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PART B

RCRA PERMIT APPLICATION

Exhibit
1349
State of Minnesota v. 3M Co.,
Court File No. 27-CV-10-28862

A. Part A
B. Facility Description
C. Waste Analysis
D. Process - Containers
E. ???
F. Procedures to Prevent Hazards
G. Contingency Plan
H. Personnel Training
I. Closure/Financial

Accepting customer Wastes back — need to define in permit

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

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F M N D 0 0 6 1 7 2 9 6 9 — D

LABEL ITEMS

- II. EPA I.D. NUMBER
- III. FACILITY NAME
- IV. FACILITY MAILING ADDRESS
- V. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

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

II. POLLUTANT CHARACTERISTICS

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

SPECIFIC QUESTIONS	MARK 'X' YES	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		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: 3M CHEMOLITE CENTER

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 J. MICHAEL OSBORNE, P.E.	612 778 6135

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX			
3 PO BOX 33331			
B. CITY OR TOWN	**C. STATE**	**D. ZIP CODE**	
4 ST. PAUL	MN	55133	

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER			
5 CHEMOLITE ROAD			
B. COUNTY NAME			
WASHINGTON			
C. CITY OR TOWN	**D. STATE**	**E. ZIP CODE**	**F. COUNTY CODE** *(if known)*
6 COTTAGE GROVE	MN	55016	

EPA Form 3510-1 (6-80)

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

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

A. FIRST	(specify) Other Impregnated and Coated Fabrics	C 7 2295
B. SECOND	(specify) Pressure Sensitive Tape and Labels	C 7 2641
C. THIRD	(specify) Die-Cut Office Supplies and Misc. Die-Cut Products	C 6455
D. FOURTH	(specify) Chrome Colors and Other Inorgani Pigments	C 7 2816

VIII. OPERATOR INFORMATION

A. NAME: C 8 3M COMPANY

B. Is the name listed in Item VIII-A also the owner? [X] YES [ ] NO (66)

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

D. PHONE (area code & no.): C A 612 458 2129

E. STREET OR P.O. BOX: P O B O X 3 3 3 3 1

F. CITY OR TOWN: C B S T . P A U L

G. STATE: M N

H. ZIP CODE: 5 5 1 3 3

IX. INDIAN LAND

Is the facility located on Indian lands? [ ] YES [X] NO (52)

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water): C T I 9 N MN0001449

D. PSD (Air Emissions from Proposed Sources): C T I 9 P 23A-83-0-4

B. UIC (Underground Injection of Fluids): C T I 9 U

E. OTHER (specify): C T I 9 (specify)

C. RCRA (Hazardous Wastes): C T I R

E. OTHER (specify): C T I 9 (specify)

XI. MAP

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

XII. NATURE OF BUSINESS (provide a brief description)

Manufacture of photocopying and specialty papers; magnetic iron oxide; adhesives, resins, and chemicals; polymeric films and extrusions; lighographic plates and proofing systems; reflective fabrics and sheetings; signs; and hollow glass bead extenders. A rotary kiln incinerator is located at the facility to burn 3M hazardous organic wastes and an extensive wastewater treatment treats all the wastewater generated.

XIII. CERTIFICATION (see instructions)

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

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
Robert P. Bringer Executive Director	R P Bringer	6/7/84

COMMENTS FOR OFFICIAL USE ONLY

C

EPA Form 3510-1 (6-80) REVERSE

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

Form Approved OMB No. 158-S80004

FORM 3 RCRA | **EPA** | U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

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

I. EPA I.D. NUMBER

F M N D 0 0 6 1 7 2 9 6 9 | T/A: | C: 1

FOR OFFICIAL USE ONLY

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

II. FIRST OR REVISED APPLICATION

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

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

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

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

C 8 | YR. | MO. | DAY

☐ 2. NEW FACILITY *(Complete item below.)*

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

YR. | MO. | DAY

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

☒ 1. FACILITY HAS INTERIM STATUS

☐ 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

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

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

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

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

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

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

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

C DUP | T/A | C 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G	
X-2	T03	20	E	
1	S01	1,950,000	G	
2	S02	130,500	G	
3	S03	200	Y	
4	T01	2,100,000	U	
5	T03	15	D	
6	T04	72,000	U	
7	T04	72,000	U	
8				
9				
10				

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

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EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W M N D 0 0 6 1 7 2 9 6 9 — T/A: C: 1	W — DUP — T/A: 2 — DUP

DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	U019	5	T	T03	
2	U044	5	T	T03	
3	U078	5	T	T03	
4	U122	5	T	T03	
5	D013	<1	T	T03	
6	D014	<1	T	T03	
7	F006	<1	T	T03	
8	F007	<1	T	T03	
9	K001	<1	T	T03	
10	K006	<1	T	T03	
11	P002	<1	T	T03	
12	P003	<1	T	T03	
13	P011	<1	T	T03	
14	P015	<1	T	T03	
15	P022	<1	T	T03	
16	P030	<1	T	T03	
17	P058	<1	T	T03	
18	P064	<1	T	T03	
19					
20	P068	<1	T	T03	
21	P078	<1	T	T03	
22	P092	<1	T	T03	
23	P097	<1	T	T03	
	P098	<1	T	T03	
25					
26	U002	<1	T	T03	

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CONTINUE ON REVERSE

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Continued from page 2.
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EPA I.D. NUMBER (enter from page 1)														FOR OFFICIAL USE ONLY					
W	M	N	D	0	0	6	1	7	2	9	6	9	T/A	C	W	DUP	T/A	C	DUP
														1				2	

II. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)				D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	U003	< 1	T	T03				
2	U004	< 1	T	T03				
3	U006	< 1	T	T03				
4	U007	< 1	T	T03				
5	U009	< 1	T	T03				
6	U014	< 1	T	T03				
7	U020	< 1	T	T03				
8	U021	< 1	T	T03				
9	U043	< 1	T	T03				
10	U048	< 1	T	T03				
11	U057	< 1	T	T03				
12	U023	< 1	T	T03				
13	U077	< 1	T	T03				
14	U096	< 1	T	T03				
15	U103	< 1	T	T03				
16	U108	< 1	T	T03				
17	U109	< 1	T	T03				
18	U112	< 1	T	T03				
19	U115	< 1	T	T03				
20	U117	< 1	T	T03				
21	U125	< 1	T	T03				
22	U126	< 1	T	T03				
23	U128	< 1	T	T03				
	U129	< 1	T	T03				
25	U134	< 1	T	T03				
26	U144	< 1	T	T03				

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CONTINUE ON REVERSE

(enter "A", "B", "C", etc. behind the "3" to identify photocopied pages)

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Continued from page 2.
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EPA I.D. NUMBER (enter from page 1): W M N D 0 0 6 1 7 2 9 6 9 — T/A: — C: 1

FOR OFFICIAL USE ONLY: W — DUP — T/A: — C: 2 — DUP

I. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)				D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1	U147	<1	T	T03				
2	U149	<1	T	T03				
3								
4	U154	<1	T	T03				
5	U157	<1	T	T03				
6	U158	<1	T	T03				
7	U165	<1	T	T03				
8	U169	<1	T	T03				
9	U188	<1	T	T03				
10	U190	<1	T	T03				
11	U196	<1	T	T03				
12	U201	<1	T	T03				
13	U210	<1	T	T03				
14	U213	<1	T	T03				
15	U220	<1	T	T03				
16	U221	<1	T	T03				
17	U228	<1	T	T03				
18	U230	<1	T	T03				
19	U232	<1	T	T03				
20	U238	<1	T	T03				
21								
22	F001 ~~D008~~	3000	T	T01	T04	T04		Dewatered on Belt Filter & Land-filled at permitted facilities
23	D001	500	T	S01				Accumulated and shipped to solvent reclaimers
24								
25								
26								

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CONTINUE ON REVERSE

(enter "A", "B", "C", etc. behind the "3" to identify photocopied pages)

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Continued from page 2.
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Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1): WMNDO06172969

V. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES (1) PROCESS CODES (enter code)	(2) PROCESS DESCRIPTION (if a code is not entered)
1	U045	<1	T		
2	U046	<1	T		
3	U052	<1	T		
4	U066	<1	T		
5	U069	<1	T		
6	U070	<1	T		
7	U076	<1	T		
8	U098	<1	T		
9					
10	U170	<1	T		
11	U186	<1	T		
12	U211	<1	T		
13	U225	<1	T		
14	U235	<1	T		
15	U239	<1	T		
16	P023	<1	T		
17	P028	<1	T		
18	P029	<1	T		
19	P087	<1	T		
20	P104	<1	T		
21					
22	P116	<1	T		
23	P121	<1	T		
24	U211	<1	T		
25					
26					

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Continued from page 2.
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EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
WMND006172969	W DUP 2 DUP

DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	P005	<1	T	T03	
2	P007	<1	T	T03	
3	P010	<1	T	T03	
4	P024	<1	T	T03	
5	P095	<1	T	T03	
6	P120	<1	T	T03	
7	P177	<1	T	T03	
8	U010	<1	T	T03	
9	U012	<1	T	T03	
10	U023	<1	T	T03	
11	U056	<1	T	T03	
12	U067	<1	T	T03	
13	U072	<1	T	T03	
14	U080	<1	T	T03	
15	U088	<1	T	T03	
16	U102	<1	T	T03	
17	U107	<1	T	T03	
18	U121	<1	T	T03	
19	U156	<1	T	T03	
20	U162	<1	T	T03	
21	K062	<1	T	T03	
22	K007	<1	T	T03	
23					
24					
25					
26					

EPA Form 3510-3 (6-80)

CONTINUE ON REVERSE

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Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1): W MND006172969 T/A C: 1

