 Sewer Permit Application

Industry Name: Emerson & Cuming

I. - CHARACTERISTICS OF DISCHARGES

Wastewater analyses have been performed on the wastewater discharges from your facilities attach a copy of the most data to this application. Be sure to include the date of the analysis, name of laboratory performing the analysis and name(s) from which sample(s) were taken (attach sketches, plans, etc. as necessary).

Indicate by placing an "X" in the appropriate box by each listed chemical whether it is "Suspected to be Present", "Known to be Present" in your manufacturing or service activity or generated as a byproduct. Some compounds are known by other names.

CHEMICAL COMPOUND	SUSPECTED	
	PRESENT	KNOWN
ammonia		
asbestos (fibrous)		
cyanide (total)		
antimony (total)		
arsenic (total)		
beryllium (total)		
caesium (total)		
chromium (total)		
copper (total)		
lead (total)		
mercury (total)		
nickel (total)		
selenium (total)		X
silver (total)		
thallium (total)		
zinc (total)		
aceneanthrene		
aceneanthrylene		
acrolein		
acrylonitrile		
aldrin		
anthracene		
benzene		
benzidine		
benzo (a) anthracene		
benzo (a) pyrene		
benzo (b) fluoranthene		
benzo (k) fluoranthene		
o-2HC (aromatic)		
m-2HC (aromatic)		
p-2HC (aromatic)		

ITEM NO.	CHEMICAL COMPOUND	SUSPECTED	
		PRESENT	KNOWN
38.	bis (2-ethylhexyl) sebacate		
39.	bromodichloromethane		
40.	bromofarm		
41.	bromomethane		
42.	4-bromobenzenedimethyl ether		
43.	butylbenzyl sebacate		
44.	carbon tetrachloride		
45.	chloroform		
46.	4-chloro-3-methylphenol		
47.	chlorobenzene		
48.	chloroethane		
49.	2-chloroethylvinyl ether		
50.	chloroform		
51.	chloromethane		
52.	2-chloronaphthalene		
53.	2-chlorophenol		
54.	4-chlorobenzenedimethyl ether		
55.	chrysene		
56.	4,4' - DDD		
57.	4,4' - DDE		
58.	4,4' - DDT		
59.	dibenzo (a,h) anthracene		
60.	dibromodichloromethane		
61.	1, 2-dichlorobenzene		
62.	1, 3-dichlorobenzene		
63.	1, 4-dichlorobenzene		
64.	3, 3'-dichlorobenzidine		
65.	dichlorodifluoromethane		
66.	1, 1-dichloroethane		
67.	1, 2-dichloroethane		
68.	1, 1-dichloroethane		
69.	trans-1, 2-dichloroethane		
70.	2, 4-dichlorophenol		
71.	1, 2-dichloropropane		

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TESTING METHOD	B. SOLUBLE PRESENT	C. SOLUBLE PRESENT	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		E. LONG TERM AVG. VALUE (if available)		G. NO OF ANALYSES	A. CONCENTRATION	D. MASS	F. LONG TERM AVERAGE VALUE		H. ANALYSIS
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (86-30-6)			X												
44B. Phenanthrene (85-01-8)			X												
45B. Pyrene (129-00-0)			X												
46B. 1,2,4-Trichlorobenzene (120-82-1)			X												
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)			X												
2P. α -BHC (319-84-6)			X												
3P. β -BHC (319-85-7)			X												
4P. γ -BHC (58-89-3)			X												
5P. δ -BHC (319-86-8)			X												
6P. Chlordane (57-74-8)			X												
7P. 4,4'-DDT (50-29-3)			X												
8P. 4,4'-DDE (72-55-9)			X												
9P. 4,4'-DDD (72-54-8)			X												
10P. Dieldrin (60-67-1)			X												
11P. α -Endosulfan (115-29-7)			X												
12P. β -Endosulfan (115-29-7)			X												
13P. Endosulfan sulfate (1031-07-8)			X												
14P. Endrin (72-20-8)			X												
15P. Endrin aldehyde (7421-93-4)			X												
16P. Heptachlor (76-44-8)			X												

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TEST ING. RE-QUI-RED	B. DE-LIVERED PRE-SENT	C. SE-LEVED AS-SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVG. VALUE (if available)		d. NO. OF ANAL-YSES	e. CONCEN-TRATION	f. MASS	g. LONG TERM AVERAGE VALUE		h. NO. AND YRS
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
3C/MS FRACTION - PESTICIDES (continued)															
17F. Heptachlor Epoxide (1024-67-3)			X												
18F. PCB-1242 (53489-21-8)			X												
19F. PCB-1254 (11097-68-1)			X												
20F. PCB-1221 (11104-28-2)			X												
21F. PCB-1232 (11141-16-5)			X												
22F. PCB-1248 (12672-29-6)			X												
23F. PCB-1260 (11098-82-5)			X												
24F. PCB-1016 (12674-11-2)			X												
25F. Toxaphene (8001-35-2)			X												

METROPOLITAN DISTRICT COMMISSION
20 Somerset Street
Boston, Mass. 02108

FOR MDC USE ONLY	
Category 4 <input type="checkbox"/>	Other <input type="checkbox"/>
Industry Number	
Reviewer's Initials	Date

**INDUSTRIAL USER
PERMIT APPLICATION**

SECTION A - GENERAL INFORMATION

- Emerson & Cuming existing discharge proposed discharge
1. Business Name of Applicant: Dewey and Almy Chemical Division, W. R. Grace & Co.
2. Mailing Address: 869 Washington Street
Canton, MA Zip Code: 02021
3. Facility Address (if different than mailing address): Emerson & Cuming
59 Walpole Street
Canton, MA Zip Code: 02021
4. Person to whom permit should be mailed. Name: P. E. Firestone Title: Environ. Officer
5. Person to contact concerning information provided herein. Name: P. E. Firestone
Title: Environ. Officer Telephone No.: (617) 828-3300

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of those individuals immediately responsible for obtaining the information reported herein, 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/or imprisonment.

8 July 1982
Date

Paul E. Firestone
Signature of Official (Seal if applicable)

SECTION B. - PRODUCT OR SERVICE INFORMATION

1. Indicate principal products manufactured and/or services rendered:

Flotation products utilizing syntactic foams consisting of resin
impregnated fiberglass systems.--Microwave research and development
operations in which microwave absorbers are impregnated by dipping
in various solutions.

2. Indicate applicable Standard Industrial Classification (SIC) Code(s) for all processes (if known):

7

METROPOLITAN DISTRICT COMMISSION
Industrial User Permit Application

Industry Name: Emerson & Cuming

Section B - Product/Service Information (Cont'd)

3. List raw materials.

Include all liquids which are used or stored in bulk or in containers which have a capacity of greater than 5 gallons:

<u>Raw Material</u>	<u>Quantity Used Per Year</u>	<u>Raw Material</u>	<u>Quantity Used Per Year</u>
<u>Epoxy Resin</u>	<u>310,400 lbs.</u>	_____	_____
<u>Curing Agents</u>	<u>72,000 lbs.</u>	_____	_____
<u>Solvents</u>	<u>2,300 lbs.</u>	_____	_____
_____	_____	_____	_____

SECTION C. - PLANT OPERATIONAL CHARACTERISTICS

1. Shift information: (a) number of shifts per work day: 1 2 3
(b) work days per week: 4 5 6 7
(c) average number of employees per shift: 1st 61 2nd _____ 3rd _____
(d) shift start times: 1st 7:00 A.M. 2nd _____ 3rd _____
2. Is operation subject to seasonal variation: yes no
(a) If yes, indicate months of peak operation: _____
3. Does operation shut down for vacation, maintenance, or other reasons? yes no
(a) If yes, indicate period when shutdown occurs: _____
4. Are major processes: batch continuous
(a) Average number of batches per work day: N/A
5. Is a Spill Prevention Control and Countermeasure Plan prepared for the facility? yes no

SECTION D. - WATER CONSUMPTION

1. Check all that apply: MDC City/Town Private Well Surface Water
 Private Contract Other (specify): _____

METROPOLITAN DISTRICT COMMISSION
Industrial User Permit Application

Industry Name: Emerson & Cuming

Section D - Water Consumption (Cont'd)

2. List past twelve months water consumption from water bills:

(a) 1st 6 month period, 19 81: 1,737,827

(b) 2nd 6 month period, 19 81: 1,737,827

Units are in: gpd 100 cf cf other (specify): _____

(c) Volume from other sources: _____ gallons per day.

SECTION E. - SANITARY SEWER AND COMBINED SEWER CONNECTION INFORMATION:

1. List plant sewer connections (assign a sequential connection number to each sewer connection starting with No. 1). If more than 3, attach additional connection information on another sheet of 8½x11 paper):

<u>Connection Number</u>	<u>Sewer Size (inches)</u>	<u>Descriptive Location of Sewer Connection or Discharge Point</u>	<u>Average Flow (gpd)</u>
<u>1</u>	<u>4"</u>	<u>Front of building facing Neponset Street</u>	<u>500</u>
<u>2</u>	<u>4"</u>	<u>Middle of building opposite Walpole Street</u>	<u>500</u>
<u>3</u>	<u>4"</u>	<u>Back of building next to boiler room. Opposite Walpole Street</u>	<u>400</u>

2. Attach a scaled drawing of the industrial complex, if available, showing location of sewers referenced in E-1. Show location of possible sampling points for sewers and SIC process effluents. For reference and field orientation, buildings, streets, alleys, and other pertinent physical structures should be included.

SECTION F. - WASTEWATER INFORMATION

1. Quantities in the table below may be expressed in the following units: check the units you will use and complete the table below:

- gallons per day cubic feet per day per cent of total daily usage

Usage Type	Quantity	Pretreatment		Sanitary Sewer Connection Number *				Discharge Location		
		Yes	No	1	2	3	Other	Storm Drain/ Surface Water	No Dis- charge	Other (Specify)
Sanitary (domestic)	<u>1000</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
Process	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
Cooling Water/ Uncontaminated Water	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
Boiler	<u>400</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
In Product	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other (specify): _____	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

2. Seasonal, batch, and intermittent discharges. Check applicable boxes.

Type	Frequency (check one)				Quantity per Discharge (include units)	Pretreatment		Discharge to Connection Number*			
	Daily	Weekly	Monthly	Yearly		Yes	No	1	2	3	Other
Boiler Blowdown	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>400</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	_____
Cooling System Blowdown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Plant Washdown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Equipment Washdown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Spent Chemical Solutions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Backwash	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____
Other (specify): _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	_____

*Box numbers 1, 2, 3 correspond to connection numbers in Section E above. If more than 3 connections to sanitary sewer, enter the proper connection number in "other" column.

SECTION H. — NON-DISCHARGED WASTES

1. Are any waste liquids or sludges removed from facility site? Yes No

If "yes", these may best be described and quantified as:

Type	Estimated Gallons/Year
<input checked="" type="checkbox"/> Waste Solvent	<u>500</u>
<input checked="" type="checkbox"/> Waste Product	<u>1000</u>
<input type="checkbox"/> Oil	
<input type="checkbox"/> Grease	
<input type="checkbox"/> Pretreatment Sludge	
<input type="checkbox"/> Inks/Dyes	
<input type="checkbox"/> Thinner	
<input type="checkbox"/> Paints	
<input checked="" type="checkbox"/> Acids and Alkalies	<u>600</u>
<input type="checkbox"/> Plating Wastes	
<input type="checkbox"/> Pesticides	
<input checked="" type="checkbox"/> Other (specify): <u>Carbon Black Solution</u>	<u>2000</u>

2. Does your company remove the above wastes from the facility? Yes No

If no, state the name(s) and address(es) of all waste haulers.

a. Chemical Waste Management b. _____
5 Strathmore Rd _____
Natick _____
Mass Zip Code: 01760 Zip Code: _____
Permit No. (if applicable) _____ Permit No. (if applicable) _____

3. Are any sludges, liquids, etc. placed with trash for disposal? Yes No

Describe: _____

SECTION I. - CHARACTERISTICS OF DISCHARGES

1. If any wastewater analyses have been performed on the wastewater discharges from your facilities attach a copy of the most recent data to this application. Be sure to include the date of the analysis, name of laboratory performing the analysis and location(s) from which sample(s) were taken (attach sketches, plans, etc. as necessary).
2. Please indicate by placing an "X" in the appropriate box by each listed chemical whether it is "Suspected to be Present", or "Known to be Present" in your manufacturing or service activity or generated as a byproduct. Some compounds are known by other names.

ITEM NO.	CHEMICAL COMPOUND	SUSPECTED PRESENT	KNOWN PRESENT
1.	ammonia		
2.	asbestos (fibrous)		
3.	cyanide (total)		
4.	antimony (total)		
5.	arsenic (total)		
6.	beryllium (total)		
7.	cadmium (total)		
8.	chromium (total)		
9.	copper (total)		
10.	lead (total)		
11.	mercury (total)		
12.	nickel (total)		
13.	selenium (total)		
14.	silver (total)		
15.	thallium (total)		
16.	zinc (total)		
17.	acenaphthene		
18.	acenaphthylene		
19.	acrolein		
20.	acrylonitrile		
21.	aldrin		
22.	anthracene		
23.	benzene		
24.	benzidine		
25.	benzo (a) anthracene		
26.	benzo (a) pyrene		
27.	benzo (b) fluoranthene		
28.	benzo (g,h,i) perylene		
29.	benzo (k) fluoranthene		
30.	a-BHC (alpha)		
31.	b-BHC (beta)		
32.	d-BHC (delta)		
33.	g-BHC* (gamma)		
34.	bis (2-chloroethyl) ether		
35.	bis (2-chloroethoxy) methane		
36.	bis (2-chloroisopropyl) ether		
37.	bis (chloromethyl) ether		

ITEM NO.	CHEMICAL COMPOUND	SUSPECTED PRESENT	KNOWN PRESENT
38.	bis (2-ethylhexyl) phthalate		
39.	bromodichloromethane		
40.	bromoform		
41.	bromomethane		
42.	4-bromophenylphenyl ether		
43.	butylbenzyl phthalate		
44.	carbon tetrachloride		
45.	chlordan		
46.	4-chloro-3-methylphenol		
47.	chlorobenzene		
48.	chloroethane		
49.	2-chloroethylvinyl ether		
50.	chloroform		
51.	chloromethane		
52.	2-chloronaphthalene		
53.	2-chlorophenol		
54.	4-chlorophenylphenyl ether		
55.	chrysene		
56.	4,4' - DDD		
57.	4,4' - DDE		
58.	4,4' - DDT		
59.	dibenzo (a,h) anthracene		
60.	dibromochloromethane		
61.	1,2-dichlorobenzene		
62.	1,3-dichlorobenzene		
63.	1,4-dichlorobenzene		
64.	3,3'-dichlorobenzidine		
65.	dichlorodifluoromethane		
66.	1,1-dichloroethane		
67.	1,2-dichloroethane		
68.	1,1-dichloroethene		
69.	trans-1,2-dichloroethene		
70.	2,4-dichlorophenol		
71.	1,2-dichloropropane		
72.	(cis & trans) 1,3-dichloro-propene		
73.	dieldrin		
74.	diethyl phthalate		
75.	2,4-dimethylphenol		

METROPOLITAN DISTRICT COMMISSION
Industrial User Permit Application

Industry Name: Emerson & Cuming

Section I. - Characteristics of Discharges (Cont'd)

Chemical Compound Table (Cont'd):

ITEM NO.	CHEMICAL COMPOUND	SUSPECTED PRESENT	KNOWN PRESENT
76.	dimethyl phthalate		
77.	di-n-butyl phthalate		
78.	di-n-octyl phthalate		
79.	4, 6-dinitro-2-methylphenol		
80.	2, 4-dinitrophenol		
81.	2, 4-dinitrotoluene		
82.	2, 6-dinitrotoluene		
83.	1, 2-diphenylhydrazine		
84.	endosulfan I		
85.	endosulfan II		
86.	endosulfan sulfate		
87.	endrin		
88.	endrin aldehyde		
89.	ethylbenzene		
90.	fluoranthene		
91.	fluorene		
92.	heptachlor		
93.	heptachlor epoxide		
94.	hexachlorobenzene		
95.	hexachlorobutadiene		
96.	hexachlorocyclopentadiene		
97.	hexachloroethane		
98.	indeno (1,2,3-cd) pyrene		
99.	isophorone		
100.	methylene chloride		
101.	naphthalene		
102.	nitrobenzene		
103.	2-nitrophenol		

ITEM NO.	CHEMICAL COMPOUND	SUSPECTED PRESENT	KNOWN PRESENT
104.	4-nitrophenol		
105.	n-nitrosodimethylamine		
106.	n-nitrosodiphenylamine		
107.	n-nitrosodiphenylamine		
108.	PCB-1016		
109.	PCB-1221		
110.	PCB-1232		
111.	PCB-1242		
112.	PCB-1248		
113.	PCB-1254		
114.	PCB-1260		
115.	pentachlorophenol		
116.	phenanthrene		
117.	phenol		
118.	pyrene		
119.	2,3,7,8-tetrachloro-dibenzo-p-dioxin		
120.	1,1,2,2-tetrachloroethane		
121.	tetrachloroethene		
122.	toluene		
123.	toxaphene		
124.	1,2,4-trichlorobenzene		
125.	1,1,1-trichloroethane		
126.	1,1,2-trichloroethane		
127.	trichloroethene		
128.	trichlorofluoromethane		
129.	2,4,6-trichlorophenol		
130.	vinyl chloride		

3. Please list and provide the average concentration in discharged wastewater. If concentration is not known indicate by "--" (attach additional sheets if needed). Include all chemical compounds "Known Present" in the previous section.

ITEM NO.	CHEMICAL COMPOUND	ANNUAL USAGE (LBS)	DISCHARGE CONCENTRATION	ITEM NO.	CHEMICAL COMPOUND	ANNUAL USAGE (LBS)	DISCHARGE CONCENTRATION
	BOD ₅						
	Total Suspended Solids						
	Settleable Solids						
	Dissolved Solids						
	pH						

**EMERSON
& CUMING**

W.R. Grace & Co.

Canton, Massachusetts 02021
Telephone (617) 828-3300

November 16, 1984

RECEIVED BY

NOV 26 1984

**LEGAL DEPARTMENT
CAMBRIDGE, MA**

Mr. Richard Chalpin
Acting Regional Environmental Engineer
Metropolitan Boston Northeast Region Office
Department of Environmental Quality Engineering
5 Commonwealth Avenue
Woburn, Massachusetts 01801

Dear Mr. Chalpin:

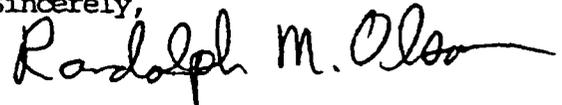
Per request of Mr. David Erikson (DEQE) I am sending to you the following:

- 1.) A copy of the Camp Dresser & McKee, Inc. Audit Report of January, 1983 as transmitted to the DEQE (Attn: Mr. S. Lipman) on January 24, 1983.
- 2.) A copy of my memo accompanying the CDM report addressing and commenting on the various issues.
- 3.) A copy of a letter from the U.S. EPA acknowledging receipt of an NPDES Permit Application dated June 13, 1984.
- 4.) A current statement of progress/status of these issues.

Upon review and evaluation of this information, I would be pleased to have you visit Emerson & Cuming's 59 Walpole Street facility for a tour and discussion of these issues. By copy of this letter I would also invite Gina McCarthy (Canton Health) at such time.

I believe that based on our implementation of various projects that have occurred during 1982-1984 to address these environmental concerns; the matter can be laid to rest.

Sincerely,



Randolph M. Olson
Plant Manager

RMO/dlg
attachments

cc: Mr. David Erikson - DEQE (Woburn)
Ms. Gina McCarthy - Canton Health Dept.

R. M. Olson
11/15/84

STATUS OF ENVIRONMENTAL ANALYSIS FOLLOW-UP BY EMERSON & CUMING

1. Seal all grates, trenches, drains and floor accesses from the plant to the underground trenches and raceway.

This project has been completed recently at a cost of approximately \$6,000. To the best of our knowledge, these accesses are all sealed.

2. Permanently seal entrance to the raceway at the pond with a concrete barrier.

This project was completed this past Spring at a cost of approximately \$2,500. Some reworking of this barrier was done following the heavy rains and the current seepage through the raceway entrance appears negligible.

3. Remove the inert macrosphere and microsphere debris from the under floor trenches and raceway areas and seal floors.

This was completed last summer (1983) at a cost of approximately \$7,000. The debris has since been properly disposed of and secured.

4. Repair and seal steam condensate system to prevent leakage to raceway.

A project to repipe and install a new condensate return system (tanks and pump) was completed early 1984 at a cost of \$5,500. This condensate is now returned to the main boiler.

5. Pave ground along the Walpole Street side of building to divert and seal runoff away from the building foundation.

This project was completed during mid 1983 at a cost of \$10,000. The area was graded, graveled, hot top paved up to the building and pitched to an asphalt berm along the street. Run off now flows to the "gutter" by the street to the street catch basins. Groundwater no longer seeps through the foundation of the building.

R. M. Olson
11/15/84

6. Pave and dike bulk resin tank truck unloading area.

This project was completed mid 1983 at a cost of \$2,000 where the area was grade, graveled and hot top paved to the bulk tank walls and flush to adjacent hop top. The area was not diked because it was not practical. However, the nearby catch basins were closed and sealed off.

7. Dike outdoor drum storage area to preclude run-off to river.

This project was complete mid 1983 at a cost of \$1,500 and in use for most of a year. Since then storage of these drummed materials this has been decreased to the point where the drums can and are stored within the plant on a sealed concrete floor.

8. Install roof over the hazardous waste storage area to minimize rain accumulation.

This project was completed late 1983 at a cost of \$10,000. Early 1984 we changed our EPA status from Storage Facility and Generator to just Generator. As such we ship waste as it is generated within the 90 day limit. Further, during the summer of 1984, a trucker "drove through" this roof demolishing it. As a result, we intend to install a small waste storage area within the building to handle any small accumulation of waste waiting shipment.

9. The area under three large solution holding tanks within the building has been diked and the floor seal such that any potential leak or spill could be contained.

This project cost \$1,800 and was completed mid 1983.

10. Drip pans are normally used under "active" material drums.
11. The handling procedures for catalyzed resin waste is completely in order. The resin is collected in steel drums, the methylene chloride separated and drained to chemical waste drums, the resin is oven cured, taken out of the drum, broken up and loaded into the BFI dumpster for disposal. Representative samples of this cured resin have been provided to BFI for any desired analysis.
12. Regular sweeping of the yard area has been and is a normal procedure.

R. M. Olson
11/15/84

13. The samples of "white floc" taken from beyond the raceway discharge to be biological and occur in various other locations nearby in slow moving water.
14. As previously mentioned, drummed material storage has been decreased and storage moved into the plant.
15. The installation of a roof over the diked bulk tank storage area was deemed unnecessary, impractical and uneconomical and would not inherently benefit "environmental concerns." Normal accumulation of rainwater into the diked pad is negligible.
16. Non-contact cooling water and sump collected groundwater penetration is now collected and pumped via enclosed piping to an enclosed collection sump where it is overflowed into the raceway for discharge to the river. This is consistent with MDC Sewage regulations and we have received acknowledgement from the U.S. EPA for an acceptable NPDES permit application.
17. The MDC Sewerage Division has inspected our premises during October 1984 and was very pleased with the situation.
18. Various water samples have been taken in and around the premise and results showed nother unusual or abnormal for metals, COD, BOD and organics.

APPENDIX A



ANTHONY D. CORTESE, S.E.
Commissioner
727-3194

RECEIVED
NOV 10 1982

EMERSON & CUMING
CANTON, MASSACHUSETTS

The Commonwealth of Massachusetts

Department of Environmental Quality Engineering

Metropolitan Boston - Northeast Region

223 New Boston Street, Woburn, MA 01801

November 5, 1982

Emerson & Cuming
Dewey & Almy Chemical Division
W.R. Garce & Co.
59 Walpole Street
Canton, MA 02021

RE: CANTON-Request for Engineering Report

Attention: Mr. Randolph M. Olson, Plant Manager

Gentlemen:

On November 2, 1982 an Engineer from the Metropolitan Boston/Northeast Region of the Department of Environmental Quality Engineering, Division of Water Pollution Control and Ms. Regina A. McCarthy of the Canton Board of Health made an inspection of your facility at 59 Walpole Street, Canton. Also present during the inspection was Mr. Jay McNeff, Plant Engineer and Mr. Randolph Olson, Plant Manager.

The purpose of the inspection was to investigate the drainage patterns both inside and outside the plant as they relate to any existing or potential discharge of pollutants to an existing raceway which flows under the building and property. The raceway is diverted from the East Branch River and discharges back to the river through a 24 inch concrete culvert pipe.

The inspection revealed the presence of several floor drains inside the plant and two storm drains outside the plant with discharge connections to the raceway. An observation of the raceway discharge pipe to the river showed no visible evidence of pollutants. However, the presence of a Hazardous Waste storage area, a raw chemical barrel storage area and a bulk tank storage area outside the plant and the use of these materials inside the plant present a potential hazard in the instance of a chemical spill entering the drainage flow of the facility, or the unauthorized use of these drains for the disposal of waste materials. In the case of an incident, Canton's downstream public water supply wells may be affected. The Department therefore is of the opinion that appropriate steps be taken as follows:

1. On or before November 29, 1982 a professional engineer, registered in the Commonwealth shall be retained by you to prepare a report to identify the location and use of all drains/discharges to the raceway, the East Branch River and the municipal sewer.
2. The report shall evaluate the potential for pollutants to enter and

Emerson & Cuming
Page 2
November 10, 1982

drain on the East Branch River resulting from the storage, spillage or mishandling of hazardous waste, raw materials as well as the use of these materials during the manufacturing process.

3. The report shall include the past history of the use and purpose of the raceway, any on site disposal practices, spills of any kind and a listing of materials involved. Copies of any sampling data shall be included.
4. The report shall further include a description of any actions already taken and/or recommendations for steps to be taken toward preventing pollutants from entering the raceway or the East Branch River from any of the above activities.
5. On or before January 3, 1983 the report shall be submitted to the Department for review. After the report has been reviewed a detailed schedule for implementation of those actions deemed appropriate by the Department will be issued.

The Department also requests that you notify this office in writing when an Engineer has been retained and the name of the firm or individual hired.

If you should have any questions regarding this matter you may contact me or Mr. David G. Erikson at 935-2160.

Very truly yours,



Steven G. Lipman, P.E.
Deputy Regional Environmental Engineer

SGL/DGE/jb

cc: Regina McCarthy, Canton Board of Health, Town Hall, Canton, MA 02021

APPENDIX B

CDM.

*environmental engineers, scientists,
planners, & management consultants*

WR/IP-2103

JUN 13 1984

Randolph M. Olson, Plant Manager
Emerson & Cuming
59 Walpole Street
Canton, MA 02021

*File
3-1-84*

Re: NPDES Application No.

Dear Mr. Olson:

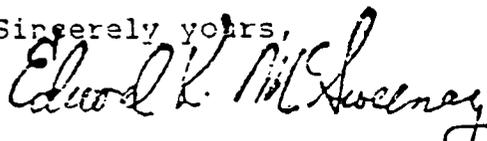
Your application for a National Pollutant Discharge Elimination System (NPDES) permit has been reviewed and appears to be complete. You may be contacted for additional information as the permit is developed, should it be necessary to clarify, modify or supplement any previously submitted information. By copy of this letter, your State Water Pollution Control Agency is being furnished a copy of your complete application for certification pursuant to Section 401(a)(1) of the Clean Water Act, as amended, 33 U.S.C §1341(a)(1).

A draft permit and statement of basis or fact sheet will be prepared by this office and forwarded to you for comment prior to the opening of the public comment period. The draft permit will then be publicly noticed and forwarded for state certification if certification has not previously been received on the application. If it is deemed necessary, a public hearing will be held, in which case, the comment period will be extended until the close of the hearing. After the close of the public comment period, your final permit will be issued providing no new substantial questions are raised. If new questions develop during the comment period, it may be necessary to draft a new permit, revise the statement of basis or fact sheet and/or reopen the public comment period.

The waiver of testing requirements requested in your letter of May 8, 1984 for Outfall 001 has been granted for the following parameters: BOD, COD, TOC, TSS and Ammonia.

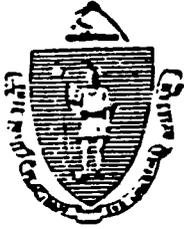
Should you have any questions concerning the permit issuance process, don't hesitate to contact Nanci Siciliano, of my staff. She may be reached at 617/223-3940.

Sincerely yours,



Edward K. McSweeney, Chief
Compliance Branch

cc: State Water Pollution Control Agency w/encl.



ANTHONY D. CORTESE, S.L.D.
Commissioner
727-5194

The Commonwealth of Massachusetts

Department of Environmental Quality Engineering

Metropolitan Boston - Northeast Region

223 New Boston Street, Woburn, MA 01891

RECEIVED
NOV 10 1982
DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
CANTON, MASSACHUSETTS

November 5, 1982

Emerson & Cuming
Dewey & Almy Chemical Division
W.R. Garce & Co.
59 Walpole Street
Canton, MA 02021

RE: CANTON-Request for Engineering Report

Attention: Mr. Randolph M. Olson, Plant Manager

Gentlemen:

On November 2, 1982 an Engineer from the Metropolitan Boston/Northeast Region of the Department of Environmental Quality Engineering, Division of Water Pollution Control and Ms. Regina A. McCarthy of the Canton Board of Health made an inspection of your facility at 59 Walpole Street, Canton. Also present during the inspection was Mr. Jay McNeff, Plant Engineer and Mr. Randolph Olson, Plant Manager.

The purpose of the inspection was to investigate the drainage patterns both inside and outside the plant as they relate to any existing or potential discharge of pollutants to an existing raceway which flows under the building and property. The raceway is diverted from the East Branch River and discharges back to the river through a 24 inch concrete culvert pipe.

The inspection revealed the presence of several floor drains inside the plant and two storm drains outside the plant with discharge connections to the raceway. An observation of the raceway discharge pipe to the river showed no visible evidence of pollutants. However, the presence of a Hazardous Waste storage area, a raw chemical barrel storage area and a bulk tank storage area outside the plant and the use of these materials inside the plant present a potential hazard in the instance of a chemical spill entering the drainage flow of the facility, or the unauthorized use of these drains for the disposal of waste materials. In the case of an incident, Canton's downstream public water supply wells may be affected. The Department therefore is of the opinion that appropriate steps be taken as follows:

1. On or before November 29, 1982 a professional engineer, registered in the Commonwealth shall be retained by you to prepare a report to identify the location and use of all drains/discharges to the raceway, the East Branch River and the municipal sewer.
2. The report shall evaluate the potential for pollutants to enter and

Emerson & Cuming
Page 2
November 10, 1982

drain on the East Branch River resulting from the storage, spillage or mishandling of hazardous waste, raw materials as well as the use of these materials during the manufacturing process.

3. The report shall include the past history of the use and purpose of the raceway, any on site disposal practices, spills of any kind and a listing of materials involved. Copies of any sampling data shall be included.
4. The report shall further include a description of any actions already taken and/or recommendations for steps to be taken toward preventing pollutants from entering the raceway or the East Branch River from any of the above activities.
5. On or before January 3, 1983 the report shall be submitted to the Department for review. After the report has been reviewed a detailed schedule for implementation of those actions deemed appropriate by the Department will be issued.

The Department also requests that you notify this office in writing when an Engineer has been retained and the name of the firm or individual hired.

If you should have any questions regarding this matter you may contact me or Mr. David G. Erekson at 935-2160.

Very truly yours,



Steven G. Lipman, P.E.
Deputy Regional Environmental Engineer

SGL/DGE/jb

cc: Regina McCarthy, Canton Board of Health, Town Hall, Canton, MA 02021.

GRACE

W. R. Grace & Co.
62 Whittemore Avenue
Cambridge, MA 02140

(617) 876-1400

February 1, 1989

U.S. Environmental Protection Agency, Region 1
Waste Management Division
Post Office Box 6222
Boston, MA 02114

RE: W.R. Grace & Co.
Walpole Street, Canton,
E.P.A. I.D. Number MAD000361709

Dear Sir or Madam:

This letter and enclosed documents are submitted on behalf of W.R. Grace & Co. (Grace) in response to a request for information dated November 25, 1988 and supplemented by a letter dated December 30, 1988 (together hereinafter referred to as the "request"), from Mr. Merrill S. Hohman, Director, Waste Management Division, relating to the above-referenced Grace operations in Canton, Massachusetts. The letter dated December 30, 1988 extended the time for Grace to respond to this request until February 1, 1989.

Preliminary Statement

Grace will respond to the EPA information request in accordance with its understanding of that request. Nevertheless, Grace wishes to note that by doing so it does not in any way concede or admit that EPA has authority or jurisdiction to require corrective action in connection with any of its Canton operations. For the reasons described below, among others, Grace believes that it is not subject to EPA's corrective action permitting or enforcement authority.

We understand from those two letters that EPA's intent in requesting answers to these questions is to identify any releases of hazardous waste or constituents from facilities qualifying for interim status under RCRA Section 3005 that treat, store for 90 days or more, or dispose of hazardous waste, including so-called Solid Waste Management Units (SWMUs), as well as releases of hazardous waste or constituents from facilities which had interim status or should have had interim status as a result of their treatment, storage or disposal activities. We further understand that EPA seeks this information in order to determine the need for response or for enforcement of the corrective action provision of RCRA, as added by the Hazardous and Solid Waste Amendments of 1984 (HSWA), RCRA Sections 3004(u) and 3008.

To the extent that the request is premised on the proposition that the Grace operations are subject to RCRA corrective action, Grace disputes that premise. Simply put, under the Hazardous and Solid Waste Amendments of 1984 (HSWA), EPA may impose corrective action requirements in two circumstances. The first is where there have been releases of hazardous wastes or constituents from any solid waste management unit at a facility "seeking a permit" under RCRA Section 3005(c), 42 U.S.C. Section 6925(c). See RCRA Section 3004(u), 42 U.S.C. Section 6924(u). Because Grace is not seeking a permit under Section 3005(c), as described below, Section 3004(u) does not apply.

Corrective action may also be required under RCRA Section 3008(h), 42 U.S.C. Section 6928(h), where there has been a release from "a facility authorized to operate under Section 3005(e) of this subtitle", 42 U.S.C. Section 6925(e). Grace has not been authorized to operate as an interim status facility since at least 1983, when it withdrew its Part A permit application, as described below. Therefore, this section also does not apply.

The above-referenced Grace operation is not a RCRA-permitted or interim status facility. Grace did submit to EPA a Notification of Hazardous Waste Activity, and under date of November 18, 1980 a General information form, EPA Form 3510-1 (6/80), and a Part A Hazardous Waste Permit Application, EPA Form 3510-3 (6/80), with respect to its operations then existing in Canton. However, on March 29, 1984 Grace submitted to EPA a change of status request, in effect withdrawing the Part A permit applications as of that date. A copy of the letter

requesting change of status is enclosed herewith. In addition, under date of February 10, 1984 Grace submitted to DEQE on a form approved by DEQE for that purpose a signed certification confirming, among other things, that thenceforward it would not store, treat, or dispose of hazardous waste. A copy of this certification is enclosed herewith. Grace is advised both by the DEQE Division of Hazardous Waste and by EPA that Grace's change of status request for the Canton facility was granted by DEQE and approved by EPA. We are unable at this time to locate the official documentation confirming this, we will provide you with copies as soon as they have been located

Since Massachusetts has (then and now) a delegated program under RCRA EPA approval was not required for a change of status. This was confirmed in the Memorandum of Understanding (MOU) dated March 25, 1986, which specifies procedures for certain federal/state interactions under RCRA. These procedures state that DEQE had authority in the first instance to approve a change in status. Moreover, the MOU states that when DEQE notifies EPA of a decision to approve a change in status, EPA must inform DEQE within two weeks of any disagreement with DEQE's decision; otherwise DEQE's decision stands. Grace is not aware that EPA ever expressed any disagreement with DEQE's decision to approve Grace's change of status. Therefore, since DEQE recognized Grace's change of status and EPA in effect approved it, Grace has not been authorized to operate as an interim status facility since 1984, and it is not subject to the RCRA corrective action provision.

Since neither DEQE nor EPA had taken any administrative action to grant Grace's Part A permit application, we understand that Grace's withdrawal of that application was effective in any event to terminate its previous interim status for its operations covered by the Part A permit application as of the date of withdrawal, which was prior to the enactment of the corrective action provision of HSWA. In short, Grace's Canton operation does not meet the definition of "facility" set forth in the request, because those operations are not conducted on property "on which units subject to RCRA permitting are located."

Response

With respect to sites which are or have been undergoing investigative or remediation procedures pursuant to voluntary action, notices of responsibility from governmental bodies, orders or similar proceedings, Grace understands from conversations between its counsel and representatives of EPA

that narrative answers to the questions set forth in the information request are not required. We understand that EPA will instead accept, in lieu of such answers, the incorporation by reference in this response of reports previously submitted to EPA, or the transmittal of copies of reports submitted to other governmental bodies. Consequently, in response to this response Grace submits copies of the following documents:

1. Olson to EPA , March 29, 1984 - Request of change of status from hazardous waste storage facility to hazardous waste generator.
2. Certificate signed by Olson to DEQE, dated February 10, 1984 - re. change of status.
3. R. Joyce to S. Johnson (DEQE), dated Sept. 16, 1988 - cover letter for Rizzo Associates revised Scope of Services for Phase I Site Investigation.
4. Revised Scope of Services for Phase I Site Investigation - Rozzo Associates, dated August 8, 1988.
5. R. Joyce to R. Chalpin, dated Feb. 11, 1988 - Response to DEQE request for technical information pursuant to G.L. c. 21E regarding the Oct. 9, 1987 discovery of oily water and soil.

Attachments:

- Table I. List of Hazardous Waste Manifests
 - Att. 1: Copies of Waste Manifests from E & C to Jet-Line
 - Att. 2. Copies of Waste Manifests from Jet-Line to Sablex-Canada.
 - Att. 3: Waste Analyses
 - Att. 4: Hazardous Waste Manifests and Analyses
 - Letter R. Joyce to S. Roy, dated Dec. 29, 1987 - re: Field Sampling results.
 - Figure I: Map with drum storage areas noted.
6. R. Chalpin (DEQE) to P. Ciriello, dated January 13, 1988 - Re: Notice of Responsibility/Request for Rechnical Information Pursuant to M.G.L. c. 21E regarding the Oct. 9, and Nov. 9, 1987 discovery of oily water and soil.
 7. Report prepared by Haley and Aldrich, dated December 28, 1987 - Vadose Zone Screening Study (report prepared by Grace contractor as part of DEQE investigation of groundwater contamination of the Upper Neponset River Valley Aquifer).

8. P. Deese (DEQE) to J. F. Murphy, Jr., dated Oct. 1, 1987 -
Re: Site Investigations, Upper Neponset Valley Aquifer.

9. G. Rowe to Edward Lukaszewicz (Canton Conservation
Commission), dated April 13, 1987 - Response to Enforcement

Order issued March 24, 1987.

Att: J. Davey, Enpro Services to R. Olson, dated
April 6, 1987 - Regarding Oil Staining at the facility.

10. M. Stoler to Canotn Board of Health, dated March 24, 1987
- Response to Board's actions at March 10, 1987 meeting
(allegation of storage of drums of hazardous materials.

Att: Affidavit of Charles Moore
Affidavit of Graham Rowe
Documents pertaining to removal of empty drums.

11. Canton Conservation Commission to G. Rowe, dated March 24,
1987 - Enforcement Order.

12. R. Olson to G. Winterson, dated March 5, 1985 - Re:
Canton Health Department Review of Camp, Dresser & McKee Audit.

Att: 1984 Water testing results.

13. W. Krohl (DEQE) to R. Olson, dated March 1, 1985 - Spill
Control Audit at Plant #2 (Engineering Report).

14. R. Olson t R. Chaplin (DEQE), dated Nov. 16, 1984 - cover
letter.

Att. Camp Dresser & McKee Audit Report dated January, 1983.
R. Olson memo accompanying CDM Report.
Letter from USEPA acknowledging receipt of NPDES
Permit Application.
Statement of progress/status of implementing
recommendations.

15. S. Lipman (DEQE) to R. Olson, dated Nov. 5, 1982 - Request
for Engineering Report.

16. Facility Map

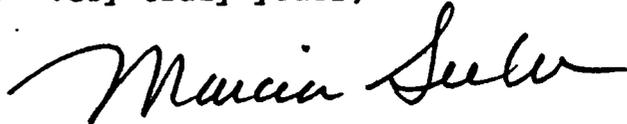
Unless otherwise indicated, this response is not made
on the basis of personal knowledge. This response was prepared
by or with the assistance of agents, employees,
representatives, or attorneys of Grace, or others believed to
have relevant information, and with the advice of counsel,
which has been relied upon herein. The answers set forth

USEPA, Region 1
Page 6
February 1, 1989

herein, subject to inadvertent or undiscovered errors or omissions, are based on and therefore necessarily limited by the records and information still in existence, presently recollectd, thus far discovered in the course of the preparation of these answers, and currently available to Grace. Grace reserves its right to supplement this response if discovery of additional information makes such supplementation appropriate.

The current Grace facility contact person is Randolph Olson, Plant Manager (617) 821-4250.

Very truly yours,

A handwritten signature in cursive script that reads "Marcia Seeler". The signature is written in dark ink and is positioned above the typed name and title.

Marcia Seeler
Assistant Environmental Counsel

21
Canton
Attachments

Emerson & Cuming Unit
Dewey & Almy Chemical Div.
W. R. Grace & Co.
59 Walpole Street
Canton, Mass. 02021

March 29, 1984.

Jacob Edwards
State Waste Programs
U.S. EPA, Room 1903
JFK Federal Building
Boston, Mass. 02203

Mr Edwards:

Emerson & Cuming formally requests to change our status of Hazardous Waste Storage Facility to Hazardous Waste Generator. Our EPA I.D. Number is MAD 000 361 709. When our Company originally filed its application in November, 1980, the following three process codes were used:

S02 - Tank Storage 600 gallons
T03 - Treatment by incineration 20 gallons per hour
S01 - Drum Storage 1000 gallons

The person who filled out this application is no longer with the Company and was apparently in error when describing our hazardous waste process. We have never incinerated a hazardous waste to the best of my knowledge and have never stored a hazardous waste in a tank. We only accumulate our waste in 55 gallon drums and periodically ship it out to a licensed hazardous waste facility. Our only change is that we will ship all accumulated waste within 90 days.