FOR OFFICIAL USE ONLY: W DUP 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	MN01	<1	T	T03				
2	MN02	<1	T	T03				
3	MN03	<30	T	S01				
4	P012	<1	T	T03				
5	P014	<1	T	T03				
6	P032	<1	T	T03				
7	P034	<1	T	T03				
8	P054	<1	T	T03				
9	P077	<1	T	T03				
10	P090	<1	T	T03				
11	P105	<1	T	T03				
12	P106	<1	T	T03				
13	U008	<1	T	T03				
14	U022	<1	T	T03				
15	U031	<1	T	T03				
16	U041	<1	T	T03				
17	U068	<1	T	T03				
18	U075	<1	T	T03				
19	U088	<1	T	T03				
20	U102	<1	T	T03				
21	U107	<1	T	T03				
22	U116	<1	T	T03				
23	U121	<1	T	T03				
24	U138	<1	T	T03				
25	U194	<1	T	T03				
26	U207	<1	T	T03				

EPA Form 3510-3 (6-80)

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(enter "A" "B", "C", etc. behind the "3" to identify photocopied pages)

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Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)														FOR OFFICIAL USE ONLY												
S												T/A	C	S										T/A	C	
W	M	N	D	0	0	6	1	7	2	9	6	9		1	W			D	U	P					2	DUP
1	2										13	14	15		1	2						13	14	15		23 - 26

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (if a code is not entered in D(1))
	23 - 26	27 - 35	36	27 - 29	27 - 29	27 - 29	27 - 29	
1	D012	<1	T	T03				
2	D013	<1	T	T03				
3	D017	<1	T	T03				
4	F004	<5	T	T03				
5	U209	<1	T	T03				
6	U219	<1	T	T03				
7	U229	<1	T	T03				
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EPA Form 3510-3 (6-80)

CONTINUE ON REVERSE

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

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W M N D 0 0 6 1 7 2 9 6 9 — T/A: 1 — C: 1	W — DUP — T/A: 2 — C: DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	D001	16,000	T	T03	
2	D002	900	T	T03	
3	F003	800	T	T03	
4	D008	250	T	T03	
5	F002	250	T	T03	
6	D006	250	T	T03	
7	F005	200	T	T03	
8	U227	200	T	T03	
9	F001	100	T	T03	
10	D003	100	T	T03	
	P106	50	T	T03	
12	D007	25	T	T03	
13	D010	20	T	T03	
14	D009	15	T	T03	
15	U080	15	T	T03	
16	U159	15	T	T03	
17	U223	15	T	T03	
18	U226	10	T	T03	
19	U133	10	T	T03	
20	D004	5	T	T03	
21	D005	5	T	T03	
22	D011	5	T	T03	
23	D016	5	T	T03	
	F008	5	T	T03	
25	P067	5	T	T03	
26	U011	5	T	T03	

EPA Form 3510-3 (6-80)

CONTINUE ON REVERSE

PART B RCRA PERMIT APPLICATION
FOR
3M COMPANY

MND006172969

3M CHEMOLITE CENTER

Revised
December, 1988

SECTION B

FACILITY DESCRIPTION

B-1 General

Currently, eight 3M divisions operate sections of the 3M Chemolite Center located in Cottage Grove, MN. The plant is owned and operated by:

3M Company
3M Center - General Offices
I-94 & McKnight Road
St. Paul, Minnesota 55144

The address of the Chemolite Plant is:

3M Chemolite Center
Highway 61 & County Road 19
Cottage Grove, Minnesota 55016

Product such as, specialty papers, magnetic iron oxide, adhesives, resins, chemicals, polymeric films and extrusions, lithographic plates and proofing systems, abrasive products, and hollow glass bead extenders, are manufactured at the facility.

Also located on the plant site is a large rotary kiln hazardous waste incinerator which handles most 3M hazardous waste generated in the United States. 3M has in excess of 40 operating divisions, manufacturing or contracting for manufacturing a variety of products ranging from roofing granules to hardgoods.

Hazardous wastes generated by this facility include manufacturing wastes, cleanup wastes, and off-spec materials. These wastes are primarily ignitable. Other hazardous wastes generated in significant volumes at this facility are incinerator ash and sludge from treating the incinerator scrubber wastewater.

The Chemolite Plant is classified as a generator and treatment/storage facility in accordance with the 1976 Resource Conservation & Recovery Act.

The following discussion presents some general background information and a brief description of the incineration system.

The incineration system at the 3M Chemolite plant complex in Cottage Grove, Minnesota (15 miles south of St. Paul), cost $4.6 million when it was built in 1971. It was considered advanced technology then, and with subsequent additions and improvements, it remains state-of-the-art technology today. In 1988, an additional $3.0 million was spent to upgrade the APC equipment, add computer integrated process control, and add office/lunchroom space.

The two-level facility includes a large materials handling building, a tank farm for liquid waste storage, a specially-designed feed system for 55-gallon drums, a bulk feed conveyer system, a rotary kiln, a mixing chamber, a secondary combustion chamber, a waste heat boiler, extensive air and water pollution controls, a 200-foot discharge stack, and necessary accessory equipment.

Although tank truck unloading is provided, most of the industrial wastes are hauled to the materials handling building in well-labeled 55-gallon drums. After sorting, liquid wastes are pumped through pipes to the tank farm; nonpumpable wastes (oily rags, sludges, etc.) are fed directly into the kiln by a semiautomatic feed system that recovers the drum if possible. Otherwise, drum and contents are dropped into the kiln. Bulk feed (sludges and contaminated soil) are fed directly into the kiln by a conveyer system. Aqueous wastes can either be stored in a designated tank at the tank farm and feed through a lance into the kiln or pumped into an internal tank and bled into the kiln feed chute.

Burners in the slowly rotating kiln burns liquid wastes pumped from the tank farm and/or decant tank. The minimum kiln operating temperature is estimated to be greater than 2000^{o}F. Burned out drums and ash drop from the kiln into a water quench chamber and are carried on a conveyer to the ash handling (shredder) system. Approximately 50 percent of the total incinerator residue is recyclable as scrap iron. The remaining residue is either reburned in the incinerator, hauled away to an EPA RCRA-approved landfill, or hauled to an approved recycler.

Gas and smoke flow from the kiln through a mixing chamber and into a secondary combustion chamber to complete the burning process. The resulting gas stream passes through a waste heat boiler and then enters the air pollution system that includes a series of water sprays that cool and clean the gas stream, a 2-stage catenary grid scrubber, a wet electrostatic precipitator, a packed tower, and a crossflow scrubber.

A 500-horsepower fan draws the gas stream through the air pollution control system and forces it up the 200-foot stack. Meanwhile, wastewater from the air pollution control system is neutralized with caustic and lime and pumped to the Chemolite plant wastewater treatment facility. The wastewater sludge is currently hauled to a secure landfill for disposal. Future plans are to dewater the sludge by reburning it in the incinerator.

Careful segregation and labeling of drums at the source of the waste is an important requirement for safe and efficient operation of the system, which operates 24 hours a day, 7 days a week, except for about four 10-day shutdown periods each year for maintenance.

Only 3M waste, i.e., waste generated by 3M business operations, is processed and each 3M operation sending wastes to the incineration facility is billed according to a fee system that has helped to reduce the amount of wastes generated by encouraging recycling and various methods of preventing pollution at the source.

B-2 Maps of the Facility

1. Plant Site Plan

Figure B-1 is a plant site plan showing the boundaries, roads, buildings, plant wells, access control, and hazardous waste areas at the facility. The site is located within the boundaries of the City of Cottage Grove.

2. Topography

Attached are maps showing the topography of the Chemolite Plant and surrounding area. Figure B-2 is a copy of the applicable portion of the USGS St. Paul Park Quadrangle, Minnesota Map (N4445-W9252.5/7.5). This map shows the surface waters near the plant. Figures B-3 and B-4 are smaller scale, more detailed topography maps of the waste treatment and storage facilities at Chemolite.

3. Land Use

The Mississippi River borders the plant area on the south. To the east and west of the plant are mixed agricultural/ sparsely wooded areas. To the north is an open agricultural land area. The City of Cottage Grove sewage treatment plant, the closest structure, is 1,200 feet west of the facility. The Cottage Grove zoning map and legend are included as Figure B-5.

4. Wind Direction and Flood Plain

Figure B-6 shows, for the Mpls.-St. Paul areas, the percentage frequency of wind direction and speed. As the Flood Plain Map (Figure B-7) shows, the plant area is outside both the 100 and 500-year flood plain. This map is a section of the Flood Insurance Rate Map, from the National Flood Insurance Program.

5. Sewers

Figures B-8 and B-9 show the cooling water, sanitary, and process sewers at the plant.