Thus, Emerson & Cuming, 59 Walpole Street, Canton, Mass., EPA I.D. Number MAD 000 361 709, formally requests to change from Storage Facility status to Generator status.



Randolph M. Olson
Plant Manager

C E R T I F I C A T I O N

I, RANDOLPH M. OLSON, PLANT MANAGER, hereby

(name)

(position)

certify that EMERSON & CUMING UNIT, DEWEY & ALMY
CHEMICAL DIV., W. R. GRACE & CO., MAD 000 361 709, which

(name of company)

(EPA I.D. #)

notified the U.S. Environmental Protection Agency ("EPA") that it treats, stores and/or disposes of hazardous waste, at all times from this date forward (1) will not accumulate any hazardous waste for more than 90 days; (2) will accumulate hazardous waste in compliance with 310 CMR 30.340; (3) will not store, treat, or dispose of hazardous waste; and (4) will comply with all other applicable requirements of 310 CMR 30.000.

I understand that the Department of Environmental Quality Engineering is deferring applicability of the financial responsibility requirements of 310 CMR 30.900 as a result of EMERSON & CUMING UNIT, DEWEY & ALMY
CHEMICAL DIV., W. R. GRACE & CO. having submitted

(name of company)

a request for change of status and this certification, so long as EMERSON & CUMING UNIT, DEWEY & ALMY
CHEMICAL DIV., W. R. GRACE & CO. abides by the terms of this certification.

(name of company)

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

Randolph M. Olson 2/10/84
(Signature)

59 WALPOLE ST.
CANTON, MASS. 02021

RANDOLPH M. OLSON FEB. 10, 1984

(Name typewritten)

GRACE

Polyfibron Division

W.R. Grace & Co.
55 Hayden Avenue
Lexington, Mass. 02173

(617) 861-6600

September 16, 1988

Stephen M. Johnson
Department of Environmental Quality Engineering
5 Commonwealth Avenue
Woburn, MA 01801

Dear Steve:

Attached is the revised Scope of Services for the Phase I Site Investigation (ATT:1) prepared by Rizzo Associates, Inc. for the Emerson & Cuming facility located at 59 Walpole Street in Canton, Massachusetts. Revisions to the proposal are consequent to our meeting on July 19, 1988. We are confident that each of the concerns outlined by you during our July meeting have been appropriately addressed in the Revision and in Rizzo's cover letter to James F. Murphy, Jr. (ATT: 2)

Your expeditious response to our submittal is requested as we are anxious to initiate and complete the site assessment prior to the onset of winter.

Sincerely,

Rosanne M. Joyce
Rosanne M. Joyce
Environmental Engineer

RMJ:kc

ATT:2

cc: J.F. Murphy, Jr.
D. Kronenberg
G.W. Rowe
R.M. Olson

RIZZO ASSOCIATES, INC.

ENGINEERS AND ENVIRONMENTAL SCIENTISTS

235 West Central Street, Natick, MA 01760 (508) 651-3401 FAX (508) 651-1189

August 8, 1988

Mr. James F. Murphy, Jr.
Assistant Vice President
W.R. Grace & Company
55 Hayden Avenue
Lexington, MA 02173

Re: Revisions to June 1, 1988 Technical Scope of Services,
Canton Site (837-01)

Dear Mr. Murphy:

As per our meeting of August 2, 1988 I have revised the Technical Scope of Services for the Canton facility to incorporate comments from the Department of Environmental Quality Engineering (DEQE). Specific revisions and comments are presented below.

1. All soil borings to be completed as monitoring wells will be advanced to refusal or the first confining unit below the water table, whichever is less. This revision is reflected in Task 2 and Appendix B.
2. Task 3 specifies the collection of split spoon soil samples continuously (2-foot intervals) in an area of suspected PCB presence. Task 2 specifies the collection of split spoon soil samples at 5-foot intervals (collection of 2 feet of samples/5 feet of lineage) in areas throughout the site where contamination is neither suspected or confirmed. We believe this represents adequate coverage to physically classify soil stratigraphy and screen for the potential presence of volatile organic compounds (VOCs). Collection of soil samples on a continuous basis is not technically warranted and cost prohibitive for a preliminary assessment of a facility which lacks analytical evidence to indicate the presence of VOC in soils or groundwater. For a soil boring/well installation program of this magnitude we would anticipate a minimum of one additional drilling day to perform continuous sampling corresponding to an increase in project cost of \$2,000 to \$2,500.
3. The installation of RIZ-1 and RIZ-6 will provide information relative to upgradient sources of contamination. In the event constituents were detected which have not been used at the facility, an upgradient

RIZZO ASSOCIATES, INC.

Page Two
Mr. James F. Murphy, Jr.
August 8, 1988

source would be suspected. If no constituents are detected in these wells, an upgradient source for similar constituents detected in downgradient wells would be unlikely or the transport mechanism may be other than groundwater flow (i.e. surface runoff drains). Therefore, upgradient information is provided by the installation of these and all monitoring wells.

4. A maximum screened interval of twenty feet will be utilized for shallow overburden monitoring wells. This revision has been noted in Task 2 and Appendix B. The screened interval will be determined based on the stratigraphy identified during the installation of the soil borings. The interval will extend from the water table to a maximum of twenty feet or refusal or the first confining unit encountered below the water table, whichever is less.
5. Instruments utilized to screen soil samples will be capable of detecting 1,1,1-trichloroethane (TCA), trichloroethylene (TCE) and methylene chloride. This revision has been incorporated into Task 2 and Appendix A.
6. A nested well series will be placed at location RIZ-3, RIZ-4, RIZ-5 or RIZ-7 if the saturated thickness is greater than 20 feet above refusal or the first confining unit. This revision has been incorporated into Task 2 and Appendix B relative to the construction of a deep overburden well.
7. A composite sediment sample will be collected from the vicinity of the tail race as identified in Task 3 and laboratory analyzed for the presence of PCBs.
8. VOC analyses will include hazardous substance list (HSL) compounds. Analysis of additional peaks is unwarranted due to the nature of this investigation. The purpose for conducting this investigation is to determine if the W.R. Grace site is responsible for observed TCA, TCE, methylene chloride and/or mercury contamination at the Canton well #7. Additional constituents, other than the HSL compounds, have not been identified in this water supply well. In addition, library searches conducted to identify additional peaks are often tentative and less than reliable. Therefore, the Scope of Services has been prepared to address specific concerns of the DEQE and is considered to be comprehensive for the purpose of identifying source areas for the compound identified at the Canton well #7.

RIZZO ASSOCIATES, INC.

Page Three

Mr. James F. Murphy, Jr.

August 8, 1988

9. Monitoring well and surface water elevations will be surveyed to a mean sea level (MSL) datum.
10. Insitu hydraulic conductivity tests will be conducted if constituents of concern are identified by laboratory analysis above applicable water quality standards. If constituents are not detected at concentrations above applicable standards, this information will not be required.
11. The head space analysis in Appendix B has been modified to reflect the DEQE guidelines.
12. Two additional monitoring wells have been incorporated into the Scope of Services. Monitoring well RIZ-7 will be installed north of the race way location between monitoring wells RIZ-4 and RIZ-5. The location of monitoring wells RIZ-3, RIZ-4, RIZ-5 and RIZ-7 will be adjusted for approximately equidistant spacing.

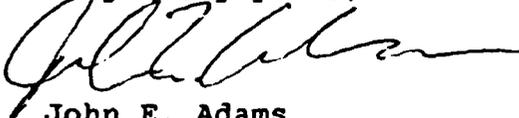
Monitoring well RIZ-8 will be installed north of the resins dike storage area in the vicinity of Haley & Aldrich's soil gas sampling point 7.

One additional modification has been made to the Scope of Services. The location of the area of potential PCB soils has been relocated to the intersection of the surface runoff drain and the race way. This location was incorrectly identified on the site plan submitted with the June 1, 1988 Scope of Services.

Rizzo Associates is pleased to provide these revisions to the technical Scope of Services. We are confident they will result in a comprehensive evaluation of the site for potential sources of constituents detected in Canton well #7 and address concerns relative to the potential presence of PCBs in site soils.

If you have any questions regarding the revised Scope of Work or comments within this correspondence please do not hesitate to contact me.

Very truly yours,



John E. Adams
Project Manager

JEA/cc/2379H

Attachments

RIZZO ASSOCIATES, INC.

ENGINEERS AND ENVIRONMENTAL SCIENTISTS

PHASE I SITE INVESTIGATION

Proposed Scope of Services

**W.R. Grace Facility
Canton, Massachusetts**

August 8, 1988

US EPA ARCHIVE DOCUMENT

RIZZO ASSOCIATES, INC.

ENGINEERS AND ENVIRONMENTAL SCIENTISTS

235 West Central Street, Natick, MA 01760 (508) 651-3401 FAX (508) 651-1189

August 8, 1988

Mr. James F. Murphy, Jr.
Assistant Vice President
W.R. Grace & Company
55 Hayden Avenue
Lexington, MA 02173

Re: Technical Scope of Services
Canton Site (837-01)

Dear Mr. Murphy:

Rizzo Associates is pleased to submit this technical scope of services, prepared to address potential environmental concerns at the W.R. Grace facility located at 59 Walpole Street in Canton, Massachusetts (the Site). The technical scope of services is in response to concerns expressed by the Department of Environmental Quality Engineering (DEQE) over potential soil and/or groundwater contamination which may be present at the Site. The Site was placed on the "Locations to be Investigated" list by the DEQE on April 15, 1987. W.R. Grace was formally notified that the Site had been placed on this list in a letter from James C. Coleman of the DEQE dated April 11, 1988. The current disposition of the Site as of the July 15, 1988 list indicates the Site is the location of a confirmed release of oil or hazardous materials. Therefore, based on the status of the Site, the DEQE has required further investigation to determine if previous actions which have been implemented by W.R. Grace are sufficient to mitigate contaminants originating from areas of confirmed or suspected releases.

Rizzo Associates has conducted a Site visit and researched available information in the W.R. Grace and DEQE files relative to potential environmental problems. In addition, discussions were conducted between John Adams of Rizzo Associates and Stephen Johnson of the DEQE to ascertain specific areas which DEQE requires to be addressed by the technical scope of services.

Site Background

The Site consists of several acres bounded by Neponset Street, Walpole Street, Walpole Terrace and the East Branch of the Neponset River. The main plant area consists of an

RIZZO ASSOCIATES, INC.

approximately rectangular parcel, 850 feet by 250 feet in dimension trending northeast-southwest along Walpole Street as identified on the attached Site Plan. The topography of the Site slopes generally northwestward from Walpole Street at an elevation of 70 feet Mean Sea Level (MSL) to the East Branch at an elevation of about 50 feet MSL.

The East Branch flows to the east in the vicinity of the Site for approximately 2,000 feet, at which point it turns to the north and flows into the Neponset River approximately one mile from the Site. Three Town of Canton water supply wells are located within one mile of the Site and are identified on the Site locus map. Canton Well 7 is located approximately 2,000 feet northwest of the main building and Canton Wells 5 and 6 are located approximately 4,000 feet west of this location. In 1979, routine sampling of Canton Well 7 identified the presence of small quantities of trichloroethylene (TCE). The use of the well was subsequently discontinued. Periodic sampling has identified the presence of low concentrations of various volatile organic compounds (VOCs), including 1,1,1-trichloroethane (TCA), chloroform, bromodichloromethane and methylene chloride. Recent sampling results for the well in December 1986 indicated that no VOCs were detected in the monitoring well. However, analysis for priority pollutant metals indicated the presence of mercury at concentrations of 0.003 milligrams per liter (mg/l). The well remains closed at this time.

The DEQE initiated a study of the Neponset River Valley to identify potential sources of groundwater contamination and formulate a remedial action program to mitigate groundwater contamination in these areas. The study was conducted by SEA, Inc. of Cambridge, Massachusetts and a draft Phase II Hydrogeologic Evaluation and Testing Report has been submitted to the DEQE for review.

The report expresses concerns of two potential sources for the contamination of the Town of Canton Well 7 as the Neponset Valley Industrial Park and the Emerson & Cumings (W.R. Grace) Site. The implication of the Emerson & Cumings Site as a potential source of contamination to the Canton Well 7 is primarily responsible for current concerns by the DEQE relative to groundwater quality at the Site.

Site Visit

A Site visit was conducted by Mr. Adams on May 9, 1988 for the purpose of evaluating areas of previous releases and assessing the feasibility of implementation for a proposed field

RIZZO ASSOCIATES, INC.

investigation. Rosanne Joyce and Sharon Schuerfeld of W.R. Grace escorted Mr. Adams around the exterior of the facility. Randolph Olson was present during a portion of the Site visit.

The former handling and storage area for non-hazardous and hazardous materials and waste were identified during the site visit. Also located were areas where petroleum and/or hazardous materials were found or detected. Recent demolition and construction activities were also reviewed.

The Site is supplied by Town of Canton water and sewer connections. Previous to 1981, numerous cisterns are thought to have existed for disposal of sewage from restroom facilities throughout the plant. The final cistern was removed from service and the plant was connected to Town sewers in 1983. Although, the exact location of all cisterns is not known, they are expected to be in the vicinity of existing sewer connections.

The location of five areas of primary environmental concern were identified during the Site visit and subsequent discussions with DEQE and W.R. Grace personnel. These areas include a former drum storage area, an area previously remediated for the presence of oily soils, an area of suspected polychlorinated biphenyl (PCB) presence, an area tentatively identified as containing elevated concentrations of VOCs in the soil pore gas relative to surrounding locations, and a former solvent storage area. These areas are identified on the Site Plan.

The drum storage area, located along the northwest property boundary, was utilized for the storage of epoxy resins prior to 1984. During a November 1982 Spill Control Audit conducted by Camp Dresser & McKee (CDM), up to 200 drums were observed to be stored in this paved area of the Site. Emerson & Cumings diked this area in addition to reducing the number of drums stored as a result of CDM recommendations. The practice of storing drummed epoxy resins in this area was discontinued in late 1984. During the period from 1984 to 1987, empty drums were accumulated and stored in this area prior to periodic removal by contractors to W.R. Grace. A soil pore gas investigation, conducted by Haley & Aldrich in 1987, detected the presence of low concentrations (less than 10 parts per billion [ppb]) of methylene chloride in this area. Elevated concentrations of methylene chloride were detected in the soil pore gas samples approximately 80 feet south and southwest of this location. Haley and Aldrich designated these as sample locations number 12 and 21 in their December 1987 Vadose Zone Screening Study.

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An area of oily soils was encountered during building demolition activities in October 1987. A brick structure, which may represent a historic basement floor, was unearthed at a depth of approximately six to seven feet below the existing ground surface. Oily groundwater and approximately two cubic yards of oily soil were observed in proximity to this structure. To insure complete remediation of this area, a total of 3,800 gallons of oily water and 80 cubic yards of oily soil were removed from this location and disposed of in approved facilities. A 1927 Site Plan indicates a boiler room was present approximately 50 feet south of this location. The oil may be an artifact of leakage from boiler piping which predates ownership by Emerson & Cumings and W.R. Grace.

Excavation for a storm sewer in November 1987 identified the presence of oily soil and groundwater in the vicinity of the mill raceway at the western end of the Site. The area was characterized by the presence of assorted construction debris and products. Analyses of a soil sample collected from a thin oil stain horizon indicated the presence of PCB's at a concentration of 160 milligrams per kilogram (mg/kg). Oily water was pumped from the excavation to permit the installation of the storm water sewer. The oily water was disposed by Jetline, Inc. at an approved facility.

The aforementioned Haley & Aldrich soil gas investigation tentatively identified the presence of VOCs in the vicinity of the mill raceway outfall. Subsequent groundwater sampling failed to confirm the presence of VOCs and Haley & Aldrich concluded that the presence of VOCs in the soil pore gas was the result of an isolated release of methylene chloride or an incorrect identification with the field gas chromatograph. Low concentrations of VOCs (less than 10 ppb) were detected in soil pore gas samples collected 100 and 400 feet west of this location.

An exterior solvent storage area, utilized by W.R. Grace prior to 1985, was located at the southwest end of the Site. The area was paved and bermed and was secured by a locked cyclone fence covered by a roof structure. The practice of storing solvents in this area was discontinued in 1985 when a concrete flammable solvent room was constructed inside the plant structure. No reported releases of hazardous materials has occurred in the vicinity of this area.

Scope of Services

A technical scope of services has been prepared which addresses the four areas identified as potential environmental concerns. The data required to evaluate the potential for the Site soils

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and/or groundwater to be contributing to the VOCs detected in the Town of Canton Well #7 would be collected. The scope of services is consistent with guidelines established by the DEQE for Phase I site investigations. DEQE has requested a Phase I investigation of the Site. Specific tasks comprising the scope of services are identified below.

1. Site History. A complete Site history will be prepared for the W.R. Grace Canton facility. The history will include records of past and present owners/operators and uses of the facility, including industrial and manufacturing processes. A listing of types of oil and hazardous materials utilized at the facility will be compiled, including quantities used, treated, stored, disposed or generated through past or present uses at the facility. The past and present locations of oil and hazardous materials use and storage will be identified. Past and present waste disposal practices will be investigated. Existing or pending environmental permits will be reviewed. A brief description of past and present land uses for adjacent properties will be prepared.

These activities will be accomplished by interviewing State and local officials and reviewing available files at the Town of Canton Assessor's Office, Building Department, Clerk's Office, Board of Health, Engineering, Public Works and/or Fire Department. Site occupants will also be interviewed during a thorough Site inspection of the building premises. The Site inspection will be conducted prior to the initiation of field investigation activities to insure all areas of potential environmental concern have been identified during the initial review of available materials conducted for the preparation of this scope of services.

2. Installation of Monitoring Wells. The installation of six monitoring wells is proposed for the purpose of assessing the Site groundwater quality. The locations for the monitoring wells are identified on the Site Plan and have been selected to address areas of specific concern and provide an overall assessment of Site groundwater quality. The locations of each monitoring well and justification for well placement are identified below.

- o RIZ-1 will be located downgradient from a known cistern utilized for sanitary sewage disposal. The monitoring well will be used to assess potential discharges to the cistern and evaluate potential migration of contaminants onto the Site from upgradient sources.

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- o RIZ-2 will be located immediately downgradient from the area where oily soil and groundwater were removed during construction activities in 1987. The monitoring well will be used to assess soil and groundwater quality downgradient from an identified release of petroleum products and to insure adequate remediation of the area has been accomplished.
- o RIZ-3 will be located in the former empty drum and epoxy resin storage area. Haley & Aldrich identified low concentrations of VOCs in the soil pore gas in this location. This monitoring well will be utilized to assess groundwater quality in this area.
- o RIZ-4 will be located downgradient from an area of demolished and newly constructed plant facilities. Haley & Aldrich detected the presence of VOCs in the soil pore gas in this vicinity. Groundwater quality data will be utilized to evaluate potential exfiltration from the raceway and/or the presence of hazardous materials in the area.
- o RIZ-5 will be located in the western corner of the Site and will be installed to assess groundwater quality downgradient from the facility. This location is approximately 60 feet west of the location where soil was found to contain PCBs. The boring will be utilized to assess the potential extent of PCB in the soil. If PCBs are confirmed in the area of their suspected presence, then soil samples collected from this boring will be screened for the potential presence of PCB with a field test kit capable of detecting the presence of greater than 50 parts per million (ppm) of PCBs.
- o RIZ-6 will be located downgradient from the former hazardous materials storage area and in the vicinity of the Walpole Street entrance adjacent to the stormwater drain. Groundwater quality data will be utilized to assess potential migration of contaminants from off-site sources, including the exfiltration of contaminated storm drainage and/or migration along the backfill material of contaminated groundwater. In addition, containment of solvents within the storage structure may also be confirmed. The groundwater elevation data collected from this well will also be critical for establishing the definitive direction of groundwater flow.
- o RIZ-7 will be located east of the area of suspected PCB presence and north of the mill raceway. This well will be installed and constructed for similar purposes as monitoring well RIZ-5.

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- o RIZ-8 will be located north of the resin-diked storage area and in the vicinity of Haley & Aldrich soil gas sampling point 7. This monitoring well will be installed to assess the integrity of the diked storage area and to evaluate overall groundwater quality in this vicinity of the facility.

 - o All monitoring wells will be installed in accordance with the standard procedures outlined in Appendix A. Soil samples will be collected at five-foot intervals and screened for the potential presence of VOCs in the field utilizing a photoionization detector capable of detecting TCE, TCA and methylene chloride. Soil borings will be advanced to the first confining unit below the water table or refusal, whichever is less. The stratigraphy in the vicinity of monitoring wells RIZ-3, RIZ-4, RIZ-5 and RIZ-7 will be evaluated relative to the installation of a nested monitoring well series. If the saturated thickness above the first confining unit or refusal is greater than twenty feet, a nested well series will be installed in one of these locations. The deeper well will consist of a five-foot screened interval separated from the shallow well screened interval by a minimum of five feet. The deeper well in the cluster will be backfilled utilizing a cement/bentonite grout above the bentonite seal. Monitoring wells will be constructed of 2-inch-diameter PVC with screened intervals from the water table to a depth approximately ten feet below the water table. Additional monitoring well details are presented in Appendix B. Rizzo Associates anticipates four days will be required for the installation of the monitoring wells.
3. Evaluation of PCB-Contaminated Soils. A soil boring program will be initiated to evaluate the nature and extent of PCB-contaminated soils in the vicinity of the intersection of the stormwater drain and the raceway. Three borings will be installed in the locations identified on the Site Plan. The borings will be advanced using a hollow stem auger and continuous split spoon samples will be collected and screened for the presence of PCBs in the field. The borings will be advanced to a depth of ten feet or natural overburden material, the water table, or refusal, whichever is less. The borings will be installed at an approximate 20-foot radius from the existing manhole. A maximum of three soil samples (one from each boring) will be collected and submitted for laboratory analysis for PCBs.

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If field screening of soil samples results in the positive identification of elevated levels of PCBs, additional borings will be installed at an increasing radius from the identified area utilizing similar procedures. One day is estimated to install the three borings and perform the soil screening procedure.

In addition, a composite sample will be collected from the upper 12 inches of the tail race sediments and laboratory analyzed for PCBs.

4. Potentiometric Surface Evaluation. The elevation of all newly installed monitoring wells and existing monitoring well B1-OW will be surveyed relative to mean sea level (MSL) and located on the existing Site Plan. In addition, the surface elevation of the raceway pond, the raceway outfall and the East Branch at Neponset Street, and in the vicinity of the outfall will be determined. The groundwater elevation in each monitoring well will be determined and a potentiometric surface map for the Site will be prepared.
5. Groundwater Sampling and Analyses. All newly installed and existing monitoring well B1-OW will be sampled in accordance with standard procedures outlined in Appendix A. Analysis are identified in Table 1. One duplicate sample will be collected from RIZ-3, RIZ-4, RIZ-5 or RIZ-7 and analyzed for VOCs, TPH and PP metals. A second duplicate sample will be collected from the remaining wells and analyzed for VOCs only. A trip blank will accompany samples and will be analyzed for VOCs for quality control purposes.
6. Insitu Hydraulic Conductivity Tests
Analytical results from all monitoring wells will be reviewed prior to initiating hydraulic conductivity testing. If analytical results indicate the presence of constituents in excess of available water quality standards, insitu hydraulic conductivity tests will be conducted on a maximum of four newly installed monitoring wells. The tests will be conducted in accordance with procedures outlined in Bouwer and Rice (1976). This reference is presented in Appendix C for your information.

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Table 1

GROUNDWATER SAMPLE ANALYSIS CONSTITUENTS

Well Number	Constituents
RIZ-1	VOCs ¹
RIZ-2	VOCs, TPH ²
RIZ-3	VOCs, TPH, PP Metals ³
RIZ-4	VOCs, TPH, PP metals
RIZ-5	VOCs, TPH, PP Metals
RIZ-6	VOCs
RIZ-7	VOCs, TPH, PP Metals
RIZ-8	VOCs
B1-OW	VOCs

Notes:

1. Volatile Organic Compound Analysis (Hazardous Substance List) by EPA Method 624
2. Total Petroleum Hydrocarbon Analysis by EPA Method 418.1
3. Soluble 13 Priority Pollutant Metals

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7. Report Preparation. A Phase I Site Assessment Report will be prepared in accordance with DEQE guidelines. The report will include the following sections:

- 1.0 Abstract
- 2.0 Introduction
- 3.0 Purpose and Scope
- 4.0 Site Description
- 5.0 History and Uses of Adjacent Properties
- 6.0 Subsurface Investigations
- 7.0 Analysis of Laboratory Results
- 8.0 Summary and Conclusion

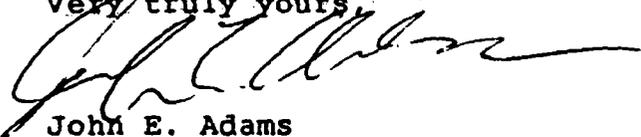
Schedule

Rizzo Associates estimates approximately 10 weeks will be required subsequent to the execution of a contract to complete the investigation as described in the technical scope of services and provide W.R. Grace with a Draft Phase I Site Investigation Report. This schedule is subject to drilling subcontractor availability and an estimated two-week availability of sample results from a Massachusetts Certified Laboratory subsequent to the date of submission.

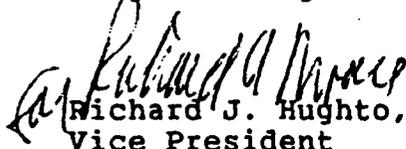
Rizzo Associates has been pleased to provide W.R. Grace with this preliminary technical scope of services. We are confident that it represents a complete and cost-effective approach to assessing the potential environmental concerns of DEQE at your Canton, Massachusetts facility.

If you have any questions regarding the content of this submittal, please do not hesitate to contact us.

Very truly yours,



John E. Adams
Project Manager



Richard J. Hughto, Ph.D., P.E.
Vice President

JEA/dac/2379H

APPENDIX A

RIZZO ASSOCIATES, INC.

**STANDARD OPERATING PROTOCOL FOR
CLEANING SAMPLING EQUIPMENT**

1. Cleaning of the sampling equipment is performed immediately prior to sample collection.
2. Any portion of the sampling device or equipment that has contact with water or soil is cleaned, or disposed of and replaced, prior to re-use.
3. The following four-step procedure is followed for cleaning all sampling devices and related equipment:
 - a. The item is washed with soap and water;
 - b. The item is rinsed thoroughly with clean water;
 - c. The item is rinsed with reagent methanol; and
 - d. The item is given a final rinse with distilled water.
4. Steam cleaning may be substituted for Steps 3a and 3b when available.

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STANDARD OPERATING PROTOCOL FOR FIELD SCREENING SAMPLES USING A PORTABLE GAS CHROMATOGRAPH

Samples are field screened for volatile organic compounds (VOCs) using a Photovac Model 10S10 portable gas chromatograph equipped with a 4-foot by 1/8-inch SE-30 column.

1. Soil Samples

Soil samples are collected in 40-milliliter (ml) volatile organic analysis (VOA) vials with septum style tops. Approximately 10 grams of sample are placed in a tared VOA vial containing 20 mls of organic-free water. The vial is then capped, weighed and shaken for one minute. The vial is allowed to reach ambient temperature (25^o C). An aliquot of the headspace gas is then collected in an air-tight syringe and injected into the portable gas chromatograph.

2. Water Samples

Water samples are collected in 40-milliliter (ml) volatile organic analysis (VOA) vials completely filled and containing no air bubbles. Using a clean 10-ml syringe, 10 ml of water is removed from the vial. The vial is then shaken for one minute and allowed to reach ambient temperature (25^o C). An aliquot of the headspace gas is then collected in an air-tight syringe and injected into the portable gas chromatograph.

3. Data Interpretation

Chromatographic analysis of a sample is performed for the purpose of identifying and quantifying the individual components that make up a complex sample mixture. The chromatogram, which is a plot of the detector output versus time, will ideally consist of a series of separate peaks. The time it takes for a VOC to pass through the chromatographic column, known as the retention time, is used to identify the VOC. The area under each peak is proportional to the VOC's concentration.

Identification of the peaks in the chromatogram is made by comparison of the retention times of the sample peaks to the retention times of known standards analyzed under the same conditions. The standards are reinjected periodically through the course of the analysis to check the instrument response and to check for possible changes in standard retention times.

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PORTABLE GAS CHROMATOGRAPH PROTOCOL (continued)

Sample peaks with retention times that match a standard are given a tentative identification. Identifications are not positive because the retention times of different VOCs may match under certain conditions. Confirmation of the tentative field identifications can be obtained through laboratory analysis. If the retention time of a sample peak does not match the available field standards, the peak is listed as unidentified. An unidentified peak is a VOC compound with an identity different than any of the available field standards utilized. Unidentified peaks can also be identified through laboratory analysis.

Identified peaks are quantified by comparing the sample peak area to the standard peak area. The calculated concentrations are approximate and represent relative concentrations for field screening purposes. For comparative purposes, unidentified peaks are quantified relative to benzene.

The major factors contributing to the uncertainty of the field data are the possible presence of unidentified VOCs that have not been separated from the identified VOCs and the variable responses of different VOCs to the portable gas chromatograph. The presence of an unidentified VOC that has not been separated from an identified VOC will result in an erroneously high calculation of the concentration. Variable responses of different compounds, such as non-linear response curves, also contribute to the uncertainty of the field data. A response curve for each standard has been constructed using a one-point calibration and assuming a linear response. A compound that displays a linear response will have a straight line plot of the peak area versus concentration; consequently, the proportionality of the concentration to the peak area will be constant. Variations in the response curve for each compound will contribute to the uncertainty of the data. This uncertainty is particularly high when the concentration of the sample differs greatly from the concentration of the standard. Confirmation of the field data can be obtained by laboratory analysis.

Field blanks and duplicates are periodically analyzed for quality control purposes. All standards are freshly prepared and periodically reinjected to check for instrument response.

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GUIDELINES FOR SOIL SAMPLING WITH A SPADE AND SCOOP

Discussion

The simplest, most direct method of collecting soil samples for subsequent laboratory analysis is with the use of a spade and scoop. A normal lawn or garden spade is utilized to remove the top cover of soil to the required depth and then a smaller stainless steel scoop is used to collect the sample.

Uses

This method can be used in most soil types but is limited somewhat to sampling the near surface. Samples from depths greater than 50 cm become extremely labor intensive in most soil types. Very accurate, representative samples can be collected with this procedure depending on the care and precision demonstrated by the technician. The use of a flat, pointed mason trowel to cut a block of the desired soil will be of aid when undisturbed profiles are required. A stainless steel scoop or lab spoon will suffice in most other applications. Care should be exercised to avoid the use of devices plated with chrome or other materials. Plating is particularly common with garden implements such as potting trowels.

Procedures for Use

1. Prior to initiating any work, the Health and Safety Plan developed for the specific site activities should be reviewed by the Field Technician and the Project Manager. The indicated measures of the Plan should be enacted prior to initiation of the sampling activities. Any concerns not addressed in the Health and Safety Plan document are to be brought immediately to the attention of the Health and Safety Officer.
2. Carefully remove the top layer of soil to the desired sample depth with a precleaned spade.
3. Using a precleaned stainless steel scoop or trowel, remove and discard a thin layer of soil from the area which comes in contact with the shovel.
4. Transfer sample into an appropriate sample bottle with a stainless steel lab spoon or equivalent.

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**SOIL SAMPLING WITH A SPADE PROTOCOL
(continued)**

5. Check that a Teflon liner is present in the cap, if required. Secure the cap tightly. The chemical preservation of solids is generally not recommended. Refrigeration is usually the best approach, supplemented by a minimal holding time. For specific containerization and preservation requirements consult the laboratory prior to sample collection.
6. Label the sample bottle with the appropriate sample tag. Be sure to label the tag carefully and clearly, addressing all the categories or parameters. Complete all chain-of-custody documents and record in the field log book.
7. Decontaminate equipment after use and between sample locations.

Adapted from:

Characterization of Hazardous Waste Sites - A Methods Manual: Volume II Available Sampling Methods, Second Edition, EPA-600/14-84-076, December 1984.

1058H/p.6

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STANDARD OPERATING PROTOCOL FOR COMPLETING SOIL BORINGS AND MONITORING WELL BORINGS IN UNCONSOLIDATED SURFICIAL DEPOSITS.

- 1. All drilling is inspected continuously by a staff Geologist or Inspector. The Geologist or Inspector is familiar with the particular drilling program and is responsible for ensuring that established procedures are followed. The Geologist or Inspector has the authority to modify the program and/or procedures when warranted by unanticipated field conditions.**
- 2. The Geologist or Inspector is responsible for maintaining field notes and for keeping a well log independent of the driller.**
- 3. All drilling equipment is steam cleaned prior to use at each boring or well location. Steam cleaning is performed on the augers and/or casing, drilling rods, samplers, auger forks, lifting hooks and other equipment needed for establishing the well. The working end of the drill rig is steam cleaned, and the rig is generally inspected by the Geologist or Inspector for evidence of leaks (i.e., gasoline or diesel fuel and hydraulic fluid). Finally, well construction materials including casing, screens, protective risers and/or roadway boxes are also steam cleaned prior to use.**
- 4. Soil samples are collected at two-foot intervals unless otherwise specified, and/or at changes in strata, utilizing a clean split-spoon sampler. These soil samples are used for characterizing the physical nature of the subsurface sediments and may be collected for laboratory analyses. Similarly, spoon samples may be screened in the field for contamination utilizing appropriate field analytical devices. All such sample collection or field screening is conducted per appropriate standard operating protocols.**
- 5. Sediments collected from the sampler or brought to the surface by the drilling process are left on-site, unless there are specific instructions to the contrary. Following completion of a boring into which no well is to be established, this material is utilized to back-fill the boring. The back-filled boring is compacted. Should compaction result in a depression, clean fill will be used to bring the land to grade. The material from the boring is not utilized for back-fill if a groundwater quality monitoring well is to be established in the boring.**

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SOIL AND MONITORING WELL BORINGS (continued)

6. When installing a groundwater monitoring well in unconsolidated sedimentary deposits, the well boring is advanced a minimum of ten feet into the water table, or to refusal, unless otherwise specified. If groundwater is encountered at or near refusal, the hole may be advanced several feet into the rock utilizing a roller bit or diamond corer. By doing so, the well screen can be set to intercept groundwater flow at the refusal/overburden interface.

7. When installing a groundwater monitoring well, the well screen is set at a depth whereby it intercepts the surface of the water table, unless otherwise specified. The screen is set to extend above the highest anticipated groundwater levels, to a maximum of within three feet of the land surface. The annular space between the wall of the bore hole and the screen is then packed with clean silica sand to a level two feet above the screen (to allow for settling). A minimum one-foot bentonite seal is followed by clean backfill grout to within three feet of the surface. The final three feet are filled with a cement grout into which is set a protective riser with locking cap or a roadway box.

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GUIDELINES FOR SAMPLING BOTTOM SLUDGES OR SEDIMENTS WITH AN EKMAN DREDGE

Discussion

The Ekman Dredge is a clamshell-type scoop activated by a spring-loaded system. The shell is opened and latched in place and slowly lowered on a nylon cord. With the device resting on the substrate to be sampled, a messenger weight is released to slide down the lowering cord. When the messenger hits the top of the dredge, it activates the spring mechanism which quickly closes the clamshell, thereby collecting the sample.

Uses

Ekman Dredges are capable of sampling most types of sludges and sediments from silts to granular materials. They are available in several sizes. Penetration depths will usually not exceed several centimeters. Grab samplers, unlike corers, are not capable of collecting undisturbed samples. As a result, materials in the first centimeter of sludge cannot be separated from that at lower depths. The sampling action of these devices causes agitation currents which may temporarily resuspend some settled solids. This disturbance can be minimized by slowly lowering the sampler the last one-half meter and allowing a very slow contact with the bottom. Similar care should be taken when raising the dredge. Water will flow through the device as it is raised, and finer-grained sample material will be lost and suspended in the surrounding water. Hence, it is advisable to only collect sludge or sediment samples after all overlying water samples have been obtained.

Procedures for Use

1. Prior to initiating any work, the Health and Safety Plan developed for the specific site activities should be reviewed by the Field Technician and the Project Manager. The indicated measures of the Plan should be enacted prior to initiation of the sampling activities. Any concern not addressed in the Health and Safety Plan document are to be brought immediately to the attention of the Health and Safety Officer.
2. Attach a precleaned Ekman Dredge to the necessary length of sample line. Solid braided 5-mm (3/16-inch) nylon line is usually of sufficient strength; however, 20-mm (3/4-inch) or greater nylon line allows for easier hand hoisting.

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BOTTOM SLUDGE SAMPLING PROTOCOL (continued)

3. Measure and mark the distance to bottom of the sample line. A secondary mark, 1 meter shallower, will indicate proximity so that lowering rate can be reduced, thus preventing unnecessary bottom disturbance.
4. Open sampler jaws until latched. From this point on, keep everything clear of the jaws. The spring can be easily released, and the jaw closure is very powerful.
5. Tie-free end of sample line to fixed support to prevent accidental loss of sampler. A second safety line is recommended.
6. Begin lowering the sampler while making sure the messenger is not prematurely released.
7. Proceed at a slow rate of descent through the last meter until contact with the bottom is felt.
8. While holding the line as vertical as possible, release the messenger and observe that the spring has been released.
9. Slowly raise dredge clear of water surface.
10. Place the dredge into a stainless steel or Teflon tray and open. Lift it clear of the tray.
11. Collect a suitable aliquot with a stainless steel lab spoon, or equivalent, and place sample into appropriate sample bottle.
12. Check for a Teflon liner in cap, if required, and secure cap tightly. The chemical preservation of solids is generally not recommended. Refrigeration is usually the best approach, supplemented by a minimal holding time.
13. Label the sample bottle with the appropriate sample tag. Be sure to label the tag carefully and clearly, addressing all the categories or parameters. Complete all chain-of-custody documents and record in the field logbook.
14. Decontaminate equipment after use and between sample locations.

Adapted from:

**Characterization of Hazardous Waste Sites - A Methods Manual:
Volume II, Available Sampling Methods, Second Edition,
EPA-600/4-84-076, December 1984.**

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GUIDELINES FOR SAMPLING MONITORING WELLS WITH A BUCKET-TYPE BAILER

Discussion

Bucket-type bailers are tall, narrow buckets equipped with a check valve on the bottom. This valve allows water to enter from the bottom as the bailer is lowered, then prevents the water's release as the bailer is raised. Top filling bailers are also available and may be useful for well purging, but generally result in increased sample turbulence and are not recommended for sample acquisition.

Uses

This device is particularly useful when samples must be recovered from depths greater than the range (or capability) of suction lift pumps, when volatile stripping is of concern, or when well casing diameters are too narrow to accept submersible pumps. It is the method of choice for the collection of samples which are susceptible to volatile component stripping or degradation due to the aeration associated with most other recovery systems. Samples can be recovered with a minimum of aeration if care is taken to gradually lower the bailer until it contacts the water surface and is then allowed to sink as it fills. Teflon is generally the best construction material, but other materials (PVC, stainless steel, etc.) are acceptable if compatible with designated sample analysis. The primary disadvantages of bailers are their limited sample volume and inability to collect discrete samples from a depth below the water surface.

Procedures for Use

1. Prior to initiating any work, the Health and Safety Plan developed for the specific site activities should be reviewed by the Field Technician and the Project Manager. The indicated measures of the Plan should be enacted prior to initiation of the sampling activities. Any concerns not addressed in the Health and Safety Plan document are to be brought immediately to the attention of the Health and Safety Officer.
2. Using clean, non-contaminating equipment [i.e., an electronic level indicator (avoid indicating paste)], determine and record in the field logbook the water level in the well, then calculate the fluid volume in casing.

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MONITORING WELL SAMPLING PROTOCOL (continued)

3. Attach precleaned bailer to cable or line for lowering into the well.
4. Lower bailer slowly until it contacts water surface.
5. Allow bailer to sink and fill with a minimum of surface disturbance.
6. Slowly raise bailer to surface. Do not allow bailer line to contact ground.
7. Repeat Steps 3, 4 and 5 above until a minimum of three casing volumes have been removed from the well.
8. After a minimum of three casing volumes have been removed, allow the water level to return to a sufficient level to collect a complete sample and proceed with the sample collection as described below. Repeat Steps 3, 4 and 5 as needed to acquire sufficient sample volume.
9. When transferring the sample in the bailer to the sample container, tip the bailer to allow a slow discharge from the bailer top to flow gently down the side of the sample bottle with minimum entry turbulence.
10. Select sample bottles and preserve the sample, if necessary, according to the guidelines obtained from the laboratory.
11. Check that a Teflon liner is present in the cap if required. Secure the cap tightly.
12. Label the sample bottle with an appropriate tag. Be sure to complete the tag with all necessary information. Record the information in the field logbook and complete all chain-of-custody documents.
13. Thoroughly decontaminate the bailer after each use according to specific laboratory instructions or the general decontamination guidelines, and discard the bailer cable or line. In some cases, especially where trace analysis is desired, it may be prudent to use a separate bailer for each well.

Adapted From:

Characterization of Hazardous Waste Sites - A Methods Manual:
Volume II, Available Sampling Methods, Second Edition
EPA-600/14-84-076, December 1984.

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PROTOCOL FOR SOIL SAMPLING USING AN AUGER

Discussion

This system consists of an auger bit, a series of extension rods and a 'T' handle. The auger is used to bore a hole to the desired depth. Soil samples can be recovered directly from the auger flights or from the 'bucket' when a bucket auger is used. When sampling from the flights, it should be understood that this technique does not provide an undisturbed sample, and actual depth from which the sample is collected is usually not known. The length of the bucket is approximately 16 inches, so penetration and sampling can be done at a maximum of 16 inch increments when using the bucket auger. Consequently, discrete samples can be collected with fairly reasonable accuracy.

Uses

The system can be used in a wide variety of soil conditions. It can be used to sample both from the surface and from below the ground. The presence of rock layers, large cobbles or collapse of the bore hole, however, usually prohibits sampling at depths in excess of two meters.

Procedures for Use

1. Make sure all equipment is cleaned according to proper cleaning procedures.
2. Prepare the auger using the necessary bits and extensions. When using the bucket auger, attach the bucket auger to one end of the extension rod and the 'T' handle to the other end.
3. Clear the area to be sampled of any surface debris. It may be advisable to remove the first 8 to 15 cm of surface soil for an area approximately 15 cm in radius around the drilling location.
4. Begin drilling by rotating the handle clockwise while applying a downward pressure. When the desired depth is reached, carefully remove the auger from the boring so as not to scrape the bore hole sides. When using a bucket auger, remove the auger from the hole at increments of approximately 16 inches or less and clean out the soil in the bucket. Attach extension rods as needed to reach the desired depth.

RIZZO ASSOCIATES, INC.

SOIL SAMPLING WITH AN AUGER
(continued)

5. After reaching the desired depth for sampling, gradually force the auger into the soil to be sampled. Care should be taken to avoid scraping the bore hole sides.
6. When the desired depth of sampling has been reached, carefully remove the auger so as not to scrape the bore hole sides or to accumulate soil during retrieval of the sample.
7. Carefully remove the sample from the auger and place it in a properly labeled sample container.
8. Properly clean all equipment after use.

Adapted from:

deVera, E. R., Simmons, B.P., Stephens, R. D., and Storm, D. L., "Samplers and Sampling Procedures for Hazardous Waste Streams," EPA 600/2-80-018, January 1980.

1058H/p.16

RIZZO ASSOCIATES, INC.

JAR HEADSPACE ANALYTICAL SCREENING PROCEDURE

The following procedures will be utilized when conducting analytical screening of gasoline contaminated soils utilizing a portable Photoionization Detector (PID) or Flame Ionization Detector (FID):

1. Half-fill two clean glass 16 oz. jars with the sample to be analyzed. Quickly cover each open top with one or two sheets of clean aluminum foil and subsequently apply screw caps to tightly seal the jars.
2. Allow headspace development for at least 10 minutes. Vigorously shake jars for 10 seconds both at the beginning and end of the headspace development period. Where ambient temperatures are below 32°F (0 C) headspace development will be done within a heated vehicle or building.
3. Subsequent to headspace development, remove screw lid/expose foil seal foil seal. Quickly puncture foil seal with instrument sampling probe, to a point about one-half of the headspace depth. Exercise care to avoid uptake of water droplets or soil particulates.
4. Following probe insertion through foil seal and/or sample injection to probe, record highest meter response as the jar headspace concentration. Using foil seal/probe insertion method, maximum response should occur between two and five seconds. Erratic meter response may occur at high organic vapor concentration or conditions of elevated headspace moisture, in which case headspace data will be discounted.
5. The headspace screening data from both jar samples will be recorded and compared; generally, replicate values should be consistent to plus or minus 20 percent.
6. PID and FID field instruments will be operated and calibrated to yield "total organic vapors" in ppm (v/v) as benzene. PID instruments will be operated with a 11.7 eV (+/-) lamp source. Operation, maintenance and calibration will be performed in accordance with the manufacturer's specifications. For jar headspace analysis, instrument calibration will be checked/adjusted no less than once every 10 analyses, or daily, whichever is greater.

APPENDIX B

GROUNDWATER MONITORING WELL DETAILS

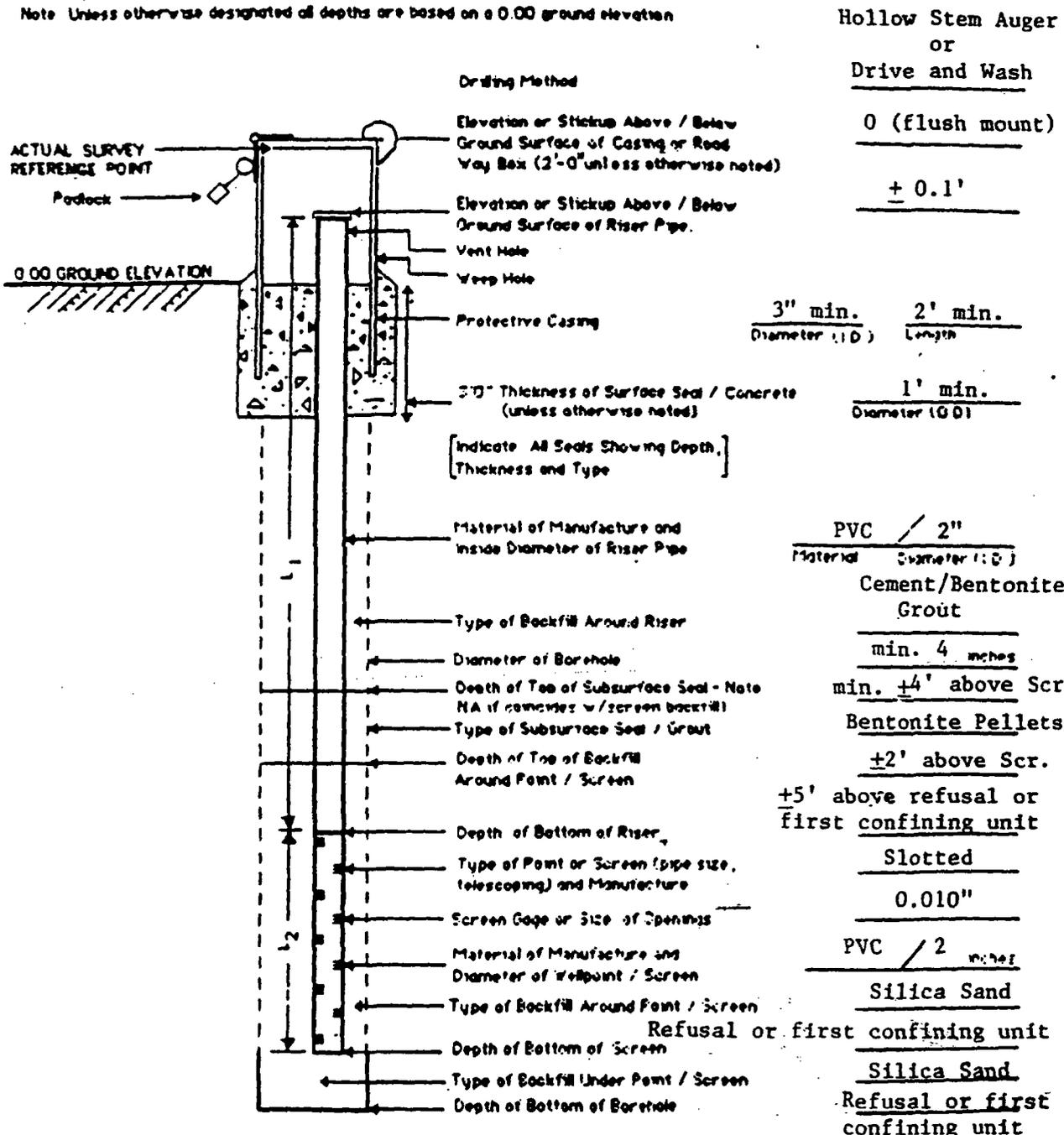
SITE: W.R. Grace
837-01

LOCATION: Canton, Massachusetts

PROJECT NO. _____

SPECIAL NOTES: Deep Overburden Monitoring Well

Note: Unless otherwise designated all depths are based on a 0.00 ground elevation



Soil Summary and Remarks (above)

(L1) Length of Riser (ft) min 15 (L2) Length of Screen (ft) min 5 Reference Point _____ Ground Elev _____
(Actual Elevations-where available)

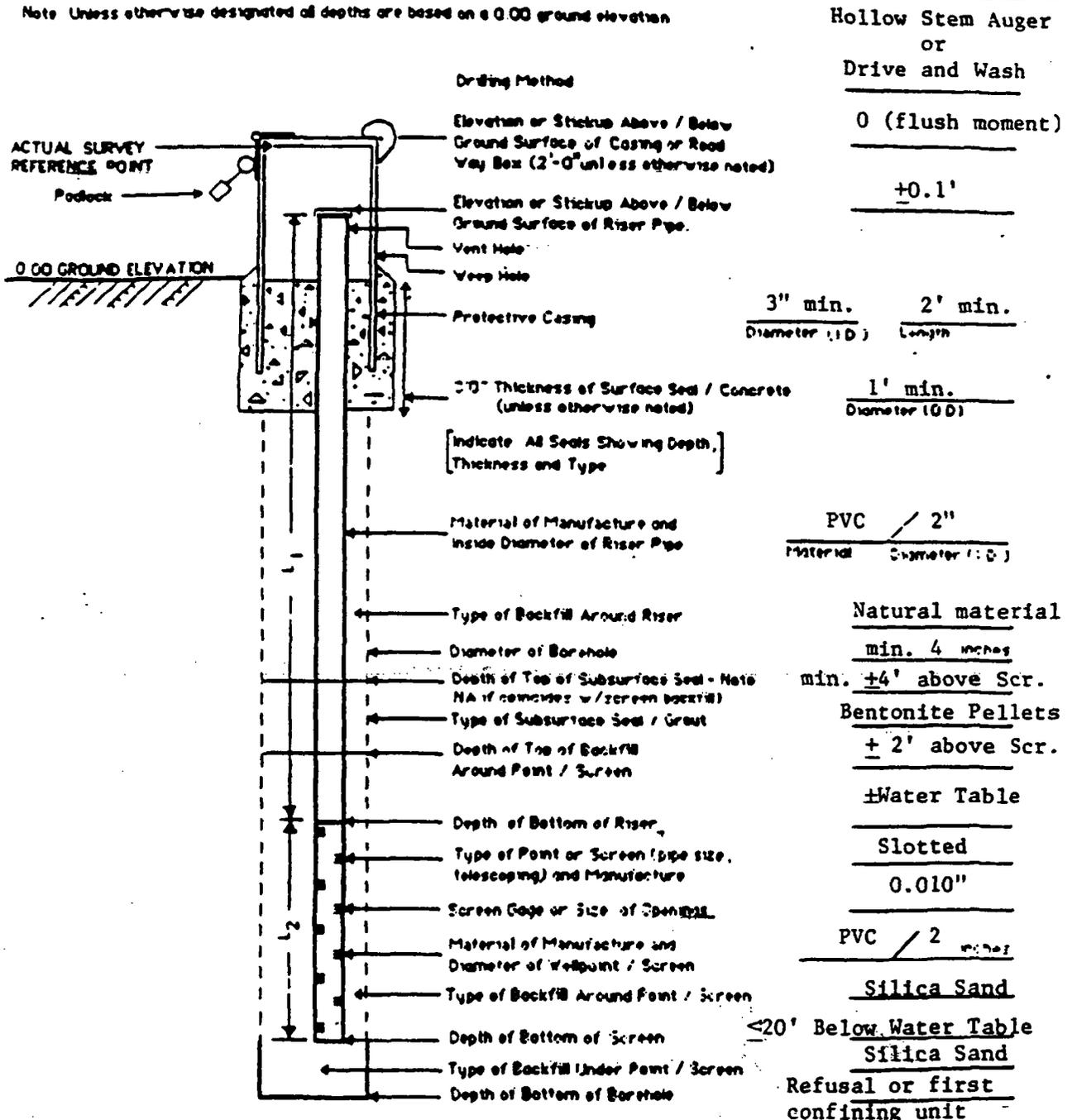
GROUNDWATER MONITORING WELL DETAILS

SITE: W.R. Grace LOCATION: Canton, Massachusetts
837-01

PROJECT NO.

SPECIAL NOTES: Shallow Overburden Monitoring Well

Note: Unless otherwise designated all depths are based on a 0.00 ground elevation.



Soil Summary and Remarks (above)

(L1) Length of Riser (ft) min. 4 (L2) Length of Screen (ft) max. 20 Reference Point _____ Ground Elev _____
 (Actual Elevations - where available)

APPENDIX C

A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells

HERMAN BOUWER AND R. C. RICE

U.S. Water Conservation Laboratory, Agricultural Research Service, U.S. Department of Agriculture, Phoenix, Arizona 85040

A procedure is presented for calculating the hydraulic conductivity of an aquifer near a well from the rate of rise of the water level in the well after a certain volume of water is suddenly removed. The calculation is based on the Thiem equation of steady state flow to a well. The effective radius R_e over which the head difference between the equilibrium water table in the aquifer and the water level in the well is dissipated was evaluated with a resistance network analog for a wide range of system geometries. An empirical equation relating R_e to the geometry of the well and aquifer was derived. The technique is applicable to completely or partially penetrating wells in unconfined aquifers. It can also be used for confined aquifers that receive water from the upper confining layer. The method's results are comparable with those obtained by other techniques for overlapping geometries.

With the slug test the hydraulic conductivity or transmissibility of an aquifer is determined from the rate of rise of the water level in a well after a certain volume or 'slug' of water is suddenly removed from the well. The slug test is simpler and quicker than the Theis pumping test because observation wells and pumping the well are not needed. With the slug test the portion of the aquifer 'sampled' for hydraulic conductivity is smaller than that for the pumping test even though with the latter, most of the head loss also occurs within a relatively small distance of the pumped well and the resulting transmissibility primarily reflects the aquifer conditions near the pumped well.

Essentially instantaneous lowering of the water level in a well can be achieved by quickly removing water with a bailer or by partially or completely submerging an object in the water, letting the water level reach equilibrium, and then quickly removing the object. If the aquifer is very permeable, the water level in the well may rise very rapidly. Such rapid rises can be measured with sensitive pressure transducers and fast-response strip chart recorders or x - y plotters. Also it may be possible to isolate portions of the perforated or screened section of the well with special packers for the slug test. This not only reduces the inflow and hence the rate of rise of the water level in the well, but it also makes it possible to determine the vertical distribution of the hydraulic conductivity. Special packer techniques may have to be developed to obtain a good seal, especially for rough casings or perforations. Effective sealing may be achieved with relatively long sections of inflatable stoppers or tubing. The use of long sections of these materials would also reduce leakage flow from the rest of the well to the isolated section between packers. This flow can occur through gravel envelopes or other permeable zones surrounding the casing. Sections of inflatable tubing may have to be long enough to block off the entire part of the well not used for the slug test. High inflation pressures should be used to minimize volume changes in the tubing due to changing water pressures in the isolated section when the head is lowered.

So far, solutions for the slug test have been developed only for completely penetrating wells in confined aquifers. Cooper *et al.* [1967] derived an equation for the rise or fall of the water level in a well after sudden lowering or raising, respectively. Their equation was based on nonsteady flow to a pumped,

completely penetrating well, and the solution was expressed as a series of 'type curves' against which observed rates of water level rises were matched. Values for the transmissibility and storage coefficient were then evaluated from the curve parameter and horizontal-scale position of the type curve showing the best fit with the experimental data. Skibitzke [1958] developed an equation for calculating transmissibility from the recovery of the water level in a well that was repeatedly bailed. The technique is limited to wells in confined aquifers with sufficiently shallow water levels to permit short time intervals between bailing cycles [Lohman, 1972].

To use the slug test for partially penetrating or partially perforated wells in confined or unconfined aquifers, some solutions developed for the auger hole and piezometer techniques to measure soil hydraulic conductivity [Bouwer and Jackson, 1974] may be employed. However, the geometry of most groundwater wells is outside the range in geometry covered by the existing equations or tables for the auger hole or piezometer methods. For this reason, theory and equations are presented in this paper for slug tests on partially or completely penetrating wells in unconfined aquifers for a wide range of geometry conditions. The wells may be partially or completely perforated, screened, or otherwise open along their periphery. While the solutions are developed for unconfined aquifers, they may also be used for slug tests on wells in confined aquifers if water enters the aquifer from the upper confining layer through compression or leakage.

THEORY

Geometry and symbols of a well in an unconfined aquifer are shown in Figure 1. For the slug test the water level in the well is suddenly lowered, and the rate of rise of the water level is measured. The flow into the well at a particular value of y can be calculated by modifying the Thiem equation to

$$Q = 2\pi KL \frac{y}{\ln(R_e/r_w)} \quad (1)$$

where Q is the flow into the well (length³/time), K is the hydraulic conductivity of the aquifer (length/time), L is the height of the portion of well through which water enters (height of screen or perforated zone or of uncased portion of well), y is the vertical distance between water level in well and equilibrium water table in aquifer, R_e is the effective radius over which y is dissipated, and r_w is the horizontal distance

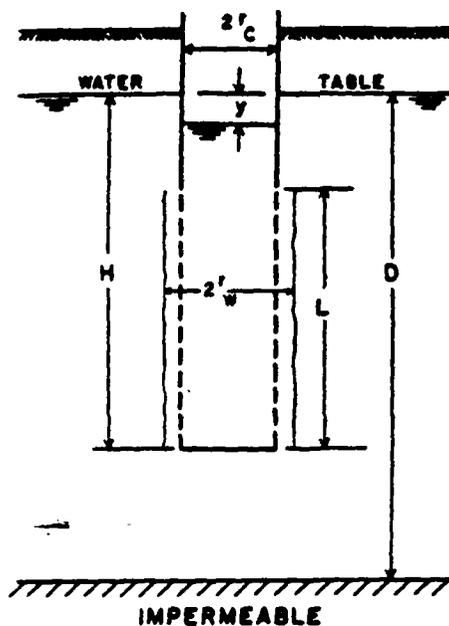


Fig. 1. Geometry and symbols of a partially penetrating, partially perforated well in unconfined aquifer with gravel pack or developed zone around perforated section.

from well center to original aquifer (well radius or radius of casing plus thickness of gravel envelope or developed zone).

The terms L , y , R_e , and r_w are all expressed in units of length. The effective radius R_e is the equivalent radial distance over which the head loss y is dissipated in the flow system. The value of R_e depends on the geometry of the flow system, and it was determined for different values of H , L , D , and r_w (Figure 1) with a resistance network analog, as will be discussed in the next section. Equation (1) is based on the assumptions that (1) drawdown of the water table around the well is negligible, (2) flow above the water table (in the capillary fringe) can be ignored, (3) head losses as water enters the well (well losses) are negligible, and (4) the aquifer is homogeneous and isotropic. These are the usual assumptions in the development of equations for pumped hole techniques (Bouwer and Jackson, 1974, and references therein).

The value of r_w in (1) represents the radial distance between the undisturbed aquifer and the well center. Thus r_w should include gravel envelopes or 'developed' zones if they are much more permeable than the aquifer itself (Figure 1).

The rate of rise, dy/dt , of the water level in the well after suddenly removing a slug of water can be related to the inflow Q by the equation

$$dy/dt = -Q/\pi r_w^2 \quad (2)$$

where πr_w^2 is the cross-sectional area of the well where the water level is rising. The minus sign in (2) is introduced because y decreases as t increases.

The term r_c is the inside radius of the casing if the water level is above the perforated or otherwise open portion of the well. If the water level is rising in the perforated section of the well, allowance should be made for the porosity outside the well casing if the hydraulic conductivity of the gravel envelope or developed zone is much higher than that of the aquifer. In that case the (open) porosity in the permeable zone must be included in the cross-sectional area of the well. For example, if the radius of the perforated casing is 20 cm and the casing is

surrounded by a 10-cm permeable gravel envelope with a porosity of 30%, r_c should be taken as $[20^2 + 0.30(30^2 - 20^2)]^{1/2} = 23.5$ cm to obtain the cross-sectional area of the well that relates Q to dy/dt . The value of r_w for this well section is 30 cm.

Combining (1) and (2) yields

$$\frac{1}{y} dy = -\frac{2KL}{r_w^2 \ln(R_e/r_w)} dt \quad (3)$$

which can be integrated to

$$\ln y = -\frac{2KLt}{r_w^2 \ln(R_e/r_w)} + \text{constant} \quad (4)$$

Applying this equation between limits y_0 at $t = 0$ and y_1 at t and solving for K yield

$$K = \frac{r_w^2 \ln(R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_0}{y_1} \quad (5)$$

This equation enables K to be calculated from the rise of the water level in the well after suddenly removing a slug of water from the well. Since K , r_w , R_e , and L in (5) are constants, $(1/t) \ln y_0/y_1$ must also be constant. Thus field data should yield a straight line when they are plotted as $\ln y_1$ versus t . The term $(1/t) \ln y_0/y_1$ in (5) is then obtained from the best-fitting straight line in a plot of $\ln y$ versus t (see the example). The value of $\ln R_e/r_w$ is dependent on H , D , L , and r_w and can be evaluated from the analog results presented in the next section. The transmissibility T of the aquifer is calculated by multiplying (5) by the thickness D of the aquifer or

$$T = \frac{Dr_w^2 \ln(R_e/r_w)}{2L} \frac{1}{t} \ln \frac{y_0}{y_1} \quad (6)$$

This equation is based on the assumption that the aquifer is uniform with depth.

Equations (5) and (6) are dimensionally correct. Thus K and T are expressed in the same units as the length and time parameters in the equations.

EVALUATION OF R_e

Values of R_e , expressed as $\ln R_e/r_w$, were determined with an electrical resistance network analog for different values of r_w , L , H , and D (Figure 1), using the same assumptions as those for (1). An axisymmetric sector of 1 rad was simulated by a network of electrical resistors. The vertical distance between the nodes was constant, but the radial distance between nodes increased with increasing distance from the center line (Figure 2). This yielded a network with the highest node density near the well, where the head loss was greatest, and a decreasing node density toward the outer reaches of the system. For a more detailed discussion of graded networks for representing axisymmetric flow systems, see Liebmann [1950] and Bouwer [1960].

The radial extent of the medium represented on the analog was more than 60,000 times the largest r_w value used in the analyses. Thus the radial extent of the analog system was essentially infinite, as evidenced by the fact that a reduction in radial extent by several nodes did not have a measurable effect on the observed value of R_e .

The value of R_e for an infinitely deep aquifer ($D = \infty$) was determined by simulating an impermeable and then an infinitely permeable layer at a certain value of D . If this value of D is taken to be sufficiently large, the flow in the system when the layer at D is taken as being impermeable is only slightly

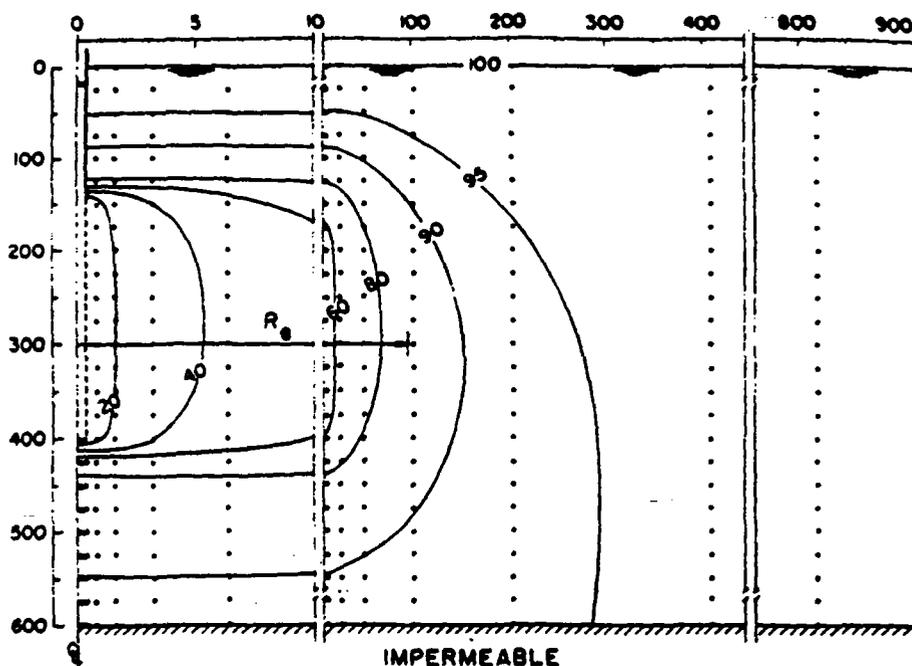


Fig. 2. Node arrangement (dots) for resistance network analog and potential distribution (indicated as percentages on equipotentials) for system with $L/r_w = 625$, $H/r_w = 1000$, and $D/r_w = 1500$. The numbers on the left and at the top of the figure are arbitrary length units (note breaks in horizontal scale).

less than the flow when the layer is taken as being infinitely permeable. The average of the two flows can then be taken as a good estimate of the flow that would occur if the aquifer were represented on the analog as being uniform to infinite depth [Bouwer, 1967]. This average flow was used to calculate R_e for $D = \infty$.

The analog analyses were performed by simulating a system with certain values of r_w , H , and D . The electrical current entering the 'well' was then measured for different values of L , ranging from near H to near 0. This was repeated for other values of r_w , H , and D . The condition where $L = H$ could not be simulated on the analog because it would mean a short between the water table as the source and the well as the sink. The electrical current flow in the analog was converted to volume per day, and $\ln R_e/r_w$ was evaluated with (1) for each combination of r_w , H , L , and D used in the analog.

For a given geometry described by r_w , H , and D , the current flow Q_i into the simulated well varied essentially linearly with L and could be described by the equation

$$Q_i = mL + n \quad (7)$$

Because of the linearity between Q_i and L the results of the analyses could be extrapolated to the condition $L = H$. The values of m in (7) appeared to vary inversely with $\ln H/r_w$. The values of n varied approximately linearly with $\ln [(D - H)/r_w]$, the slope A and intercept B in these relations being a function of L/r_w . This enabled the derivation of the following empirical equation relating $\ln R_e/r_w$ to the geometry of the system:

$$\ln \frac{R_e}{r_w} = \left[\frac{1.1}{\ln (H/r_w)} + \frac{A + B \ln [(D - H)/r_w]}{L/r_w} \right]^{-1} \quad (8)$$

In this equation, A and B are dimensionless coefficients that are functions of L/r_w , as shown in Figure 3. If $D \gg H$, an increase in D has no measurable effect on $\ln R_e/r_w$. The analog

results indicated that the effective upper limit of $\ln [(D - H)/r_w]$ is 6. Thus if D is considered infinity or $(D - H)/r_w$ is so large that $\ln [(D - H)/r_w]$ is greater than 6, a value of 6 should still be used for the term $\ln [(D - H)/r_w]$ in (8).

If $D = H$, the term $\ln [(D - H)/r_w]$ in (8) cannot be used. The analog results indicated that for this condition, which is the case of a fully penetrating well, (8) should be modified to

$$\ln R_e/r_w = \left(\frac{1.1}{\ln (H/r_w)} + \frac{C}{L/r_w} \right)^{-1} \quad (9)$$

where C is a dimensionless parameter that is a function of L/r_w , as shown in Figure 3.

Equations (8) and (9) yield values of $\ln R_e/r_w$ that are within 10% of the actual value as evaluated by analog if $L > 0.4H$ and within 25% if $L \ll H$ (for example, $L = 0.1H$).

The analog analyses were performed for wells that were closed at the bottom. Occasionally, however, wells with open bottoms were also simulated. The flow through the bottom appeared to be negligible for all values of r_w and L used in the analyses. If L is not much greater than r_w (for example, $L/r_w \ll 4$), the system geometry approaches that of a piezometer cavity [Bouwer and Jackson, 1974], in which case the bottom flow can be significant. Equations (8) and (9) can also be used to evaluate $\ln R_e/r_w$ if a portion of the perforated or otherwise open part of the well is isolated with packers for the slug test.

Equipotentials for the flow system around a partially penetrating, partially perforated well in an unconfined aquifer after lowering the water level in the well are shown in Figure 2. The numbers along the symmetry axis and the water table represent arbitrary length units. The numbers on the equipotentials indicate the potential as a percentage of the total head difference between the water table (100%) and the open portion of the well (0%) shown as a dashed line.

The value of R_e for the case in Figure 2 is 96.7 length units. As shown in the figure, this corresponds approximately to the

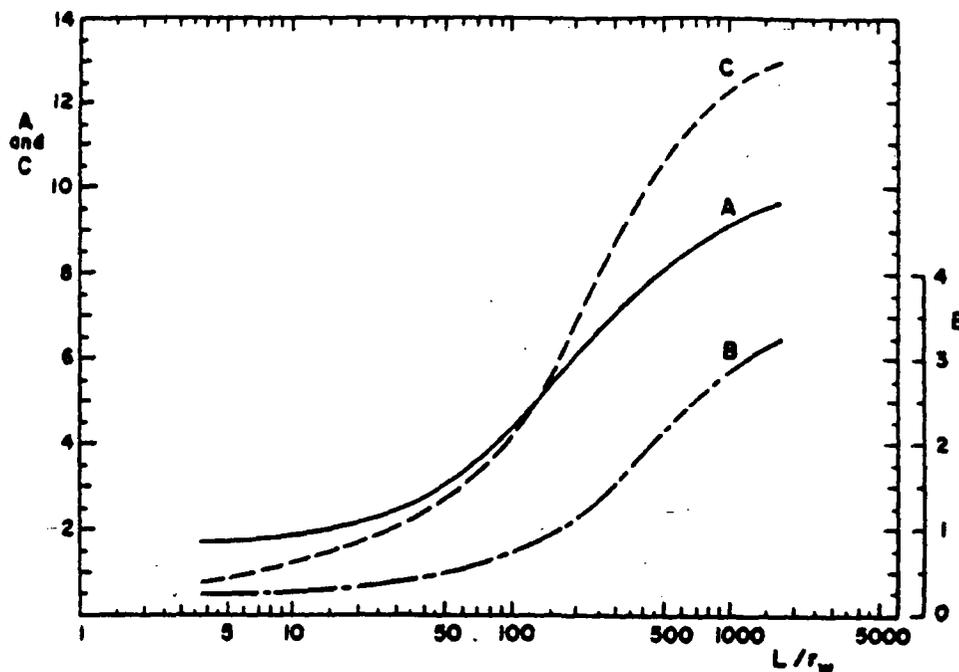


Fig. 3. Curves relating coefficients *A*, *B*, and *C* to L/r_w .

85% equipotential when R_0 is laterally extended from the center of the open portion of the well. Thus most of the head loss in the flow system occurs in a cylinder with radius R_0 , which is indicative of the horizontal extent of the portion of the aquifer sampled for K or T . The vertical extent is somewhat greater than L , as indicated by, for example, the 80% equipotential in Figure 2.

To estimate the rate of rise of the water level in a well after it is suddenly lowered, (5) can be written as

$$t = \frac{r_c^2}{2KL} \ln \frac{R_0}{r_w} \ln \frac{y_0}{y_t} \quad (10)$$

By taking $y_t = 0.9y_0$, (10) reduces to

$$t_{90\%} = 0.0527 \frac{r_c^2}{KL} \ln \frac{R_0}{r_w} \quad (11)$$

where $t_{90\%}$ is the time that it takes for the water level to rise 90% of the distance to the equilibrium level. By assuming a permeable aquifer with $K = 30$ m/day, a well with $r_c = 0.2$ m and $L = 10$ m, and $\ln(R_0/r_w) = 3$, (11) yields $t_{90\%} = 1.82$ s. Thus if y_0 is taken as 30 cm, it takes 1.8 s for the water level to rise 27 cm, another 1.8 s for the next 2.7 cm (90% of the remaining 3 cm), and another 1.8 s for the next 0.27 cm, or a total of 5.4 s for a rise of 29.97 cm. Measurement of this fast rise requires a sensitive and accurate transducer and a fast-response recorder. The rate of rise can be reduced by allowing groundwater to enter through only a portion of the open section of the well, as can be accomplished with packers.

For a moderately permeable aquifer with, for example, $K = 1$ m/day, a well with $r_c = 0.1$ m and $L = 20$ m, and $\ln(R_0/r_w) = 5$, (11) yields $t = 11.4$ s. In this case, it would take the water level 22.8 s to rise from 30 cm to 0.3 cm below static level.

EXAMPLE

A slug test was performed on a cased well in the alluvial deposits of the Salt River bed west of Phoenix, Arizona. The well, known as the east well, is located about 20 m east of six

rapid infiltration basins for groundwater recharge with sewage effluent (Bouwer, 1970). The static water table was at a depth of 3 m, $D = 80$ m, $H = 5.5$ m, $L = 4.56$ m, $r_c = 0.076$ m, and r_w was taken as 0.12 m to allow for development of the aquifer around the perforated portion of the casing. A Statham PM131TC pressure transducer was suspended about 1 m below the static water level in the well (when trade names and company names are included, they are for the convenience of the reader and do not imply preferential endorsement of a particular product or company over others by the U.S. Department of Agriculture). A solid cylinder with a volume equivalent to a 0.32-m change in water level in the well was also placed below the water level. When the water level had returned to equilibrium, the cylinder was quickly removed. The transducer output, recorded on a Sargent millivolt recorder, yielded the $y-t$ relationship shown in Figure 4 with y plotted on a logarithmic scale. The straight-line portion is the valid part of the readings. The actual y_0 value of 0.29 m indicated by the straight line is close to the theoretical value of 0.32 m calculated from the displacement of the submerged cylinder.

Extending the straight line in Figure 4 shows that for the arbitrarily selected t value of 20 s, $y = 0.0025$ m. Thus $(1/t) \ln y_0/y_t = 0.238$ s⁻¹. The value of $L/r_w = 38$, for which Figure 3 yields $A = 2.6$ and $B = 0.42$. Substituting these values into (8) and using the maximum value of 6 for $\ln[(D-H)/r_w]$ (since $\ln[(D-H)/r_w]$ for the well exceeds 6) yield $\ln(R_0/r_w) = 2.37$. Equation (5) then gives $K = 0.00036$ m/s = 31 m/day. This value agrees with K values of 10 and 53 m/day obtained previously with the tube method on two nearby observation wells (Bouwer, 1970). These K values were essentially point measurements on the aquifer immediately around the well bottoms, which were at depths of 9.1 and 6.1 m, respectively.

COMPARISONS

Piezometer method. The geometry to which (8) and (9) and the coefficients in Figure 3 apply overlaps the geometry of the

piezometer method at the lower values of L/r_w . With the piezometer method a cavity is augered out in the soil below a piezometer tube. The water level in the tube is abruptly lowered, and K of the soil around the cavity is calculated from the rate of rise of the water level in the tube [Bouwer and Jackson, 1974]. The equation for K is

$$K = \frac{\pi r_w^2}{A_Y t} \ln \frac{y_0}{y_1} \quad (12)$$

where A_Y is a geometry factor with dimension of length. Values of A_Y were evaluated with an electrolytic tank analog by Youngs [1968], whose results were expressed in tabular form as A_Y/r_w for different values of L/r_w (ranging between 0 and 8), $(H - L)/r_w$, and $(D - H)/r_w$.

Taking a hypothetical case where $L/r_w = 8$, $H/r_w = 12$, and $D/r_w = 16$, K calculated with (5) is 18% below K calculated with (12). This is more than the 10% error normally expected with (8) and (9) for the L/H value of 0.67 in this case. The larger discrepancy may be due to the difference in methodology, or to the fact that the L/r_w value is close to the lower limit of the range covered on the resistance network analog.

An approximate equation for calculating K with the piezometer method was presented by Hvorslev [1951]. The equation, which is based on the assumptions of an ellipsoidal cavity or well screen and infinite vertical extent (upward and downward) of the flow system, contains a term $[1 + (L/2r_w)^2]^{1/2}$. For most well-slug-test geometries, $L/2r_w$ will be sufficiently large to permit replacement of this term by $L/2r_w$. In that case, however, Hvorslev's equation for Q yields $R_s = L$, which is not true. In reality, R_s is considerably less than L . For example, if $L = 40$ m, $r_w = 0.4$ m, $H = 80$ m, and $D = \infty$, (8) shows that $R_s = 11.9$ m, which is much less than the value of 40 m indicated by Hvorslev's equation. However, since the calculation of K is based on $\ln(R_s/r_w)$ as shown by (5), the error in K is less than the error in R_s (i.e., 36 and 236%, respectively, in this case).

If, for the above example, the top of the well screen or cavity had been taken at the same level as the water table ($H = 40$ m), R_s would have been 8.6 m and Hvorslev's equation would have yielded a K value that is 50% higher than K given by (5). The larger error is probably due to Hvorslev's assumption of infinite vertical (upward) extent of the flow system, which is not met when the cavity is immediately below the water table. Using Hvorslev's equation for cavities immediately below a confining layer would increase the error to 73%, but this, of course, is due to the fact that a water table is not a solid boundary. Hvorslev's equation for the confining layer case can be shown to yield $R_s = 2L$.

Auger hole method. The analog analyses for (8) and (9) and Figure 3 were performed for $L < H$, because short circuiting between the water table and the well prevented simulation of the case where $L = H$. If the analog results are extrapolated to $L = H$, however, the geometry of the system in Figure 1 becomes similar to that of the auger hole technique, for which a number of equations and graphs have been developed to calculate K from the rise of the water level in the well [Bouwer and Jackson, 1974]. Boast and Kirkham [1971], for example, developed the equation

$$K = C_{BR} \frac{\Delta y}{\Delta t} \quad (13)$$

where C_{BR} was determined mathematically and expressed in tabular form for various values of L/r_w , $(D - H)/r_w$, and y_0/H . Since the rate of rise of the water level in the hole after

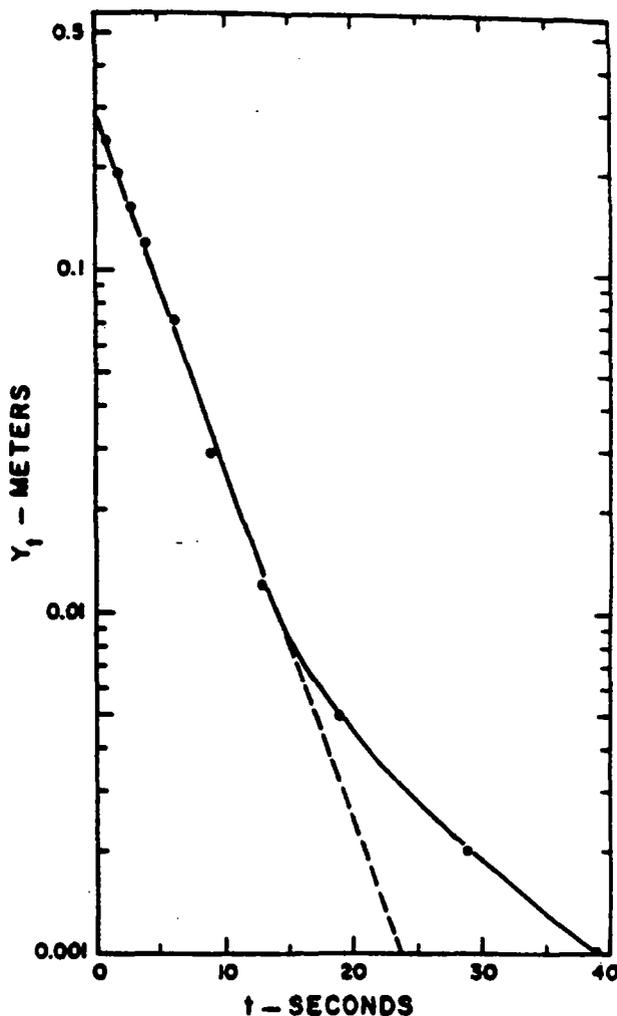


Fig. 4. Plot of y versus t for slug test on east well.

the removal of a slug of water decreases with decreasing y , $\Delta y/\Delta t$ is not a constant and the value of K obtained with this procedure depends on the magnitude of Δy used in the field measurements. The general rule is that Δy should be relatively small.

Taking a hypothetical case where $y_0 = 2.5$ m, $y_1 = 2.4$ m, $\Delta t = 10$ s, $L = H = 5$ m, $D = 6$ m, and $r_w = 0.1$ m, (5) yields a K value that is 36% lower than K calculated with (13). However, if y_1 is taken as 0.5 m, which should give $\Delta t = 394$ s according to the theory that $(1/t) \ln y_0/y_1$ is constant, the K value yielded by (5) is 26% higher than K obtained with (13). If y_1 is taken as 0.9 m, (5) and (13) give identical results.

Slug test on wells in confined aquifers. The confined aquifer for which the slug test by Cooper et al. [1967] was developed is an aquifer with an internal water source, for example, recharge through aquitards or compression of confining layers or other material. This situation is similar to that of the unconfined aquifer presented in this paper because the water table is considered horizontal, like the upper boundary of a confined aquifer, and the water table is a plane source. Thus K or T calculated with (5) or (6) should be of the same order as K calculated with the procedure of Cooper et al. [1967], which involves plotting the rise of the water level in the well and finding the best fit on a family of type curves. Cooper et al. [1967] presented an example of the calculation of T for a well

with $r_c = r_w = 0.076$ m and $L = 98$ m. The resulting value of T was 45.8 m³/day. Values of D and H for this well were not given. However, since the well was 122 m deep and completely penetrating (at least theoretically), D and H must have been between 98 and 122 m. Assuming that both D and H were 100 m, (6) yields $T = 62.8$ m³/day, which is compatible with T obtained by Cooper et al.

CONCLUSIONS

The hydraulic conductivity of an aquifer near a well can be calculated from the rise of the water level in the well after a slug of water is suddenly removed. The calculation is based on the Thiem equation, using an effective radius R_e for the distance over which the head difference between the equilibrium water table in the aquifer and the water level in the well is dissipated. Values of R_e were evaluated by electrical resistance network analog. An empirical equation was then developed to relate R_e to the geometry of the system. This equation is accurate to within 10–25%, depending on how much of the well below the water table is perforated or otherwise open. The technique is applicable to partially or completely penetrating wells in unconfined aquifers. It can also be used to estimate the hydraulic conductivity of confined aquifers that receive water from the upper confining layer through recharge or compression.

The vertical distance between the rising water level in the well and the equilibrium water table in the aquifer must yield a straight line when it is plotted on a logarithmic scale against time. This can be used to check the validity of field measurements and to obtain the best-fitting line for calculating the hydraulic conductivity. Permeable aquifers produce rapidly rising water levels that can be measured with fast-response pressure transducers and strip chart recorders or x - y plotters. The portion of the aquifer sampled for hydraulic conductivity with the slug test is approximately a cylinder with radius R_e and a height somewhat larger than the perforated or otherwise open section of the well.

Hydraulic conductivity values obtained with the proposed slug test are compatible with those yielded by the auger hole and piezometer techniques where the geometries of the systems overlap, and by a slug test for completely penetrating wells in confined aquifers.

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(Received June 2, 1975;
revised January 19, 1976;
accepted January 23, 1976.)

GRACE

Polyfibron Division

W R Grace & Co
55 Hayden Avenue
Lexington, Mass 02173

(617) 861-6600

February 11, 1988

Richard J. Chalpin
Deputal Regional Environmental Engineer
Department of Environmental Quality Engineer
Metropolitan Boston Northeast Region
5 Commonwealth Avenue
Woburn, Massachusetts 01001

RECEIVED BY

FEB 14 1988

LEGAL DEPARTMENT
CAMBRIDGE, MASS.

Subject: Canton - ERB-N87-1435
Technical Information Submittal

Dear Mr. Chalpin:

In accordance with your request for technical information pursuant to M.G.L. Chapter 21E regarding the release of oil at our Walpole Street property, the following information is being provided in the order of questions directed in your January 13, 1988 letter:

1. On October 9, 1987, during demolition and excavation for new construction at our Walpole Street property, oily water and soil were discovered. Oil was encountered five to seven below present grade when the existing building foundation was being demolished.