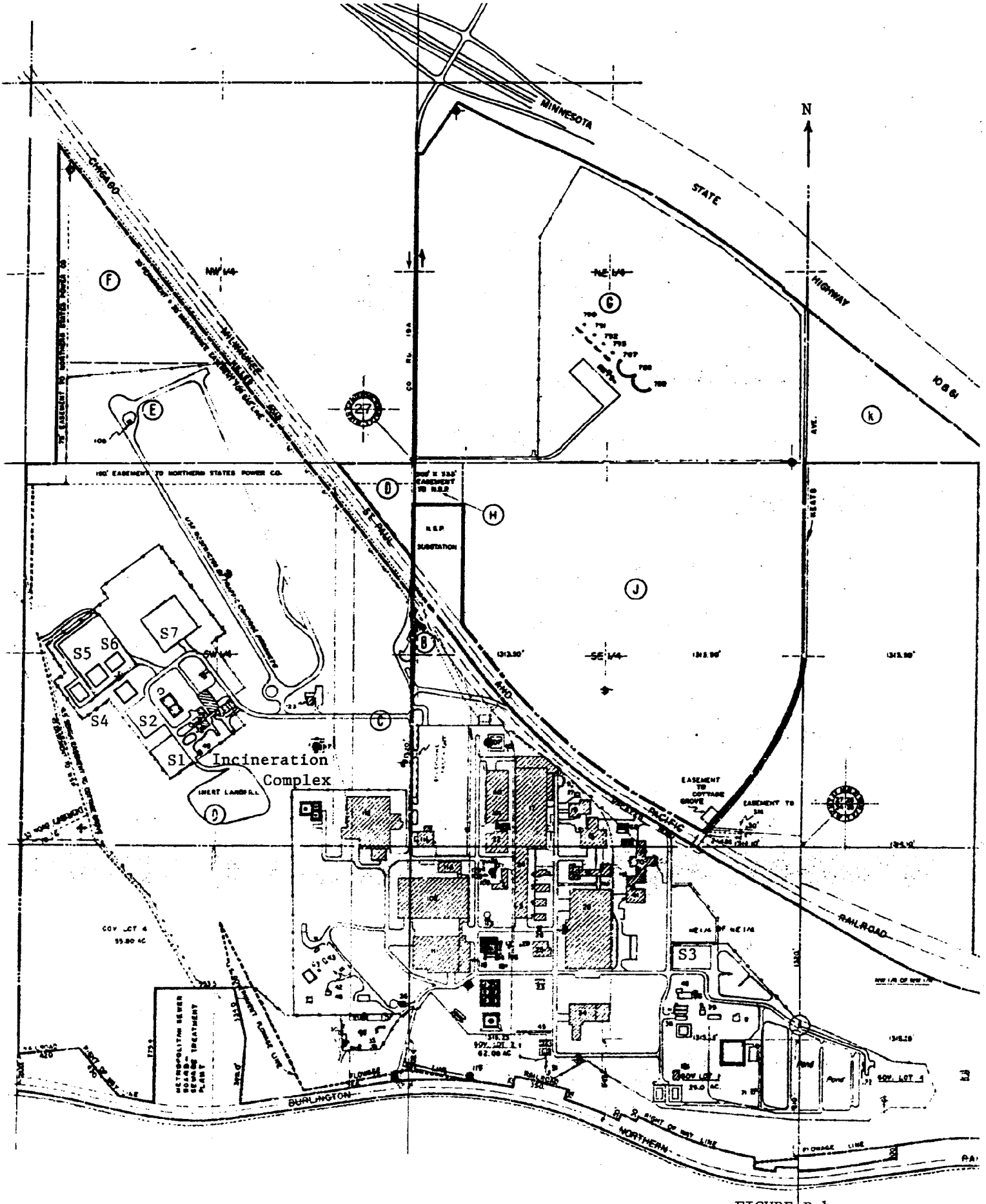

FIGURE B-1
3M CHEMOLITE PLOT PLAN

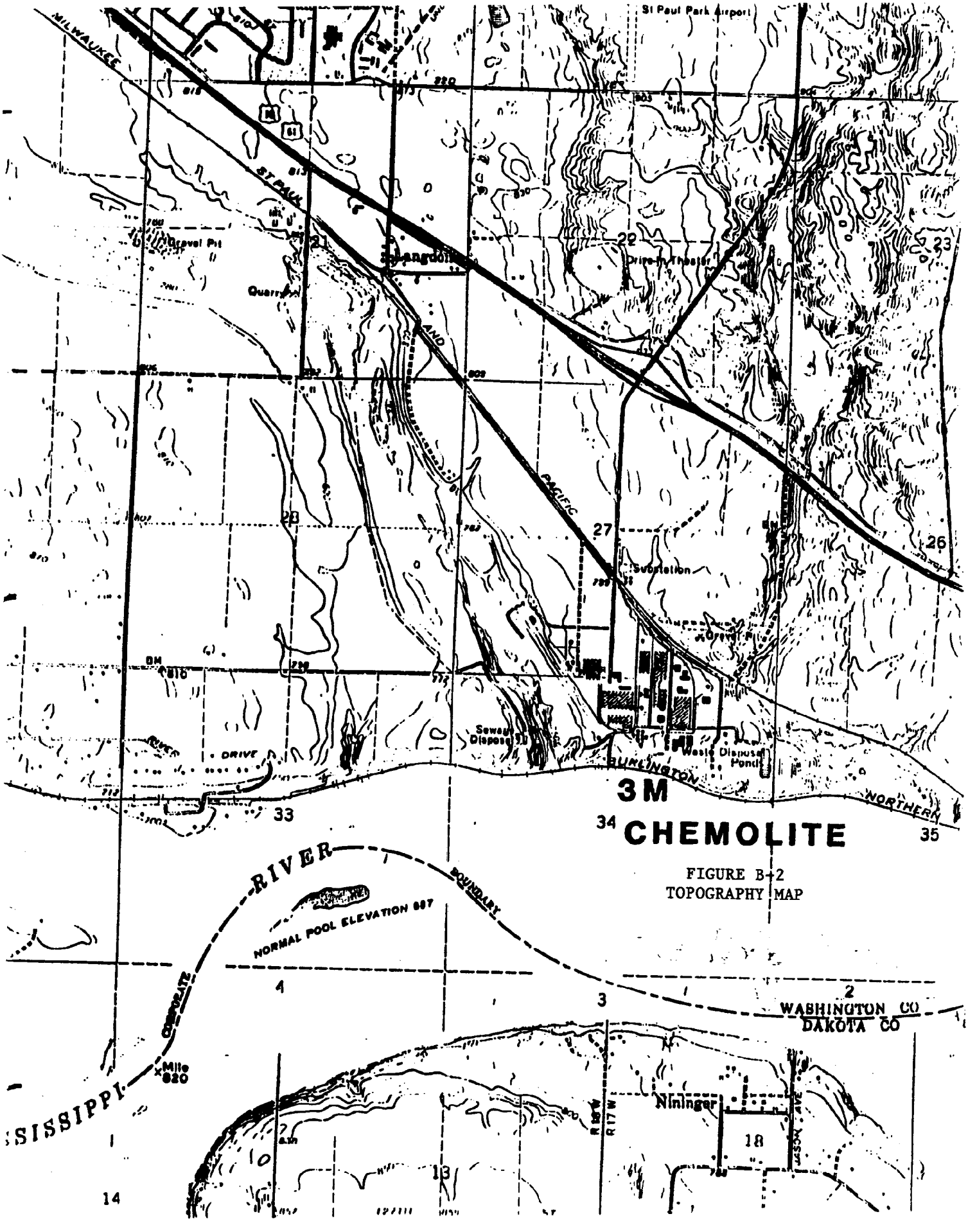

FIGURE B-2
TOPOGRAPHY MAP

3MA00152568

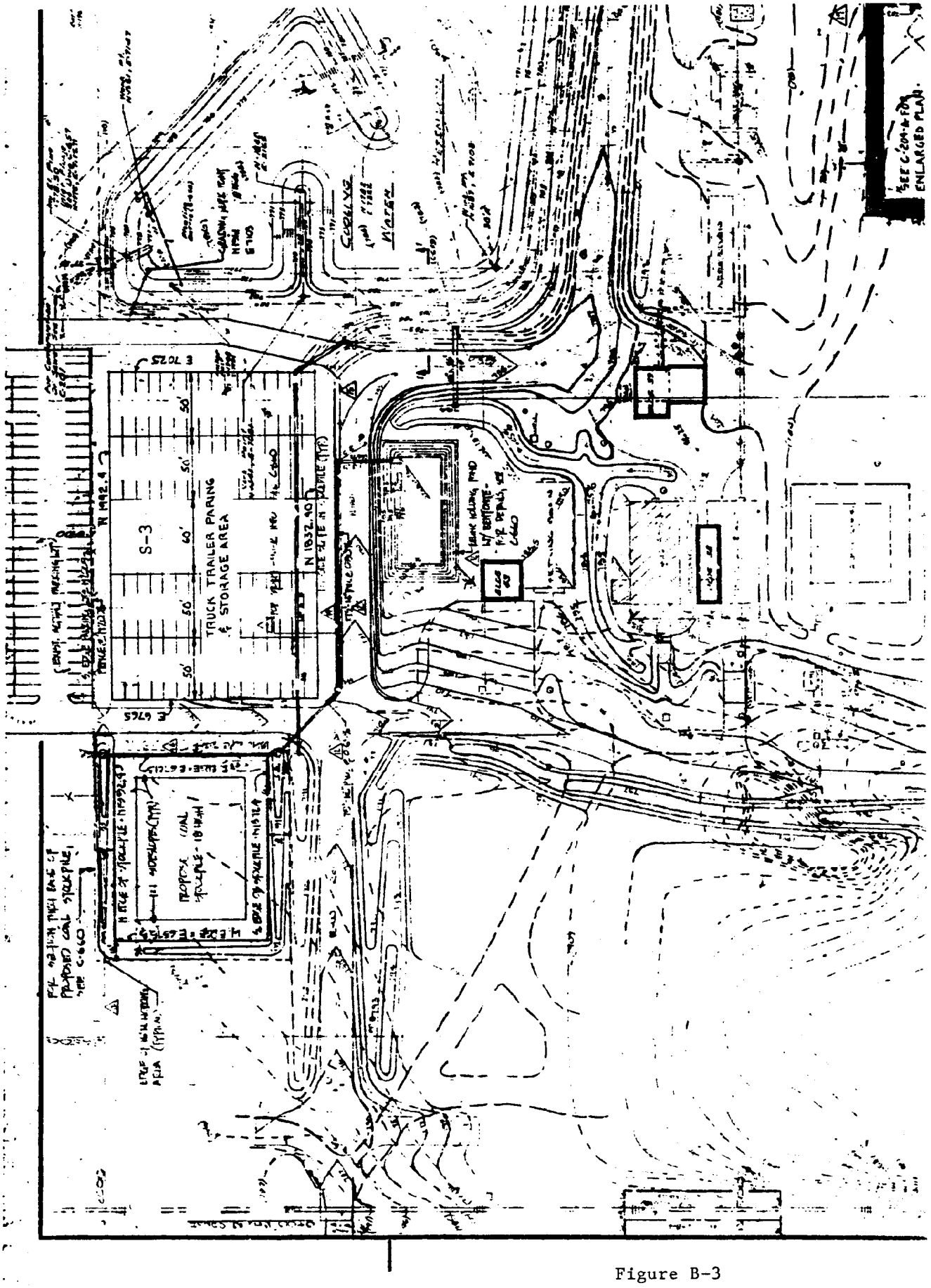
S-3
TRUCK TRAILER PARING
& STORAGE AREA
SEE C-204-A FOR ENLARGED PLAN.

Figure B-3

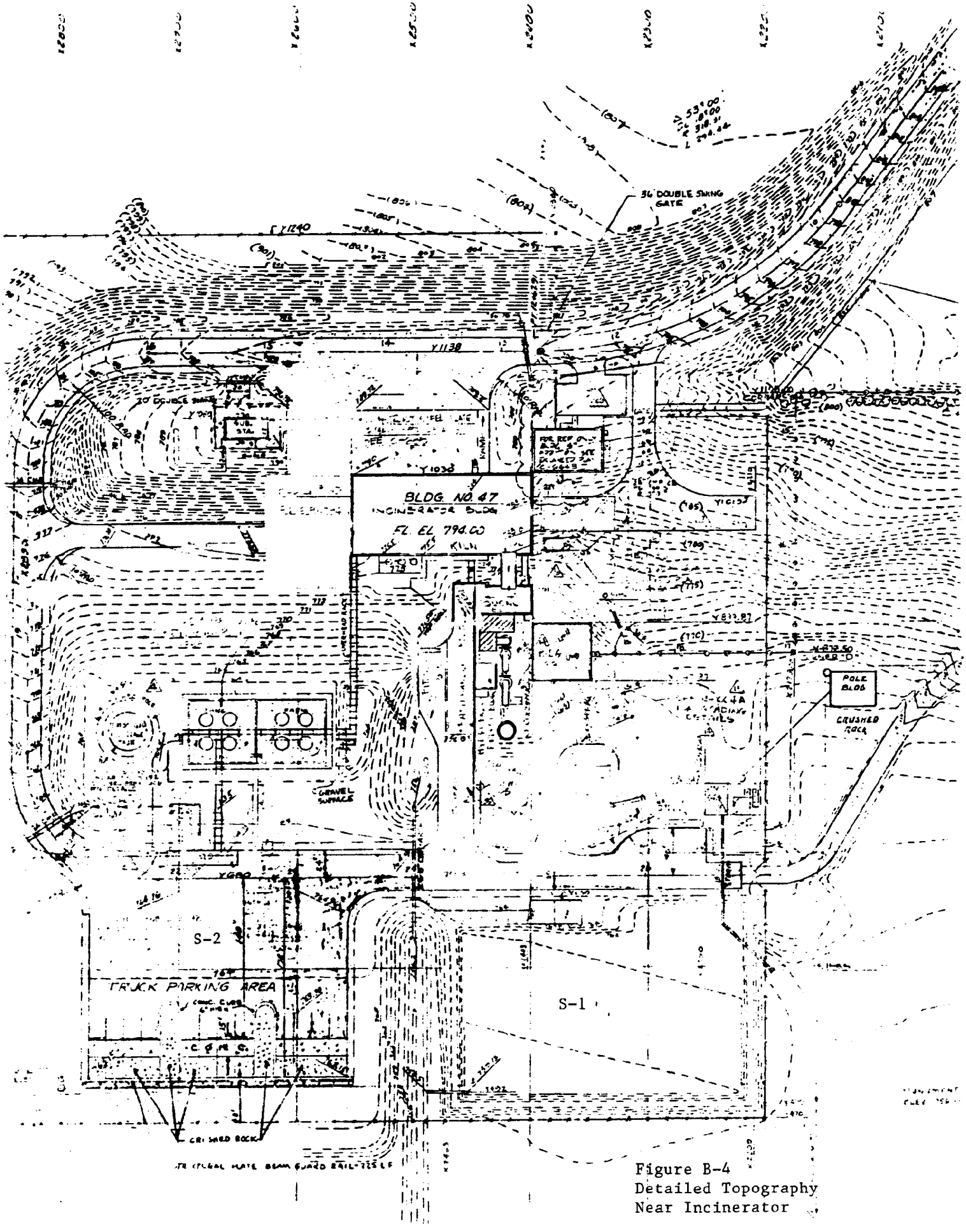

Figure B-4
Detailed Topography
Near Incinerator

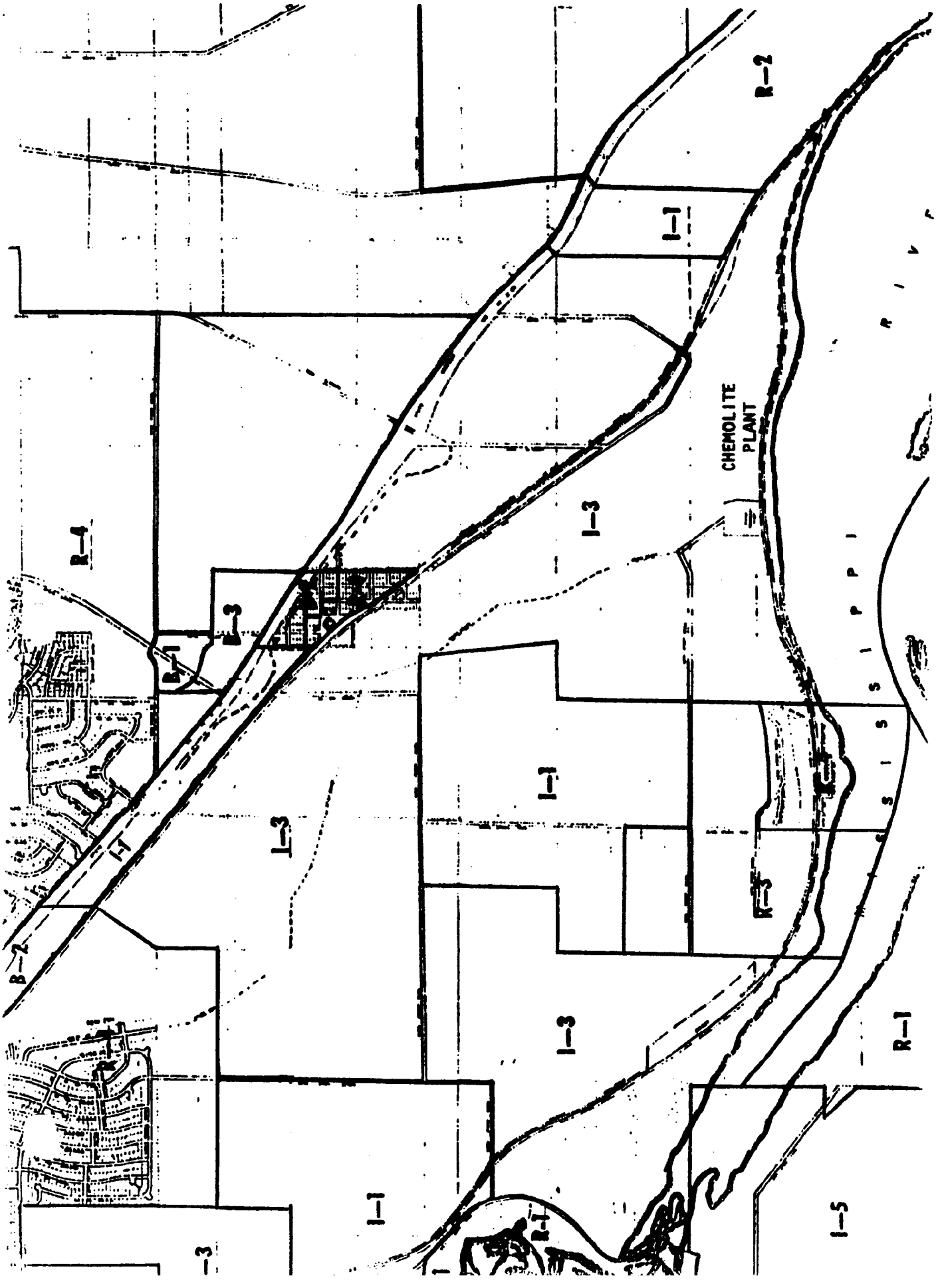

FIGURE B-5
ZONING MAP

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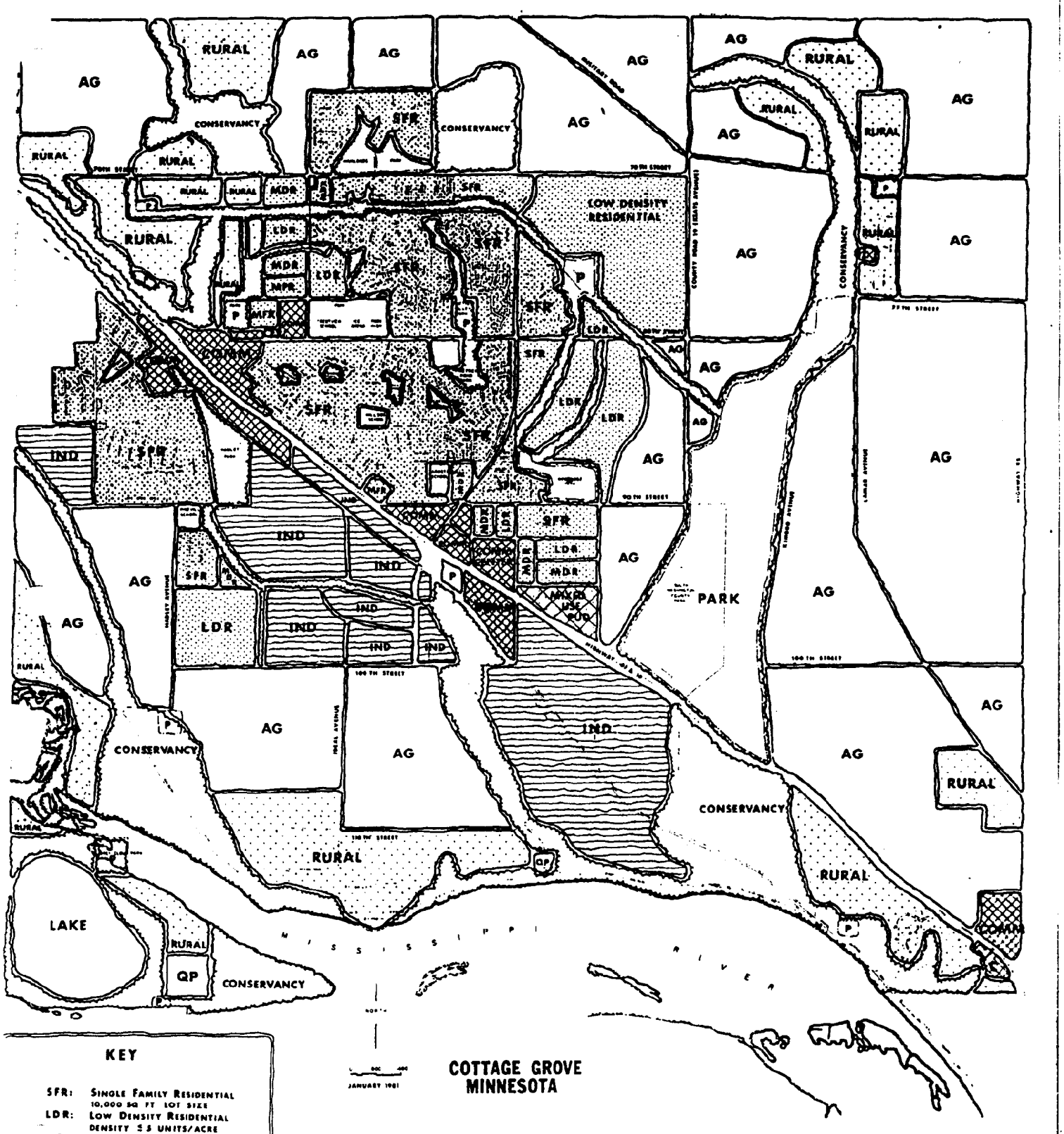