The approximate location of the oil encountered is designated in Figure 1. The areal extent of the oil was approximately 25 square feet and approximately two feet in depth. Because the oil was encountered below what had been an existing building, (circa 1840s) the origin of the oil could not be determined. Interviews with Emerson & Cuming personnel failed to provide us with insight into the source of the oil. Although a brick structure was found in close proximity to the oil, the purpose of the structure and its association with the oil is not known. Neither pipes nor containers were found in the vicinity of the oil, therefore, it's presumed that the oil release was an isolated incident, and not associated with activities resulting from Emerson & Cuming operations which began in 1958, nor those under W. R. Grace & Co. ownership from 1978 to present.

2. On October 9, 1987, shortly after the oil was discovered, the Canton Fire Department, the Canton Board of Health, and the DEQE were notified for emergency response. Representatives from each department responded and visited our site on the date of notification. Based on recommendations by DEQE representative Mr. Victor Fonkem, the liquid phase of the oil was removed immediately (State Manifest C452332, Table 1). Removal of

600 gallons of oily water was accomplished by contracting a local waste oil service company, Cyn Oil Corp. of Stoughton, Mass. (Table 1). In accordance with Mr. Fonken's guidance, oily soil was excavated from the area, stockpiled onto polypropylene sheeting to prevent the spread of oil, and covered with the same protective material. To ensure all oily material was removed from our property, 78 cubic yards (171,600 lbs) of additional material were excavated (Figure 1). The determination of "clean" soil was based on visual inspection. Following site remediation, clean fill was brought in to grade the excavated area.

3. The quantity of oily water removed from the area totaled 3800 gallons. The amount of oily soil removed, including the additional material to ensure "clean" was "clean", was 80 cubic yards (176,000 pounds). It is estimated that only two cubic yards of soil were contaminated with the oil.

Table 1 chronologically lists the manifests which accompanied the waste shipments from the Canton site.

4. Photocopies of all waste manifests, which accompanied the oily water and soil shipments, are attached (Att:1). Contractors who provided transportation service included Cyn Oil Company of Stoughton, MA and Jet-Line Services of Lowell, MA, approved waste oil and hazardous waste transporters and storage facilities, respectively. The shipments of oily soil were transferred from Jet-Line Services to Stablex Canada, Inc. of Quebec Canada for final disposition. The manifests accompanying shipments from Lowell to Canada have been included for your reference (Att:2).
5. Representative samples of oily water and soil were analyzed by Jet-Line Analytical Laboratory. Results of the EPA analytical methods are attached (Att:3).

One of the battery of tests conducted by Jet-Line Analytical Laboratory was the Extraction Procedure (EP) Toxicity analysis. (40 CFR Part 261 Appendix II; Att:3). According to the analytical results, the oily soil was not contaminated with EP Toxic metals. However, manifests accompanying the soil to the designated hazardous disposal facility characterized the soil as being contaminated with arsenic (D004), chromium (D007), and lead (D008). Because of discrepancies between the analytical results and the manifests, a manifest discrepancy complaint was filed with Jet-Line Services to re-evaluate the hazardous waste characterization codes on the manifests.

6. The oily soil encountered during demolition and excavation for new construction did not result from current operations or

Page 3

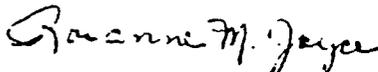
recent management practices at the Canton facility. As stated in #1, the oil was found beneath a foundation where there were no indications of conduits to that area. Consequently, no further action is required to prevent the incident from reoccurring.

As stated in previous reports to the Commonwealth, the Emerson & Cuming plant has made a number of changes in their materials handling and storage. Changes included discontinuing outside hazardous material storage, redesignating raw material storage areas inside the building (1984), staging a storage area inside the building for empty drums, and closing the head of the raceway at the pond. Hazardous waste is collected periodically by a waste hauler to eliminate long term storage.

Regarding the identification of PCBs in DEQE soil sample #028239 taken in the vicinity of the new manhole (Figure 1) on November 16, 1987, we are confident that the finding was not the result of any Emerson & Cuming or W. R. Grace & Co. activity, and that the source of the finding did not originate on our property.

During excavation of the manhole, groundwater exhibiting an oily sheen was observed. The oily water was pumped out by Cyn Oil of Stoughton, MA and sent to Hitchcock Terminal for final disposition (Att:4). The oily sheen was the result of flow from a disconnected stormwater drainage pipe which collects stormwater runoff from Neponset Street and Walpole Street. The oily water was not the result of Emerson & Cuming activities.

Sincerely,



Rosanne M. Joyce
Environmental Engineer

cc: J. F. Murphy, Jr.
Mark Stoler, Cambridge
J. L. McAfee
R. Olson - Canton

Att:4

RMJ/kmb

TABLE 1. HAZARDOUS WASTE MANIFESTS

<u>DATE</u>	<u>STATE MANIFEST NUMBER</u>	<u>WASTE</u>	<u>QUANTITY</u>
10-09-87	C452332	Oily Water	600 Gals
10-19-87	C454033	Oily Water	100 Gals
10-21-87	C454005	Oily Water	600 Gals
11-04-87	C326257	Oily Water	2500 Gals
11-04-87	C326260	Soil	17 yds ³ ¹
11-16-87	C336156	Soil	17 yds ³
11-16-87	C336157	Soil	17 yds ³
11-16-87	C336158	Soil	17 yds ³
11-16-87	C336159	Soil	17 yds ³
11-18-87	C337090	Soil	17 yds ³
11-18-87	C337091	Soil	17 yds ³
11-18-87	C326275	Soil	17 yds ³

¹ QUANTITY OF SOIL APPROXIMATED IN CANTON AND ADJUSTED ACCORDINGLY AT STABLEX CANADA, INC.

ATT:1

HAZARDOUS WASTE MANIFESTS

FROM EMERSON & CUMING

TO JET-LINE



DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA10000361709100032	Manifest Document No. 2	2. Page 1 of 2	Information in the shaded areas is not required by Federal law
3. Generator's Name and Mailing Address Emerson Cummings 59 Walpole St. Canton, MA 02021			A. State Manifest Document Number MA C452332		B. State Gen. ID Same
4. Generator's Phone ()	5. Transporter 1 Company Name CYN OIL CORPORATION	6. US EPA ID Number MA D 0 8 2 3 0 3 7 7 7	C. State Trans. ID 332817MA		
7. Transporter 2 Company Name	8. US EPA ID Number	D. Transporter's Phone (517) 344-0265			
9. Designated Facility Name and Site Address CYN OIL CORPORATION 1771 WASHINGTON STREET STOUGHTON, MA 02072		10. US EPA ID Number MA D 0 8 2 3 0 3 7 7 7	E. State Trans. ID		
		F. Transporter's Phone ()			
		G. State Facility's ID Not Required			
		H. Facility's Phone (517) 344-0265			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.
a. WASTE PETROLEUM OILS N.O.S. COMBUSTIBLE LIQUID NA 1270		0 0 1 T T	600 G		M 0 0 1
b.					
c.					
d.					
J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.)		K. Handling Codes for Wastes Listed Above			
a.		a. S P 2 T S P			
b.					
15. Special Handling Instructions and Additional Information					
<p>GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.</p> <p>If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that can afford.</p>					
Printed/Typed Name PETER W. CINELLO		Signature <i>PW Cinello</i>		Date Month Day Year	
17. Transporter 1 Acknowledgement of Receipt of Materials		Signature <i>J. Steven Turner</i>		Date 1 0 19 87 Month Day Year	
18. Transporter 2 Acknowledgement of Receipt of Materials		Signature <i>Steven Turner</i>		Date 1 24 19 87 Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.					
Printed/Typed Name GERALD E. MCCARTHY		Signature <i>Gerald E. McCarthy</i>		Date 10/13/87 Month Day Year	

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

GENERATOR
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DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

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UN. #

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. M A D 0 0 0 3 6 1 7 0 9 0 0 0 3 3		Manifest Document No. 33		2. Page 1 of 1 information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Emerson Consulting Inc. 59 Walpole St. Canton, MA 02021 687, 821-4250				A. State Manifest Document Number MA C454033			
4. Generator's Phone				6. US EPA ID Number M A D 0 8 2 3 0 3 7 7 7		C. State Trans. ID 16856MA	
5. Transporter 1 Company Name CYN OIL CORPORATION				8. US EPA ID Number		D. Transporter's Phone (617) 344-0265	
7. Transporter 2 Company Name				10. US EPA ID Number		E. State Trans. ID	
9. Designated Facility Name and Site Address CYN OIL CORPORATION 1771 WASHINGTON STREET STOUGHTON, MA 02072				F. Transporter's Phone ()		G. State Facility's ID Not Required	
				H. Facility's Phone (617) 344-0265			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.		
a. WASTE PETROLEUM OILS N.O.S. COMBUSTIBLE LIQUID NA 1270		0,01	TT	100	8,0,0-1		
b.							
c.							
d.							
J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.) only H2O from pit.				K. Handling Codes for Wastes Listed Above S1012 - T1SP			
15. Special Handling Instructions and Additional Information							
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that can afford.							
Printed/Typed Name MIKE KAKORIAN				Signature M. Kakorian		Date 10/19/87	
17. Transporter 1 Acknowledgment of Receipt of Materials				Signature Chet Amaral		Date 10/17/87	
Printed/Typed Name Chet. AMARAL				Signature		Date	
18. Transporter 2 Acknowledgment of Receipt of Materials				Signature		Date	
Printed/Typed Name				Signature		Date	
19. Discrepancy Indication Space							
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.							
Printed/Typed Name GERALD E. MCCARTHY				Signature Gerald E. McCarthy		Date 10/20/87	

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US EPA ARCHIVE DOCUMENT



DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA D 0 0 0 3 6 1 7 0 9 0 0 0 0 5		Manifest Document No. 5		2. Page 1 of 3 information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address Emerson Cummings 59 Walpole St. Canton, MA 02021				A. State Manifest Document Number MA C454005		B. State Gen. ID Same	
4. Generator's Phone: 617, 821-4150				C. State Trans. ID SB2442M		D. Transporter's Phone: 617, 344-0265	
5. Transporter 1 Company Name CYN OIL CORPORATION		6. US EPA ID Number MA D 0 8 2 3 0 3 7 7 7		E. State Trans. ID		F. Transporter's Phone ()	
7. Transporter 2 Company Name		8. US EPA ID Number		G. State Facility's ID Not Required		H. Facility's Phone (617) 344-0265	
9. Designated Facility Name and Site Address CYN OIL CORPORATION 1771 WASHINGTON STREET STOUGHTON, MA 02072				10. US EPA ID Number MA D 0 8 2 3 0 3 7 7 7		I. Waste No.	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)				12. Containers No. Type		13. Total Quantity	
a. WASTE PETROLEUM OILS N.O.S. COMBUSTIBLE LIQUID NA 1270				0, 0, 1 T T		600 G	
b.							
c.							
d.							
J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.) Oily H2O FROM CLEANING AT				K. Handling Codes for Wastes Listed Above S, U, Y, T, SP			
15. Special Handling Instructions and Additional Information							
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that can afford.							
Printed/Typed Name M. RAIKORIAN				Signature M. Raikorian		Date 10/21/87	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Chuec AMARAL				Signature Chuec Amaral		Date 10/21/87	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name				Signature		Date	
19. Discrepancy Indication Space							
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.							
Printed/Typed Name GERALD E. MCCARTHY				Signature Gerald E. McCarthy		Date 10/21/87	

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COMMONWEALTH OF MASSACHUSETTS
 DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

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Incr 1

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA000036170900001	Manifest Document No. MA 326257	2. Page 1 of 1	Information in the shaded areas is not required by Federal law
3. Generator's Name and Mailing Address WR GRACE EMPERSON CUMMING 59 WALPOLE ST CANTON MA			A. State Manifest Document Number MA C 326257		
4. Generator's Phone ()			B. State Gen. ID		
5. Transporter 1 Company Name JET-LINE SERV.		6. US EPA ID Number MA063179890	C. State Trans. ID MA 576376		
7. Transporter 2 Company Name		8. US EPA ID Number	D. Transporter's Phone () 617 34420		
9. Designated Facility Name and Site Address JET-LINE SERV. 495-A CANTON ST SAUGHTON		10. US EPA ID Number MA062179890	E. State Trans. ID		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)			F. Transporter's Phone ()		
a. WASTE OIL PETROLEUM NOS combustible liquid NA 120			12. Containers No. Type 9 11 T 0.2590	13. Total Quantity 6	14. Unit Wt/Vol 19.99
b.			15. Waste No.		
c.			16.		
d.			17.		
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.) oil + WATER			K. Handling Codes for Wastes Listed Above T1315C		
15. Special Handling Instructions and Additional Information			18.		
18. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.					
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name M. KAIKORIAN		Signature <i>M. Kaikorian</i>		Date 11/10/87	
17. Transporter 1 Acknowledgement of Receipt of Materials			Date		
Printed/Typed Name MARK EMUECCIO		Signature <i>Mark Emueccio</i>		Date 11/10/87	
18. Transporter 2 Acknowledgement of Receipt of Materials			Date		
Printed/Typed Name		Signature		Date	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.					
Printed/Typed Name LA TANKS		Signature <i>Lawrence A. Tanks</i>		Date 11/10/87	

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

HAZARDOUS WASTE MANIFEST

Generator US EPA ID No
Manifest Document No
MAID 0001817000000

2 Page 1 Information in this
of is not required by

3. Generator's Name and Mailing Address
W.R. Grace / Emerson Cummings
59 Walpole Street
Canton, St. 02021

A. State Manifest Document No
MA C 32628
B. State Gen. ID
Same

4. Generator's Phone (617) 821 4250
5. Transporter 1 Company Name Jet-Line Services, Inc.
6. US EPA ID Number MA00000779890

C. State Trans. ID MA 17152
D. Transporter's Phone (617) 3
E. State Trans. ID

7. Transporter 2 Company Name
8. US EPA ID Number
9. Designated Facility Name and Site Address
Geochem-D/B/A/ Jet-Line of Lowell
263 Howard Street
Lowell, Ma. 01852
10. US EPA ID Number MA00004707573

F. Transporter's Phone ()
G. State Facility's ID Not Req
H. Facility's Phone (617) 937

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)

No.	Type	13. Total Quantity	14. Unit Wt/Vol
a.	Hazardous Waste Solid ORME NA 9189 (D008)	0 0 1	D 1 0 0 0 1 7 Y D 1 4
b.			
c.			
d.			

12. Containers

No.	Type	13. Total Quantity	14. Unit Wt/Vol
0 0 1	D 1 0 0 0 1 7	Y	D 1 4

J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.)
a. contaminated soil w/ lead
b.
c.
d.

K. Handling Codes for Wastes Listed Above
S 1 0

15. Special Handling Instructions and Additional Information

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: MIKE KRUKORIAN
Signature: M. Krukorian
Date: 11/04/87

17. Transporter 1 Acknowledgment of Receipt of Materials
Printed/Typed Name: LAWRENCE CONSTANTINE
Signature: Lawrence Constantine
Date: 11/04/87

18. Transporter 2 Acknowledgment of Receipt of Materials
Printed/Typed Name:
Signature:
Date:

19. Discrepancy Indication Space

20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.
Printed/Typed Name: Victor J. Deane
Signature: Victor J. Deane
Date: 11/04/87

Approved OMB No. 2050-0039 Expires 9-30-88
Form 8700-22 (Rev. 9-86) Previous editions are obsolete.

COPY>3: GENERATOR-MAILED BY TSDP

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

GENERATOR



COMMONWEALTH OF MASSACHUSETTS
 DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

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Inc # 1

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA 1010101316171710101010	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address W.R. Grace/ Emerson & Cummings 39 Walpole Street Canton Street, Canton, Ma. 02021		4. Generator's Phone 1 617 821 1250		A. State Manifest Document Number MA C 336156		
5. Transporter 1 Company Name Jet-Line Services, Inc.		6. US EPA ID Number MA 1010161213171918190		B. State Gen. ID same		
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Trans. ID MA 12191613171		
9. Designated Facility Name and Site Address Geo-Chem d/b/a Jet-Line of Lowell 263 Howard Street Lowell, Ma. 01852		10. US EPA ID Number MA 10101417101715171314		D. Transporter's Phone 1 617 344-2510		
				E. State Trans. ID		
				F. Transporter's Phone 1		
				G. State Facility's ID Not Required		
				H. Facility's Phone 1 617 937 7294		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No.	13. Total Quantity	14. Unit Wt/Vol	15. Waste No.	
a. Hazardous Waste Solid ORHS NA 9189		001	0001	Y	0004 0007	
b.						
c.						
d.						
J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.)		K. Handling Codes for Wastes Listed Above				
a. contaminated soil w/lead		S 1 Q 1				
b.						
c.						
d.						
15. Special Handling Instructions and Additional Information						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.						
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that can afford.						
Printed/Typed Name M. KRICKORIAN		Signature <i>M. Krikorian</i>		Date 11/16/87		
17. Transporter 1 Acknowledgement of Receipt of Materials		Printed/Typed Name Richard A. Mucciareo		Signature <i>Richard A. Mucciareo</i>		Date 11/16/87
18. Transporter 2 Acknowledgement of Receipt of Materials		Printed/Typed Name		Signature		Date
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name Victor P. Duran		Signature <i>Victor P. Duran</i>		Date 11/16/87		

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

US EPA ARCHIVE DOCUMENT



COMMONWEALTH OF MASSACHUSETTS
 DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

File # 1

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA1D10101316117101910:0:0:05		Manifest Document No. 0:0:0:05		2. Page 1 of 1		Information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address W. R. Grace/ Emerson & Cummings 59 Walpole Street Canton, Ma. 02021		4. Generator's Phone (617) 821-4250		5. Transporter 1 Company Name Jet-Line Services, Inc.		6. US EPA ID Number MA1D101612117191819:0		A. State Manifest Document Number MA C 336157	
7. Transporter 2 Company Name		8. US EPA ID Number		9. Designated Facility Name and Site Address Geochem d/b/a/ Jet-Line of Lowell 263 Howard Street Lowell, Ma. 01852		10. US EPA ID Number MA1D1010417101715171314		B. State Gen. ID Same	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. Hazardous Waste Solid ORMS NA 9189 (D008) (D00A, D001)		01011 DIT		01010117		Y		D008 D007 D101018	
b.									
c.									
d.									
16. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.) contaminated soil w/ lead at Emerson & Cummings ARMA		K. Handling Codes for Waste Listed Above 501							
15. Special Handling Instructions and Additional Information									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name M. KRIBORIAN				Signature M. Krikorian				Date 11/16/97	
17. Transporter 1 Acknowledgement of Receipt of Materials									
Printed/Typed Name DAVID GERVAIS				Signature David Gervais				Date 11/16/97	
18. Transporter 2 Acknowledgement of Receipt of Materials									
Printed/Typed Name				Signature				Date	
19. Discrepancy Indication Space									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.									
Printed/Typed Name Victor J. DRACIS				Signature Victor J. Dracis				Date 11/11/97	

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

US EPA ARCHIVE DOCUMENT



Sully Trucking MA 0133

01-009

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF SOLID AND HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108

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Inc #

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA 0000364709	Manifest Document No. 0000	2. Page 1 of 1	Information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address W.R. Grace/ Emerson & Cummings 59 Walpole Street Canton, Ma. 02021		4. Generator's Phone (617) 821-1250		A. State Manifest Document Number MA C 336158		
5. Transporter 1 Company Name Jet-Line Services, Inc.		6. US EPA ID Number MA 00062179890		B. State Gen. ID Same		
7. Transporter 2 Company Name		8. US EPA ID Number		C. State Trans. ID MA 2645		
9. Designated Facility Name and Site Address Geochem d/b/a Jet-Line of Lowell 263 Howard Street Lowell, Ma. 01852		10. US EPA ID Number MA 004707533		D. Transporter's Phone (617) 344-2511		
				E. State Trans. ID		
				F. Transporter's Phone ()		
				G. State Facility's ID Not Required		
				H. Facility's Phone (617) 937-7294		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No.	Type	13. Total Quantity	14. Unk. Wt/Vol	15. Waste No.
a. Hazardous Waste Solid ORME NA 9189 (D008) (D004, D007)		0	0	0	0	0004 0007 0008
b.						
c.						
d.						
J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.)		K. Handling Codes for Wastes Listed Above				
a. contaminated soil w/ lead		S, O, A				
b.						
c.						
d.						
15. Special Handling Instructions and Additional Information						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.						
Printed/Typed Name M. Kukurian		Signature M. Kukurian		Date 11/11/88		
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name John R Curtis		Signature John R Curtis		Date 11/11/88		
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Date		
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.						
Printed/Typed Name Victor J DRAGONI		Signature Victor J DRAGONI		Date 11/11/88		

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

GENERATOR

TRANSPORTER

FACILITY



DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF SOLID AND HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108

Jul #1

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No MA1D1010136117090002		Manifest Document No 00002		2. Page 1 of 1		Information in the shaded areas is not required by Federal law		
3. Generator's Name and Mailing Address W.R. Grace/Emerson & Cummings 59 Walpole Street Canton, Ma. 02021				A. State Manifest Document Number MA C 336159		B. State Gen. ID Same				
4. Generator's Phone (617) 821 4250				6. US EPA ID Number MA1D10161211793910		C. State Trans. ID MA1S1N12171415121				
5. Transporter 1 Company Name Jet-Line services, Inc.				7. Transporter 2 Company Name		D. Transporter's Phone (617) 344-2511				
9. Designated Facility Name and Site Address Gaochan d/b/a/ Jet-Line of Lovell 263 Howard Street, Lovell, Ma.				10. US EPA ID Number MA1D101417101715171314		E. State Trans. ID				
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)				12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		15. Waste #
a. Hazardous Waste Solid ORME NA 9189 (D008)				01011 DIT		01010117		Y		D008 D008 D008
J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.)				K. Handling Codes for Wastes Listed Above						
a. contaminated soil w/ lead				c.		a. S, 9, 1		c.		
15. Special Handling Instructions and Additional Information										
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.										
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.										
Printed/Typed Name M. RAIKORIAN				Signature M. Raikorian				Date 11/18/87		
17. Transporter 1 Acknowledgement of Receipt of Materials				Signature Lawrence Constantine				Date 11/18/87		
Printed/Typed Name LAURENCE CONSTANTINE				Signature				Date		
19. Discrepancy Indication Space										
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.										
Printed/Typed Name DICK J DRAGH				Signature Dick J Dragh				Date 11/11/87		

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

US EPA ARCHIVE DOCUMENT



COMMONWEALTH OF MASSACHUSETTS
 DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

01-1067

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#1

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA 010101 71611710191010101016		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law					
3. Generator's Name and Mailing Address W.R. Grace/Emerson & Cummings 50 Walpole Street Canton, Ma. 02021						A. State Manifest Document Number MA C 337090							
4. Generator's Phone (617) 821-4258						B. State Gen. ID Same							
5. Transporter 1 Company Name Jet-Line Services, Inc.			6. US EPA ID Number MA 010101 7111719181910			C. State Trans. ID MA 27452							
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone (617) 344-251							
9. Designated Facility Name and Site Address Geo-Chem-d/b/a JetLine Of Lowell 263 Howard Street Lowell, Ma. 01852			10. US EPA ID Number MA 010101 7101715171914			E. State Trans. ID							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. Hazardous Waste Solid ORME, 9189 (D008) (D008) (D008)						01011 DIT 01010117		Y				D008 D008 D008	
16. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.)						17. Handling Codes for Wastes Listed Above							
a. Contaminated soil w/ lead						a. SOIL							
15. Special Handling Instructions and Additional Information													
19. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.													
* If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that is an effort.													
Printed/Typed Name M. KRUKORIAN				Signature M. Krukorian				Date 11/18/87					
17. Transporter 1 Acknowledgment of Receipt of Materials				Signature Laurence Castan				Date 11/18/87					
Printed/Typed Name LAURENCE CASTAN				Signature Laurence Castan				Date 11/18/87					
18. Transporter 2 Acknowledgment of Receipt of Materials				Signature				Date					
Printed/Typed Name				Signature				Date					
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.													
Printed/Typed Name D. J. ...				Signature D. J. ...				Date 11/18/87					



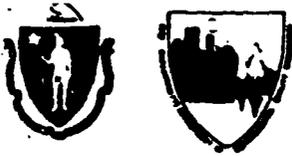
COMMONWEALTH OF MASSACHUSETTS
 DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

Inc #1

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UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. W R G R 0 3 6 1 1 7 0 9 0 1 0 1 0 7		Manifest Document No. 7		2. Page 1 of 1		Information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address W.R. Grace/Emerson&Cummings 59 Walpole Street Canton, Ma. 02021		4. Generator's Phone 617 421 4250		5. Transporter 1 Company Name Jet-Line Services, Inc.		6. US EPA ID Number W A N D 0 6 7 1 1 7 9 8 9 0		A. State Manifest Document Number MA C 337091	
9. Designated Facility Name and Site Address Geochem-d/b/a Jet Line Of Lowell 263 Howard Street Lowell, Ma. 01852		10. US EPA ID Number W A N D 0 4 7 0 7 1 9 7 3 4		7. Transporter 2 Company Name		8. US EPA ID Number		B. State Gen. ID 8288	
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. Hazardous Waste Solid ORME NA 9189 (D008)		No. Type		Quantity		Unit Wt/Vol		1. Waste No. D008 D007 P&R	
J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.)		K. Handling Codes for Wastes Listed Above		a. S101		c.			
a. contaminated soil w/ lead		c.		b.		d.			
15. Special Handling Instructions and Additional Information		16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.		17. Transporter 1 Acknowledgement of Receipt of Materials		18. Transporter 2 Acknowledgement of Receipt of Materials		Date	
		If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that can afford.		Printed Name M. H. Korian		Signature M. H. Korian		Date 11/18/87	
		17. Transporter 1 Acknowledgement of Receipt of Materials		Printed Name John P. Horigan		Signature John P. Horigan		Date 11/18/87	
		18. Transporter 2 Acknowledgement of Receipt of Materials		Printed Name		Signature		Date	
19. Discrepancy Indication Space		20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.		Printed Name Victor J. Deacon		Signature Victor J. Deacon		Date 11/18/87	

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.



COMMONWEALTH OF MASSACHUSETTS
 DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

03-10952

50294 +

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA1D10101018170900008	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address W.R. Grace/ Emerson & Cummings 59 Walpole Street Canton, Ma. 02021			4. Generator's Phone () 617 821 4250		A. State Manifest Document Number MA C 326275	
5. Transporter 1 Company Name Jet-Line Services, Inc.		6. US EPA ID Number MA1D062179890		C. State Trans. ID MA 26832		
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone () 617 344 2510		
9. Designated Facility Name and Site Address Geosynth/b/a Jet Line of Lowell 263 Howard Street Lowell, Ma. 01852		10. US EPA ID Number MA1D101417101715171314		E. State Trans. ID		
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)		12. Containers No. Type		13. Total Quantity		14. Unit Wt/Vol
a. Hazardous Waste Solid ORME NA 9189 (D008)		00 0 0 0 0 0 1 1				1. Waste No. D008 D007 D001
b.						
c.						
d.						
J. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.)				K. Handling Codes for Wastes Listed Above		
a. contaminated soil w/ lead				SAL		
b.				c.		
15. Special Handling Instructions and Additional Information:						
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.						
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Printed/Typed Name M. K. K... ..		Signature M. K. K... ..		Date Month Day Year 11 15 57		
17 Transporter 1 Acknowledgement of Receipt of Materials		Signature John W. Curtis		Date Month Day Year 11 15 57		
Printed/Typed Name JOHN W. CURTIS		Signature		Date Month Day Year 11 15 57		
18 Transporter 2 Acknowledgement of Receipt of Materials		Signature		Date Month Day Year		
Printed/Typed Name		Signature		Date		
19. Discrepancy Indication Space						
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.						
Printed/Typed Name JOHN J. DRAB... ..		Signature John J. Drab... ..		Date Month Day Year 11 18 57		

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

GENERATOR

TRANSPORTER

FACILITY

US EPA ARCHIVE DOCUMENT

ATT:2

HAZARDOUS WASTE MANIFEST

FROM JET-LINE

TO SABLEX-CANADA

HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

JOB# 03-12862

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MAID04707573400131		Manifest Document No. 00131		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Geochas, Inc., d.b.a Jet-Line of Lowell 263 Howard St., Lowell, MA 01852						A. State Manifest Document Number MA X-336051			
4. Generator's Phone 617-937-7294						B. State Gen. ID MA 336051			
5. Transporter 1. Company Name Jet-Line Services, Inc.				6. US EPA ID Number MAID0621179890		C. State Trans. ID MA 206610021			
7. Transporter 2. Company Name				8. US EPA ID Number		D. Transporter's Phone 617-344-2510			
9. Designated Facility Name and Site Address Stablex Canada, Inc. 760 Boule Industriel, Blainville Quebec, CANADA J7B 4T7				10. US EPA ID Number NYD980756415		E. State Trans. ID NY 206610021			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) Hazardous Waste Solid, H.O.S. ORM-E MA-9189				12. Containers No. Type 0 0 1 D T		13. Total Quantity 24,000		14. Unit Wt/Vol kg	
Additional Descriptions of Materials Listed Above (include physical state and hazard code.) Soil contaminated with Arsenic						Handling Codes for Waste(s) Listed Above T04 RYATION			
Concrete & Lead						D80 SOLIDIFICATION			
15. Special Handling Instructions and Additional Information. 336051									
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name Victor J. Drach				Signature <i>[Signature]</i>		Date 11/1/87			
17. Transporter 1 Acknowledgement of Receipt of Materials									
Printed/Typed Name DAVID GERVAIS				Signature <i>[Signature]</i>		Date 11/1/87			
18. Transporter 2 Acknowledgement of Receipt of Materials									
Printed/Typed Name				Signature		Date			
19. Discrepancy Indication Space NOV 17 1987 10:37 G 89700 T 33920 N 53780 1b									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.									
Printed/Typed Name Stablex Canada				Signature <i>[Signature]</i>		Date 11/1/87			

Form Approved OMB No. 2050-0038, Expires 9-30-88

EPA Form 8700-22 (Rev. 9-86) Previous editions are obsolete.

COPY>5: TRANSPORTER-RETAINED BY TRANSPORTER

US EPA ARCHIVE DOCUMENT

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator US EPA ID No. MAD04707573AD0132

2. Page 1 of 1 information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address: Geosha, Inc., d/b/a Jet-Line of Lowell, 263 Howard St., Lowell, MA 01852

A. State Manifest Document Number: MA 336052

5. Transporter 1 Company Name: Jet-Line Services, Inc. US EPA ID Number: MAD062179890

B. State Gen. ID: MA 26651

7. Transporter 2 Company Name: US EPA ID Number:

C. State Trans. ID: MA 26651

9. Designated Facility Name and Site Address: Stalder Canada, Inc., 760 Boule Industriel, Blainville, Quebec, CANADA J7B 4J7 US EPA ID Number: QP980756415

D. Transporter's Phone: 617-344-2511

E. State Trans. ID: MA 26651

F. Transporter's Phone: 617-344-2511

G. State Facility's ID: Not Required

H. Facility's Phone: 800-361-3741

Table with 5 columns: 11. US DOT Description, 12. Containers No., 13. Total Quantity, 14. Unit Wt/Vol, 15. Waste No. Row 1: Hazardous Waste Solid, N.O.S. (D004, D007, D008), 30000, YP, D00, D00, D00.

J. Additional Descriptions for Materials Listed Above: Soil contaminated with Arsenic, Chromium & Lead

K. Handling Codes for Wastes Listed Above: D80 SOLIDIFICATION

15. Special Handling Instructions and Additional Information: D80 SOLIDIFICATION 336150

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

17. Transporter 1 Acknowledgment of Receipt of Materials: Printed/Typed Name: Victor G. Drozd, Signature: Victor G. Drozd, Date: 11/16/87

18. Transporter 2 Acknowledgment of Receipt of Materials: Printed/Typed Name: John R. Curtis, Signature: John R. Curtis, Date: 11/11/87

19. Discrepancy Indication Space: NOV 17 1987 10:51

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Date: 11/11/87

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Printed/Typed Name: F. 212.22, Signature: F. 212.22, Date: 11/11/87

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA D 10 4 7 1 0 7 5 7 3 4 1 0 1 3 3		Manifest Document No. 133		2. Page 1 of 1		Information in the shaded areas is not required by Federal law					
3. Generator's Name and Mailing Address Geochan, Inc., d/b/a Jet-Line of Lowell 263 Howard St., Lowell, MA 01852						A. State Manifest Document Number MA C 336053							
4. Generator's Phone (617-937-7294)						B. State Gen. ID							
5. Transporter 1 Company Name Jet-Line Services, Inc.				6. US EPA ID Number MA D 10 6 1 2 1 1 7 9 8 9 0		C. State Trans. ID MA 2 9 6 1 7 9 8 9 0							
7. Transporter 2 Company Name				8. US EPA ID Number		D. Transporter's Phone (617-344-2510)							
9. Designated Facility Name and Site Address Stablex Canada, Inc. 760 Boule Industriel, Blainville Quebec, CANADA J7E 4J7						10. US EPA ID Number NY D 9 8 0 7 5 6 1 5							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. Hazardous Waste Solid, H.O.S. MA-9189 CRN-E						0 0 1 D T 0 0 0 1 7		440		P		D 0 0 D 0 0 D 0 0 8	
b. (0004) (0007) (0008)													
c. Additional Descriptions for Materials Listed Above (Include physical state and hazard code.) Soil contaminated with Lead, Chromium & Arsenic						K. Handling Codes for Wastes Listed Above							
15. Special Handling Instructions and Additional Information													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name Victor J. Draugh										Signature <i>[Signature]</i>		Date 11/16/87	
17. Transporter 1 Acknowledgement of Receipt of Materials													
Printed/Typed Name RICHARD A. MUCCINICCO										Signature <i>[Signature]</i>		Date 11/16/87	
18. Transporter 2 Acknowledgement of Receipt of Materials													
Printed/Typed Name										Signature		Date	
19. Discrepancy Indication Space NOV 17 1987 10:11 G 94860 T 32600 N 56460 15													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name [Name]										Signature <i>[Signature]</i>		Date 11/17/87	

QC 04272

Geochim, Inc., d/a Jet-Line
 of Lowell
 263 Howard St.
 Lowell
 MA 01852

Expected shipping date	Expected arrival date	Region of entry	Expected date of entry
11/16/87	11/16/87	05	11/16/87

CARRIER
 Business no. 0152-887-119
 Name Jet-Line Services, Inc.
 P.O. Box 189
 441R Canton St.
 Stoughton
 MA 01922

Vehicle registration
 Motor vehicle 57072
 Trailer # 27452
 License border

CONSIGNEE
 Business no. 800-361-3741
 Name Stablex Canada, Inc.
 760, Boule Industrial
 Sainte Theresse de Blainville
 Quebec
 Canada J7B-4J7

Expected point of entry
 Phillipabury
 Region of entry 05
 Expected date of entry 11/16/87

Expected point of exit from Quebec
 Region of exit 05
 Expected date of exit 11/16/87

Hazardous waste no.	Name of hazardous waste	Quantity shipped	Physical state	Container type
D004, D007	Soil contaminated with Lead, Arsenic	13454	S	001 VBC
D008	Chromium			

Declaration of consignor
 Shipping number 16416151
 Signature of consignor
 Declaration of carrier
 Signature of carrier
 Date 11/16/87
 Time 4:30 PM

URGENCE-ENVIRONNEMENT
 (418) 643-4595

SECTION B - To be filled out by the consignee and the carrier or, upon exit from Québec, by the carrier
 Declaration of consignee
 Hazardous waste no.
 Refusal
 Date of acceptance

Refusal	Partial	Acceptance	Declaration of carrier



ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA D 0 4 7 0 7 5 7 3 4 0 0 1 3 5		Manifest Document No. 0 1 1 3 5		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address Geochen, Inc., d/b/a Jet-Line of Lowell 263 Howard St., Lowell, MA 01852						A. State Manifest Document Number MA C 336055							
4. Generator's Phone 617-937-7294						B. State Gen. ID STATE SAME							
5. Transporter 1 Company Name Jet-Line Services, Inc.			6. US EPA ID Number MA D 0 6 1 2 1 1 7 9 1 8 9 0			C. State Trans. ID MA 245934MA							
7. Transporter 2 Company Name						D. Transporter's Phone 617-244-2510							
9. Designated Facility Name and Site Address Stablex Canada, Inc. 760 Boule Industriel Sainte Therese de Blainville						10. US EPA ID Number NY D 9 8 0 7 5 6 4 1 5							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
Hazardous Waste Solid, N.O.S. ORM-E RA-9189						0 0 1		DIT		35000		P P D 0 0 1 D 0 0 2 D 0 0 3	
Additional Descriptions for Materials Listed Above (include physical state and hazard code)						K. Handling Codes for Wastes Listed Above							
Soil contaminated with Arsenic						LTD A FIXATION							
Chromium and Lead						D80 SOLIDIFICATION							
15. Special Handling Instructions and Additional Information													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.													
17. Transporter 1 Acknowledgement of Receipt of Materials													
Printed/Typed Name Victor J. Prud'homme						Signature <i>[Signature]</i>						Date 11/18/87	
Printed/Typed Name John P. HURIGAN						Signature <i>[Signature]</i>						Date 11/18/87	
19. Discrepancy Indication Space													
NOV 18 1987 21:28 G 92060 T 34820 N 57180 1b													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name						Signature						Date	

US EPA ARCHIVE DOCUMENT

11 18 87

UNIFORM HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA D 0 4 7 0 7 5 7 3 4 0 0 1 3 8		Manifest Document No. 0 1 3 8		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address Geochen, Inc., d/b/a Jet-Line of Lowell 263 Howard St., Lowell, MA 01852						A. State Manifest Document Number MA 3 2336056							
4. Generator's Phone I 617-937-7294						B. State Gen. ID 8285							
5. Transporter 1 Company Name Jet-Line Services, Inc.				6. US EPA ID Number MA D 1 0 1 6 2 1 1 7 1 9 1 8 9 0		C. State Trans. ID 2 2 7 1 4 5 4 1 M A I T I							
7. Transporter 2 Company Name				8. US EPA ID Number		D. Transporter's Phone 617-344-2510							
9. Designated Facility Name and Site Address Soblex Canada, Inc. 760 Boule Industriel, Blainville Quebec, CANADA J7B 4J7				10. US EPA ID Number NY D 9 8 0 7 5 6 4 1 5		E. Transporter's Phone (3) 514-344-3447							
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers - No.		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. Hazardous Waste Solid, N.O.S. ORM-E NA-9189						D004 D007 D008		0 0 1 D T		35 000		Y P. D 0 0 D 0 0 D 0 0	
b.													
c.													
d.													
17. Additional Descriptions for Materials Listed Above (include physical state and hazard code)						18. Handling Codes for Wastes Listed Above							
Soil contaminated with Arsenic, Chromium & Lead						III D 0 0 SOLIDIFICATION							
15. Special Handling Instructions and Additional Information										337090			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.													
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name Victor J. Deachi										Signature <i>Victor J. Deachi</i>		Date 11/10/87	
17. Transporter 1 Acknowledgement of Receipt of Materials										Signature <i>Laurence Constantine</i>		Date 11/18/87	
18. Transporter 2 Acknowledgement of Receipt of Materials										Signature		Date	
Printed/Typed Name										Signature		Date	
19. Discrepancy Indication Space NOV 18 87 21:12 G 82940 T 314ep N 5150 15													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.													
Printed/Typed Name MARC L. DUBAIS JR										Signature <i>Marc L. Dubais Jr</i>		Date 11/19/87	

COPY>5: TRANSPORTER-RETAINED BY TRANSPORTER

Please print or type. Form designed for use on elite (12-pitch) typewriter.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA D 01 04 7 0 7 5 7 3 4 0 0 1 3 8		Manifest Document No. 0 0 1 3 8	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.	
3. Generator's Name and Mailing Address Geochem, Inc., d/b/a Jet-Line of Lowell 263 Howard St., Lowell, MA 01852					A. State Manifest Decree Number MA 7-336057		
4. Generator's Phone 617-93707294					B. State Gen. ID MA 7-336057		
5. Transporter 1 Company Name Jet-Line Services, Inc.		6. US EPA ID Number MA D 06 2 1 7 9 8 9 0		C. State Trans. ID MA 7-336057			
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone 617-344-2510			
9. Designated Facility Name and Site Address Stablex Canada, Inc. 760 Boulevard Industriel Blainville, Quebec, CANADA J7B 4T7		10. US EPA ID Number MA 7 1 D 9 8 0 7 5 6 4 1 5		E. State (trans. ID) MA 7-336057			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) Hazardous Waste Solid, N.O.S. MA-9189		12. Containers No. Type 0 0 1 0 7		13. Total Quantity 35900		14. Unit Wt/Vol 3 P	
Additional Descriptions of Material (Listed Above) (Based on physical state and hazard code) Soil contaminated with Lead Arsenic, Chromium					15. Missing Codes for Waste Listed Above IDENTIFICATION CLASSIFICATION		
16. Special Handling Instructions and Additional Information 326275							
18. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.							
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17. Transporter 1 Acknowledgment of Receipt of Materials Printed/Typed Name: Victor J. Drach Signature: [Signature] Date: 11/18/87							
18. Transporter 2 Acknowledgment of Receipt of Materials Printed/Typed Name: JOHN W. CURTIS Signature: [Signature] Date: 1/11/87							
19. Discrepancy Indication Space NDW 19/87 09:28							
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in 19. Printed/Typed Name: [Name] Signature: [Signature] Date: 11/19/87							

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

US EPA ARCHIVE DOCUMENT

COPY>5: TRANSPORTER-RETAINED BY TRANSPORTER



**ENVIRONMENTAL QUALITY ENGINEERING
DIVISION OF SOLID AND HAZARDOUS WASTE
One Winter Street
Boston, Massachusetts 02108**

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA1A1D101471071517314101011215		Manifest Document No. 01011215		2. Page 1 of 2		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address Geocham, Inc., d/b/a Jet-Line of Lowell 263 Howard St., Lowell, MA 01852						A. State Manifest Document Number MA C 335706							
4. Generator's Phone (617-937-7294)						B. State Gen. ID SAME							
5. Transporter 1 Company Name Jet-Line Services, Inc.			6. US EPA ID Number MA1A1D10161211719181910			C. State Trans. ID 1121714151211MA111							
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone (617-344-2510)							
9. Designated Facility Name and Site Address Stablax Canada, Inc. 760 Boule Industriel, Saints Therese Blainville, Quebec J7E 4T7			10. US EPA ID Number NY1D191810171516141115			E. State Trans. ID							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. Hazardous Waste Solid, N.O.S. ORM-E NA-9189 (D008)						No. 01011		Type DIT		47980		P	
b.													
c.													
d.													
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)						K. Handling Code 2010- FIXATION							
a. Soil contaminated with Lead						b. DBO SOLIDIFICATION							
c.						d.							
15. Special Handling Instructions and Additional Information EX 42 CODE 326260													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.													
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Printed/Typed Name Victor J. Draht						Signature 		Date 11/17/87					
17. Transporter 1 Acknowledgement of Receipt of Materials						Signature 		Date 11/17/87					
Printed/Typed Name LAURENCE CARTELLIER						Signature 		Date 11/17/87					
18. Transporter 2 Acknowledgement of Receipt of Materials						Signature		Date					
Printed/Typed Name						Signature		Date					
19. Discrepancy Indication Space NOV 1 1987 18:39 G 79286 T 31300 N 47980 1b													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.													
Printed/Typed Name MAI...						Signature 		Date 11/17/87					

Form Approved OMB No. 2050-0038, Expires 9-30-88

EPA Form 8700-22 (Rev. 9-86) Previous editions are obsolete.