KEY

SFR:	Single Family Residential 10,000 sq ft lot size
LDR:	Low Density Residential density ≤ 5 units/acre
DR:	Medium Density Residential density ≤ 10 units/acre
MFR:	Multiple Family Residential density ≤ 20 units/acre
COMM:	Commercial
IND:	Industrial
P:	Park or Public Land
QP:	Quasi-Public
AG:	Agriculture

FUTURE LAND USE

1980 - 1990

LEGEND FOR ZONING MAP (FIGURE B-5)

I-1 General Industry
I-3 Light Industry
I-5 Commercial Excavation - Mining

B-1 Commercial Limited Business
B-2 Retail Business
B-3 General Business
B-4 Heavy Business

R-1 Rural Residential (3 acre/home)
R-2 Residential Estate District
R-3 Single Family Residential
R-4 Low Density Residential

FIGURE B-6

WIND DIRECTION

PERCENTAGE FREQUENCY OF WIND DIRECTION AND SPEED

(FROM HOURLY OBSERVATIONS)

Mpls. - St. Paul IAP

Years: 1945 - 1970

SURFACE WINDS

SPEED (KNTS) DIR.	1-3	4-6	7-10	11-16	17-21	22-27	28-33	34-40	41-47	48-55	≤ 56	%	MEAN WIND SPEEDS
N	0.5	1.2	2.3	1.8	0.3	0.0	0.0					6.0	9.4
NNE	0.3	0.8	1.7	1.2	0.3	0.0	0.0					4.3	9.6
NE	0.4	0.7	1.2	0.8	0.2	0.0	0.0					3.3	9.0
ENE	0.2	0.8	1.3	0.8	0.2	0.1	0.0					3.4	9.1
E	0.6	1.1	1.6	1.0	0.2	0.0	0.0					4.6	8.5
ESE	0.6	1.4	2.3	1.6	0.3	0.1	0.0					6.3	9.0
SE	0.9	2.1	3.3	2.3	0.5	0.1	0.0		0.0			9.1	9.0
SSE	0.6	1.4	2.8	2.1	0.5	0.1	0.0					7.4	9.7
S	0.8	1.4	2.5	2.2	0.5	0.1	0.0	0.0	0.0	0.0		7.5	9.5
SSW	0.8	1.2	1.7	1.4	0.4	0.1	0.0	0.0	0.0			5.6	9.0
SW	1.2	1.8	2.0	1.2	0.3	0.1	0.0	0.0			0.0	6.6	7.9
WSW	0.6	1.5	2.0	0.9	0.2	0.1	0.0	0.0				5.3	8.1
W	0.6	1.1	1.8	1.4	0.4	0.2	0.0	0.0	0.0			5.6	9.8
WNW	0.4	1.1	2.2	2.8	1.1	0.4	0.1	0.0				7.9	11.8
NW	0.4	1.2	2.8	3.4	1.1	0.2	0.0	0.0				9.3	11.2
NNW	0.3	0.8	2.0	2.1	0.5	0.1	0.0		0.0			5.7	10.6
	9.3	19.6	33.4	27.1	6.8	1.6	0.2	0.0	0.0	0.0	0.0	100.0	9.4

Total Number of Observations 191,391

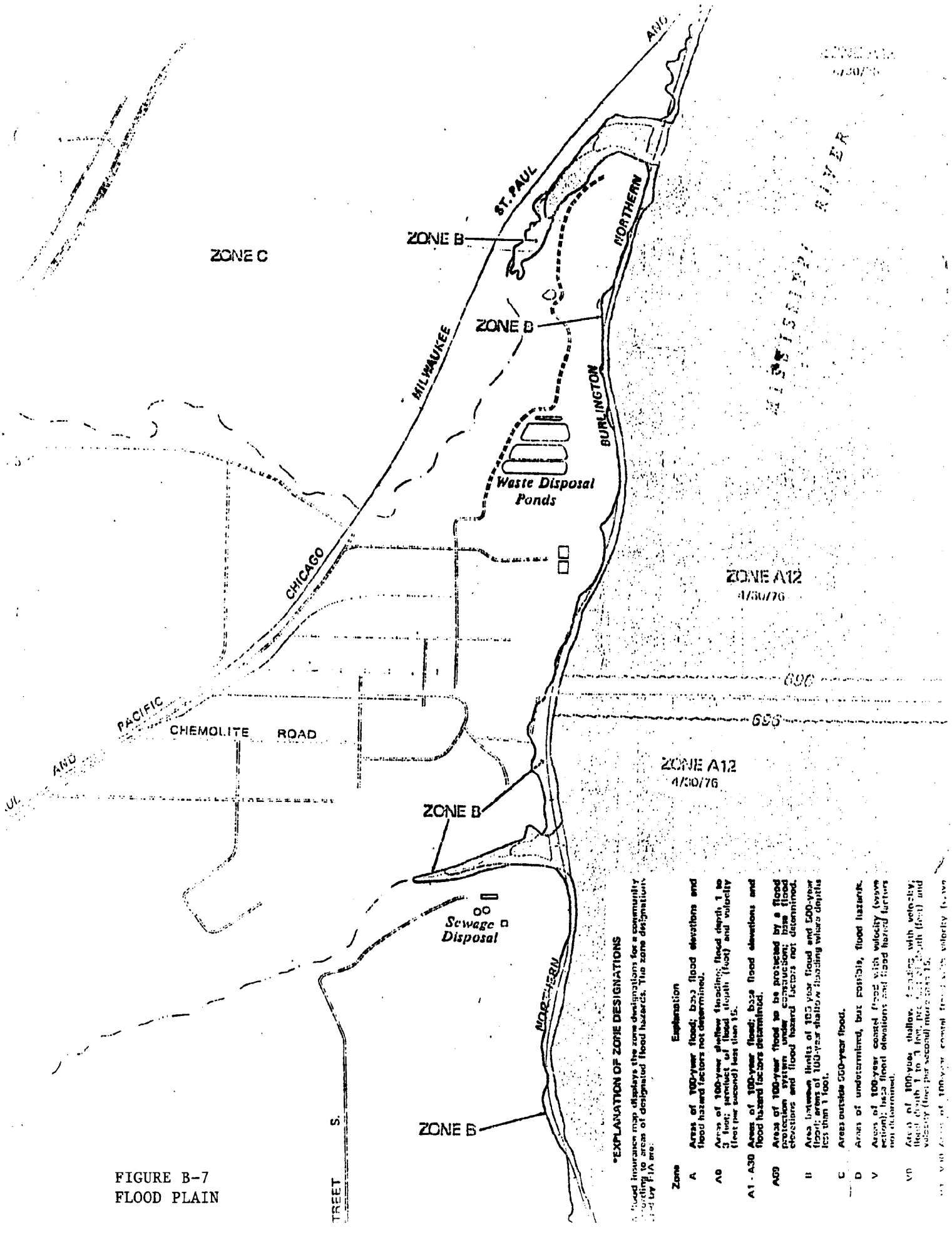


FIGURE B-7
FLOOD PLAIN

3MA00152575

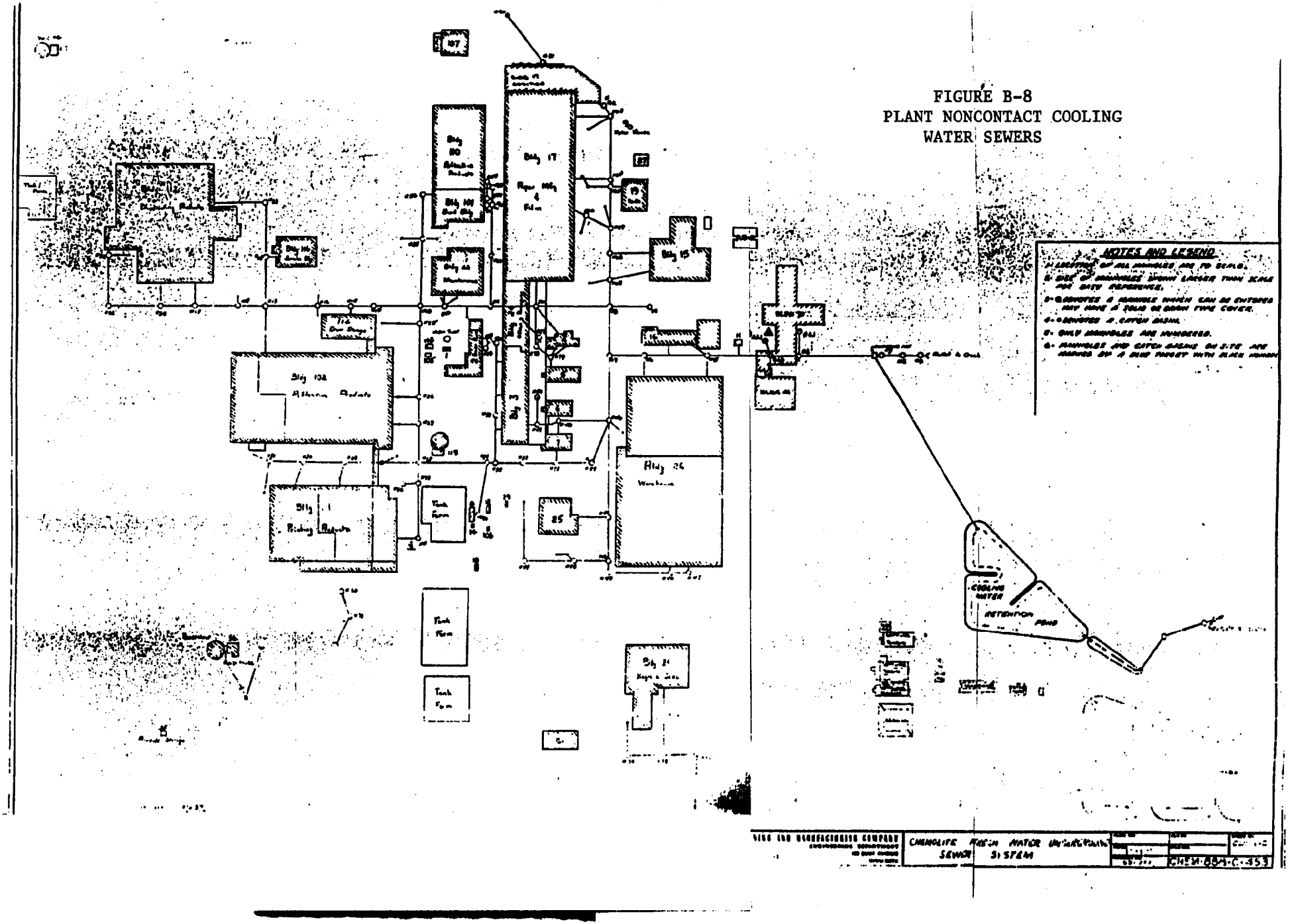
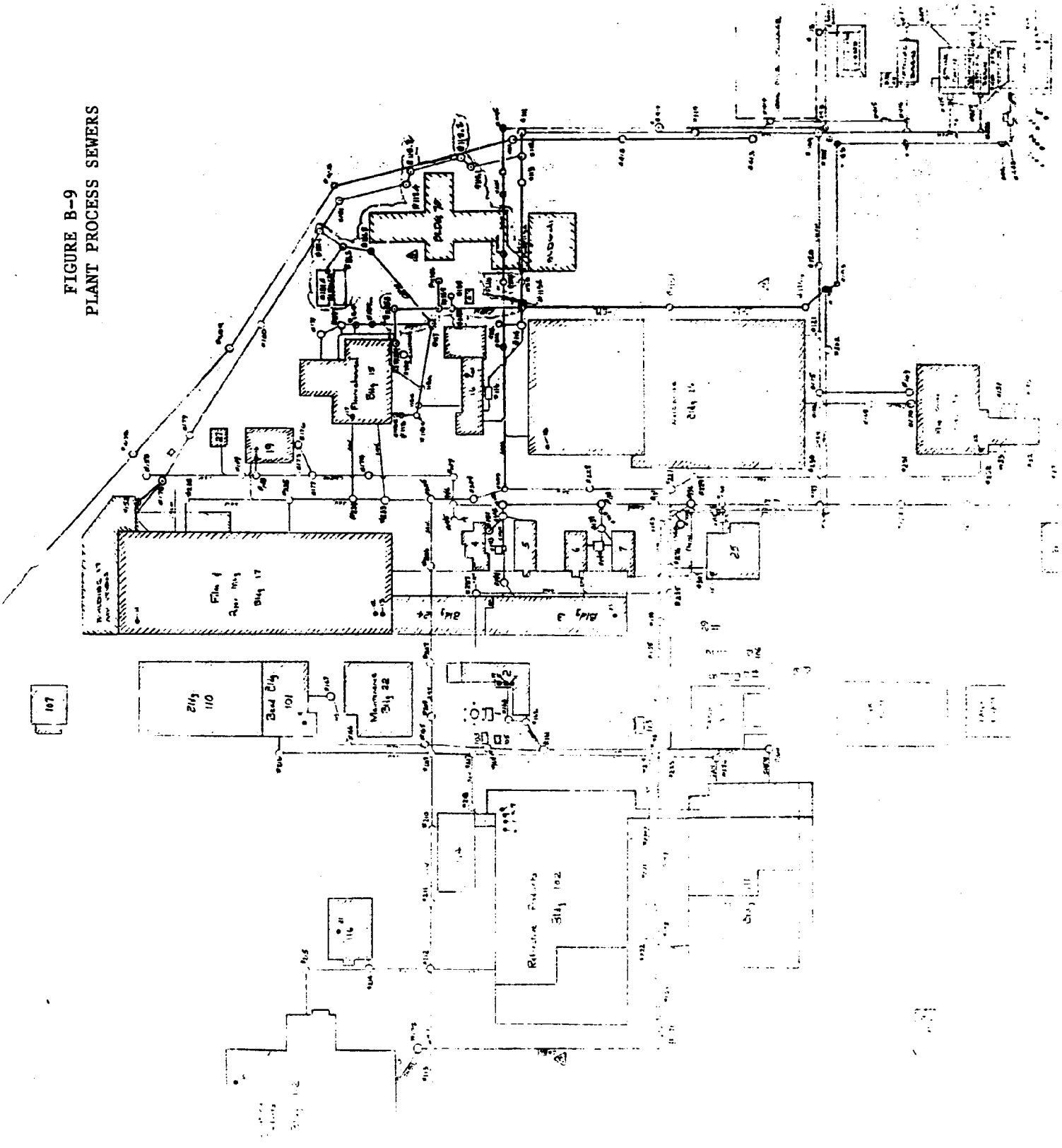


FIGURE B-8
PLANT NONCONTACT COOLING
WATER SEWERS

FIGURE B-9
PLANT PROCESS SEWERS



3MA00152577

B-4 Traffic Information

The Chemolite Plant is accessed via Chemolite Road (County Highway 19), a two-lane asphalt paved public road. The distance to the nearest major highway, State Highway 61, to the main gate is 1 mile. This road provides adequate access for all incoming and outgoing vehicles.

Traffic pattern, traffic control, and traffic signals are shown on Figure B-1.

An average of 8 truck loads each day of waste are transported to the incinerator. This is a small fraction of the daily truck traffic to the manufacturing facilities. Since County 19 south of Highway 61 terminates at Chemolite, traffic is essentially employees' vehicles, peaking during shift changes.

B-5 Recent Additions

During 1988, 3M added a cooling water recycle system, an office/lunchroom addition, computer process control, and upgraded the air pollution control system. A revised incinerator schematic is included as Figure B-10. These changes and other changes underway, such as barcoding and an office computer for waste tracking, have significantly changed the operation of the incinerator. Thus, many of the examples, logs, etc., are preliminary and will change as all the capabilities of the new systems are brought on-line.

10/1/88

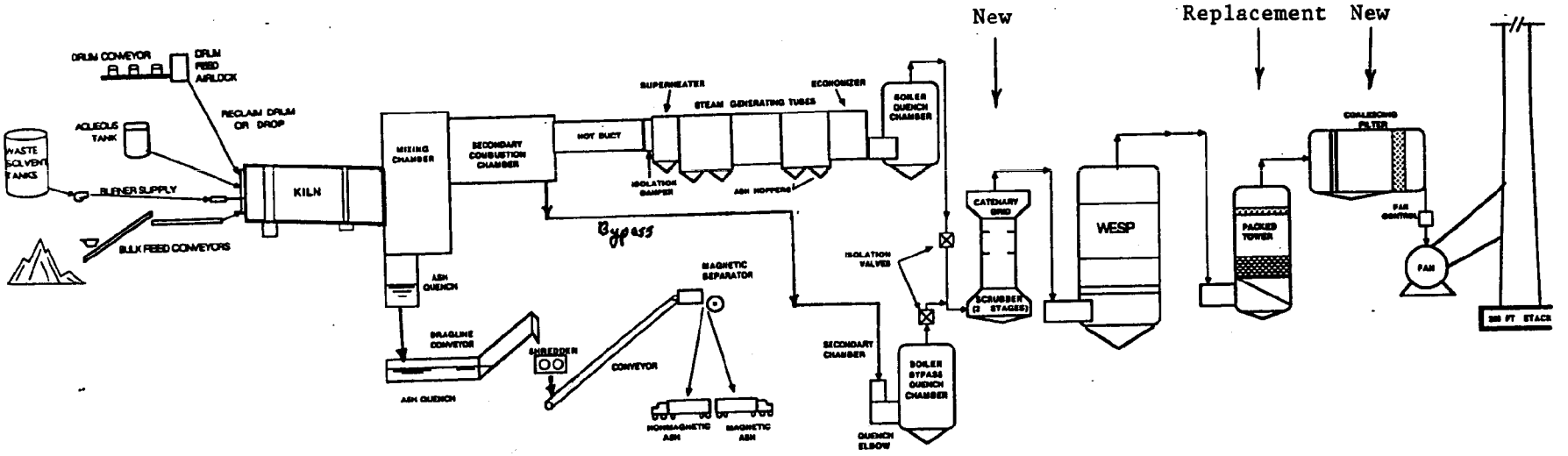


Figure B-10
Revised Incinerator Schematic

SECTION C

WASTE CHARACTERISTICS

This section addresses the requirements contained in 40 CFR Sections 264.13(a), (b), and (c); 264.17; 264.172; 264.191(a); 264.341; 270.14(b); and 270.62(b) and (i), concerning waste characteristics and a Waste Analysis and a Trial Burn Plan. Currently each generating facility is provided a copy of the 3M Waste Disposal Procedures Manual and designated personnel at each facility are trained to use the manual to properly handle, store, and ship hazardous waste. With the purchase of the Foxboro process control computer, a micro-Vax computer for historical records ranging from approved wastestreams to manifested information, and the future acquisition of bar-coding equipment, 3M is moving toward a computer integrated system for approving waste shipment and generating the necessary documents including manifests. Examples of the types of interactive screens envisioned for the system are included at the end of this section.