COPY 5: TRANSPORTER-RETAINED BY TRANSPORTER

ATT:3

WASTE ANALYSES



JET-LINE ANALYTICAL LABORATORY

CERTIFICATE OF ANALYSIS

To: **Larry Tonks**
W. R. Grace-Emerson Cummings
Job No. 03-12962
P.O. A-6209

Page 1 of 2

Date Reported: **10/23/87**
 Date Received: **10/14/87**
 Profile Number: **61673**
 Lab Number: **LO 1713**

Sample Description: **Solid/Semi-Solid: Contaminated Soil**

PARAMETER	FOUND	DETECTION LIMIT	METHOD
ph, SU	6.0	1-14	EPA 9040
Cyanide, mg/Kg	ND	0.01	EPA 9010
Sulfide, mg/Kg	ND	0.1	EPA 9030
Flash Point, °F	> 200	200	EPA 1010
E.P. Toxicant Metals, mg/l.			EPA 1310
Arsenic	ND	.005	EPA 7060
Barium	.015	.002	EPA 7080
Cadmium	ND	0.005	EPA 7130
Chromium (+6)	0	0.1	EPA 7190
Lead	ND	0.100	EPA 7420
Mercury	ND	.0002	EPA 7471
Selenium	.019	.002	EPA 7740
Silver	.002	0.020	EPA 7760
VOC, Total, ppb	See Attached		EPA 5030/8240
PCB, mg/Kg	ND	0.1	EPA 8080
Metals, Total, mg/Kg			EPA 3050
Arsenic	ND	0.005	EPA 7060
Barium	28.94	0.002	EPA 7080
Cadmium	0.711	0.02	EPA 7130
Chromium	21.05	0.02	EPA 7190
Lead	51.57	0.02	EPA 7420

Analyst: MWF, MC, TXH

Supervisor: *F. K. [Signature]*

Our reports and letters are for the exclusive use of the client and Jet-Line only. They cannot be reproduced in whole or in part without written permission by Jet-Line. This report applies only to the sample tested and not to apparently identical or similar samples. The client agrees to indemnify and hold harmless Jet-Line Services, Inc. from any liability arising out of any use of the results of such tests. Unused samples will be retained for a maximum of thirty (30) days unless otherwise notified.

CERTIFICATE OF ANALYSIS

CLIENT: Jet Line Services

ANALYSIS REQUESTED: Purgeable Organics 624

TOXIKON: 87C-1078

CLIENT IDENT: LD 1713

DATE SAMPLED: 10/15/87

SAMPLE LOCATION:

DATE REPORTED: 10/21/87

SAMPLE DESCRIPTION: water x soil sludge oil other:

SAMPLE CONTAINER: glass plastic x VOA other:

FIELD PREP:

PARAMETER	RESULTS	MDL*	INST.	DATE OF		REP.
				EXTRACT	ANALYZE	
Compounds	ug/Kg		GC/MS	10/19/87	10/21/87	3
Chloromethane	-	2.0				
Bromomethane	-	2.0				
Vinyl Chloride	-	10.0				
Chloroethane	-	2.0				
Methylene Chloride	-	10.0				
Acetone	-	50.0				
Carbon Disulfide	-	2.0				
1,1-Dichloroethene	-	2.0				
1,1-Dichloroethane	-	2.0				
Trans-1,2-Dichloroethene	-	2.0				
Chloroform	-	2.0				
1,2-Dichloroethane	-	2.0				
2-Butanone	-	10.0				
1,1,1-Trichloroethane	-	2.0				
Carbon Tetrachloride	-	2.0				
Vinyl Acetate	-	2.0				
Bromodichloromethane	-	2.0				
1,2-Dichloropropane	-	2.0				
Trans-1,3-Dichloropropene	-	2.0				
Trichloroethene	-	2.0				
Dibromochloromethane	-	2.0				
1,1,2-Trichloroethane	-	2.0				
Benzene	1,000	2.0				
Cis-1,3-Dichloropropene	-	2.0				
2-Chloroethylvinyl Ether	-	2.0				
Bromoform	-	2.0				
2-Hexanone	-	4.0				
4-Methyl-2-Pentanone	-	4.0				
Tetrachloroethene	-	2.0				
1,1,2,2-Tetrachloroethane	-	2.0				
Toluene	11,986	2.0				
Chlorobenzene	-	2.0				
Ethylbenzene	6,923	2.0				
Styrene	3,095	2.0				
Total Xylenes	10,289	2.0				

* - * - Non-Detectable.



JET-LINE ANALYTICAL LABORATORY

CERTIFICATE OF ANALYSIS

To: Larry Tonks
W.R. Grace - Emerson Cummings
Job # 03-12962
P.O. A 6225

Date Reported: 11/9/87
Date Received: 11/5/87
Profile Number: None
Lab Number: LO 1759

Sample Description: Liquid; Water Phase: High Flash (>100°F)

Table with 4 columns: PARAMETER, ANALYSIS, DETECTION LIMIT, METHOD. Rows include pH, S.D., Flash Point, Phenol, Oil and Grease, PCB, and Cyanide.

Analyst: MFC FRK Supervisor: [Signature]

Our reports and letters are for the exclusive use of the client and Jet-Line only. They cannot be reproduced in whole or in part without written permission by Jet-Line. This report applies only to the sample tested and not to apparently identical or similar samples.

ATT:4
HAZARDOUS WASTE MANIFESTS
AND ANALYSES



DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Inc # 2

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA A D I O I O I 3 I 6 I 1 I 7 I 2 I 9 D O I 2 I O I 1		Manifest Document No.		2. Page 1 of 1		Information in the shaded areas is not required by Federal law					
3. Generator's Name and Mailing Address Emerson Cummings 59 Walpole St. Canton, MA 02021						A. State Manifest Document Number MA C242812							
4. Generator's Phone (617) 821-4250						B. State Gen. ID Same							
5. Transporter 1 Company Name Cyn Oil Corporation			6. US EPA ID Number MA A D I O I 8 I 2 I 3 I O I 3 I 7 I 7 I 7			C. State Trans. ID MASS 331442							
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone (617) 344-0211							
9. Designated Facility Name and Site Address Cyn Oil Corporation 1771 Washington St. Stoughton, MA 02072			10. US EPA ID Number MA A D I O I 8 I 2 I 3 I O I 3 I 7 I 7 I 7			E. State Trans. ID							
						F. Transporter's Phone ()		G. State Facility's ID Not Required					
						H. Facility's Phone (617) 344-0265							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers -No. Type		13. Total Quantity		14. Unit Wt/Vol		15. Waste No.	
a. Waste Water NOS Non Hazardous ORM-E HA9189						0 0 1 T T		15000		G		M 9 9	
b.													
c.													
d.													
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)						K. Handling Codes for Wastes Listed Above							
a. 99% waste water						b. S O 2 c. T 50							
b.						c.							
c.						d.							
15. Special Handling Instructions and Additional Information													
16. GENERATOR'S CERTIFICATION. I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.													
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. If I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that can afford													
Printed/Typed Name M. K. Robinson				Signature M. K. Robinson		Date 11/1/87							
17. Transporter 1 Acknowledgement of Receipt of Materials						Date							
Printed/Typed Name David Gripen				Signature David Gripen		Date 11/1/87							
18. Transporter 2 Acknowledgement of Receipt of Materials						Date							
Printed/Typed Name				Signature		Date							
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name Gerald E. McCarthy				Signature Gerald E. McCarthy		Date 11/1/87							

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

GENERATOR
TRANSPORTER
FACILITY

US EPA ARCHIVE DOCUMENT



COMMONWEALTH OF MASSACHUSETTS
 DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

Unit 2

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator US EPA ID No. MA A D 9 0 0 0 3 6 1 7 0 9 0 0 0 1 1		Manifest Document No. 11		2. Page 1 of 1		Information in the shaded areas is not required by Federal law.					
3. Generator's Name and Mailing Address Emerson Cummings 59 Walpole St. Canton, MA 02021						A. State Manifest Document Number MA C242811							
4. Generator's Phone (617) 821-4250						B. State Gen. ID Same							
5. Transporter 1 Company Name Cyn Oil Corporation			6. US EPA ID Number MA A D 0 8 2 3 0 3 7 7 7			C. State Trans. ID MA 315 1331442							
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone (617) 344-026							
9. Designated Facility Name and Site Address Cyn Oil Corporation 1771 Washington St. Stoughton, MA 02072			10. US EPA ID Number MA A D 0 8 2 3 0 3 7 7 7			E. State Trans. ID							
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						12. Containers		13. Total Quantity		14. Unit Wt/Vol		15. Waste No	
a. Waste Water NOS Non Hazardous ORM-E NA9189						0 0 1 3 7		150 0 0		G		0 0 0	
b.													
c.													
d.													
J. Additional Descriptions for Materials Listed Above (include physical state and hazard code.)						K. Handling Codes for Wastes Listed Above							
a. 99% waste water			c.			a. S1012 c.T 150							
b.						d.							
15. Special Handling Instructions and Additional Information													
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment. OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.													
Printed/Typed Name M. KRIVORIAN					Signature M. Krivorian			Date 11/17/87					
17. Transporter 1 Acknowledgement of Receipt of Materials													
Printed/Typed Name DAVID GRIPPEL					Signature David Grippel			Date 11/17/87					
18. Transporter 2 Acknowledgement of Receipt of Materials													
Printed/Typed Name					Signature			Date					
19. Discrepancy Indication Space													
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.													
Printed/Typed Name GERALD E. MCCARTHY					Signature Gerald E. McCarthy			Date 11/17/87					

In case of emergency or spill, immediately call the National Response Center (800) 424-8802.

GENERATOR

TRANSPORTER

FACILITY

US EPA ARCHIVE DOCUMENT



DEPARTMENT OF ENVIRONMENTAL QUALITY ENGINEERING
 DIVISION OF SOLID AND HAZARDOUS WASTE
 One Winter Street
 Boston, Massachusetts 02108

Please print or type. If non designed for use on slide (12 pitch) typewriter.

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's EPA ID No. **MA 00023037770011** Manifest No. **0011**

2. Page 1 of 2 Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Cyn Oil Corporation
1771 Washington St. Stoughton, MA 02072

A. State Manifest Document Number
MA C242814

4. Generator's Phone (**617**) **344-0265**

B. State Tran. ID

5. Transporter 1 Company Name
Cyn Oil Corporation

6. EPA ID Number
MA 00023037770011

C. State Tran. ID

7. Transporter 2 Company Name

8. EPA ID Number

D. Transporter's Phone (**617**) **344-0265**

E. State Tran. ID

9. Disposal Facility Name and Site Address
Witchcock Terminal Service
50 Cross St.
Bridgport, CT 06608

10. EPA ID Number
CT 0002593887

F. Transporter's Phone (

G. State Facility's ID **Not Required**

H. Facility's Phone (**203**) **334-0813**

11. RCRA Description (including Proper Shipping Name, Hazard Class, and ID Number)

Waste Water NOS Non Hazardous ORM-B MA9189

12. Containers No.	13. Form Quantity	14. Unit Wt/Vol	15. Waste No.	
			Code	Quantity
00277	16000	G	990	

16. Additional Descriptions for Materials (if not shown in 11, list in this section)

99% waste water

15. Special Handling Instructions and Additional Information

17. I, the Generator, hereby declare that the contents of this manifest are true and correct, and that the information provided is accurate and complete, and that the waste is being transported in accordance with the requirements of the RCRA and other applicable laws and regulations.

18. I, the Transporter, hereby declare that I have inspected the waste and the container, and that the waste is being transported in accordance with the requirements of the RCRA and other applicable laws and regulations, and that the waste is being transported in accordance with the requirements of the RCRA and other applicable laws and regulations.

Printed/Typed Name Cornel R. McCarthy	Signature <i>Cornel R. McCarthy</i>	Date Month Day Year 11/13/87
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name David Grippen	Signature <i>David Grippen</i>	Date Month Day Year 11/13/87
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name	Signature	Date Month Day Year
19. Discrepancy Indication Space		
20. Facility Owner or Operator Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Printed/Typed Name Wells	Signature <i>Wells</i>	Date Month Day Year 11/13/87

In case of emergency or spill, immediately call the National Response Center (800) 424-3802.

HITCHCOCK GAS ENGINE CO.
50 CROSS ST.
BRIDGEPORT, CT 06610

January 18, 1988

Gerald E. McCarthy
Cyn Oil Corp.
1771 Washington St.
Stoughton, MA 02072

Dear Gerry:

As per our telephone conversation today, test results for the load of waste water delivered to our facility on 11/18/87 under manifest # MA C242913 are as follows:

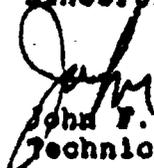
Chromium - .03 ppm

Lead - .85 ppm

Based on our experience with your materials these are the most likely contaminants and were the only metals tested for.

If you have any questions please call me at 203-334-4812.

Sincerely,


John F. Sieckhaus
Technical Director

GRACE

Polyfibron Division

W.R. Groce & Co.
55 Hayden Avenue
Lexington, Mass. 02173

(617) 861-6600

December 29, 1987

Mr. Steven Roy
Department of Environmental Quality Engineering
5 Commonwealth Avenue
Woburn, MA 01801

RE: Emerson & Cuming, Inc.
59 Walpole Street, Canton, MA 02021
DEQE Sample No. 028239, 11/16/87

Dear Steve:

On Wednesday, December 23, 1987, I conducted a field test of soil, on and proximal to, the Emerson & Cuming property in Canton, Mass. The impetus for the field screening test came as a result of a soil analysis (sample #028239; 11/16/87) conducted by DEQE which showed a PCB concentration of 160 ug/g. The soil was removed from an excavated area in the northwestern portion of our property (Figure 1).

The purpose of Grace field testing was to determine if PCBs were present in the soil in other areas of the property, and to consider potential sources of PCBs found in DEQE sample #028239.

In accordance with the procedure outlined in the Dexsil Chlor-N-Soil Test Kit, I collected ten soil samples. Eight of the soil samples were taken from Emerson & Cuming property and two were obtained on the south side of Walpole Street across from the demolition area. The sampling points are identified in Figure 1. The testing procedure was followed carefully and provided the following results: positive indicators for Sample Points 4 and 8.

The field screening test indicates that there is a potential for PCB contamination greater than 50 ppm on the Emerson & Cuming property which may be serving as a receptor to an upgradient source. The upgradient area adjacent to the Emerson & Cuming plant is occupied by a utility substation and several pole mounted transformers. Transformers are one of the primary sources of PCBs. If a release did occur, the PCB contaminated fluid would follow the established drainage patterns which includes the stormwater drainage system that traverses the Emerson & Cuming property. The results are not intended to be conclusive. For your reference, I have included a copy of the Chlor-N-Soil Test Kit instructions (attachment 1).

In an effort to more fully understand the source of PCB contamination on the Emerson & Cuming property, I have contacted Francis Lee, Environmental Affairs Manager of Boston Edison. Mr. Lee agreed to provide a history of the substation located off Walpole Street.

Mr. Steven Roy
December 29, 1987
Page 2.

I will keep you informed of any developments in this area.

Sincerely,

Rosanne M. Joyce

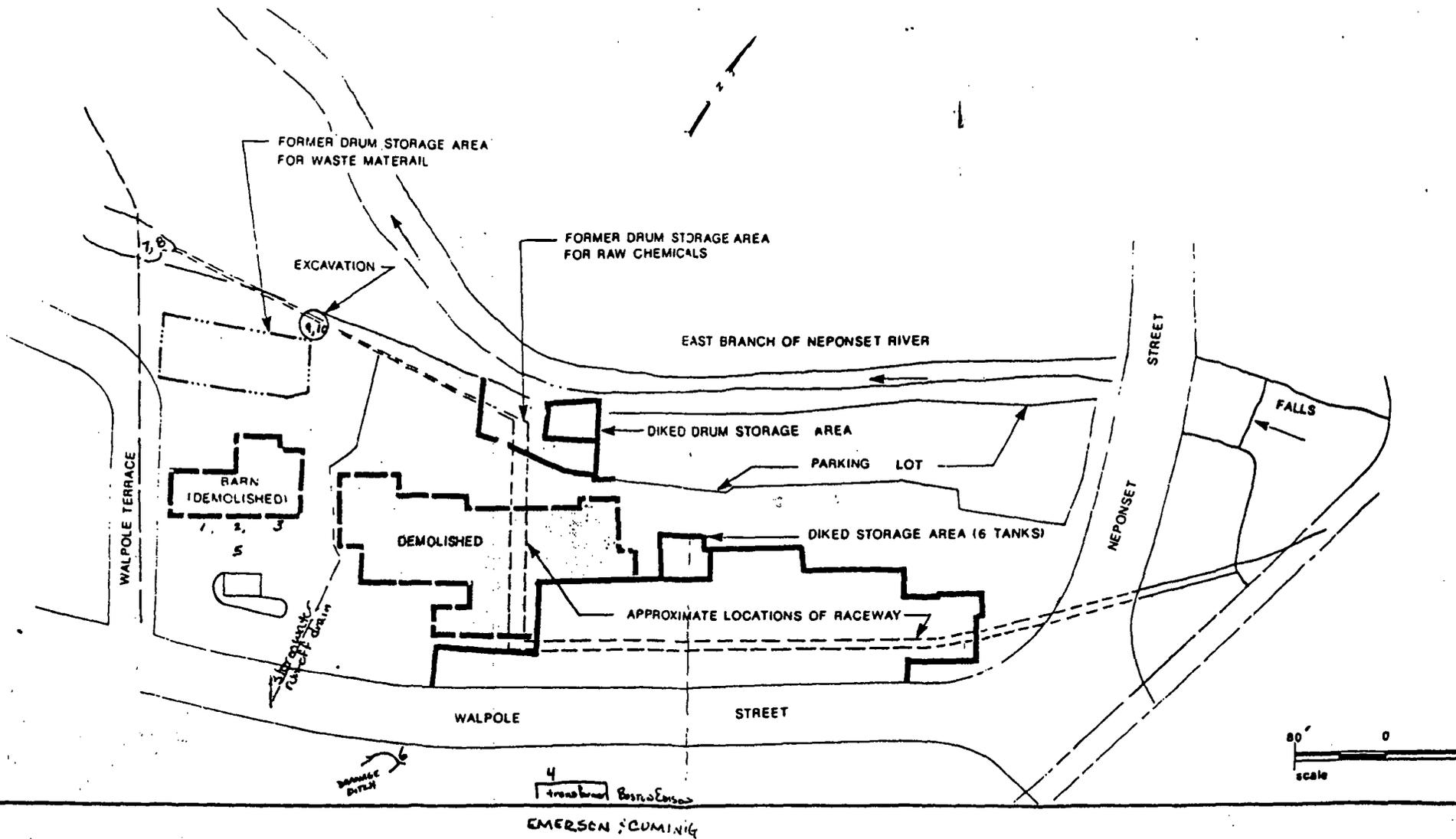
Rosanne M. Joyce
Environmental Engineer

RMJ:kc

Attachments

cc: J.L. McAfee, Lexington
J.F. Murphy, Jr., Lexington
J.R. Fralich, Jr., Canton Board of Health
P.W. Ciriello, Canton
R.M. Olson, Canton

Figure 1





JAN 14 1988
S. RUSSELL SYLVA
Commissioner
935-2160

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering
Metropolitan Boston - Northeast Region
5 Commonwealth Avenue
Woburn, Massachusetts 01801

January 13, 1988

W.R. Grace & Company
55 Hayden Avenue
Lexington, MA 02173

RE: CANTON - ERB-N87-1435
W.R. Grace & Company
Walpole Street
NOTICE OF RESPONSIBILITY/REQUEST
FOR TECHNICAL INFORMATION PURSUANT
TO M.G.L. CHAPTER 21E

Attention: Peter W. Ciriello, Project Engineer

Dear Mr. Ciriello:

On October 9, 1987, Department personnel investigated reports concerning the release of an unknown quantity of waste oil at the above referenced site. This incident was realized when an obsolete brick pit containing oil was ruptured during the demolition and excavation for new construction. Initial field investigations indicated soil and groundwater contamination.

Through your authorization, Cyn Oil Co. was hired to pump out product and contaminated groundwater while Jetline Services Inc. was hired to remove, and stockpile on site, all contaminated soil.

On November 9, 1987, the construction crew encountered a thin film of oil on top of groundwater in another location on the same site. Initial field screening of soil samples for volatile organic compounds (VOCs), using an H-NU photoionization detector, showed readings of over 50 ppm. Further excavation was discontinued until your engineering consultants - Haley & Aldrich - could assess the extent of release and contamination.

Such incident is governed by Chapter 21E of the General Laws of Massachusetts (hereinafter "M.G.L. Chapter 21E"), the Massachusetts Oil and Hazardous Material Release Prevention and Response Act, which was enacted on March 24, 1983.

Chapter 21E identifies as responsible parties the current owner or operator of a site at which there has been a release or threat of release of oil or a hazardous material; the past owner or operator of a site where a release of hazardous material has occurred; any person who directly or indirectly arranged for the transport, disposal, storage or treatment of hazardous materials to or at such a site; and any person who caused or is legally responsible for a release or a threat of release of oil or a hazardous material at such a site. Such parties are liable without regard to fault; the nature of this liability is joint and several. (M.G.L. Chapter 21E, Section 5a).

This letter is to inform you in writing that:

- (1) The Department has determined that a release or threat of release of waste oil has occurred at the subject site.
- (2) Information available to the Department indicates that you as operator/owner of the subject site, are a liable and "responsible" party pursuant to Section 5(a) of Chapter 21E.
- (3) Additional information is needed to better evaluate the need for further emergency response action at this site.
- (4) Should you fail to implement those actions deemed necessary by this Office, the Department may, pursuant to M.G.L. Chapter 21E, take or arrange for any and all necessary actions at the site. If public funds are expended under such conditions, Chapter 21E, Section 11 stipulates that the Attorney General of the Commonwealth of Massachusetts may initiate legal action against the responsible party(s) to recover all costs incurred by the Department in the assessment, containment, and removal of any release or threat of release of oil or hazardous materials.
- (5) The liability of responsible parties in (4) above includes:
 - a. Administrative costs incurred by the Department in handling this matter (in simple spill cases, administrative costs incurred by the Department prior to formal legal action are at least \$1,000);
 - b. Interest charges on the total liability at the statutory rate of 12% compounded annually;
 - c. Treble damages (i.e., three (3) times the total amount of response costs the Department incurs); and
 - d. All damages for the injury, destruction or loss of natural resources due to the release.

This liability constitutes a debt to the Commonwealth. The debt, together with interest, creates a lien on all your property in the Commonwealth. In addition to the foreclosure remedy provided by the lien, the Attorney General of the Commonwealth may recover that debt or any part of it in an action against you. You may also be liable under M.G.L. C.21E Section 11 for up to \$100,000 in fines or penalties for each violation of C.21E as well as for additional penalties or damages pursuant to other statutes or common law.

On October 19, 1987, at approximately 1:00 p.m., Department personnel verbally notified you of your responsibility for such release/threat of release. You accepted such responsibility at that time.

Your acceptance of responsibility for such release means that: (1) you have entered into a contract with a cleanup contractor, approved by the Department named, Cyn Oil Co. and Jetline Services Inc. to take all necessary emergency remedial response actions (containment, assessment and/or removal actions) relative to such release; and (2) pay for all response costs incurred by the Department due to such release.

Pursuant to the Department's authority to perform information-gathering activities and its authority to investigate, sample and inspect records, conditions, equipment, practices or property under M.G.L. C.21E Sections 2, 4 and 8, you are directed to provide to the Department, within fifteen (15) days of the date of this letter:

2/11/88 per S. Johnson on 1/25.

- (1) a brief account of why, how and where such release/threat of release occurred; and
- (2) a brief description of all assessment, containment and/or removal actions that have been and/or will be taken relative to such release/threat of release; and
- (3) an estimate, to the best of your knowledge, of the quantity of oil/hazardous material released; and
- (4) photocopies of all waste manifests for the oil/hazardous material released; and
- (5) laboratory results from a DEQE-approved laboratory of soil/water samples taken from the cleaned up environmental media impacted by the release; and
- (6) a detailed description and a timetable of measures you plan to implement to prevent future recurrence of such incidents.

No such request from DEQE

You are hereby notified that failure to respond to this letter may subject you to legal action including criminal prosecution, court-imposed civil penalties, administrative orders or civil administrative penalties assessed by the Department.

It is to your advantage to respond to this request for information in an adequate and timely manner, demonstrating that you have acted appropriately in taking necessary response actions relative to this release/threat of release of oil and/or hazardous materials.

W.R. Grace & Co.

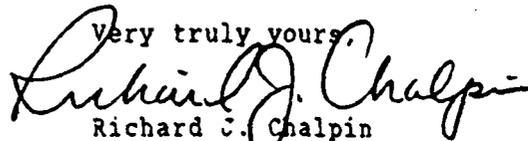
Page 4

Depending on the information generated by the above work, the Department may require additional investigations, studies and actions. If you fail to take these actions or if you fail to perform these tasks in accordance with the standards of the Department, the Department may perform response actions in your stead and recover its costs from you in accordance with the provisions described above.

Your cooperation in this matter in promptly accepting responsibility and initiating emergency remedial measures relative to this release is appreciated. Please excuse the legalistic tone of this letter, we are compelled by regulatory policy to outline statutory provisions relative to your potential liabilities at this site.

Your response to the requested information and any further questions regarding this matter should be directed to Victor Fonkem at the letterhead address or 935-2151 and refer to case number ERB-N87-1435.

Very truly yours,



Richard J. Chalpin
Deputy Regional
Environmental Engineer

RJC/VF/ae

cc: Frank Sciannameo, DEQE, OIR, One Winter St., Boston, MA 02108
BOH, Town Hall, Canton, MA 02221
Fire Dept., 99 Revere St., Canton, MA 02021
Jim Miller, DEQE, Enforcement, One Winter St., Boston, MA 02108
NERO, Site Assessment Section, Attn: Steve Johnson

Enclosures: (1) Brief Synopsis of M.G.L. Chapter 21E
(2) Minimal Standards for the Submission of Analytical Data
(3) List of DEQE-Licensed Spill Cleanup Contractors

REPORT ON
VADOSE ZONE SCREENING STUDY
EMERSON & CUMING WALPOLE STREET PLANT
CANTON, MASSACHUSETTS

For

W.R. Grace & Company
Lexington, Massachusetts

File No. 650000

December 1987



Haley & Aldrich, Inc.

Consulting
Geotechnical Engineers,
Geologists and
Hydrogeologists



28 December 1987
File No. 6500

W.R. Grace & Company
55 Hayden Avenue
Lexington, Massachusetts 02173

Attention: Mr. James F. Murphy

Subject: Vadose Zone Screening Study
Emerson & Cuming Walpole Street Plant
Canton, Massachusetts

Gentlemen:

This report summarizes the information Haley & Aldrich, Inc., obtained during a recent investigation of the vadose zone on the above referenced site. This work was carried out in accordance with our proposal dated 19 October 1987.

Introduction

The Massachusetts Department of Environmental Quality Engineering, Division of Water Supply (DEQE), is conducting a groundwater contamination investigation of the Upper Neponset River Valley Aquifer. The DEQE's contractor for this study is SEA Consultants, Inc. (SEA).

One of the wells in the aquifer is Canton's Well #7. Well #7 is located on the opposite side of the East Branch of the Neponset River, about 800 feet north of the western end of the Emerson & Cuming Walpole Street property. We understand that low concentrations of volatile organic compounds (VOCs) have been detected sporadically at very low concentrations over the past several years in the water from Well #7. SEA requested permission from W.R. Grace & Company, present owners of the property, to conduct a site-specific investigation to determine

Branch Office

Geotechnical

Engineering

Department

Amharc

Box 1000

Providence, R.I.

if the contamination detected in the groundwater in Canton's Well #7 could be coming from the site. Grace gave permission for the investigation but requested that Haley & Aldrich conduct the field work. DEQE granted this request.

The field work required by DEQE was reviewed by H&A. Changes in the requested work scope were negotiated both before and during the field work. This report presents the procedures and results of our work as approved by SEA and DEQE.

Site Location

The site is located at the intersection of Walpole Street and Neponset Street in Canton, Massachusetts, as shown in Figure 1. The site is bounded by the East Branch of the Neponset River to the north, Neponset Street to the east, and Walpole Street and residences to the south. The property is currently occupied by the Polyfibron Division of Emerson & Cuming which is owned by W.R. Grace & Company.

Present Site Conditions

The site consists of two sections: the main manufacturing area as shown in Figure 2 and the wooded area as shown in Figure 3. The site conditions in the manufacturing area as shown in Figure 2 existed prior to the demolition and construction activities which started about two months ago. Since then, the western third of the main building and the separate structure at the western side of the site have been demolished. Sewer and gas utilities in this area have been replaced and relocated. The soil in the western third of the site has been disturbed and regraded in association with the construction work. The soil in this area is exposed at ground surface and has a similar topography to that previously present on site. A new foundation has been constructed in place of the demolished main building, and the steel beams are being erected. The new building will be used for existing manufacturing.

A raceway which is blocked off at its entrance in the pool above the falls exists under the building. Records indicate that three groundwater sumps under the building, non-contact cooling water for air conditioners, floatation pressure test water, and rainwater from the roof flow into the raceway. This water, plus surface water runoff from Walpole Street and possibly some groundwater discharge at the outfall into a mill race.



The wooded area consists primarily of lowland with a mixture of softwood and hardwood trees. The undergrowth is dominated by briars and poison ivy. The mill race which passes through this area roughly parallels the river and enters the river about 1,600 feet from the head of the mill race where the storm water drainage pipe outfalls.

The mill race is about 10 to 20 feet wide and contained standing water at the time of this study. This water level probably represents the natural groundwater table. A bank about three feet higher than the surrounding land exists on the northern side of the mill race. The bank is vegetated with trees that are about the same age as those on the surrounding land. Due to the configuration of the mill race and age of the vegetation, it appears that the trench and banking were constructed at about the same time. On the southern side of the trench, the land slopes up sharply about 20 to 30 feet. The drainage pipe outfall at the head of the mill race is almost completely filled with sediment. Water discharges from the outfall during dry periods at a very low flow rate.

Approximately 800 feet west from the outfall, the land narrows to about a 15-foot wide strip of land with a stone wall on the river side. The remainder of the wooded land to the intersection of the mill race and the river was not investigated due to the thickness of the undergrowth.

At the same time this site investigation was being undertaken, an approximately 8-foot deep pit was excavated in the northwest corner of the site to construct a manhole in an existing concrete surface water drainage pipe. Styrofoam and other debris were observed in the fill material. It was reported that the excavation was dry until a section of the pipe was removed, when water with an oily film on the surface flowed into the pit. Since this pipe drains surface water from Walpole Street, it is assumed that the water washed the oil from the street. The approximate location of the pit is shown on Figure 2.

Site History

Beginning in the 1800s, the buildings on site were used by the Neponset Woolen Mills. Power was supplied to the mill via a raceway that started at the pool above the water fall, ran under the building, and discharged from the outfall located at the head of the mill race. The exact location or construction



of the raceway under the building is not known, though it reportedly has a soil base. The site was inactive for many years during the first half of the 1900s until Emerson & Cuming, Inc. purchased the site in the late 1950s. W.R. Grace then bought the company in 1978.

The company has manufactured foam floatation products made of foam pellets and epoxy resin for the oil and gas industry; microwave absorber products; dielectric compound products; and conductive coating products. A wide variety of liquid raw materials have been used on site. Epoxy resins, an anhydride, and a latex acrylate copolymer were the raw material liquids used in the largest quantities. Volatile organic compounds used in bulk quantities include methylene chloride, toluene, and xylene. Methylene chloride was recycled in a distillation apparatus on site.

Prior to 1982, materials were handled and stored in the following manner. Sanitary waste and boiler blowdown was discharged to the MDC sanitary sewer system. The floor drains in the building discharged to the raceway. Drums of liquid raw materials were stored on pavement at the western end of the parking lot along the northern boundary of the site. This storage was additional to the above ground bulk chemical storage tanks along the northern edge of the building. The plant stored their drummed hazardous waste in a diked, roofed area near the northwest corner of the property. These areas are shown on Figure 2.

From 1982 to 1984, the Emerson & Cuming plant made a number of improvements in their materials handling and storage. These improvements were made in agreement with Canton town officials, the DEQE, Emerson & Cuming plant management, and Camp Dresser & McKee (CDM).

Projects to improve materials handling included:

- o construction of a temporary berm around the drummed raw material storage area,
- o transfer of the raw and hazardous material storage areas inside the building in late 1984,
- o removal of the empty drums stored outside,
- o creation of a staging area inside the building for empty drum storage,



- o blocking off floor drains in the building, and
- o the closure of the head of the raceway at the pond.

Two sets of water samples were collected from the site and chemically analyzed for selected VOCs. The sampling dates, locations, and chemical analysis data are listed in Table II. The data indicate that two VOCs were detected: dichloroethane at a concentration of 21 ppb and methylene chloride at concentrations of 4.2 and 10.1 ppb. Methylene chloride was detected only in the set of samples collected in July 1984. This indicates that either its presence was intermittent or the data are an artifact of the analysis procedure and this compound was not actually present in the samples.

Vadose Zone Screening Methods

The vadose zone screening procedure described in this section was approved by DEQE before the work began. The primary locations investigated consisted of five areas on site:

- o Along the side of Building 3 closest to the river.
- o The raceway area from where it comes out from under the buildings to its outfall.
- o Two areas where drummed raw materials and hazardous waste had been stored historically.
- o The banking of the trench that extends from the outfall to its confluence with the East Branch of the Neponset River.

The vadose zone sampling locations were approved by SEA both before and during the field work. They are shown on Figures 2 and 3. SEA visited the site several times to observe the fieldwork.

The hazardous wastes that are stored on site and collected periodically by a waste hauler consist of waste solvent, oil, paint, carbon black solution, and epoxy resin waste. These wastes are stored inside the building near the loading area off Walpole Street.

At each location specified, a hand-driven plunger bar was used to make a small (1/2-inch to 3/4-inch) borehole, after first drilling through any asphalt or concrete, using an electric



rotary drill equipped with a 3/4-inch drill bit. The total depth of the borehole was approximately 2.5 to 3 feet below the surface. A decontaminated 1/2-inch diameter stainless steel soil vapor sampler was lowered into the borehole in such a manner that the top of the sampler formed an air-tight seal with the entrance to the borehole.

The sampler was cleaned prior to use by washing the outside of it with soapy water, then rinsing it successively with tap water, methanol, then tap water again. If a seal could not be made due to asphalt at the surface, a piece plastic was used to make an air-tight seal. The vapor sampler consists of a capped, perforated, stainless steel tube equipped with a tubing adapter at the top to allow its connection with an air pump that will purge the sealed borehole and a septum to allow sampling of the soil vapor. Each soil gas sample was taken through the septum, using a gas-tight syringe after 5 minutes of purging the sealed borehole. The syringe needle tip was pushed into a rubber stopper while being transported to the gas chromatograph, usually less than a 5-minute walk.

The Photovac Model 10S50 portable gas chromatograph (GC) with a 4-foot long SE-30 column was set up in a testing laboratory within the facility. The GC was calibrated using measured aliquots of the headspace above aqueous standards of methylene chloride, trichloroethylene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), 1,1,-dichloroethane (1,1-DCA), and toluene. Fresh field standards were prepared daily. After calibration, prior to sample injection, and after every 2 to 3 samples, a sample of ambient air was injected to obtain a measurement of background volatile compounds.

When the operating temperature of the Photovac 10S50 GC changed by more than 2°C, the GC was recalibrated using the standards.

H&A also added two vadose zone locations above the boundary of the site with Walpole Street directly across the street from Flashing Barricades, Inc.

Vadose Zone Screening Results

The resulting data from the vadose zone screening were calculated and are presented in Table I and Figures 2 and 3. The concentrations presented are relative to an aqueous standard and do not represent concentrations in the soil vadose zone. They also are approximate and are only intended for use



to screen the site for relative amounts of volatile compounds. Therefore, the concentrations of the compounds of interest detected in each sample were summed, then classified as follows:

<u>Classification</u>	<u>Concentration Range (ppb)</u>
Low	1 to less than 10
Medium	10 to less than 50
High	50 or greater

The identifications are also considered tentative because retention times for standards were obtained using only the SE-30 column. If a compound other than one of the standard compounds was in a sample with a retention time similar to the standard, it would be incorrectly identified as that compound.

The data, as tabulated in Table I, indicate that the screening procedure identified methylene chloride as the most prevalent compound of the five screened for on the site. It occurred at low and medium concentrations at 10 of the 45 locations and possibly at a high concentration at one location. Trichloroethene and 1,1,1-trichloroethane were the only other compounds detected in this study. Their concentrations were found to be less than 5 ppb as shown in Table I.

The distribution of tentatively identified VOCs is shown in Figures 2 and 3. The figures indicate VOCs were detected at low concentrations at both locations within the diked drum storage area and at four of the six sampling points located between the northern fence and the concrete storm water drainage pipe. In addition, a high concentration of VOCs was detected at sampling point #29 which is located near the outfall in the wooded section of the site.

Two sampling points (#8 and 12) were located in an area disturbed by demolition and construction activities. The presence of identifiable VOCs at these two locations is probably due to the incorporation in the soil of slightly contaminated material from inside the demolished building during demolition activities.

Other unidentified compounds were detected in the vadose zone samples. One compound was particularly prevalent on site. The shape of its peak was very characteristic: a long, broad asymmetrical peak with a steep face and long tail. Small peaks eluting prior to the VOCs of interest were also very common.



They probably represent common aliphatic hydrocarbons such as non-chlorinated ethanes that are by-products of biological degradation.

Monitoring Well Installation

An observation well (B1-OW) was hand-driven by H&A on 14 December 1987. This well is located about three feet north of vadose zone sampling point #29 where a high concentration of VOCs were detected. Details of the well construction and installation are shown on the Groundwater Observation Well Report in Appendix B. After installation, the equilibrated water level was 0.6 feet below ground surface. Before sampling, about twenty-eight volumes of water standing in the well were removed to develop and purge the well.

Sampling and Chemical Analysis

Under the agreement between W.R. Grace and DEQE, two surface water samples were collected: one upstream of the falls (SW-1) and one immediately downstream of the confluence of the river and the mill race (SW-2).

In addition to these samples that were requested by DEQE, one groundwater sample and three quality assurance/quality control (QA/QC) samples were collected. A duplicate sample of SW-2 (labelled SW-3) and a trip blank (SW-4) were obtained at the same time as the above samples.

A groundwater sample was collected from B1-OW immediately after it was installed, developed, and purged on 14 December 1987. A trip blank labelled B2-OW was also obtained and kept with the groundwater sample until they were delivered to the laboratory.

The water samples were all analyzed by EPA Method 624 at Clean Harbors, Inc., a DEQE-certified laboratory, in Braintree, Massachusetts. All the analyses indicate no volatile organic compounds on the Hazardous Substance List were detected in any of the samples. This list includes the compounds of concern at the site.

Appendix C of this report contains the Sampling Records that describe the sampling methods, the Chain-of-Custody Records, and the chemical analysis reports from the laboratory.



Discussion

The data from this study indicate that methylene chloride was tentatively identified at low concentrations (less than 10 ppb) in the air within the vadose zone in the diked drum storage area and at low to medium concentrations along the storm water drainage pipe that parallels the northern boundary of the site. No significant concentrations of five selected VOCs were detected in the following areas: along the side of Building #3 closest to the river, the former drum storage area for waste material, and along the mill race in the wooded section of the site except at one location (sampling location #29).

At vadose zone sampling location #29, a high concentration of one or more VOCs was detected. The chromatogram shows a well-defined peak with a slight shoulder on a long tail. Interpretation of this chromatogram was difficult because when high concentrations of VOCs are run through the SE-30 column broader chromatogram peaks and long tails are produced. Small quantities of methylene chloride produced sharp symmetrical peaks on chromatograms resulting in retention times reproducible within 2 to 3 seconds of the standard retention time as selected by the GC. Since the GC establishes a retention time electronically, there is more variation in the selection of a retention time for peaks with broader points. Therefore, a 5.4-second difference between a sharp methylene chloride standard peak and the broad peak on the chromatogram for location #29 is small enough to identify the compound as methylene chloride using this analysis method.

We interpret the chromatogram as follows: the vadose zone sample contained a high concentration of a VOC tentatively identified as methylene chloride. Another VOC, represented by the shoulder on the peak, is present at significant but unknown concentrations. A useful estimate of the methylene chloride concentration cannot be made because it is well above the range of the standards used during the field investigation.

Since the groundwater from the well (B1-OW), about three feet from vadose zone sampling location #29, had no detectable methylene chloride nor any other identifiable VOC, we believe that the detection of methylene chloride at Location #29 may have resulted from an incorrect identification or that a small, very localized release of methylene chloride occurred which was only detected in the vadose zone.

Since no VOCs were detected above the falls on the river and at the confluence of the mill race and river, we conclude that the



low concentrations of a compound tentatively identified as methylene chloride detected in the vadose zone on site are not contaminating the East Branch of the Neponset River.