3M Personnel generating and/or shipping hazardous waste will be provided with approved wastestream information for their facility. The information details the hazardous compounds potentially contained in the wastes, packaging quidelines, labeling requirements, and correct manifest documentation. If a waste does not fit into one of the approved wastestreams, then the generator must contact the EE&PC/incinerator employee responsible for his facility. After reviewing the source and compounds present in the waste, they will either modify one of the existing wastestreams or generate a new wastestream. The information will be forwarded to both the incinerator and the generator of the waste.

The 3M Waste Disposal Procedures Manual will be simplified for use by generators. They will no longer be allowed to decide the coding for their wastestreams. The existing Manual will be maintained and updated for use by 3M EE & PC and incinerator personnel.

C-1 Chemical and Physical Analysis

The 3M Chemolite facility generates, stores, and treats 3M hazardous waste. Most 3M hazardous wastes generated within the U.S., Mexico, and Canada, which are subject to volume reduction and/or destruction by thermal oxidation are potential candidates for treatment in the Chemolite rotary kiln incineration system. Wastes that contain polychlorinated biphenyls (PCB) above 50 parts per million (ppm) or radioactive material are examples of specifically excluded wastes. Excluded wastes are shipped to approved facilities for treatment and disposal.

Wastes are received at Chemolite in bulk tanker, steel drums, fiber drums, boxes, bags, and 5-gallon pails. All wastes are marked and labeled according to applicable DOT and EPA regulations as presented in the aforementioned manual. 3M label information includes the designations pumpable (free liquid) or nonpumpable, chlorinated or nonchlorinated, the 3M department number where the waste was generated, a phone

number and contact at the generating facility, the major chemical constituents, and the wastestream number. An example of a completed label used by 3M to mark containerized wastes is shown in Figure C-1. Hazardous wastes which are extremely flammable, very reactive, and/or highly toxic require special handling restrictions.

Special wastes receive a 'Special' waste label and along with all plant wastes a wastestream number. For plants, these special wastes must be established by EE & PC, prior to shipping. Laboratories at the 3M Center are continuously generating small quantities of regular and special hazardous waste. A computer data base has been established to process all wastes generated at the 3M Center. In addition, a full time environmental engineer is assigned to review all hazardous wastes generated there and for 'Special' wastes, issues a written document authorizing the waste to be shipped to Chemolite. At the Chemolite incinerator, the special handling continues. All non-routine special wastes are inspected by environmental specialists prior to treatment and/or disposal.

Table C-1 contains a preliminary list of typical 3M processes that generate hazardous wastes. Also as part of Table C-1 are examples of the more detailed summaries that will be provided the plants for each identified wastestream and the overall approved summary sheet that will be provided the Chemolite incinerator for each generator to verify that only approved wastes are being shipped. These submittals are preliminary in nature and may change as the regulations on RQ and carcinogens evolve.

Whenever a new wastestream is generated, the waste cannot be shipped until the wastestream has been evaluated and the proper waste stream identification established.

In addition, corporate purchasing data bases will be annually searched for hazardous material usage at each location and compared to the results of the previous search. New compounds, especially where the hazard is significantly different, will be investigated and if required new wastestreams will be either assigned or developed.

Finally, the ultimate intent is to fully computerize the hazardous waste labeling, manifesting, and treatment tracking. The planned system was originated with the intent to place as much of the paper flow and verification as possible on the computer. Figure C-2 is a simplified flowsheet of the fully implemented system. As mentioned previously, examples of some of the interactive scenarios are included at the end of this section.

Table C-1

SUMMARY OF 3M PROCESS SOURCES OF WASTES
SEPTEMBER, 1988

A. GENERAL PLANT WASTES

NO.	CATEGORY	DESCRIPTION
1.	GENERAL PLANT CLEANING	FLOOR, WALL, & WINDOW CLEANERS, WAX REMOVERS, CLEANSERS, ETC..
2.	SCRAP SOLVENTS	
3.	PHOTOGRAPHIC	DEVELOPING FLUID, NEGATIVES
4.	HYDRAULIC FLUIDS, COOLANTS, & LUBRICANTS	HYDRAULIC OIL, GREASE, TRANSMISSION FLUID, MACHINE COOLANTS, ETC..
5.	QUALITY ASSURANCE	
6.	SUMP/TANK CLEANING	
7.	MISC. LAB REAGENTS	ACIDS, BASES, TEST REAGENTS, SOLVENTS
8.	PEST CONTROL CHEMICALS	PESTICIDES, WOOD PRESERVATIVES
9.	LAWN CARE CHEMICALS	FERTILIZERS, WEED KILLERS

B. POLLUTION CONTROL

NO.	CATEGORY	DESCRIPTION
10.	SPILL CLEANUP	CONTACT EE & PC
11.	SPENT ACTIVATED CARBON	SOLVENT ADSORPTION CARBON, WWT CARBON
12.	DISTILLATION STILL BOTTOMS	RESIDUE LEFT AFTER SOLVENT RECOVERY DISTILLATION
13.	WWT SCUM	OIL & GREASE COMPOUNDS SKIMMED FROM WWT UNITS
14.	INCINERATOR ASH	DRY & WET SCRAP INCINERATORS
15.	WWT SLUDGE	ORGANIC & INORGANIC SLUDGES GENERATED AT WWT FACILITIES
16.	BAGHOUSE/ESP DUST	
17.	BOILER SOOT	DIRT & SOOT REMOVED FROM STEAM BOILERS
18.	WATER TREATMENT	
19.	CLOSURE RESIDUES	

C. COATING PLANT WASTES

NO.	CATEGORY	DESCRIPTION
20.		
21.	SOLVENT CONTAMINATED DRY SCRAP	GLOVES, RAGS, PAPER, FILTERS, SAMPLE CONTAINERS, ETC..
22.	COATING WASTES	NONPUMPABLE SCRAP ADHESIVES
23.	HEAVY METAL PIGMENTS/ ADDITIVES	LEAD, CADMIUM, & CHROMIUM PIGMENTS
24.	LIQUID COATING WASTES	PUMPABLE SCRAP ADHESIVES, SOLVENTS, AND SOLUTIONS
25.	MILLING/COMPOUNDING	
26.	CONVERTING	
27.		
28.		
29.		

Table C-1(cont.)

D. CHEMICAL MANUFACTURING WASTES

NO.	CATEGORY	DESCRIPTION
30.		
31.	IMPROPER FORMULATION	
32.	DISTILLATION BOTTOMS	
33.	RESIN MFG	
34.	ADHESIVE MFG	
35.		
36.	POLYMER MFG	
37.	DYE MFG	
38.	FLUORINATION	
39.	REACTOR CLEANING	CAUSTIC/ACID/SOLVENT MIXTURES USED TO REMOVE PRODUCT RESIDUES FROM REACTORS
40.	CRYSTALLIZATION	
41.		

D. MACHINE SHOP/HARDGOODS/MAINTENANCE WASTES

NO.	CATEGORY	DESCRIPTION
51.	METAL TURNINGS	
52.	MOLDING/FORMING	
53.	DEGREASING COMPOUNDS	DEGREASING SOLVENTS SUCH AS METHYLENE CHLORIDE
54.	MISC. HEAVY METALS	LEAD FROM SOLDERING, MERCURY SWITCHES, LEAD/CADMIUM BATTERIES, ETC.

E. PHARMACEUTICAL WASTES

NO.	CATEGORY	DESCRIPTION
60.	SCRAP SOLVENTS	
61.	OFF-SPEC DRUGS	
62.	OUT-OF-DATE DRUGS	
63.	CANCELED DRUGS	
64.		

F. ELECTRONIC

70.	PLATING	
71.		

G. OTHER MANUFACTURING PROCESSES

80.	OTHER PROCESS	
81.		

H. MISCELLANEOUS

90.		
91.	OFF-SPEC PRODUCTS	
92.	OUT-OF-DATE PRODUCTS	
93.	CANCELED PRODUCTS	
94.	DAMAGED PRODUCTS	
95.		
98.	PILOT PLANT	
99.	LABORATORY RESEARCH	

Table C-1(Cont.)

EXAMPLE OF COMPUTER GENERATED SUMMARIES FOR EACH PLANT WASTESTREAM

WASTESTREAM NO. H1 - SCRAP SOLVENTS
UNITS - GALLONS(G)
PUMPABLE

Description of plant processes producing waste: Parts degreasing equipment in machine shop and waste degreasing from maintenance uses around plant

Process Source Code: 2

WASTE CODE	SOLVENTS	RQ
F001	1,1,1 TRICHLOROETHANE	10

DOT SHIPPING DESCRIPTION:
HAZARDOUS WASTE LIQUID, NOS * ORM-E NA 9189
(1,1,1 TRICHLOROETHANE) RQ 10

PACKAGING:
55 GALLON STEEL DRUM, 17E OR 17H.

TO AVOID SURCHARGES:
NO PLASTIC LINER OR BAG
SCREEN MATERIAL WHEN FILLING(USE MAX. OF 1/4" OPENINGS)

LABELING:

FORM 12702-24	3M WASTE LABEL
FORM 12702-22A	EPA ORM-E
NONE	DOT

SHIPPING PAPERS:
3M MANIFEST & BILL OF LADING

APPROVED DISPOSAL: CHEMOLITE INCINERATOR

Comments: Verification - Sample and analyze on GC/MS. Waste likely to contain numerous contaminants, but is the major component 1,1,1 TCE.

Table C-1(Cont.)

WASTESTREAM NO. H2 - SCRAP SOLVENTS
UNITS - GALLONS
PUMPABLE

Description of plant processes producing waste:

Process Source Code: 2

WASTE CODE	SOLVENTS	RQ
D001	HEPTANE, MINERAL SPIRITS, ETHYL ACETATE, & IPA	1000

DOT SHIPPING DESCRIPTION:
WASTE FLAMMABLE LIQUID, NOS * FLAMMABLE LIQUID, UN 1993
(SPECIFY MAJOR SOLVENTS FROM ABOVE APPROVED LIST)

NOTE: IF SOLVENT NOT IN ABOVE LIST, DO NOT SHIP.
CONTACT YOUR EE & PC PLANT CONTACT FOR APPROVAL.