Conclusions

Haley & Aldrich has conducted vadose zone screening and water sampling in selected areas of the Emerson and Cuming Walpole Street site in Canton, Massachusetts. The study focused on five volatile organic compounds that have been detected in Canton's municipal well # 7, which is located about 800 feet from the western end of the site on the opposite side of the East Branch of the Neponset River. In addition to the vadose zone screening, surface water samples from the East Branch and a groundwater sample were obtained and chemically analyzed.

These data indicate the following:

- o Methylene chloride was tentatively identified as being present at low and medium screening concentrations in the former diked area for drummed raw materials and in the area of the storm water drainage pipe where it parallels the northern boundary of the site. The other four volatile organic compounds were not detected at significant concentrations in these two areas.
- o The five volatile organic compounds were not detected at significant concentrations in the following areas with the exception of sampling location #29: along the side of Building #3 closest to the river, the former drum storage area for waste materials, along the boundary of the property opposite Flashing Barricades, Inc., and along the mill race in the wooded section of the site.
- o No Hazardous Substance List volatile organic compounds (which include methylene chloride) were detected in the groundwater in the immediate vicinity of location #29 where a high concentration of possibly methylene chloride was detected. The major volatile organic compound detected at this location was either identified incorrectly or is present only in the vadose zone and is not affecting the groundwater quality.
- o The methylene chloride tentatively identified as being present on site is not contaminating the East Branch of the Neponset River.



W.R. Grace & Company
28 December 1987
Page 11

Limitations

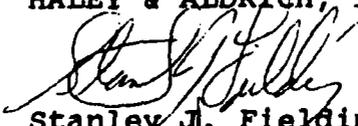
This letter has been prepared for the exclusive use of W. R. Grace & Co. in connection with a site in Canton, Massachusetts.

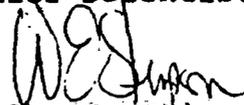
The conclusions provided by Haley & Aldrich, Inc. are based solely on the scope of work conducted and the sources of information referenced in this report. Any additional information that becomes available concerning this site should be provided to Haley & Aldrich, Inc. so that our conclusions and recommendations may be revised and modified as necessary.

The work performed by Haley & Aldrich, Inc. is subject to the terms and conditions stated in our proposal to W. R. Grace & Co. dated 19 October 1987. This work has been undertaken in accordance with generally accepted hydrogeological practices. No other warranty, express or implied, is made.

Thank you for inviting us to undertake this project. Please do not hesitate to contact us, should you have any questions or require any additional information concerning this project.

Sincerely yours,
HALEY & ALDRICH, INC.


Stanley J. Fielding
Senior Scientist


Wesley E. Stimpson
Vice President

SJF:WES:rec/0147R

Enclosures:

- Table I - Vadose Zone Screening Results
- Table II - Previous Chemical Analysis Data
- Figure 1 - Project Locus
- Figure 2 - Site and Subsurface Exploration Location Plan - Manufacturing Area
- Figure 3 - Site and Subsurface Exploration Location Plan - Wooded Area
- Appendix A - Groundwater Observation Well Report
- Appendix B - Sampling Records, Chain of Custody Records, and Chemical Analysis Reports



TABLE 1

VADOSE ZONE SCREENING RESULTS

Sample Location	Concentration Level ²	Approximate Concentrations (ppb) ¹				
		Methylene Chloride	Trichloro-ethene	Toluene	1,1-Dichloro-ethane	1,1,1-Trichloro-ethane
1	ND ³	.3	.	.	.	.
2	ND	.	.	.	.	.
3	ND	.	.	.	.	.
4	ND	.	.	.	.	.
5	ND	.	.	.	.	.
6	ND	.	.	.	.	.
7	Low ⁴	2.5	.	.	.	.
8	Low	5.0	3.0	.	.	.
9	ND	.	.	.	.	.
10	ND	.	.	.	.	.
11	ND	.	.	.	.	.
12	Medium ⁵	41	.	.	.	1.2
13	ND	.	.	.	.	.
14	ND	.	.	.	.	.
15	ND	.	.	.	.	.
16	ND	.	.	.	.	.
17	Low	7.4	.	.	.	.
18	Low	1.0	.	.	.	.
19	ND	.	.	.	.	.
20	ND	.	.	.	.	.
21	Medium	23	.	.	.	.
22	Low	2.6	.	.	.	.
23	Low	2.0	.	.	.	.
24	ND	.	.	.	.	.
25	Low	2.2	.	.	.	.
26	ND	.	.	.	.	.
27	ND	.	.	.	.	.
28	ND	.	.	.	.	.
29	ND ⁶	.6	.	.	.	.
30	ND	.	.	.	.	.
31	Low	1.2	.	.	.	.
32	ND	.	.	.	.	.
33	ND	.	.	.	.	.
34	ND	.	.	.	.	.
35	ND	.	.	.	.	.
36	ND	.	.	.	.	.
37	Low	.	4.0	.	.	.
38	ND	.	.	.	.	.
39	ND	.	.	.	.	.
40	ND	.	.	.	.	.
41	ND	.	.	.	.	.
42	ND	.	.	.	.	.
43	ND	.	.	.	.	.
44	ND	.	.	.	.	.
45	ND	.	.	.	.	.

Notes:

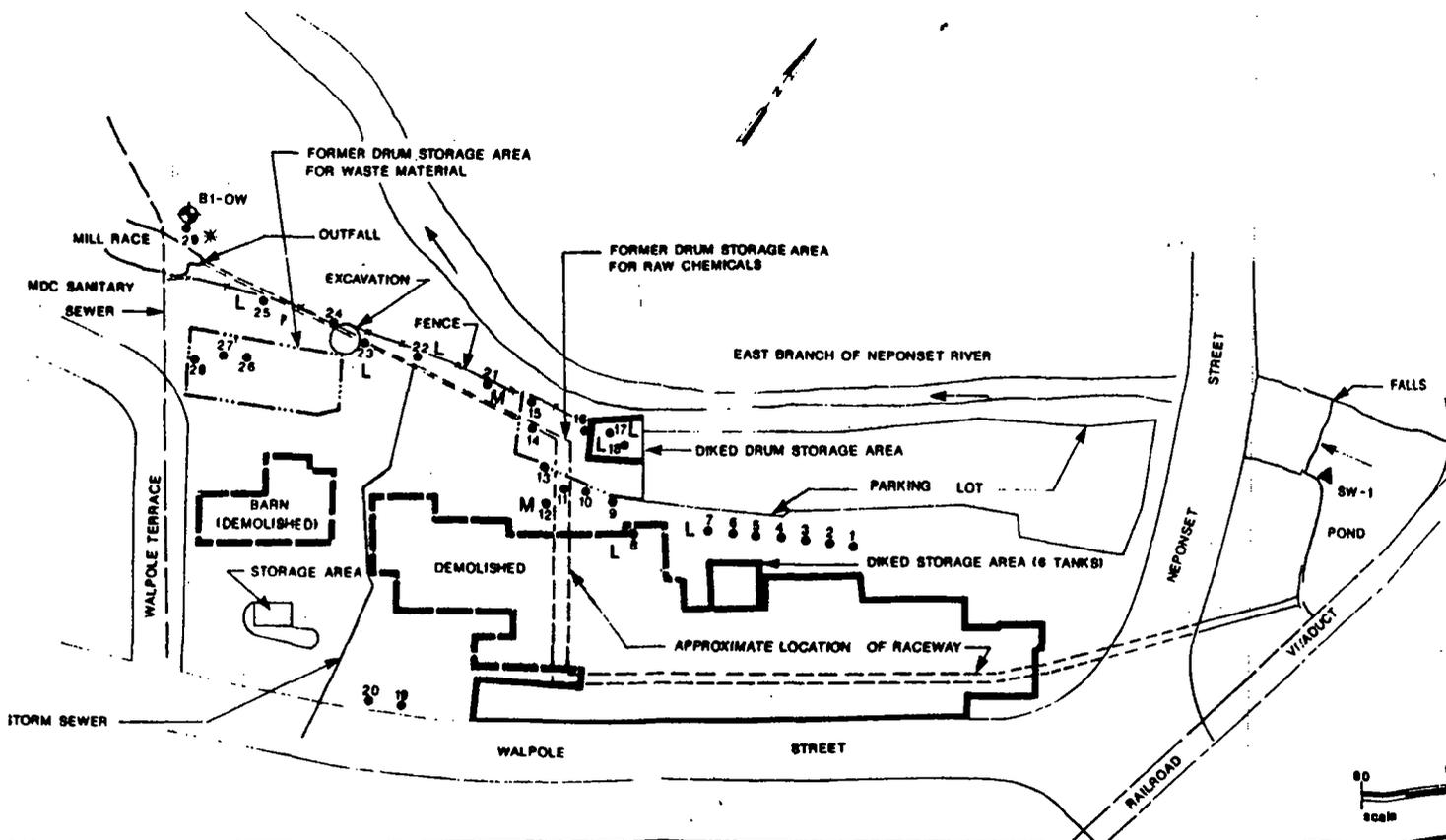
1. The concentrations are in micrograms of a compound per liter of water. The quantity of a compound detected in the soil gas was compared to the retention time and the concentration in the air over a known concentration of a standard compound in water.
2. The concentration level is more appropriate when discussing concentrations because the numerical concentrations are very approximate.
3. Not Detected.
4. Concentrations range from 1 to less than 10 ppb.
5. Concentrations range from 10 to less than 50 ppb.
6. Results of this sample are discussed in the discussion section of the text.

TABLE II
PREVIOUS CHEMICAL ANALYSIS DATA

Sample Location	A ¹	A	B ²	B	C ³
Sampling Date	6/1/84	7/11/84	6/1/84	7/11/84	7/11/84
Compound ⁴					
Methylene chloride	- ⁵	4.2	-	10.1	-
1,1,1-Trichlorethane	-	-	-	-	-
Toluene	-	-	-	-	-
1,1-Dichlorethane	-	NA ⁶	21	NA	NA

NOTES:

1. Sampled at non-contact cooling water and groundwater collection sump.
2. Sampled at the outfall where the raceway discharges to the mill race.
3. Sampled from pond above the falls on the river.
4. The concentrations are in micrograms per liter which is approximately equivalent to parts per billion.
5. Not detected.
6. Not analyzed for.



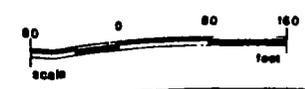
- LEGEND:
- LOCATION AND DESIGNATION OF VAPOUR ZONE SAMPLING POINT.
 - ▲ SW-1 LOCATION AND DESIGNATION OF SURFACE WATER SAMPLE.
 - ⊕ B1-OW LOCATION AND DESIGNATION OF OBSERVATION WELL.

THE FOLLOWING REPRESENT THE SIMULATED CONCENTRATION RANGES OF POLLUTING CHEMICALS INCLUDING THE M.L. FOR CHEMICALS LISTED IN THE FEDERAL REGISTER AND THE HIGH CONCENTRATIONS DETECTED IN EACH VAPOR ZONE SAMPLE.

- A. BARN: BARN NOT DETECTED.
- L. 1 TO LESS THAN 10 PARTS PER MILLION.
- M. 10 TO LESS THAN 100 PARTS PER MILLION.
- AN EVALUATION OF THE RESULTS FROM THIS LOCATION ARE IN THE DISCUSSION SECTION.

NOTE:

1. THE BASE YEAR WAS OBTAINED FROM W.P. CHASE & CO.



A-E-A HILL & VERRILL
 ENGINEERS AND ARCHITECTS
 100 STATE STREET
 BOSTON, MASSACHUSETTS

WAPOR ZONE SCREENING STUDY
 DESIGN AND CONSTRUCTION PLAN
 EASTON, MASSACHUSETTS

SITE AND SUBSURFACE EXPLORATION PLAN MANUFACTURING AREA

SCALE 1/4" = 10' HORIZ.

APPENDIX A
GROUNDWATER OBSERVATION WELL REPORT

GROUND WATER OBSERVATION WELL REPORT

PROJECT: VADOSE ZONE SCREENING STUDY
 LOCATION: EMERSON & CUMING, CANTON, MASSACHUSETTS
 CLIENT: W.R. GRACE & COMPANY
 CONTRACTOR: NONE
 DRILLER: NONE H&A REP: ROB MCGRATH
 INSTALLATION DATE 14 DECEMBER 1987

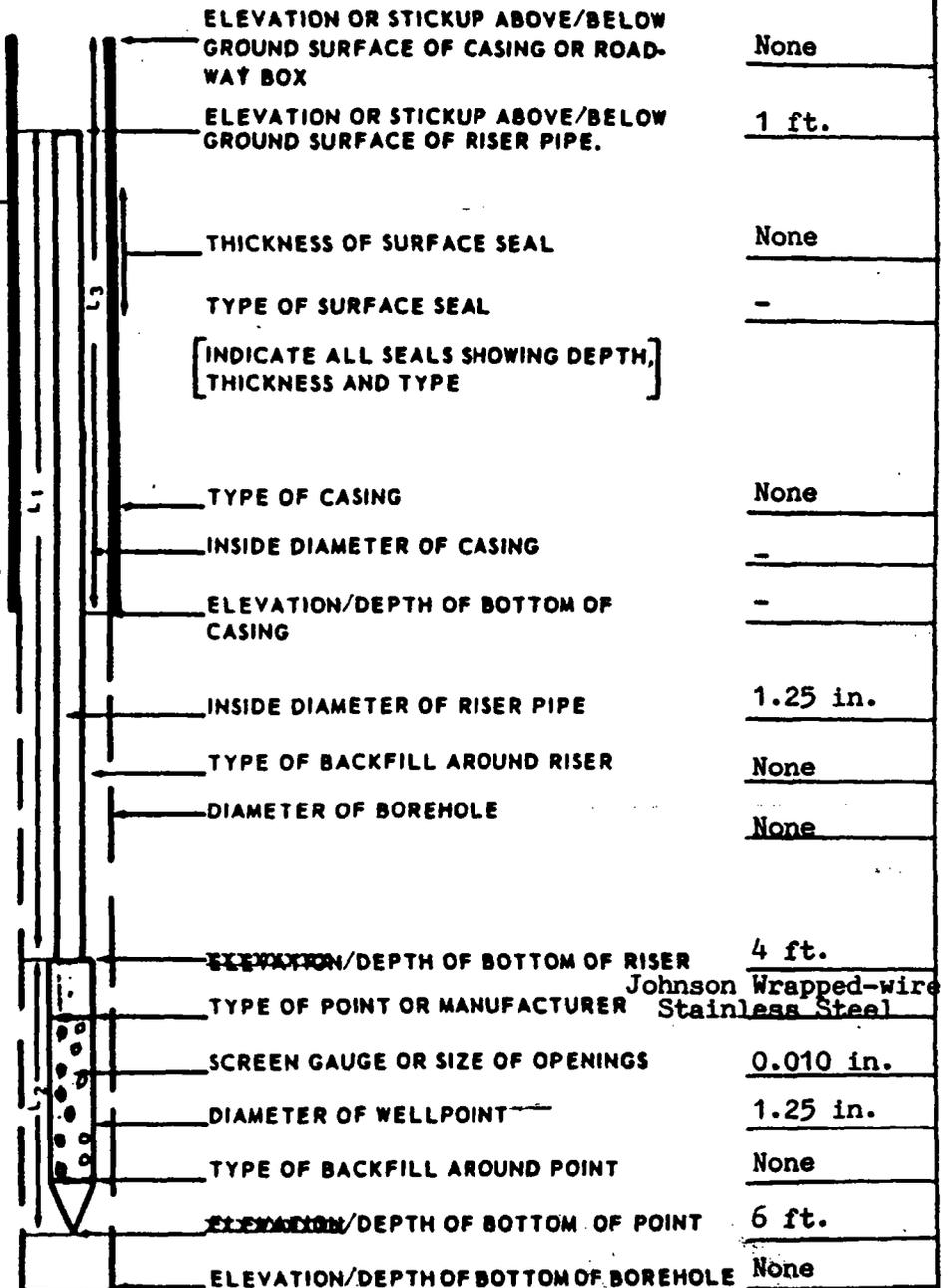
FILE NO. 6500-00
 WELL NO. B1-0W
 BORING NO. None
 LOCATION 3 ft. North of
Sampling Pt. #29
 SHEET 1 OF 1

SURVEY DATUM --

GROUND ELEVATION --

Note: This well was hand-driven by H&A. The riser pipe was constructed of galvanized steel. Before installation, the well materials were rinsed with hexane, washed with soapy water, then rinsed successively with tap water, methanol, and distilled water.

SUMMARIZE SOIL CONDITIONS (NOT TO SCALE)



[FIGURES REFER TO: EL. _____ DEPTH X]

$$\left[\frac{\text{None}}{\text{LENGTH OF CASING } (L_3)} \right] + \left[\frac{5 \text{ ft.}}{\text{LENGTH OF RISER PIPE } (L_1)} \right] + \left[\frac{2 \text{ ft.}}{\text{LENGTH OF POINT } (L_2)} \right] = \left[\frac{7 \text{ ft.}}{\text{LENGTH}} \right]$$

APPENDIX B

**SAMPLING RECORDS, CHAIN OF CUSTODY RECORDS,
AND CHEMICAL ANALYSIS REPORTS**



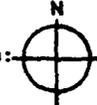
HALEY & ALDRICH, INC.
230 West Street, Cambridge, MA 02142
Tel. 617-552-2400

SAMPLING RECORD

SR #: 1
PAGE 1 OF 1

FILE NO. 56650000
PROJECT CANTON
CLIENT W.R. GRACE
LOCATION Neponset River
SAMPLING DATE 4 Dec 87
FIELD PERSONNEL RWH

LABORATORY NAME Clean Harbors
ADDRESS 325 Wood Rd
Braintree
LABORATORY CONTACT Alex Schultheis
DELIVERY DATE 4 Dec 87

WEATHER Temp. (°F) <20 - 20 - 30 - 40 - 50 - 60 - 70 - 80 - 90 -> 90
Sunny Partly Cloudy Overcast Heavy Clouds Rain Sleet Snow
Dry Slightly Humid Moderately Humid Very Humid
Wind None to Little Little to Moderate Moderate to Heavy Steady Variable
Wind Direction N
From: 

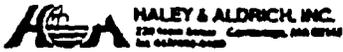
GROUND SURFACE CONDITIONS
Dry Damp Wet
Standing Water Snow: inch
Other:
Comments:

SOIL SAMPLING AND SURFACE WATER SAMPLING INFORMATION

H&A SAMPLE NO.	LOCATION	DEPTH	TIME	SAMPLE DESCRIPTION	SAMPLING DEVICE	CLEANING PROCEDURE	CONTAIN TYPE
SW-1	Above step falls pilot	-	1200	River water clear below	direct into bottle	N/A	VGA Vials
SW-2	below confluence of trench & river	-	1430		↓	↓	↓
SW-3	Duplicate of SW-2						
SW-4	Trip blank						

General Comments: (i.e., Field Filtrations, persons communicated with at site, etc.):

STDM = Wash with soapy water, rinse with tap water, distilled water and methanol.



CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

H & A FILE NO. 56650000
 PROJECT CANTON
 H & A CONTACT ANNE ROEHLER

LABORATORY CLEAR HARBORS
 ADDRESS 325 D RD., BRAintree
 CONTACT ALEX SCHULTHEIS

DELIVERY DATE 4 DEC 87
 DATE FINAL REPORT DUE 16 DEC 87
 PROJECT MANAGER'S INITIALS JF

H&A SAMPLE NO.	LABORATORY SAMPLE NO.	SAMPLING		SAMPLE DEPTH	SAMPLE TYPE	ANALYSES							NO. OF CONTAINERS	COMMENTS (Special instructions, cautions, etc.)			
		DATE	TIME			VOA	ABN	METALS	PEST/PCB	PET. ID	OCG						
SW-1		4 Dec 87	1200	-	SW	X											
SW-2		4 Dec 87	1430	-	SW	X											
SW-3		4 Dec 87	1500	-	SW	X											
SW-4		4 Dec 87	1515	-	SW	X											

I. Sampled and Relinquished by
 Sign Robert W. McSwath
 Print Robert W. McSwath
 Firm Haley & Aldrich
 Date 12-4-87 Time _____

I. Received by
 Sign Ron Chumbar
 Print Ron Chumbar
 Firm Clear Harbors
 Date 12-4-87 Time 3:05 p.m.

VOA Vial X
 Glass Bottle _____
 Plastic Bottle _____
 Preservative X
 Container Volume 46 ml

REMARKS: (Sample storage, nonstandard sample bottles)
VOA 624

Evidence Samples tampered with?
 If Yes, explain in remarks.

II. Received by
 Sign _____
 Print _____
 Firm _____
 Date _____ Time _____

VOA Vial _____
 Glass Jar _____
 Plastic Jar _____
 Preservative _____
 Container Volume _____

Client: W.R. GRACE
 Address: _____
 Client contact: _____
 Telephone no.: _____

Note: Sample bottles supplied by lab, unless indicated.
 PRESERVATION KEY: A - Sample chilled,
 B - Filtered, C - Acidified with _____
 D - NaOH, E - NaThiosulfate F - Other

US EPA ARCHIVE DOCUMENT



ANALYTICAL SERVICES
325 WOOD ROAD, BRAINTREE, MA 02184
(617) 849-6070

REPORT OF ANALYSIS

Haley & Aldrich, Inc.
58 Charles Street
Cambridge, MA 02141

Attn: Ms. Anne Zoeller

Job Identification: Canton

Water Samples

Date Received: 12/4/87

CHAS Lab #: 8712042-01 to 04

P.O. #: 56 6500 00

Enclosed are the results for the sample(s) delivered to our laboratory on the date indicated above.

Should you have any questions concerning this work, please do not hesitate to contact me.

This laboratory follows quality assurance/quality control procedures outlined in EPA Publication EPA 600/4-79-019, "Handbook for Analytical Quality Control in Water and Wastewater Laboratories," March 1979, and specific QA/QC requirements of the procedures used.

The information contained in this report is, to the best of my knowledge, accurate and complete.

Per/Date: Alex Schultheis 12/14/87
Alex Schultheis
Laboratory Director



Client: Haley & Aldrich, Inc.
Sample Station: SW-1 Water Sample

CHAS Lab #: 8712042-01
Date Received: 12/04/87

Volatile Organic Analysis
by EPA Method 624

Analysis Date: 12/07/87

Compound	MDL*	Conc.*	Compound	MDL*	Conc.*
Chloromethane	10	ND	cis-1,3-Dichloropropene	5	ND
Bromomethane	10	ND	Trichloroethene	5	ND
Vinyl Chloride	10	ND	Benzene	5	ND
Chloroethane	10	ND	Dibromochloromethane	5	ND
Methylene Chloride	5	ND	1,1,2-Trichloroethane	5	ND
Trichlorofluoromethane	5	ND	trans-1,3-Dichloropropene	5	ND
1,1-Dichloroethene	5	ND	2-Chloroethylvinyl Ether	10	ND
1,1-Dichloroethane	5	ND	Bromoform	5	ND
trans-1,2-Dichloroethene	5	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethene	5	ND
1,2-Dichloroethane	5	ND	Toluene	5	ND
1,1,1-Trichloroethane	5	ND	Chlorobenzene	5	ND
Carbon Tetrachloride	5	ND	Ethylbenzene	5	ND
Bromodichloromethane	5	ND	Total Xylenes	5	ND
1,2-Dichloropropane	5	ND			
			Acetone	20	ND
			Carbon Disulfide	10	ND
			2-Butanone	20	ND
			Vinyl Acetate	10	ND
			4-Methyl-2-Pentanone	5	ND
			2-Hexanone	5	ND
			Styrene	5	ND

QA/QC Surrogate Recoveries:

1,2-Dichloroethane: 82%
D-8 Toluene: 101%
p-BFB: 87%

Notes: ND - Below minimum detectable level (MDL)
* - ug/l



Client: Haley & Aldrich, Inc.
Sample Station: SW-2 Water Sample

CHAS Lab #: 8712042-02
Date Received: 12/04/87

Volatile Organic Analysis
by EPA Method 624

Analysis Date: 12/07/87

Compound	MDL*	Conc.*	Compound	MDL*	Conc.*
Chloromethane	10	ND	cis-1,3-Dichloropropene	5	ND
Bromomethane	10	ND	Trichloroethene	5	ND
Vinyl Chloride	10	ND	Benzene	5	ND
Chloroethane	10	ND	Dibromochloromethane	5	ND
Methylene Chloride	5	ND	1,1,2-Trichloroethane	5	ND
Trichlorofluoromethane	5	ND	trans-1,3-Dichloropropene	5	ND
1,1-Dichloroethene	5	ND	2-Chloroethylvinyl Ether	10	ND
1,1-Dichloroethane	5	ND	Bromoform	5	ND
trans-1,2-Dichloroethene	5	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethene	5	ND
1,2-Dichloroethane	5	ND	Toluene	5	ND
1,1,1-Trichloroethane	5	ND	Chlorobenzene	5	ND
Carbon Tetrachloride	5	ND	Ethylbenzene	5	ND
Bromodichloromethane	5	ND	Total Xylenes	5	ND
1,2-Dichloropropane	5	ND			
			Acetone	20	ND
			Carbon Disulfide	10	ND
			2-Butanone	20	ND
			Vinyl Acetate	10	ND
			4-Methyl-2-Pentanone	5	ND
			2-Hexanone	5	ND
			Styrene	5	ND

QA/QC Surrogate Recoveries:

1,2-Dichloroethane: 90%
D-8 Toluene: 103%
p-BFB: 90%

Notes: ND - Below minimum detectable level (MDL)
* - ug/l



Client: Haley & Aldrich, Inc.
Sample Station: SW-3 Water Sample

CHAS Lab #: 8712042-03
Date Received: 12/04/87

Volatile Organic Analysis
by EPA Method 624

Analysis Date: 12/07/87

Compound	MDL*	Conc.*	Compound	MDL*	Conc.*
Chloromethane	10	ND	cis-1,3-Dichloropropene	5	ND
Bromomethane	10	ND	Trichloroethene	5	ND
Vinyl Chloride	10	ND	Benzene	5	ND
Chloroethane	10	ND	Dibromochloromethane	5	ND
Methylene Chloride	5	ND	1,1,2-Trichloroethane	5	ND
Trichlorofluoromethane	5	ND	trans-1,3-Dichloropropene	5	ND
1,1-Dichloroethene	5	ND	2-Chloroethylvinyl Ether	10	ND
1,1-Dichloroethane	5	ND	Bromoform	5	ND
trans-1,2-Dichloroethene	5	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethene	5	ND
1,2-Dichloroethane	5	ND	Toluene	5	ND
1,1,1-Trichloroethane	5	ND	Chlorobenzene	5	ND
Carbon Tetrachloride	5	ND	Ethylbenzene	5	ND
Bromodichloromethane	5	ND	Total Xylenes	5	ND
1,2-Dichloropropane	5	ND			
			Acetone	20	ND
			Carbon Disulfide	10	ND
			2-Butanone	20	ND
			Vinyl Acetate	10	ND
			4-Methyl-2-Pentanone	5	ND
			2-Hexanone	5	ND
			Styrene	5	ND

QA/QC Surrogate Recoveries:

1,2-Dichloroethane: 81%
D-8 Toluene: 104%
p-BFB: 89%

Notes: ND - Below minimum detectable level (MDL)
* - ug/l



Client: Haley & Aldrich, Inc.
Sample Station: SW-4 Water Sample

CHAS Lab #: 8712042-04
Date Received: 12/04/87

Volatile Organic Analysis
by EPA Method 624

Analysis Date: 12/07/87

Compound	MDL*	Conc.*	Compound	MDL*	Conc.*
Chloromethane	10	ND	cis-1,3-Dichloropropene	5	ND
Bromomethane	10	ND	Trichloroethene	5	ND
Vinyl Chloride	10	ND	Benzene	5	ND
Chloroethane	10	ND	Dibromochloromethane	5	ND
Methylene Chloride	5	ND	1,1,2-Trichloroethane	5	ND
Trichlorofluoromethane	5	ND	trans-1,3-Dichloropropene	5	ND
1,1-Dichloroethene	5	ND	2-Chloroethylvinyl Ether	10	ND
1,1-Dichloroethane	5	ND	Bromoform	5	ND
trans-1,2-Dichloroethene	5	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethene	5	ND
1,2-Dichloroethane	5	ND	Toluene	5	ND
1,1,1-Trichloroethane	5	ND	Chlorobenzene	5	ND
Carbon Tetrachloride	5	ND	Ethylbenzene	5	ND
Bromodichloromethane	5	ND	Total Xylenes	5	ND
1,2-Dichloropropane	5	ND			
			Acetone	20	ND
			Carbon Disulfide	10	ND
			2-Butanone	20	ND
			Vinyl Acetate	10	ND
			4-Methyl-2-Pentanone	5	ND
			2-Hexanone	5	ND
			Styrene	5	ND

QA/QC Surrogate Recoveries:

1,2-Dichloroethane: 81%
D-8 Toluene: 104%
p-BFB: 90%

Notes: ND - Below minimum detectable level (MDL)
* - ug/l

SAMPLING RECORD

FILE NO. 6500

CLIENT Emerson & Cummings

SAMPLING DATE 14 Dec 87

GROUNDWATER SAMPLING INFORMATION

WELL NO.	B1-0W				
WATER DEPTH (GS)	0.6 ft				
TIME	1315				
PRODUCT	NO				
DEPTH OF WELL (GS)	6.0 ft				
STANDING WATER DEPTH	5.4 ft				
WELL I.D.	2.00 in / 1.25 in				
VOLUME OF WATER IN WELL	0.046 ft ³				
PURGING DEVICE	teflon bailer				
VOLUME OF BAILER/ PUMP CAPACITY	0.00882 ft ³				
CLEANING PROCEDURE	STDMD				
BAILS REMOVED/ VOLUME REMOVED	150/ 1.325 gal-ft ³				
TIME PURGING STARTED	1335				
STOPPED	1320				
SAMPLING DEVICE	teflon bailer				
CLEANING PROCEDURE	X				
TIME SAMPLES TAKEN	VOA	1320			
	ABN	X			
	METALS	X			
		X			
ODOR	NO				
COLOR	lt. brown				
CLARITY	sl. silty				
pH	X				
TEMP. °C	X				
SALINITY	X				
CONDUCTIVITY	X				

REMARKS (i.e., Field filtration, purging and sampling problems, etc.):

Approximately 28 well volumes removed
Groundwater less silty @ time of sampling than initially



ANALYTICAL SERVICES
325 WOOD ROAD, BRAINTREE, MA 02184
(617) 849-8070

REPORT OF ANALYSIS

Haley & Aldrich, Inc.
238 Main Street
Cambridge, MA 02142

Attn: Ms. Anne Zoeller

Job Identification: Canton

Water Sample

Date Received: 12/14/87

CHAS Lab #: 8712138

P.O. #: 566500

Enclosed are the results for the sample(s) delivered to our laboratory on the date indicated above.

Should you have any questions concerning this work, please do not hesitate to contact me.

This laboratory follows quality assurance/quality control procedures outlined in EPA Publication EPA 600/4-79-019, "Handbook for Analytical Quality Control in Water and Wastewater Laboratories," March 1979, and specific QA/QC requirements of the procedures used.

The information contained in this report is, to the best of my knowledge, accurate and complete.

Per/Date: Alex Schultheis 12/16/87
Alex Schultheis
Laboratory Director

DEC - 1987

Haley & Aldrich, Inc.



Client: Haley & Aldrich, Inc.
Sample Station: B1-OW Water Sample

CHAS Lab #: 8712138-01
Date Received: 12/14/87

Volatile Organic Analysis
by EPA Method 624

Analysis Date: 12/15/87

Compound	MDL*	Conc.*	Compound	MDL*	Conc.*
Chloromethane	10	ND	cis-1,3-Dichloropropene	5	ND
Bromomethane	10	ND	Trichloroethene	5	ND
Vinyl Chloride	10	ND	Benzene	5	ND
Chloroethane	10	ND	Dibromochloromethane	5	ND
Methylene Chloride	5	ND	1,1,2-Trichloroethane	5	ND
Trichlorofluoromethane	5	ND	trans-1,3-Dichloropropene	5	ND
1,1-Dichloroethene	5	ND	2-Chloroethylvinyl Ether	10	ND
1,1-Dichloroethane	5	ND	Bromoform	5	ND
trans-1,2-Dichloroethene	5	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethene	5	ND
1,2-Dichloroethane	5	ND	Toluene	5	ND
1,1,1-Trichloroethane	5	ND	Chlorobenzene	5	ND
Carbon Tetrachloride	5	ND	Ethylbenzene	5	ND
Bromodichloromethane	5	ND	Total Xylenes	5	ND
1,2-Dichloropropane	5	ND			
			Acetone	20	ND
			Carbon Disulfide	10	ND
			2-Butanone	20	ND
			Vinyl Acetate	10	ND
			4-Methyl-2-Pentanone	5	ND
			2-Hexanone	5	ND
			Styrene	5	ND

QA/QC Surrogate Recoveries:

1,2-Dichloroethane: 94%
D-8 Toluene: 98%
p-BFB: 99%

Notes: ND - Below minimum detectable level (MDL)
* - ug/l



Client: Haley & Aldrich, Inc.
Sample Station: B2-OW Water Sample

CHAS Lab #: 8712138-02
Date Received: 12/14/87

Volatile Organic Analysis
by EPA Method 624

Analysis Date: 12/15/87

Compound	MDL*	Conc.*	Compound	MDL*	Conc.*
Chloromethane	10	ND	cis-1,3-Dichloropropene	5	ND
Bromomethane	10	ND	Trichloroethene	5	ND
Vinyl Chloride	10	ND	Benzene	5	ND
Chloroethane	10	ND	Dibromochloromethane	5	ND
Methylene Chloride	5	ND	1,1,2-Trichloroethane	5	ND
Trichlorofluoromethane	5	ND	trans-1,3-Dichloropropene	5	ND
1,1-Dichloroethene	5	ND	2-Chloroethylvinyl Ether	10	ND
1,1-Dichloroethane	5	ND	Bromoform	5	ND
trans-1,2-Dichloroethene	5	ND	1,1,2,2-Tetrachloroethane	5	ND
Chloroform	5	ND	Tetrachloroethene	5	ND
1,2-Dichloroethane	5	ND	Toluene	5	ND
1,1,1-Trichloroethane	5	ND	Chlorobenzene	5	ND
Carbon Tetrachloride	5	ND	Ethylbenzene	5	ND
Bromodichloromethane	5	ND	Total Xylenes	5	ND
1,2-Dichloropropane	5	ND			
			Acetone	20	ND
			Carbon Disulfide	10	ND
			2-Butanone	20	ND
			Vinyl Acetate	10	ND
			4-Methyl-2-Pentanone	5	ND
			2-Hexanone	5	ND
			Styrene	5	ND

QA/QC Surrogate Recoveries:

1,2-Dichloroethane: 94%
D-8 Toluene: 98%
p-BFB: 102%

Notes: ND - Below minimum detectable level (MDL)
* - ug/l



S. RUSSELL SYLVA
COMMISSIONER

The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
Department of Environmental Quality Engineering
Division of Water Supply
One Winter Street, Boston, Mass. 02108

October 1, 1987

Mr. James F. Murphy, Jr.
Assistant Vice President
Polyfibron Division
W. R. Grace & Company
55 Hayden Avenue
Lexington, MA 02173

RE: Emerson & Cuming
59 Walpole Street
Canton, Massachusetts
Site Investigations
Upper Neponset Valley Aquifer

Dear Mr. Murphy:

As you are aware, S E A Consultants, Inc. is presently acting as a contractor for the Department of Environmental Quality Engineering, Division of Water Supply, in a groundwater investigation of the Upper Neponset Valley Aquifer in the Towns of Dedham, Canton, Westwood, and Norwood.

A short time ago, S E A conducted a site inspection of your property. As a result of that site inspection, S E A recently requested your permission for access to your property in order to perform further site-specific studies. This work includes an analysis of the near surface soil gas environment via soil gas analysis, surface water sampling, and other activities. The scope of the analysis requested is described in detail in the attached work plan.

Pine and Swallow Associates, as subconsultants to S E A for this investigation, were originally to perform this on-site work. However, because W. R. Grace & Co. and Emerson and Cuming objected to Pine & Swallow performing this work and in the interest of time, the DEQE is willing to allow Emerson & Cuming to utilize its own consultant to perform on-site investigations provided certain specific conditions are met.

These conditions are as follows:

- 1) The work must be performed by a contractor and individuals with appropriate previous experience in soil gas analysis and supervision of field hydrogeological contamination investigations. Resumes and qualifications of the firm and individuals must be submitted to Roy Crystal of DEQE prior to initiating work and approved in advance.

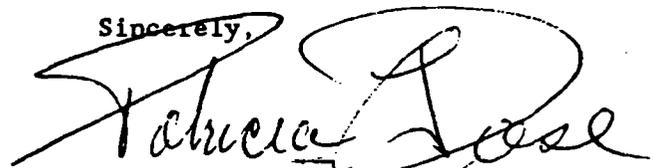
OCT 2 1987

Letter to James F. Murphy, Jr.
October 1, 1987
Page 2

- 2) A written report documenting the methodology and results of the work (Tasks 1-6) shall be prepared and submitted to the DEQE on or before October 30, 1987.
- 3) Work shall be performed in accordance with the procedures and activities defined in the attached Work Plan. Any changes or deviations shall be approved in advance by the Department.
- 4) Provision is made for on-site review of the conduct of the work by S E A as the Department's representative or inspection by Department employees at any time while the work is being conducted.
- 5) Field results of the soil gas analysis will be made immediately available to S E A and DEQE as the investigation proceeds.
- 6) Permission is granted to DEQE's drilling subcontractor, Engineering Management Systems, to install monitoring wells on the property at locations to be determined based on the results of the soil gas analysis. A work plan for monitor well installation will be submitted for review and comment by W. R. Grace and Emerson & Cuming prior to initiation of work. If necessary to meet the project schedule, monitor well installation may be initiated prior to receipt of the written report by Grace's consultant.
- 7) A written response indicating your consent to these conditions is received on or before October 8, 1987.

Please convey your response to Roy Crystal, Neponset Project Coordinator, DEQE Division of Water Supply, One Winter Street, 10th Floor, Boston, MA 02108 (617) 292-5859.

Sincerely,



Patricia L. Deese, Director
Division of Water Supply

PLD/ecw
Enclosure

cc: D. R. Bowley, Boston
Steve Johnson, DHW. Woburn

**WORK PLAN
FOR
EMERSON & CUMING INC.
59 Walpole Street
Canton, Massachusetts**

Task 1. The primary on-site areas to be investigated will be on or in the vicinity of the following localities:

- a. Building No. 3 as noted in Camp, Dresser and McKee's 1983 "Spill Control Audit at Plant No. 2."
- b. The underground "raceway" which exists from beneath the on-site buildings and continues to the East Branch River.
- c. The previous outside drum storage areas(s) of raw and waste chemicals as noted in Camp, Dresser and McKee's 1983 "Spill Control Audit at Plant No. 2."

Task 2. Should the areas to be investigated be presently occupied by various equipment, storage articles, etc., EC will make every effort to move this material so that the area can be made accessible to the investigation.

Task 3. Initial on-site work will consist of soil gas investigation in the areas specified in this Work Plan. The soil gas technique consists of the following:

- a. At each location specified, small diameter (3/4-inch to 1-inch) boreholes shall be excavated by a hand or electrically-driven power auger to a depth of approximately two (2) feet below the

ground surface. The borehole shall be sealed at the ground surface with a cork or wooden stopper which forms a snug fit. Stoppers placed in boreholes augered through pavement shall have clay placed between the stopper and the borehole to form a better seal. The stopper shall have one vertical hole through which Teflon tubing will be fitted into the borehole. The Teflon tubing above the stopper will have a Teflon T-fitting from which a soil gas sample will be withdrawn with a gas-tight syringe. The balance of the tubing may consist of tygon or silicon tubing. A soil gas sample shall be withdrawn from this borehole after a minimum of one minute of pumping out the sealed borehole with a pump specifically designed for air pumping.

- b. After a soil gas sample is taken, it will be immediately injected into the Photovac 10S50 portable gas chromatograph (GC) and analyzed on-site for the presence of volatile organic chemicals (VOCs). Analysis will be done using the SE-30 column for detection, or equivalent. Should chromatogram peaks be evident from a sample run, an attempt will be made to identify any peaks by comparing the peaks with known standards placed within the same library memory of the Photovac 10S50 GC.
- c. Prior to initial site work, EC's consultant will have placed, at a minimum, the following chemical standards in air into the same library of the Photovac 10S50 GC. These include: methylene chloride, 1,1-dichloroethane, 1,1,1-trichloroethane, toluene, and trichloroethylene.
- d. Should the operating temperature of the Photovac 10S50 GC change significantly during on-site work, EC's consultant should be prepared to inject standards noted in Item 3c

under field operating conditions. Significant temperature changes may affect the elution time of the contaminants detected in any sample and, therefore, the identification of the chemical when compared to the retention time of the library standard.

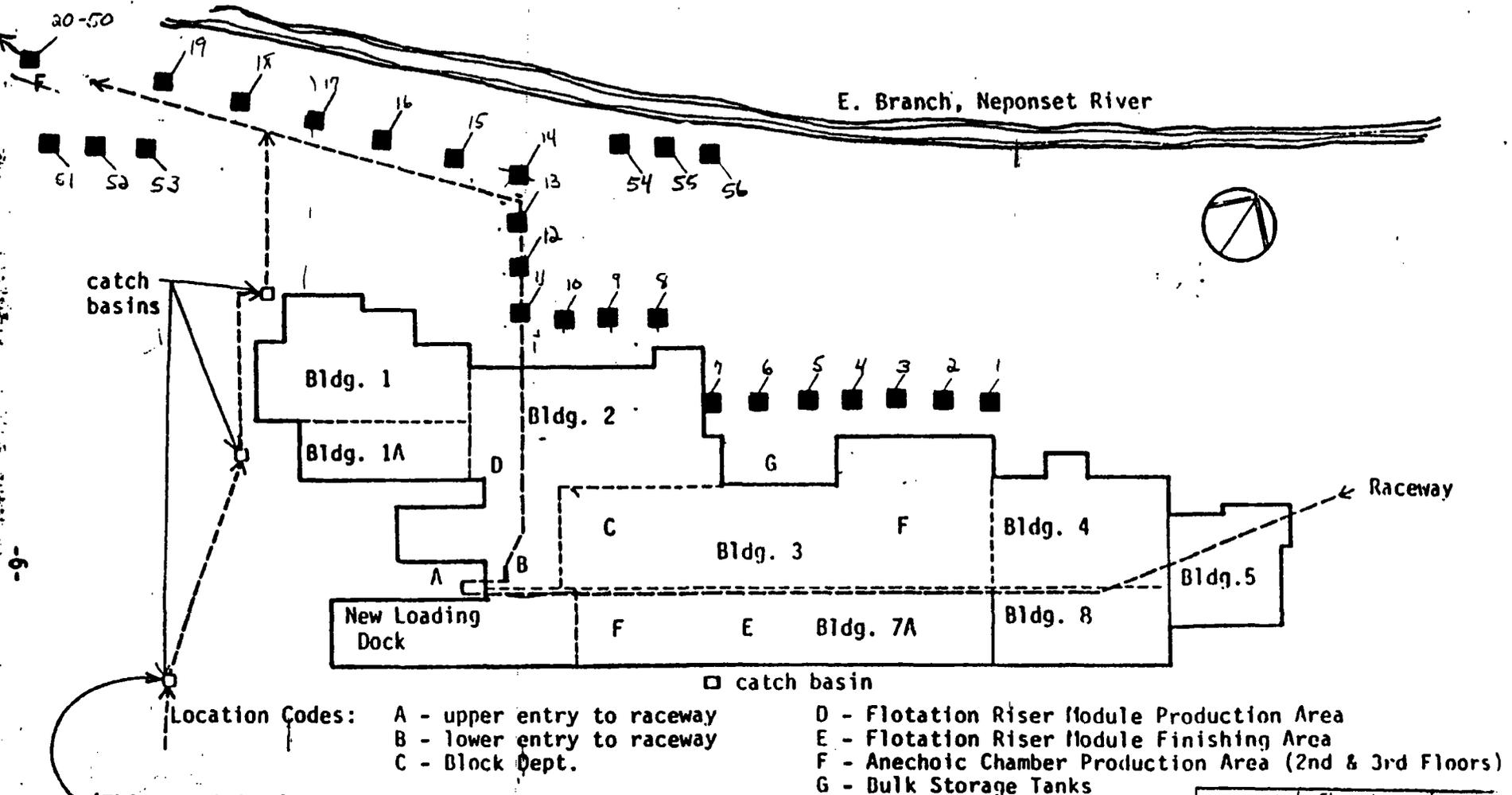
Task 4. Soil gas samples will be taken at the specified horizontal spacing at the following locations as noted on Figure 1:

- a. At 20 foot centers along an east-west line approximately 50 to 100 feet north of Building No. 3.
- b. At 20 foot centers at the centerline of the underground raceway emanating from Building No. 2 to its connection to the 2 foot concrete pipe beneath the pavement north of Building No. 2.
- c. At 20 foot centers north of the underground 2 foot diameter concrete pipe utilized as a portion of the raceway.
- d. At 20 foot centers along the entire length of the "natural" surface trench acting as the raceway between the 2 foot diameter concrete pipe and the East Branch River.
- e. At 20 foot centers immediately north of previous outside drum storage areas.

Task 5 Collect a total of two surface water samples from the East Branch of the Neponset River for laboratory analysis at a Massachusetts state certified laboratory for VOCs by EPA method 624 and non-priority

pollutant hazardous waste list volatile compounds. The water samples will be collected at each of the following locations: from the East Branch east of Neponset Street and upstream of falls; from the East Branch immediately downstream of the location where it intersects the raceway from EC property.

Task 6. A written report documenting the methodology and results of the work will be submitted to the DEQE on or before October 30, 1987.



-9-

Location Codes: A - upper entry to raceway
 B - lower entry to raceway
 C - Block Dept.
 D - Flotation Riser Module Production Area
 E - Flotation Riser Module Finishing Area
 F - Anechoic Chamber Production Area (2nd & 3rd Floors)
 G - Bulk Storage Tanks

(This catch basin not on EC property)

Scale: 1" = 80'

Note: The locations of the Raceway under Bldgs. 5, 8 and 7A were approximated from observations at the raceway intake above the dam and at Point A.

Work Plan Legend

- Soil Gas boring north of Bldg. No. 3 1-10
- Soil Gas boring centerline of raceway 11-13
- Soil Gas boring north of concrete pipe 14-19
- Soil Gas boring along raceway 20-50 trench to East Branch
- Soil Gas boring north of road 51-56

FIGURE 1. PLAN OF PLANT NO. 2

Note: Plan modified from
 Camp Dresser & McKee Inc.
 Soil Initial Audit of Plant No. 2 11/2/1982

100 101
10001
LEGAL DEPARTMENT
CAMBRIDGE, MA.

EMERSON & CUMING

Emerson & Cuming, Inc. A SPANCO Co
Composite Materials

Canton, Massachusetts 02021-1816
Telephone (617) 821-4250

April 13, 1987

Mr. Edward Lukaszewicz
Chairman Canton Conservation Commission
P.O. Box 86
Canton, MA 02021

Dear Commission Member,

This letter is in response to the Enforcement Order issued by the Commission on March 24, 1987 to Emerson & Cuming, Inc. (E&C). As evidenced by E&C's past work with the Carbon Board of Health and the DEQE, we are always ready and willing to work cooperatively with the Town.

It is my hope that by addressing the substance of the Commission's concerns separate from the legal issues raised by the Enforcement Order, E&C long-standing interest in material handling issues will be demonstrated. Nonetheless, I must emphasize that our willingness to respond to the substance of the Commission's request for action is not intended as a waiver of any legal rights which E&C may have to contest the Order subsequently.

Specifically as to the requests for action;

1. On Friday, March 27, 1987, a representative of ENPRO Services, Inc. visited the plant at our request. ENPRO is an experienced hazardous materials cleanup firm located in Newburyport, MA. Since we knew of no way to remove the oil stain from the blacktop we asked ENPRO for advice. After visiting the site, Mr. John Davey of ENPRO sent the attached letter (see letter to Randolph Olson, April 6, 1987). The black stain on our blacktop is the result of very small amounts of fuel oil being deposited when the heating oil fill hose leading to our interior heating oil tank is disconnected and is not related to the temporary storage of a drum of diesel fuel in the same area. As you can see from Mr. Davey's letter, an extremely small amount of oil can cause a stain of the type observed by the Commission. At no time since the Commission's February 21 inspection has there been free-standing oil on the pavement at the fuel oil fill area. Furthermore, the stained area is outside the Buffer Zone.

To: Commission Member
Page: Two
Date: April 13, 1987

2. Consistent with ENPRO's recommendations, our procedure for preventing any significant spillage of oil has been to station one of our employees at the tank during the entire unloading operation. He will have immediately available at least four bags of Speedi Dri. Any waste oil residue will, as is our practice, be disposed of in accordance with state waste disposal regulations.

3. At the Commission's meeting on March 18, 1987 an invitation was extended to E&C to meet with the Commission to discuss specific issues raised by the Enforcement Order. We therefore request that E&C be placed on the agenda for a future meeting of the Commission so that we may discuss this item and any other matters which have not been resolved.

4. As of the date of the Commission's Order all hazardous materials are being stored in a proper manner as required by all relevant regulations (see attached letter of March 24, 1987 to the Canton Board of Health).

5. The bermed area has not been, and will not be, used for the storage of hazardous materials (see letter to Board of Health).

6. Pursuant to both the Canton Hazardous Materials By-Laws and the Massachusetts Hazardous Waste Regulations, the information requested by the Commission is already in the possession of the Town of Canton.

7. There has not been, and will not be, storage of hazardous materials within the 100 foot Buffer Zone (see letter to Board of Health).

8. E&C's practice for clearing snow from its parking facilities is the same as those of other firms. Based upon our response to the other requests for action, and the information contained in our letter to the Board of Health, we believe it is now clear that hazardous materials are not stored in areas where plowed snow is accumulated.

I hope the above response indicates our sincere interest in responding to the concerns of the Commission. However, E&C is obligated to also respond to the specific allegations of violation mentioned by the Commission in its Order. The Order lists three violations: (1) construction of a diked area for hazardous material storage without filing a Notice of Intent; (2) improper storage of hazardous materials; (3) a "large" oil spill.

To: Commission Member
Page: Three
Date: April 13, 1987

For the following reasons E&C we believe the items in these allegations do not fairly serve as a basis for an Enforcement Order.

(1) The construction of the berm was done in accordance with the recommendations of the Canton Board of Health and Massachusetts DEQE in mid-1983. There has been no storage of drummed raw materials within the bermed area since mid-1984, with only empty drums being accumulated at that location since that time (see letter to Board of Health).

(2) All drums located within the 100 foot buffer area at the time of the Commission's February 21 inspection were empty. Those drums which were located outside at the time of the inspection, and which contained materials, were all located adjacent to plant buildings outside the Buffer Zone. All of these drums were intact and none were leaking (see letter to Board of Health).

(3) Our review of the "oil spill" is covered in the response to request for action #1.

All of this information was made available by representatives of E&C to the Conservation Commission at its meeting of March 18, 1987. Our verbal presentation was followed by the submission of the March 24, 1987 letter to the Canton Board of Health, copies of which were also sent to the Conservation Commission.

At the Commission meeting on March 18, an E&C representative requested the Commission defer any vote on the Order until it received, and had time to review, a copy of the submission to the Board of Health which responded to the specific allegations raised by the Commission along with issues raised by the Board of Health.

We believe the information supplied by E&C demonstrates that there was no violation of the statutory authorities cited by the Commission. In fact, after a presentation to, and discussion with, the Board of Health on March 24, the Board decided not to pursue an enforcement action against E&C.

However, the Conservation Commission voted to issue the Order prior to receiving E&C's letter.

With regard to the matter of inspection of our facility by the CCC or any other Town Board we will be glad to provide access to our property at any reasonable hour (including weekends). We do however think it is reasonable and will avoid further misunderstandings if an E&C representative accompanies the inspectors to answer questions.

To: Commission Member
Page: Four
Date: April 13, 1987

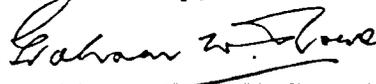
More importantly, as we informed the Commission at its March 18 meeting, E&C also has site security obligations since we are a defense contractor and are subject to Department of Defense regulations regarding access to facilities. These Federal regulations require all non-employee visitors to identify themselves, sign in at the facility reception area, and be escorted by an E&C employee.

The Enforcement Order also refers to a "hasty cleanup." From discussions with the Board of Health agent shortly after the February 21 inspection we became aware of the concerns about drum storage. While we also became aware that those conducting the inspection mistakenly believed many of the drums were full of chemicals, we were nonetheless determined to react quickly and address the "housekeeping" issues as a means of demonstrating our willingness to address the concerns of Town Boards and Commissions.

In its Enforcement Order, the Conservation Commission states that it "would like Canton industries to manage environmental problems effectively by making pollution abatement and natural resource protection a primary goal." We agree. Our letter of March 24 demonstrates that E&C has this commitment, and has devoted considerable time and expense in addressing its material handling practices.

In light of all the foregoing therefore we respectfully request the Commission to rescind its Enforcement Order of March 18. Alternatively, we request the matter be included on the agenda for the May 13 meeting of the Commission, when I or representatives of E&C will be available to discuss the matter further.

Sincerely,



Graham W. Rowe
Vice President and
General Manager

Attachments: (1) ENPRO letter dated April 6, 1987
(2) Emerson & Cuming letter dated March 24, 1987

cc: Board of Selectmen - Town of Canton
Board of Health - Town of Canton
Peter Bofhossian - Town Engineer
Joseph H. Malloy - Town Counsel
Gary Clayton - Director, DEQE Division of Wetlands
Ms. Lee Breckenridge - Chief, Division of Environmental
Protection, Dept. of the Attorney General
Miss Wendy Disch - Corp of Engineers
Walter Spiegel - Attorney for Emerson & Cuming, Inc.

ENPRO SERVICES, INC.

12 Mulliken Way, Lord Timothy Dexter Industrial Green, Newburyport, Massachusetts 01950 / (617) 465-1595 — 24 HOURS

FAX (617) 465-2050

April 6, 1987

Mr. Randolph M. Olsen
Emerson & Cuming
Polyfibron Division
W.R. Grace & Company
59 Walpole Street
Canton, MA 02021

Dear Mr. Olsen;

This letter is to serve as confirmation of our meeting of March 27, 1987 regarding certain oil staining at your facility.

In summary, the following represents observations and recommendations for the above.

- A quantity of #2 heating oil estimated to be less than 2 gallons has inadvertently been released in an area contiguous to the tank fill.
- It appears that the release has not migrated, other than staining, beyond the immediate area proximate to the fill.
- While the staining is not aesthetically pleasing, it does not appear, based on this writer's opinion, to require immediate attention. This rationale is supported by the following factors.

ENPRO SERVICES, INC.

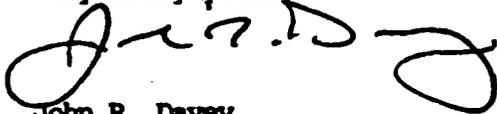
Mr. Randolph M. Olsen
Emerson & Cuming
Page 2

- It is probable that the amount of oil released has not penetrated the 6" layers of bituminous concrete. In addition when proposed construction in the area occurs that area will be investigated to confirm lack of penetration has occurred. If the product has penetrated the asphalt appropriate remedial measures will be initiated.

The prime recommendation for the short-term would be to have plant personnel in attendance during unloading operation and as a contingency a quantity of sorbent material in proximity to the area as is apparent from site conditions, and from interrogatories with site personnel.

Should you have any further questions do not hesitate to contact my office.

Very truly yours,



John R. Davey
Vice President

JRD:lsc

EMPTY DRUMS

March 24, 1987

Canton Board of Health
1492 Washington St.
Canton, MA.

Dear Board Members,

This document is submitted for your review and consideration by Emerson & Cuming, Inc. (E & C) in response to the Board's actions at its meeting on March 10, 1987 at which it was alleged that E & C had stored drums of hazardous materials at its Walpole St. plant in violation of the Canton Hazardous Materials By-Law. Newspaper articles reported that this allegation resulted from an inspection of the premises of E & C's Walpole St. facility on Saturday, February 21, 1987. Although E & C has not been notified officially of any Board action we are submitting the following information in order to ensure that the Board has all relevant facts in front of it for its further consideration.

In order to understand the Walpole St.'s current procedures for the handling of drummed liquids it is necessary to review actions taken by E & C since 1982. From late 1982 through the end of 1984, the plant completed a number of projects to improve materials handling and storage. These projects were based upon recommendations of Regina McCarthy, the former Board of Health Agent, the Massachusetts Department of Environmental Quality Engineering (DEQE), E & C plant management, and E & C's engineering consultant, Camp, Dresser & McKee. All of these projects were undertaken with the knowledge and concurrence of the Canton Board of Health and DEQE. Upon completion of these projects DEQE wrote E & C:

"It is the Department's opinion that Emerson & Cuming has acted in good faith and has taken all appropriate steps as requested. The Department would like to extend its appreciation to you for your cooperation and continued efforts in this matter." (see Exhibit 1)

One of the projects undertaken by E & C at the suggestion of Ms. McCarthy and DEQE was the construction of a berm on a previously paved area which was being used at that time for the storage of drummed raw materials. This was intended as a temporary preventive measure until such time as completion of other projects allowed for establishment of other secure storage areas.

The berm was constructed in mid-1983 with the knowledge and concurrence of Ms. McCarthy and DEQE. By the middle of 1984, the other projects, including conversion of the existing bulk storage tank system, reductions in raw material purchase order quantities, and the movement of several production areas, were completed. By reducing the amount of raw materials, and opening space inside the plant buildings, these projects allowed for the storage of drummed raw materials inside the plant.

At approximately the same time the plant's hazardous waste storage area, which was located outside in a diked, roofed area was also moved inside the plant into an area built and designated specifically for the storage of hazardous waste. Thus, since the latter part of 1984 the plant has not stored outside (with the exception noted below) drums of liquid raw materials or hazardous waste (see Exhibits 2 and 3).

After the bermed area ceased use as a storage area for drummed raw materials it was designated for the accumulation of empty drums for removal. In late 1984 the plant established procedures for the accumulation of empty drums in the bermed area and on pallets prior to movement to the bermed area (see Exhibit 2).

All drums observed in the bermed area by Board of Health and Conservation Commission members on February 21, 1987 were empty. In addition, all other drums observed on that date anywhere else outside the plant buildings were empty with the following exceptions;

First, one drum of kerosene and one drum of diesel fuel both stored adjacent to the plant. The placement of these drums outside was very recent and intended as a temporary measure. The use of these drums was necessary because fuel oil from E & C's internal fuel tanks which had been used to fuel two existing pieces of equipment, was consistently causing clogging in the equipment and an alternative was required. The drums were placed outside pending arrival of safety storage cabinets which would allow their storage inside the building. Because of the flammability of these materials both fire regulations and insurance coverage precluded storage inside unless the cabinets were available. Both drums have now been moved inside the plant.

No spillage of material from either drum was observed at any time. We believe any material on the pavement observed on February 21 near the diesel fuel drum was a result of repeated connection and disconnection during deliveries of fuel oil. The connection for the interior fuel oil tank is directly adjacent to the former location of the diesel fuel drum.

Secondly, at a meeting of the Canton Conservation Commission on March 18, the Walpole St. plant manager was shown pictures taken during the February 21 inspection. In one photo, 3 silver drums were shown adjacent to a door near the flotation production area of the plant. The plant manager had not observed these drums during his personal inspection of the outside of the plant on the morning of Monday, February 23.

Subsequent to the Conservation Commission meeting a review of records and employees was conducted regarding these 3 drums. It was determined that the 3 drums contained a liquid raw material used in the production process. The drums were apparently moved by forklift to the area shown in the photo from the plant's shipping and receiving area on Friday, February 20. It is normal procedure to move drums from shipping and receiving to specific production areas. It is then the responsibility of the production area to move the materials inside to their area. In this case, the drums were apparently not moved inside to the production area until Sunday, February 22. While we do not believe this incident constitutes "storage" under the Canton Hazardous Materials By-Law, the plant has taken steps to ensure that delays in moving materials while in transit around the plant are minimized.

After the inspection on February 21, 1987 all empty drums were removed from the plant site. These drums were removed by two companies, Ryan Barrel of Peabody, Ma. and Northeast Solvents of North Andover, Ma. Both companies have regularly removed empty drums from the plant in the past. Attached as Exhibit 4 is the documentation for the removal of the drums which confirms their empty status. The total of empty drums removed is greater than the number observed during February 21 since it includes empty drums accumulated inside the building and empties generated by ongoing production between February 21 and the date of the pick-ups. The removal of the drums was prompted by E & C's understanding, confirmed by the Board of Health Agent, John Fralick, that the Board was concerned about housekeeping and appearance in the yard area. We believed our prompt action would demonstrate E & C's sensitivity to the Board's concerns. As a further step to address these concerns the plant will limit future empty drum staging for removal to the interior of the plant.

At the Conservation Commission meeting we were asked to explain why empty drums would still have "hazard" labels on them. Initial placement of these designations is required by US Department of Transportation Regulations. Per these regulations all markings and labels must be left in place on empty drums as if the drums were full of their original contents. A reference to these regulations can be found on the invoices from Ryan Barrel which are included in Exhibit 4. Thus, it would be improper for E & C to alter or remove the labels even though the drums are empty.

Based upon the above information, Emerson & Cuming, Inc. respectfully requests that the Board reconsider its findings of March 10. During the past few years, E & C has cooperated fully with the Board, and has had numerous visits by the Board of Health Agents and we believe we have complied with every request by the Agents. In fact, Mr. Fralick has inspected the plant since the February 21 inspection. It is our intent to continue that cooperation and hope the information conveyed in this letter will enable the current matter to be resolved.


Mark Stoler

MS/lmm

cc: Canton Conservation Commission

Exhibit 1



S. RUSSELL SYLVA
Commissioner

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering
Metropolitan Boston - Northeast Region
5 Commonwealth Avenue
Woburn, Massachusetts 01801

935-2160

March 1, 1985

Emerson & Cuming
Dewey and Almy Chemical Division
W.R. Grace and Company
59 Walpole Street
Canton, Ma. 02021

RE: CANTON-"Spill Control
Audit at Plant #2"
Engineering Report

Attention: Mr. Randolph M. Olson, Plant Manager

Dear Mr. Olson:

On February 27, 1985, Engineers from the Metropolitan Boston/Northeast Region of the Department of Environmental Quality Engineering, Division of Water Pollution Control, met with you and Ms. Gina McCarthy of the Canton Board of Health to review and inspect the progress toward accomplishing the recommended actions contained in a report entitled:

Emerson & Cuming
Canton, Massachusetts
Spill Control Audit
at
Plant No. 2"

The above report was prepared by Camp Dresser & McKee, Inc., and dated January, 1982. The report was requested in a letter from the Department, dated November 5, 1982 and was the result of an inspection of your facility at the above address on November 2, 1982. The inspection was conducted at the request of the Canton Board of Health to investigate the drainage patterns both inside and outside the plant as they related to any existing or potential discharge of pollutants to an existing raceway which flows under the building and property. The raceway is diverted from the East Branch River of the Neponset River and discharges back to the River through a 24 inch concrete pipe. The Board of Health's concern in this matter was the potential for any pollutants to reach the Town Wells downstream from your facility.

The inspection at that time did not reveal the presence of any existing discharges nor the appearance of any pollutants at the outfall pipe. However; the Department's letter did point out that due to the existence of the raceway, certain chemical storage and the use of these chemicals, or unauthorized use presented a potential discharge. Therefore; the Department recommended that some appropriate steps be taken to address this potential discharge.

As a result, the aforementioned report addressed these issues and made recommendations including, sealing the entrance to the raceway, sealing grates, trenches, drains and accesses from the plant, paving along Walpole Street, to

Emerson & Cuming
Page-2-

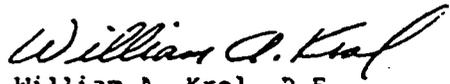
divert groundwater run-off away from the building, constructing dikes and berms around potential spill areas and chemical storage areas and in general, better housekeeping procedures.

It was observed during the inspection that all of the above has been completed and that on-going improvements will continue to address the elimination of potential releases to the East Branch River. The Camp Dresser & McKee, Inc., report did reveal, as a result of their investigation, the discharge of non-contact cooling water i.e. steam condensate, air conditioning and a groundwater sump discharge to the raceway. These discharges will continue and an appropriate "NPDES" permit application has been made to EPA which was acknowledged by them in writing on June 13, 1984.

It is the Department's opinion that Emerson & Cuming has acted in good faith and has taken all appropriate steps as requested. The Department would like to extend its appreciation to you for your cooperation and continued efforts in this matter.

If you have any questioning regarding this matter, you may contact Mr. David G. Erekson of my staff at 935-2160.

Very truly yours,


William A. Krol, P.E.
Deputy Regional Environmental
Engineer

DGE/bc

cc: Canton Board of Health, 1492 Washington Street, Canton, Ma. 02021
Attention: Ms. Regina McCarthy
Department of Environmental Quality Engineering, Metropolitan Boston/
Northeast Region, 5 Commonwealth Avenue, Woburn, Ma. 01801
Attention: Richard Chalpin, Acting Regional Environmental Engineer
Department of Environmental Quality Engineering, Division of Hazardous
Waste, One Winter Street, Boston, Ma. 02108

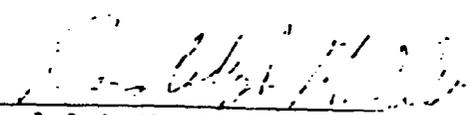
Exhibit 2

AFFIDAVIT

Randolph M. Olson, being duly sworn, deposes and says:

1. My name is Randolph M. Olson
2. Since January, 1981 I have worked at the Emerson & Cuming plant on Walpole St. in Canton.
3. Since January 1981, I have held the position of Plant Manager. In that position I am responsible for the overall operation of the facility.
4. From the latter part of 1982 through 1984 Emerson & Cuming employees, under my direction, implemented a number of projects to improve materials handling at the plant. Several of these projects were suggested by the Massachusetts Department of Environmental Quality Engineering (DEQE) and the Canton Board of Health Agent, Ms. Regina McCarthy.
5. Among these improvements was the installation of a berm on a paved area on the north side of the plant around the existing storage of raw materials. The bermed area was constructed with the knowledge and approval of DEQE and Ms. McCarthy. From approximately the middle of 1983 until the latter part of 1984 some raw material drums were stored in this area.
6. As part of overall changes in materials handling, I decided in 1984 that all drummed liquid raw materials should be stored inside the plant building. In the latter part of 1984, I informed plant employees that only empty drums were to be stored outside the plant building and that all drums were to be checked to ensure they were empty prior to placement outside.
7. Also during the latter part of 1984 an area inside the plant was built and designated specifically for the storage of hazardous wastes.
8. To the best of my knowledge and belief, since the latter part of 1984 no drums containing liquid raw materials or wastes have been stored outside at the plant. The only exceptions are one drum of diesel fuel and one drum of kerosene which were temporarily stored outside of the plant for safety reasons. To the best of my knowledge and belief there was no discharge of material from either of these drums.

9. On February 23, 1987, between 9 and 10 AM, I inspected all drums located on the plant site outside of the buildings. To the best of my knowledge and belief, all of the drums were empty, with the exception of the two drums mentioned in Paragraph 8.


Randolph M. Olson

Sworn and subscribed before me this 24th day of March 1987.

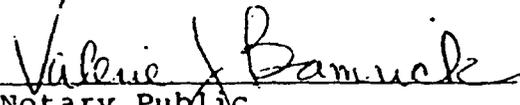

Notary Public

Exhibit 3

AFFIDAVIT

Charles J. Moore, being duly sworn, deposes and says:

1. My name is Charles J. Moore.
2. I have been employed at the Emerson & Cuming plant on Walpole St. in Canton since January 11, 1982.
3. I currently hold the position of Shipper/Receiver at the plant.
4. As a Shipper/Receiver my duties include responsibility for material deliveries and pick-ups at the plant along with ensuring that the correct documentation is maintained.
5. As part of my duties, I am responsible for the shipment of empty raw material drums from the plant.
6. It has been standard plant operating procedure since 1984 for all drums containing raw materials to be stored inside the plant. Since 1984, to the best of my knowledge and belief, only empty drums have been stored outside. The only exception to this are one drum of diesel fuel and one drum of kerosene which were recently stored outside on a temporary basis.
7. For at least the last two years the companies removing empty drums from the plant are Ryan Barrel of Peabody, Mass. and Northeast Solvents of N. Andover, Mass. Representatives of these companies have told me that they will only remove drums that contain no liquids of any type, including water.
8. In late February and early March of 1987, Ryan Barrel and Northeast Solvents picked up empty drums at the plant. These drums included those stored in the bermed area on the north side of the plant and those empty drums stored outside at other locations at the plant.
9. I assisted in loading the empty drums during the above-referenced pick-ups. To the best of my knowledge and belief no liquids were in the drums at that time.


Charles J. Moore

Sworn and subscribed before me this 3rd day of March 1987.

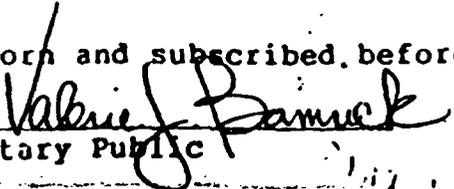

Notary Public

Exhibit 4

JOHN COHENNO

EMERSON & CUMING

Emerson & Cuming, Inc.
A GRACE CO.

PURCHASE ORDER P 41420

SHIP BILL TO THE
LOCATION INDICATED BELOW

...

...

...

To: Ryan Barrel Co.
56 Pulaski St.
Peabody, Ma. 01760

2/26/87

2/24/87

A

Removal of Empty Barrels

X51

Emerson & Cuming, Inc.
A GRACE CO.

RECEIVING SCHEDULE

DATE REC'D	SIGNATURE OF RECEIVER	QTY RECEIVED	BAL. TO CLOSE	DATE REC'D	SIGNATURE OF RECEIVER	QTY RECEIVED	BAL.
A 2/25/87	<i>Charles...</i>	30		I			
B				J			
C				K			
D				L			
E				M			
F				N			
G				O			
H				P			

JOHN COHENNO

EMERSON & CUMING

Emerson & Cuming, Inc
A GRACE Co

PURCHASE ORDER NO **P** 41420

SHIP & BILL TO THE
LOCATION INDICATED BELOW

...

...

...

To • Ryan Barrel Co.
56 Pulaski St.
Peabody, Ma. 01760

H

As Requested

3/2/87

A

Ea.

Removal of empty barrels

X5260

Emerson & Cuming, Inc
A GRACE Co

RECEIVING SCHEDULE

By _____

	DATE RECD	SIGNATURE OF RECEIVER	QTY RECEIVED	BAL TO COME		DATE RECD	SIGNATURE OF RECEIVER	QTY RECEIVED	BAL TO COME
A	3/2/87	<i>[Signature]</i>	29		I				
B					J				
C					K				
D					L				
E					M				
F					N				
G					O				
H					P				

RYAN BARREL CO., INC.

RECONDITIONERS • DEALERS IN
ALL TYPES OF STEEL CONTAINERS

No. 1

56 PULASKI ST.
PEABODY, MASS.
PHONE
BOSTON AREA
322-9110
NORTSHORE AREA
532-1130 or 1134

30 x 40 URGENT
TOP BY 2/26/87

FROM EMERSON & CUMMINGS D.V. of U.S. DATE 2/25/87

59 WALPOLE ST. CANTON MASS

CALLED 2/23/87 VIA #7

QUANTITY	DESCRIPTION	#
4	55 GAL. O. H. NIC	2-576-26
	55 GAL. 17 H.	
	#1 55 GAL. C. H.	
20	#2 55 GAL. C. H.	
	30 GAL. O. H.	
	30 GAL. 17H	
	30 GAL. C. H.	
	MISC.	
1/2	CUTS @ 6.00 = 3.00	192.00
	JUNK	
	REJECTS/RETURNS	dispose
TOTAL:		

*As per Mass. Statute 30.010: We are forbidden by law to accept any heavy drums.

Value and quantity subject to inspection

REC'D BY

equivalent removal.

**DOT's 49 CFR 173.29 says that all openings on the empty container must be closed, and that all markings and labels must be in place as if the drum were full of its original contents. A DOT shipping paper is not required for transportation of a drum for reconditioning via contract or private transportation.

RYAN BARREL CO., INC.

RECONDITIONERS • DEALERS IN
ALL TYPES OF STEEL CONTAINERS

No. 25

56 PULASKI ST.
PEABODY, MASS.
PHONE
BOSTON AREA
322-9110
NORTSHORE AREA
532-1130 or 1134

FROM Emerson & Cummings DATE 3/14/87

59 WALPOLE ST. CANTON

CALLED 3/3/87 VIA #7

QUANTITY	DESCRIPTION	#
2	55 GAL. O. H. NIC # 2-576-26	
1	55 GAL. 17 H. NIC	
	#1 55 GAL. C. H.	
20	#2 55 GAL. C. H. XXXXXXXXXX	
	30 GAL. O. H.	
	30 GAL. 17H	
	30 GAL. C. H.	
	MISC.	
6	CUTS @ 6.00 = 36.00	
	JUNK	
	REJECTS/RETURNS	dispose
TOTAL:		

*As per Mass. Statute 30.010: We are forbidden by law to accept any heavy drums.

Value and quantity subject to inspection

REC'D BY

**DOT's 49 CFR 173.29 says that all openings on the empty container must be closed, and that all markings and labels must be in place as if the drum were full of its original contents. A DOT shipping paper is not required for transportation of a drum for reconditioning via contract or private transportation.



Ryan Barrel Co., Inc.

RECONDITIONERS - DEALERS IN
ALL TYPES OF STEEL CONTAINERS
SPECIALIZING IN
OPEN HEAD CONTAINERS FEATURING
CHEMICAL-SOLVENT PROOF-BASED LININGS

56 PULASKI STREET, P.O. BOX 589, PEABODY, MASS 01960
NORTH SHORE AREA CALL 532-1130 BOSTON AREA CALL 322-9110

"SERVING INDUSTRY FOR OVER HALF A CENTURY"

EMPTY DRUM CERTIFICATION

I hereby certify that these drums are empty as that term is defined in the National Environmental Protection Agency regulations, 40 CFR 261.7, and that they have been properly prepared for transportation under the regulations of the U.S. Department of Transportation, 49 CFR 173.29.

Date: 2/25/87 Slip number: 21891
Company Name: Emerson & Cuming Signed By: [Signature]

*With regard to most regulated residues, EPA's 40 CFR 261.7 says: "A container... is empty if:

(i) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and

(ii) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container...."

EPA has explained this rule, saying that "one inch of waste material is an overriding constraint and may remain in an empty container only if it cannot be removed by normal means. The rationale for this provision is that there are certain tars and other extremely viscous material that will remain in the container even after the container is emptied by normal means."

For residues of products specifically listed by name in 40 CFR 261.33(e), EPA says the container is empty only "if the container... has been triple-rinsed using a solvent capable of removing" the product, or has been cleaned by another method shown to achieve equivalent removal.

**DOT's 49 CFR 173.29 says that all openings on the empty container must be closed, and that all markings and labels must be in place as if the drum were full of its original contents. A DOT shipping paper is not required for transportation of a drum for reconditioning via contract or private motor carrier. DOT placarding is not required for vehicles carrying empty containers.



Ryan Barrel Co., Inc.

RECONDITIONERS - DEALERS IN
ALL TYPES OF STEEL CONTAINERS
SPECIALIZING IN
OPEN HEAD CONTAINERS FEATURING
CHEMICAL-SOLVENT PROOF-PAKED-ON
LININGS

56 PULASKI STREET, P.O. BOX 589, PEABODY, MASS. 01960
NORTH SHORE AREA CALL 532-1130 - BOSTON AREA CALL 322-9110

"SERVING INDUSTRY FOR OVER HALF A CENTURY"

EMPTY DRUM CERTIFICATION

I hereby certify that these drums are "empty" as that term is defined in the national Environmental Protection Agency regulations, 40 CFR 261.7*, and that they have been properly prepared for transportation under the regulations of the U.S. Department of Transportation, 49 CFR 173.29.**

Date: 3/4/87 Slip number: 21913
Company Name: Emerson & Cuming Signed By: Charles J. Jones

*With regard to most regulated residues, EPA's 40 CFR 261.7 says: "A container...is empty if:

- (i) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and
- (ii) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container...."

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North East Solvents Reclamation Corp.
 221 SUTTON STREET
 NO. ANDOVER, MASS. 01845
 TEL. (617) 683-1002

CREDIT M

NO 7

CREDIT TO

W. BROWN & COMPANY
 55 WATFORD ST.
 ANDOVER, MA 01810

REASON: PAYMENT

APPROVED BY



DATE	OUR INVOICE NO	SALESMAN	REASON FOR CREDIT	CUSTOMER
QTY	DESCRIPTION	PRICE	AMOUNT	
	WE CREDIT YOUR ACCOUNT			
	PAID BY W. BROWN & COMPANY			
CREDIT MEMORANDUM				

STANDARD BUSINESS FORMS - LOWELL, MASS. TEL. 486-2200 17500

WHITE COPY - CUSTOMER COPY • CANARY COPY - ACCOUNTS RECEIVABLE • PINK COPY - FILE

US EPA ARCHIVE DOCUMENT

Polyfibrion Division
W.R. Grace & Co.

GRACE

This number must appear on all invoices, B/L's, packing lists and related correspondence.

PURCHASE ORDER
P 43681

- 51 INDEPENDENCE RD. ACTON, MA. 01720
- HARMONY ST. ADAMS, MA. 01220
- PHILLIP LEE DR. S.W. ATLANTA, GA. 30338
- 62 WHITTEMORE AVE. CAMBRIDGE, MA. 02148
- 130 PROSPER RD. DE PERE, WI 54115
- 56 HAYDEN AVE. LEXINGTON, MA. 02173
- COMMERCE BLVD. MORRISTOWN, TN 37114
- 5525 U.S. 90 EAST OWENSBORO, KY. 42303
- 46 N. FOURTH ST. QUAKERTOWN, PA. 18851
- BECKER FARMS IND. PARK. ROANOKE RAPIDS, NC 27879
- 483 W. MCCONKEY ST. SHREVE, OH 44879-8741

Please Note!

SHIP GOODS & RENDER YOUR INVOICE TO THE LOCATION CHECKED ABOVE UNLESS OTHERWISE NOTED AT RIGHT

SHIP TO .
Canton

BILL TO

Lexington - Polyfibrion Accounts Payable

TO:

- Metcalf & Eddy Technologies, Inc.
- 345 W. Main Street
- Northborough, MA 01532
- (508) 393-2537

Attn: Ed Cichon

PURCHASE ORDER DATE 12/22/88	OUR REQUISITION NO.	TERMS Net 30 days	VENDOR NO.	F.O.B.
TO ARRIVE BY: 01-16-89	ROUTING: Vendor	SUBJECT TO STATE & LOCAL SALES & USE TAX YES NO XX	TAX EXEMPTION NO. 135-114-230	Destination DELIVER TO R.M. Joyce

W.R. GRACE & CO. ACCOUNT NUMBER	ITEM	QUANTITY ORDERED	PLEASE FURNISH THE MATERIAL AND/OR SERVICES SPECIFIED BELOW	UNIT	UNIT PRICE	ITEM AMOUNT
X5-185-20-214			Phase II Contamination Assessment			
	1	1	Monitoring Well Installation (8)	Ea	12,808	12,808
	2	1	PCB Evaluation	Ea	1,180	1,180
	3	1	Potentiometric Surface Evaluations	Ea	930	930
	4	1	Groundwater Sampling/Analysis	Ea	3,800	3,800
	5	1	Hydraulic Conductivity Tests	Ea	3,100	3,100
	6	1	Report Preparation	Ea	6,000	6,000
			Total			27,818

THE ACKNOWLEDGMENT COPY OF THIS PURCHASE ORDER MUST BE SIGNED, DATED, AND RETURNED PROMPTLY.

By R.R. Parker

IMPORTANT - INSTRUCTIONS TO VENDOR

1. RENDER INVOICE IN TRIPLICATE TO: W.R. GRACE & CO. POLYFIBRION DIVISION
 2. MAIL INVOICES TO ADDRESS CHECKED ABOVE UNLESS OTHERWISE INDICATED.
 3. SHOW PURCHASE ORDER NUMBER ON ALL INVOICES, SHIPPING NOTICES, BILL OF LADING, EXPRESS RECEIPTS, PACKAGES, AND PACKING SLIPS.
 4. SHOW SHIPPING ADDRESS ON ALL SHIPPING PAPERS.
- Date of Acceptance _____
- Seller's Name _____

An acceptance of this order or any shipment of goods ordered hereby or furnish of any services called for hereunder shall be an acceptance of the terms and conditions on the face and back hereof as the only terms and conditions applying to the purchase and sale of the said goods or services. Your order is hereby acknowledged and accepted. Shipment will be made or services rendered in accordance with the above schedule.

ASSIGNED PURCHASE ORDER # P.O.P43681-11 Ad

BILL TO

ACTON	ADAMS	ATLANTA	CAMBRIDGE	COMPOSITE	DE PERE	LEX
MORRISTH	SPRINGBORO			QUAKERTN	R. RAPIDS	SHREVE
	CELLULOSE	DARAMIC	PAPER MILL			

OTHER SHIP TO

Canton/Emerson & Cuming, Inc.
59 Walpole Street

ORDER FROM

Metcalf & Eddy Technologies, Inc.

345 W. Main Street

Northborough, MA 01532

Attn: Ed Cichon

BILL TO (IF NOT LISTED ABOVE)

Lexington-Polyfibrion Accts Payable

* "SHIP TO ARRIVE BY" MEANS JUST THAT. GIVE US A DEFINITE DATE, AVOID "RUSH" OR "AS

REQUISITION DATE 20 Jan 89	QUOTATION NUMBER	TERMS Net 30 days	F.O.B. Destination
--------------------------------------	------------------	-----------------------------	------------------------------

* SHIP TO ARRIVE BY 23 Jan 89	ROUTING	SUBJECT TO STATE & LOCAL SALES & USE TAX	YES	NO	DELIVER TO
	<i>Vendor</i>			X	R.M. Joyce

W.R. GRACE & CO. ACCOUNT NO.	ITEM	QTY. ORDERED	PLEASE FURNISH THE MATERIAL AND/OR PERFORM SERVICES AS OUTLINED BELOW	UNIT	UNIT PRICE	ITEM AMOUNT
X5-185-20-213			Canton Phase I/II Site Assessment			
			Addendum Summary: 12 additional test borings; 5-15' monitoring wells; three day installation.			
	1	1	Drill Rig	EA	3,600	3,600
	2	1	Steam Cleaner	EA	360	360
	3	1	Materials	EA	1,972.50	1,972.50
	4	2	Drill Operators (12 hr day incl. OT)	EA	1,290.00	2,580.00
	5	1	Hydrogeologist (12 hr day inc. OT)	EA	2,520.00	2,520.00
			TOTAL			11,032.50
			Costs not to exceed \$11,032.50 without prior written approval from Grace.			

Balance 27,818.00
Increase 11,032.50
Next Balance 38,850.50

ORIGINATOR'S SIGNATURE: Rosanne M. Joyce APPROVED: J. F. Murphy PURCHASING: R R Parker 1/23/89

STATE THE PURPOSE/USE OF THE MATERIAL AND/OR SERVICES ON THIS REQUISITION:
Additional test borings and monitoring wells are necessary to further define areas impacted by solvent (adjacent to dumpster pad/module building), and diesel fuel (near Walpole Street entrance).

Polyfibron Division
W.R. Grace & Co.

GRACE

This number must appear on all invoices, B/L's, packing slips and related correspondence.

PURCHASE ORDER
P 4368

- 51 INDEPENDENCE RD. ACTON, MA 01728
- HARMONY ST. ADAMS, MA 01228
- PHILLIP LEE DR. S.W. ATLANTA, GA 30338
- 82 WHITTEMORE AVE. CAMBRIDGE, MA 02148
- 538 PROSPER RD. DE PERE, WI 54118
- 85 HAYDEN AVE. LEXINGTON, MA 0
- COMMERCE BLVD. MORRISTOWN, TN 37814
- 5628 U.S. 90 EAST OWENSBORO, KY. 42306
- 46 N. FOURTH ST. QUAKERTOWN, PA. 18851
- BECKER FARMS IND. PARK ROANOKE RAPIDS, NC 27678
- 453 W. McCONKEY ST. SHREVE, OH 44678-9741
-

Please Note!

SHIP GOODS & RENDER YOUR INVOICE TO THE LOCATION CHECKED ABOVE UNLESS OTHERWISE NOTED AT RIGHT

SHIP TO •

EMERSON - CUMING
59 WALPOLE STREET
CANTON, MA 02021

BILL TO

TO:

GOLDMAN ENVIRONMENTAL CONSULTANTS
161 FORBES ROAD, SUITE 204
BRAintree, MA 02184

W.R. GRACE & COMPANY - CONN
55 HAYDEN AVE
LEXINGTON, MA 02173
ATTN: POLYFIBRON ACCOUNTS PAYA

PURCHASE ORDER DATE 12/22/88	OUR REQUISITION NO. R26411	TERMS: NET 30	VENDOR NO.	F.O.B. DESTINATION
TO ARRIVE BY: 1/29/89	ROUTING: VENDOR	SUBJECT TO STATE & LOCAL SALES & USE TAX YES NO XX	TAX EXEMPTION NO. 135-114-23001	DELIVER TO R M JOYCE

W.R. GRACE & CO. ACCOUNT NUMBER	ITEM	QUANTITY ORDERED	PLEASE FURNISH THE MATERIAL AND/OR SERVICES SPECIFIED BELOW	UNIT	UNIT PRICE	ITEM AMOUNT
X5-185-20-214	1	1	<p>CONFIRMING - DO NOT DUPLICATE</p> <p>PREPARE SITE HISTORY FOR EMERSON & CUMING, INC - CANTON, MA PHASE I/II SITE INVESTIGATION IN ACCORDANCE WITH PROPOSAL DATED 10/5/88.</p> <p>REFERENCE GEC PROPOSAL DATED 10/5/88</p>	EACH	\$2020.00	\$2020.00

THE ACKNOWLEDGMENT COPY OF THIS PURCHASE ORDER MUST BE SIGNED, DATED, AND RETURNED PROMPTLY.

By _____

IMPORTANT - INSTRUCTIONS TO VENDOR

1. RENDER INVOICE IN TRIPPLICATE TO: W.R. GRACE & CO. POLYFIBRON DIVISION
2. MAIL INVOICES TO ADDRESS CHECKED ABOVE UNLESS OTHERWISE INDICATED.
3. SHOW PURCHASE ORDER NUMBER ON ALL INVOICES, SHIPPING NOTICES, BILL OF LADING, EXPRESS RECEIPTS, PACKAGES, AND PACKING SLIPS.
4. SHOW SHIPPING ADDRESS ON ALL SHIPPING PAPERS.

An acceptance of this order or any shipment of goods ordered hereby or furnish of any services called for hereunder shall be an acceptance of the terms and conditions on the face and back hereof as the only terms and conditions applying to purchase and sale of the said goods or services. Your order is hereby acknowledged and accepted. Shipment will be made or services rendered in accordance with the above schedule.

Date of Acceptance _____

Seller's Name _____

US EPA ARCHIVE DOCUMENT

March 24, 1987

Canton Board of Health
1492 Washington St.
Canton, MA.

Dear Board Members,

This document is submitted for your review and consideration by Emerson & Cuming, Inc. (E & C) in response to the Board's actions at its meeting on March 10, 1987 at which it was alleged that E & C had stored drums of hazardous materials at its Walpole St. plant in violation of the Canton Hazardous Materials By-Law. Newspaper articles reported that this allegation resulted from an inspection of the premises of E & C's Walpole St. facility on Saturday, February 21, 1987. Although E & C has not been notified officially of any Board action we are submitting the following information in order to ensure that the Board has all relevant facts in front of it for its further consideration.

In order to understand the Walpole St.'s current procedures for the handling of drummed liquids it is necessary to review actions taken by E & C since 1982. From late 1982 through the end of 1984, the plant completed a number of projects to improve materials handling and storage. These projects were based upon recommendations of Regina McCarthy, the former Board of Health Agent, the Massachusetts Department of Environmental Quality Engineering (DEQE), E & C plant management, and E & C's engineering consultant, Camp, Dresser & McKee. All of these projects were undertaken with the knowledge and concurrence of the Canton Board of Health and DEQE. Upon completion of these projects DEQE wrote E & C:

"It is the Department's opinion that Emerson & Cuming has acted in good faith and has taken all appropriate steps as requested. The Department would like to extend its appreciation to you for your cooperation and continued efforts in this matter." (see Exhibit 1)

One of the projects undertaken by E & C at the suggestion of Ms. McCarthy and DEQE was the construction of a berm on a previously paved area which was being used at that time for the storage of drummed raw materials. This was intended as a temporary preventive measure until such time as completion of other projects allowed for establishment of other secure storage areas.

The berm was constructed in mid-1983 with the knowledge and concurrence of Ms. McCarthy and DEQE. By the middle of 1984, the other projects, including conversion of the existing bulk storage tank system, reductions in raw material purchase order quantities, and the movement of several production areas, were completed. By reducing the amount of raw materials, and opening space inside the plant buildings, these projects allowed for the storage of drummed raw materials inside the plant.

At approximately the same time the plant's hazardous waste storage area, which was located outside in a diked, roofed area was also moved inside the plant into an area built and designated specifically for the storage of hazardous waste. Thus, since the latter part of 1984 the plant has not stored outside (with the exception noted below) drums of liquid raw materials or hazardous waste (see Exhibits 2 and 3).

After the bermed area ceased use as a storage area for drummed raw materials it was designated for the accumulation of empty drums for removal. In late 1984 the plant established procedures for the accumulation of empty drums in the bermed area and on pallets prior to movement to the bermed area (see Exhibit 2).

All drums observed in the bermed area by Board of Health and Conservation Commission members on February 21, 1987 were empty. In addition, all other drums observed on that date anywhere else outside the plant buildings were empty with the following exceptions;

First, one drum of kerosene and one drum of diesel fuel both stored adjacent to the plant. The placement of these drums outside was very recent and intended as a temporary measure. The use of these drums was necessary because fuel oil from E & C's internal fuel tanks which had been used to fuel two existing pieces of equipment, was consistently causing clogging in the equipment and an alternative was required. The drums were placed outside pending arrival of safety storage cabinets which would allow their storage inside the building. Because of the flammability of these materials both fire regulations and insurance coverage precluded storage inside unless the cabinets were available. Both drums have now been moved inside the plant.

No spillage of material from either drum was observed at any time. We believe any material on the pavement observed on February 21 near the diesel fuel drum was a result of repeated connection and disconnection during deliveries of fuel oil. The connection for the interior fuel oil tank is directly adjacent to the former location of the diesel fuel drum.

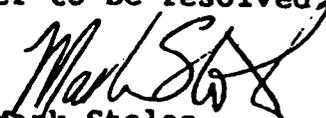
Secondly, at a meeting of the Canton Conservation Commission on March 18, the Walpole St. plant manager was shown pictures taken during the February 21 inspection. In one photo, 3 silver drums were shown adjacent to a door near the flotation production area of the plant. The plant manager had not observed these drums during his personal inspection of the outside of the plant on the morning of Monday, February 23.

Subsequent to the Conservation Commission meeting a review of records and employees was conducted regarding these 3 drums. It was determined that the 3 drums contained a liquid raw material used in the production process. The drums were apparently moved by forklift to the area shown in the photo from the plant's shipping and receiving area on Friday, February 20. It is normal procedure to move drums from shipping and receiving to specific production areas. It is then the responsibility of the production area to move the materials inside to their area. In this case, the drums were apparently not moved inside to the production area until Sunday, February 22. While we do not believe this incident constitutes "storage" under the Canton Hazardous Materials By-Law, the plant has taken steps to ensure that delays in moving materials while in transit around the plant are minimized.

After the inspection on February 21, 1987 all empty drums were removed from the plant site. These drums were removed by two companies, Ryan Barrel of Peabody, Ma. and Northeast Solvents of North Andover, Ma. Both companies have regularly removed empty drums from the plant in the past. Attached as Exhibit 4 is the documentation for the removal of the drums which confirms their empty status. The total of empty drums removed is greater than the number observed during February 21 since it includes empty drums accumulated inside the building and empties generated by ongoing production between February 21 and the date of the pick-ups. The removal of the drums was prompted by E & C's understanding, confirmed by the Board of Health Agent, John Fralick, that the Board was concerned about housekeeping and appearance in the yard area. We believed our prompt action would demonstrate E & C's sensitivity to the Board's concerns. As a further step to address these concerns the plant will limit future empty drum staging for removal to the interior of the plant.

At the Conservation Commission meeting we were asked to explain why empty drums would still have "hazard" labels on them. Initial placement of these designations is required by US Department of Transportation Regulations. Per these regulations all markings and labels must be left in place on empty drums as if the drums were full of their original contents. A reference to these regulations can be found on the invoices from Ryan Barrel which are included in Exhibit 4. Thus, it would be improper for E & C to alter or remove the labels even though the drums are empty.

Based upon the above information, Emerson & Cuming, Inc. respectfully requests that the Board reconsider its findings of March 10. During the past few years, E & C has cooperated fully with the Board, and has had numerous visits by the Board of Health Agents and we believe we have complied with every request by the Agents. In fact, Mr. Fralick has inspected the plant since the February 21 inspection. It is our intent to continue that cooperation and hope the information conveyed in this letter will enable the current matter to be resolved.


Mark Stoler

MS/lmm

cc: Canton Conservation Commission

Exhibit 1



S. RUSSELL SYLVA
Commissioner

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering
Metropolitan Boston - Northeast Region
5 Commencement Avenue
Woburn, Massachusetts 01801

935-2160

March 1, 1985

Emerson & Cuming
Dewey and Almy Chemical Division
W.R. Grace and Company
59 Walpole Street
Canton, Ma. 02021

RE: CANTON-"Spill Control
Audit at Plant #2"
Engineering Report

Attention: Mr. Randolph M. Olson, Plant Manager.

Dear Mr. Olson:

On February 27, 1985, Engineers from the Metropolitan Boston/Northeast Region of the Department of Environmental Quality Engineering, Division of Water Pollution Control, met with you and Ms. Gina McCarthy of the Canton Board of Health to review and inspect the progress toward accomplishing the recommended actions contained in a report entitled:

Emerson & Cuming
Canton, Massachusetts
Spill Control Audit
at
Plant No. 2"

The above report was prepared by Camp Dresser & McKee, Inc., and dated January, 1985. The report was requested in a letter from the Department, dated November 5, 1982 and was the result of an inspection of your facility at the above address on November 2, 1982. The inspection was conducted at the request of the Canton Board of Health to investigate the drainage patterns both inside and outside the plant as they related to any existing or potential discharge of pollutants to an existing raceway which flows under the building and property. The raceway is diverted from the East Branch River of the Neponset River and discharges back to the River through a 24 inch concrete pipe. The Board of Health's concern in this matter was the potential for any pollutants to reach the Town Wells downstream from your facility.

The inspection at that time did not reveal the presence of any existing discharges nor the appearance of any pollutants at the outfall pipe. However; the Department's letter did point out that due to the existence of the raceway, certain chemical storage and the use of these chemicals, or unauthorized use presented a potential discharge. Therefore; the Department recommended that some appropriate steps be taken to address this potential discharge.

As a result, the aforementioned report addressed these issues and made recommendations including, sealing the entrance to the raceway, sealing grates, trenches, drains and accesses from the plant, paving along Walpole Street, to

Emerson & Cuming
Page-2-

divert groundwater run-off away from the building, constructing dikes and berms around potential spill areas and chemical storage areas and in general, better housekeeping procedures.

It was observed during the inspection that all of the above has been completed and that on-going improvements will continue to address the elimination of potential releases to the East Branch River. The Camp Dresser & McKee, Inc., report did reveal, as a result of their investigation, the discharge of non-contact cooling water i.e. steam condensate, air conditioning and a groundwater sump discharge to the raceway. These discharges will continue and an appropriate "NPDES" permit application has been made to EPA which was acknowledged by them in writing on June 13, 1984.

It is the Department's opinion that Emerson & Cuming has acted in good faith and has taken all appropriate steps as requested. The Department would like to extend its appreciation to you for your cooperation and continued efforts in this matter.

If you have any questioning regarding this matter, you may contact Mr. David G. Erekson of my staff at 935-2160.

Very truly yours,


William A. Krol, P.E.
Deputy Regional Environmental
Engineer

DGE/bc

cc: Canton Board of Health, 1492 Washington Street, Canton, Ma. 02021
Attention: Ms. Regina McCarthy
Department of Environmental Quality Engineering, Metropolitan Boston/
Northeast Region, 5 Commonwealth Avenue, Woburn, Ma. 01801
Attention: Richard Chalpin, Acting Regional Environmental Engineer
Department of Environmental Quality Engineering, Division of Hazardous
Waste, One Winter Street, Boston, Ma. 02108

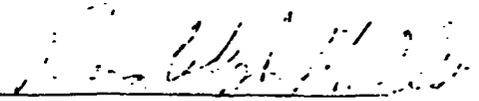
Exhibit 2

AFFIDAVIT

Randolph M. Olson, being duly sworn, deposes and says:

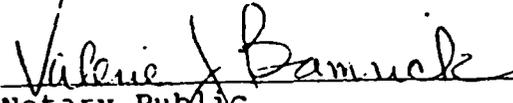
1. My name is Randolph M. Olson
2. Since January, 1981 I have worked at the Emerson & Cuming plant on Walpole St. in Canton.
3. Since January 1981, I have held the position of Plant Manager. In that position I am responsible for the overall operation of the facility.
4. From the latter part of 1982 through 1984 Emerson & Cuming employees, under my direction, implemented a number of projects to improve materials handling at the plant. Several of these projects were suggested by the Massachusetts Department of Environmental Quality Engineering (DEQE) and the Canton Board of Health Agent, Ms. Regina McCarthy.
5. Among these improvements was the installation of a berm on a paved area on the north side of the plant around the existing storage of raw materials. The bermed area was constructed with the knowledge and approval of DEQE and Ms. McCarthy. From approximately the middle of 1983 until the latter part of 1984 some raw material drums were stored in this area.
6. As part of overall changes in materials handling, I decided in 1984 that all drummed liquid raw materials should be stored inside the plant building. In the latter part of 1984, I informed plant employees that only empty drums were to be stored outside the plant building and that all drums were to be checked to ensure they were empty prior to placement outside.
7. Also during the latter part of 1984 an area inside the plant was built and designated specifically for the storage of hazardous wastes.
8. To the best of my knowledge and belief, since the latter part of 1984 no drums containing liquid raw materials or wastes have been stored outside at the plant. The only exceptions are one drum of diesel fuel and one drum of kerosene which were temporarily stored outside of the plant for safety reasons. To the best of my knowledge and belief there was no discharge of material from either of these drums.

9. On February 23, 1987, between 9 and 10 AM, I inspected all drums located on the plant site outside of the buildings. To the best of my knowledge and belief, all of the drums were empty, with the exception of the two drums mentioned in Paragraph 8.



Randolph M. Olson

Sworn and subscribed before me this 4th day of March 1987.



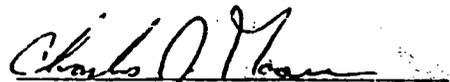
Valerie J. Bamuck
Notary Public

Exhibit 3

AFFIDAVIT

Charles J. Moore, being duly sworn, deposes and says:

1. My name is Charles J. Moore.
2. I have been employed at the Emerson & Cuming plant on Walpole St. in Canton since January 11, 1982.
3. I currently hold the position of Shipper/Receiver at the plant.
4. As a Shipper/Receiver my duties include responsibility for material deliveries and pick-ups at the plant along with ensuring that the correct documentation is maintained.
5. As part of my duties, I am responsible for the shipment of empty raw material drums from the plant.
6. It has been standard plant operating procedure since 1984 for all drums containing raw materials to be stored inside the plant. Since 1984, to the best of my knowledge and belief, only empty drums have been stored outside. The only exception to this are one drum of diesel fuel and one drum of kerosene which were recently stored outside on a temporary basis.
7. For at least the last two years the companies removing empty drums from the plant are Ryan Barrel of Peabody, Mass. and Northeast Solvents of N. Andover, Mass. Representatives of these companies have told me that they will only remove drums that contain no liquids of any type, including water.
8. In late February and early March of 1987, Ryan Barrel and Northeast Solvents picked up empty drums at the plant. These drums included those stored in the bermed area on the north side of the plant and those empty drums stored outside at other locations at the plant.
9. I assisted in loading the empty drums during the above-referenced pick-ups. To the best of my knowledge and belief no liquids were in the drums at that time.


Charles J. Moore

Sworn and subscribed before me this 5th day of March 1987.

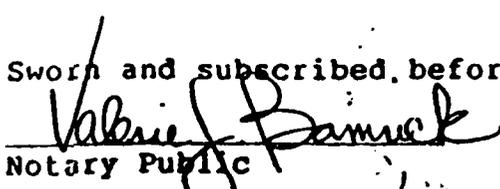

Notary Public

Exhibit 4

JOHN COHENNO

EMERSON & CUMING

Emerson & Cuming, Inc.
A GRACE CO.

PURCHASE ORDER P 4142

SHIP & BILL TO THE
LOCATION INDICATED BELOW

...

...

...

To: Ryan Barrel Co.
56 Pulaski St.
Peabody, Ma. 01760

2/26/87

2/24/87

A

Removal of Empty Barrels

X5

Emerson & Cuming, Inc.
A GRACE CO.

RECEIVING SCHEDULE

DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL. TO COME	DATE REC'D	SIGNATURE OF RECEIVER	QTY. RECEIVED	BAL.
2/25/87	<i>Charles ...</i>	36		I			
				J			
				K			
				L			
				M			
				N			
				O			
				P			

US EPA ARCHIVE DOCUMENT

JOHN COHENNO

EMERSON & CUMING

Emerson & Cuming, Inc
A GRACE Co

PURCHASE ORDER NO **P** 41420

SHIP & BILL TO THE
LOCATION INDICATED BELOW

- ...
- ...
- ...

To • Ryan Barrel Co.
56 Pulaski St.
Peabody, Ma. 01760

H

As Requested

3/2/87

A	Ea.	Removal of empty barrels	X5260
---	-----	--------------------------	-------

Emerson & Cuming, Inc
A GRACE Co

RECEIVING SCHEDULE

	DATE RECD	SIGNATURE OF RECEIVER	QTY RECEIVED	BAL. TO COME		DATE RECD	SIGNATURE OF RECEIVER	QTY RECEIVED	BAL. TO COME
A	3/4/87	<i>[Signature]</i>	29		I				
B					J				
C					K				
D					L				
E					M				
F					N				
G					O				
H					P				

RYAN BARREL CO., INC.

No. 1

36 PULASKI ST.
PEABODY, MASS.
PHONE
BOSTON AREA
322-9110
NORTHSHORE AREA
532-1130 or 1134

RECONDITIONERS • DEALERS IN
ALL TYPES OF STEEL CONTAINERS

30 x 40 URGENT
TOP BY 2/26/87

FROM EMERSON - Cummings D.V. of ...
DATE 2/25/87

57 WALPOLE ST. CANTON MASS

CALLED 2/23/87 VIA #7

QUANTITY	DESCRIPTION	#
4	55 GAL. O. H. NIC	2-576-56
	55 GAL. 17 H.	
	#1 55 GAL. C. H.	
20	#2 55 GAL. C. H.	
	30 GAL. O. H.	
	30 GAL. 17H	
	30 GAL. C. H.	
	MISC.	
12	CUTS 6.00	19.00
	JUNK	
	REJECTS/RETURNS	dispose
TOTAL:		

*As per Mass. Statute 30.010: We are forbidden by law to accept any heavy drums.

Value and quantity subject to inspection

REC'D BY _____

Equivalent removal.

**DOT's 49 CFR 173.29 says that all openings on the empty container must be closed, and that all markings and labels must be in place as if the drum were full of its original contents. A DOT shipping paper is not required for transportation of a drum for reconditioning via contract or private motor carrier. DOT placarding is not required for vehicles carrying empty containers.

Inc.

03110

VTURY

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of Trans-

31

161.7

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19. and
remain

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this
viscous
container

40 CFR
liner...
the
eve

RYAN BARREL CO., INC.

No. 25

36 PULASKI ST.
PEABODY, MASS.
PHONE
BOSTON AREA
322-9110
NORTHSHORE AREA
532-1130 or 1134

RECONDITIONERS • DEALERS IN
ALL TYPES OF STEEL CONTAINERS

25

FROM Emerson - Cummings DATE 3/14/87

57 WALPOLE ST. CANTON MASS

CALLED 3/3/87 VIA #7

QUANTITY	DESCRIPTION	#
2	55 GAL. O. H. NIC # 2-576-56	
1	55 GAL. 17 H. NIC	
	#1 55 GAL. C. H.	
20	#2 55 GAL. C. H. ...	
	30 GAL. O. H.	
	30 GAL. 17H	
	30 GAL. C. H.	
	MISC.	
6	CUTS @ 6.00 = 36.00	
	JUNK	
	REJECTS/RETURNS	dispose
TOTAL:		

*As per Mass. Statute 30.010: We are forbidden by law to accept any heavy drums.

Value and quantity subject to inspection

REC'D BY _____

Inc.

03110

VTURY

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31

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viscous
container

40 CFR
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the
eve

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Ryan Barrel Co., Inc.

RECONDITIONERS - DEALERS IN
ALL TYPES OF STEEL CONTAINERS
SPECIALIZING IN
OPEN HEAD CONTAINERS FEATURING
CHEMICAL-SOLVENT PROOF-BARL-ON
LININGS

56 PULASKI STREET, P.O. BOX 589, PEABODY, MASS 01960
NORTH SHORE AREA CALL 512-1130 BOSTON AREA CALL 322-9110

"SERVING INDUSTRY FOR OVER HALF A CENTURY"

EMPTY DRUM CERTIFICATION

... that these drums are 'empty' as that term is defined in the National Environmental Protection Agency regulations, 40 CFR 261.7, and that they have been properly prepared for transportation under the regulations of the U.S. Department of Transportation, 49 CFR 173.29.**

Date: 2/25/87 Slip number: 21891
Company Name: Emerson & Cuming Signed By: [Signature]

*With regard to most regulated residues, EPA's 40 CFR 261.7 says: "A container...is empty if:

- (i) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and
- (ii) No more than 2.5 centimeters (one inch) of residue remain on the bottom of the container...."

EPA has explained this rule, saying that "one inch of waste material is an overriding constraint and may remain in an empty container only if it cannot be removed by normal means. The rationale for this provision is that there are certain tars and other extremely viscous materials that will remain in the container even after the container is emptied by normal means."

For residues of products specifically listed by name in 40 CFR 261.33(e), EPA says the container is empty only "if the container... has been triple-rinsed using a solvent capable of removing" the product, or has been cleaned by another method shown to achieve equivalent removal.

**DOT's 49 CFR 173.29 says that all openings on the empty container must be closed, and that all markings and labels must be in place as if the drum were full of its original contents. A DOT shipping paper is not required for transportation of a drum for reconditioning via contract or private motor carrier. DOT placarding is not required for vehicles carrying empty containers.



Ryan Barrel Co., Inc.

RECONDITIONERS - DEALERS IN
ALL TYPES OF STEEL CONTAINERS
SPECIALIZING IN
OPEN HEAD CONTAINERS FEATURING
CHEMICAL-SOLVENT PROOF-BAKED-ON
LININGS

56 PULASKI STREET, P.O. BOX 589, PEABODY, MASS. 01960
NORTH SHORE AREA CALL 532-1130 - BOSTON AREA CALL 322-9110

"SERVING INDUSTRY FOR OVER HALF A CENTURY"

EMPTY DRUM CERTIFICATION

I hereby certify that these drums are "empty" as that term is defined in the national Environmental Protection Agency regulations, 40 CFR 261.7*, and that they have been properly prepared for transportation under the regulations of the U.S. Department of Transportation, 49 CFR 173.29.**

Date: 3/4/87 Slip number: 21913
Company Name: Emerson Cuming Signed By: Charles J. Stone

*With regard to most regulated residues, EPA's 40 CFR 261.7 says: "A container...is empty if:

- (i) All wastes have been removed that can be removed using the practices commonly employed to remove materials from that type of container, e.g., pouring, pumping, and aspirating, and
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Polyfibrion Division
W.R. Grace & Co.

GRACE

This number must appear on all invoices, B/L's, packing slips and related correspondence.

PURCHASE ORDER
P 43681

- 51 INDEPENDENCE RD. ACTON, MA. 01729
- HARMONY ST. ADAMS, MA. 01229
- PHILLIP LEE DR. S.W. ATLANTA, GA. 30336
- 82 WHITTEMORE AVE. CAMBRIDGE, MA. 02146
- 238 PROSPER RD. DE PERE, WI 54119
- 98 HAYDEN AVE. LEXINGTON, MA. 02173
- COMMERCE BLVD. MORRISTOWN, TN 37814
- 5825 U.S. 60 EAST OWENSBORO, KY. 42302
- 48 N. FOURTH ST. QUAKERTOWN, PA. 18851
- BECKER FARMS IND. PARK. ROANOKE RAPIDS, NC 27679
- 483 W. MCCONKEY ST. SHREVE, OH 44878-9741
-

Please Note!

SHIP GOODS & RENDER YOUR INVOICE TO THE LOCATION CHECKED ABOVE UNLESS OTHERWISE NOTED AT RIGHT

SHIP TO .

Canton

BILL TO

TO: Metcalf & Eddy Technologies, Inc.
345 W. Main Street
Northborough, MA 01532
(508) 393-2537
Attn: Ed Cichon

Lexington - Polyfibrion Accounts Payable

PURCHASE ORDER DATE 12/22/88	OUR REQUISITION NO.	TERMS: Net 30 days	VENDOR NO.	F.O.B. Destination
TO ARRIVE BY: 01-16-89	ROUTING: Vendor	SUBJECT TO STATE & LOCAL SALES & USE TAX YES NO XX	TAX EXEMPTION NO. 135-114-230	DELIVER TO R.M. Joyce

W.R. GRACE & CO ACCOUNT NUMBER	ITEM	QUANTITY ORDERED	PLEASE FURNISH THE MATERIAL AND/OR SERVICES SPECIFIED BELOW	UNIT	UNIT PRICE	ITEM AMOUNT
X5-185-20-214			Phase II Contamination Assessment			
	1	1	Monitoring Well Installation (8)	Ea	12,808	12,808
	2	1	PCB Evaluation	Ea	1,180	1,180
	3	1	Potentiometric Surface Evaluations	Ea	930	930
	4	1	Groundwater Sampling/Analysis	Ea	3,800	3,800
	5	1	Hydraulic Conductivity Tests	Ea	3,100	3,100
	6	1	Report Preparation	Ea	6,000	6,000
			Total			27,818

THE ACKNOWLEDGMENT COPY OF THIS PURCHASE ORDER MUST BE SIGNED, DATED, AND RETURNED PROMPTLY.

By R.R. Parker

IMPORTANT - INSTRUCTIONS TO VENDOR

1. RENDER INVOICE IN TRIPLICATE TO: W.R. GRACE & CO. POLYFIBRION DIVISION
 2. MAIL INVOICES TO ADDRESS CHECKED ABOVE UNLESS OTHERWISE INDICATED.
 3. SHOW PURCHASE ORDER NUMBER ON ALL INVOICES, SHIPPING NOTICES, BILL OF LADING, EXPRESS RECEIPTS, PACKAGES, AND PACKING SLIPS.
 4. SHOW SHIPPING ADDRESS ON ALL SHIPPING PAPERS.
- An acceptance of this order or any shipment of goods ordered hereby or furnish of any services called for hereunder shall be an acceptance of the terms and conditions on the face and back hereof as the only terms and conditions applying to purchase and sale of the said goods or services. Your order is hereby acknowledged and accepted. Shipment will be made or services rendered in accordance with the above schedule.
- Date of Acceptance _____
Seller's Name _____

US EPA ARCHIVE DOCUMENT

W.R. Grace & Co.

GRACE

PURCHASE REQUISITION

R 264

ASSIGNED PURCHASE ORDER # P.O.P43681-11 Ac

PLEASE PRINT & TO
 RECORD

ACTON	ADAMS	ATLANTA	CAMBRIDGE	COMPOSITE	DE PERE	LEX
MORRISTN	OVERSEAS			QUAKERTN	R. RAPIDS	SHREVE
	CELLULOSE	DARAMIC	PAPER MILL			

OTHER SHIP TO Canton/Emerson & Cuming, Inc.
59 Walpole Street

Metcalf & Eddy Technologies, Inc.
345 W. Main Street
Northborough, MA 01532
Attn: Ed Cichon

BILL TO (IF NOT LISTED ABOVE) Lexington-Polyfibron Accts Payable

* "SHIP TO ARRIVE BY" MEANS JUST THAT. GIVE US A DEFINITE DATE, AVOID "RUSH" OR "A"

REQUISITION DATE 20 Jan 89	QUOTATION NUMBER	TERMS Net 30 days	F.O.B. Destination
--------------------------------------	------------------	-----------------------------	------------------------------

* SHIP TO ARRIVE BY 23 Jan 89	ROUTING	SUBJECT TO STATE & LOCAL SALES & USE TAX <input checked="" type="checkbox"/>	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	DELIVER TO R.M. Joyce
---	---------	--	---	---------------------------------

W.R. GRACE & CO. ACCOUNT NO.	ITEM	QTY. ORDERED	PLEASE FURNISH THE MATERIAL AND/OR PERFORM SERVICES AS OUTLINED BELOW	UNIT	UNIT PRICE	ITEM AMOUNT
X5-185-20-213			Canton Phase I/II Site Assessment			
			Addendum Summary: 12 additional test borings; 5-15' monitoring wells; three day installation.			
	1	1	Drill Rig	EA	3,600	3,600
	2	1	Steam Cleaner	EA	360	360
	3	1	Materials	EA	1,972.50	1,972.50
	4	2	Drill Operators (12 hr day incl. OT)	EA	1,290.00	2,580.00
	5	1	Hydrogeologist (12 hr day inc. OT)	EA	2,520.00	2,520.00
			TOTAL			11,032.50
			Costs not to exceed \$11,032.50 without prior written approval from Grace.			
			<i>Balance</i> 27,818.00			
			<i>Increase</i> 11,032.50			
			<i>Present Balance</i> 38,850.50			

ORIGINATOR'S SIGNATURE: Rosanne M. Joyce APPROVED: James F. Murphy PURCHASING: R R Parker 1/2/89

STATE THE PURPOSE/USE OF THE MATERIAL AND/OR SERVICES ON THIS REQUISITION:
Additional test borings and monitoring wells are necessary to further define areas impacted by solvent (adjacent to dumpster pad/module building), and diesel fuel (near Walpole Street entrance).

Polyfibrion Division
W.R. Grace & Co.

GRACE

This number must appear on all invoices, B/L's, packing slips and related correspondence.

2 42521-11
ADDENDUM #:

HARBONY ST. ADAMS, MA. 01228 51 INDEPENDENCE RD. ACTON, MA. 01726 PHILIP LEE DR. FULTON IND. PL. ATLANTA, GA. 30338 22 WRETTEMORE AVE. CAMBRIDGE, MA. 02148 22 HAYDEN AVE. LEXINGTON, MA. 02173 HIGHWAY 88E, RT 1 OWENSBORO, KY. 42301 45 N. FOURTH ST. QUAKERTOWN, PA.

Please Note!

SHIP GOODS & RENDER YOUR INVOICE TO THE LOCATION CHECKED ABOVE UNLESS OTHERWISE NOTED AT RIGHT.

SHIP TO • EMERSON & CUMING INC.
• 59 WALPOLE STREET
• CANTON, MASS. 02021

TO: METCALF & EDDY TECHNOLOGIES INC.
• 345 W. MAIN STREET
• NORTHBOROUGH, MASS. 01532
• ATTN: ED CICHEN

BILL TO
W.W. GRACE & COMPANY
• 55 HAYDEN AVENUE
• LEXINGTON, MASS. 02173
• ATTN: POLYFIBRION ACCOUNTS PAYABLE

PURCHASE ORDER DATE 1/23/89	OUR REQUISITION NO. R 26415	TERMS: NET 30 DAYS	VENDOR NO.	F.O.B. DESTINATION
TO ARRIVE BY: 1/23/89	ROUTING: VENDOR	SUBJECT TO STATE & LOCAL SALES & USE TAX YES NO X	TAX EXEMPTION NO. 135-114-23001	DELIVER TO ROSABE JOYCE

W.R. GRACE & CO. ACCOUNT NUMBER	ITEM	QUANTITY ORDERED	PLEASE FURNISH THE MATERIAL AND/OR SERVICES SPECIFIED BELOW	UNIT	UNIT PRICE	ITEM AMOUNT
4318520213			THIS ADDENDUM IS ISSUED TO THE ABOVE PURCHASE ORDER PP-43001-11 TO ADD THE FOLLOWING: ADDENDUM SUMMARY: 12 ADDITIONAL TEST BORTING; 8-15' MONITORING WELLS; THREE DAY INSTALLATION.			
	1	1	DRILL ROD	EA	3600.00	\$3,600.00
	2	1	STEAM CLEANER	EA	300.00	300.00
	3	1	MATERIALS	EA	1972.50	1,972.50
	4	2	DRILL OPERATORS (12 HR DAY INCL. OT)	EA	1250.00	2,500.00
	5	1	HYDROGEOLOGIST (12 HR DAY INCL. OT)	EA	2520.00	2,520.00
			TOTAL			\$11,032.50
			PREVIOUS BALANCE:		\$27,818.00	
			NET INCREASE:		11,032.50	
			PRESENT BALANCE:		\$38,850.50	

THE ACKNOWLEDGMENT COPY OF THIS PURCHASE ORDER MUST BE SIGNED, DATED, AND RETURNED PROMPTLY.

By _____

NOTICES RECEIVED

RAW MATERIAL CODE

WRITER, REMOVE THIS TOP STUB

TAB ↓

TAB ↓

TAB ↓

TAB ↓

HAFF BUS FORMS INC - WINGHAM 6

Polyfibron Division
W.R. Grace & Co.

GRACE

This number must appear on all invoices, B/L's, packing lists and related correspondence.

PURCHASE ORDER
P 4368

- 31 INDEPENDENCE RD. ACTON, MA. 01726
- HARMONY ST. ADAMS, MA. 01228
- PHILLIP LEE DR. S.W. ATLANTA, GA. 30338
- 62 WHITTEMORE AVE. CAMBRIDGE, MA. 02148
- 130 PROSPER RD. DE PERE, WI 54116
- 88 HAYDEN AVE. LEXINGTON, MA. 02173
- COMMERCE BLVD. MORRISTOWN, TN 37814
- 5426 U.S. 89 EAST OWENSBORO, KY. 42303
- 46 N. FOURTH ST. QUAKERTOWN, PA. 18851
- BECKER FARMS IND. PARK. ROANOKE RAPIDS, NC 27876
- 483 W. McCONKEY ST. SHREVE, OH 44878-8741
-

Please Note!

SHIP GOODS & RENDER YOUR INVOICE TO THE LOCATION CHECKED ABOVE UNLESS OTHERWISE NOTED AT RIGHT

SHIP TO •
• **EMERSON -CUMING**
• **59 WALPOLE STREET**
• **CANTON, MA 02021**

BILL TO
• **W.R. GRACE & COMPANY - CONN**
• **55 HAYDEN AVE**
• **LEXINGTON, MA 02173**
• **ATTN: POLYFIBRON ACCOUNTS PAYAB**

TO: • **GOLDMAN ENVIRONMENTAL CONSULTANTS**
• **161 FORBES ROAD, SUITE 204**
• **BRAINTREE, MA 02184**

PURCHASE ORDER DATE 12/22/88	OUR REQUISITION NO. R26411	TERMS: NET 30	VENDOR NO.	F.O.B. DESTINATION
TO ARRIVE BY: 1/29/89	ROUTING: VENDOR	SUBJECT TO STATE & LOCAL SALES & USE TAX YES NO XX	TAX EXEMPTION NO. 135-114-23001	DELIVER TO R M JOYCE

W.R. GRACE & CO. ACCOUNT NUMBER	ITEM	QUANTITY ORDERED	PLEASE FURNISH THE MATERIAL AND/OR SERVICES SPECIFIED BELOW	UNIT	UNIT PRICE	ITEM AMOUNT
X5-185-20-214	1	1	<p>CONFIRMING - DO NOT DUPLICATE</p> <p>PREPARE SITE HISTORY FOR EMERSON & CUMING, INC - CANTON, MA</p> <p>PHASE I/II SITE INVESTIGATION IN ACCORDANCE WITH PROPOSAL DATED 10/5/88.</p> <p>REFERENCE GEC PROPOSAL DATED 10/5/88</p>	EACH	\$2020.00	\$2020.00

THE ACKNOWLEDGMENT COPY OF THIS PURCHASE ORDER MUST BE SIGNED, DATED, AND RETURNED PROMPTLY. By _____

IMPORTANT - INSTRUCTIONS TO VENDOR

1. RENDER INVOICE IN TRIPLICATE TO: **W.R. GRACE & CO. POLYFIBRON DIVISION**
2. MAIL INVOICES TO ADDRESS CHECKED ABOVE UNLESS OTHERWISE INDICATED.
3. SHOW PURCHASE ORDER NUMBER ON ALL INVOICES, SHIPPING NOTICES, BILL OF LADING, EXPRESS RECEIPTS, PACKAGES, AND PACKING SLIPS.
4. SHOW SHIPPING ADDRESS ON ALL SHIPPING PAPERS.

An acceptance of this order or any shipment of goods ordered hereby or furnishing of any services called for hereunder shall be an acceptance of the terms and conditions on the face and back hereof as the only terms and conditions applying to the purchase and sale of the said goods or services. Your order is hereby acknowledged and accepted. Shipment will be made or services rendered in accordance with the above schedule.

Date of Acceptance _____

Seller's Name _____

Sample:	<u>June 1, 1984</u>		<u>July 11, 1984</u>		
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>
<u>Test</u>					
BOD (mg/l)	< 5	< 2	< 2	< 1	< 2
COD (mg/l)	27	21	20	5.5	22
pH	6.4	6.7	7.2	6.6	7.
Ammonia (mg/l)	0.25	0.12	0.26	0.25	0.
Total Suspend Solids (mg/l)	6	9	39	-	25
Silver (mg/l)	0.02	0.02	< 0.02	< 0.02	< 0.
Nickle (mg/l)	0.05	< 0.02	< 0.02	< 0.02	< 0.
Lead (mg/l)	0.05	0.05	< 0.25	< 0.25	< 0.
Total Organic Carbon (mg/l)	< 10	< 10	13	6.5	11
DOP (μ g/l)	< 50	< 50	< 50	< 50	< 50
Methylene Chloride (μ g/l)	-	-	-	4.2	10.
1, 1, 1, Trichloroethane (μ g/l)*	-	-	-	-	-
Toluene (μ g/l)*	-	-	-	-	-
Dichloroethane (μ g/l)*	-	21	-	-	-

A= Taken at non contact cooling water & ground water collection sump.

B= Taken at raceway discharge to river.

C= Taken at pond above plant (river spillway).

D= Taken at non contact cooling water & ground water collection sump.

E= Taken at raceway discharge to river.

* Detection threshold limits were 5 μ g/l (5 ppb)



S. RUSSELL SYLVA
Commissioner

The Commonwealth of Massachusetts
Department of Environmental Quality Engineering
Metropolitan Boston - Northeast Region
5 Commonwealth Avenue
Wakurn, Massachusetts 01801

935-2160

March 1, 1985

Emerson & Cuming
Dewey and Almy Chemical Division
W.R. Grace and Company
59 Walpole Street
Canton, Ma. 02021

RE: CANTON-"Spill Control
Audit at Plant #2"
Engineering Report

Attention: Mr. Randolph M. Olson, Plant Manager

Dear Mr. Olson:

On February 27, 1985, Engineers from the Metropolitan Boston/Northeast Region of the Department of Environmental Quality Engineering, Division of Water Pollution Control, met with you and Ms. Gina McCarthy of the Canton Board of Health to review and inspect the progress toward accomplishing the recommended actions contained in a report entitled:

Emerson & Cuming
Canton, Massachusetts
Spill Control Audit
at
Plant No. 2"

The above report was prepared by Camp Dresser & McKee, Inc., and dated January, 1982. The report was requested in a letter from the Department, dated November 5, 1982 and was the result of an inspection of your facility at the above address on November 2, 1982. The inspection was conducted at the request of the Canton Board of Health to investigate the drainage patterns both inside and outside the plant as they related to any existing or potential discharge of pollutants to an existing raceway which flows under the building and property. The raceway is diverted from the East Branch River of the Neponset River and discharges back to the River through a 24 inch concrete pipe. The Board of Health's concern in this matter was the potential for any pollutants to reach the Town Wells downstream from your facility.

The inspection at that time did not reveal the presence of any existing discharges nor the appearance of any pollutants at the outfall pipe. However; the Department's letter did point out that due to the existence of the raceway, certain chemical storage and the use of these chemicals, or unauthorized use presented a potential discharge. Therefore; the Department recommended that some appropriate steps be taken to address this potential discharge.

As a result, the aforementioned report addressed these issues and made recommendations including, sealing the entrance to the raceway, sealing grates, trenches, drains and accesses from the plant, paving along Walpole Street, to

Emerson & Cuming
Page-2-

divert groundwater run-off away from the building, constructing dikes and berms around potential spill areas and chemical storage areas and in general, better housekeeping procedures.

It was observed during the inspection that all of the above has been completed and that on-going improvements will continue to address the elimination of potential releases to the East Branch River. The Camp Dresser & McKee, Inc., report did reveal, as a result of their investigation, the discharge of non-contact cooling water i.e. steam condensate, air conditioning and a groundwater sump discharge to the raceway. These discharges will continue and an appropriate "NPDES" permit application has been made to EPA which was acknowledged by them in writing on June 13, 1984.

It is the Department's opinion that Emerson & Cuming has acted in good faith and has taken all appropriate steps as requested. The Department would like to extend its appreciation to you for your cooperation and continued efforts in this matter.

If you have any questioning regarding this matter, you may contact Mr. David G. Erekson of my staff at 935-2160.

Very truly yours,


William A. Krol, P.E.
Deputy Regional Environmental
Engineer

DGE/bc

cc: Canton Board of Health, 1492 Washington Street, Canton, Ma. 02021
Attention: Ms. Regina McCarthy
Department of Environmental Quality Engineering, Metropolitan Boston/
Northeast Region, 5 Commonwealth Avenue, Woburn, Ma. 01801
Attention: Richard Chalpin, Acting Regional Environmental Engineer
Department of Environmental Quality Engineering, Division of Hazardous
Waste, One Winter Street, Boston, Ma. 02108