ETC..

Table C-1(cont.)

3M CHEMOLITE INCINERATOR
APPROVED WASTESTREAM SUMMARY
PLANT: CXXX
DATE: 12/31/88

WASTESTREAM NUMBER	EPA WASTE CODE	CAT.	HAZARDOUS COMPOUNDS
H1	F002	P	1,1,1 TRICHLOROETHANE
H2	F003	P	XYLENE, ACETONE, MIBK, ETHYL ACETATE, & METHANOL
H3	F005	P	TOLUENE, MEK, & CARBON DISULFIDE
H4	D001	P	HEPTANE, MINERAL SPIRITS, ISOPROPYL ALCOHOL, & ETHYL ALCOHOL
H5	D003	P	PHENOL
H6	D001	NP	D001 SOLVENTS ABOVE
H7	D006	NP	CADMIUM
H8	D003	NP	TDI
H9	D008	NP	LEAD
H10	D002	NP	HF
H11	D002	NP	CAUSTIC
H12	D001 & D002	P	CAUSTIC & D001 SOLVENTS

		HAZARD	HANDLING
H13	BENZENE	SUSPECTED CARCINOGEN	SPECIAL PUMP
H14	MERCURY	EMISSION LIMIT	LANDFILL
H15	BENZOYL PEROXIDE	ORGANIC PEROXIDE	BOTTLE DROP IN 1# BAGS

OTHER APPENDIX VIII COMPOUNDS THAT MAY BE PRESENT IN THE ABOVE WASTES: ARSENIC & 4-NITROPHENOL

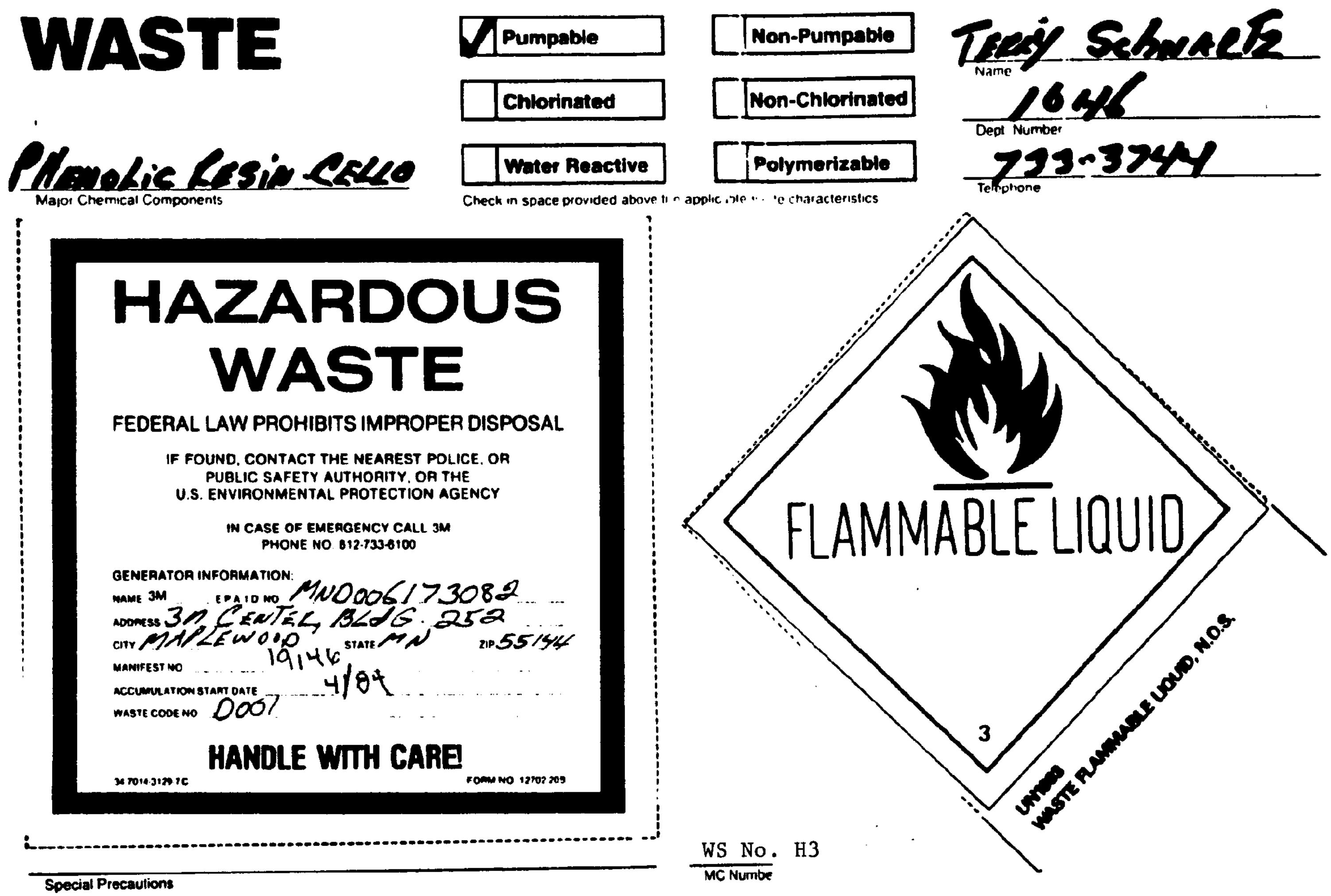
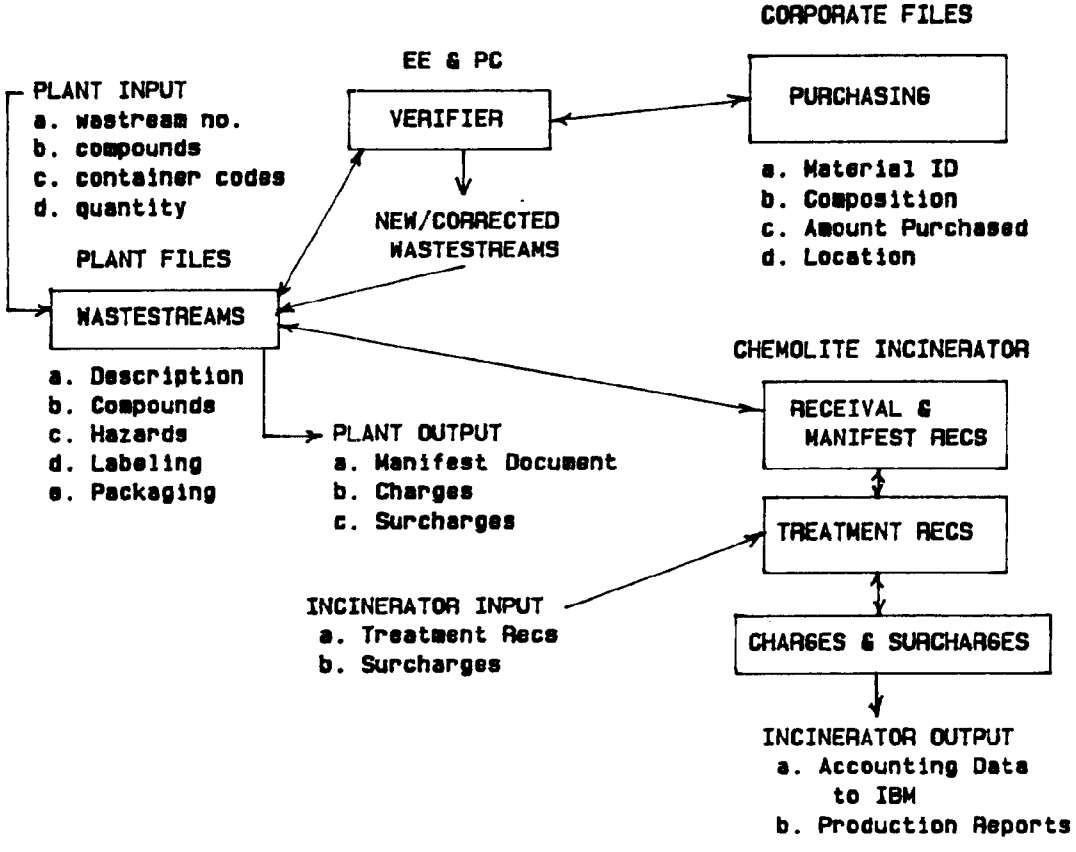


Figure C-1. Example of Hazardous Waste Container Label.

FIGURE C-2

3M COMPUTER BASED WASTE TRACKING AND DOCUMENTATION SYSTEM



Hazardous waste that is generated as part of the use of 3M products and returned to 3M will be assigned wastestream numbers and each generator will be assigned an unique four digit plant code. Prior to shipping from the generator, a 3M employee knowledgeable with the waste byproduct will inspect the waste. If he feels that no other wastes have been added to the drummed wastes, he will affix the appropriate 3M labels and approve it for shipment. If it appears to be contaminated with some other compound(s), a sample will be taken and analyzed before approval is given. Upon arrival at Chemolite, a small sample will be taken from each drum and composited for future analysis.

If one of the samples does not fit the physical description, has a different odor, or in some other way causes the incinerator operator to suspect it contains other waste material, the drum will be resealed and stored and the sample will be analyzed per the recommendations for that particular waste.

At least annually, the composite and/or one or more random samples will be subjected to screening tests. If the tests indicate the presence of other hazardous wastes, then a more complete analysis will be performed. If the presence of other wastes is confirmed by the analysis, then that generator will be dropped from the waste return program.

Drum reconditioners and solvent recyclers are handled differently. Due to the nature and volume of the returned wastes, any type of sampling and chemical analyses would be fruitless. Legal contracts are signed with each vendor, which specify the acceptable disposal alternatives for 3M wastes. These generators are periodically inspected by 3M personnel, their procedures evaluated in terms of the legal contract, and the waste volumes and manifest documents reviewed. If there is a reason to suspect that other wastes are being added to the 3M wastes, a more detailed investigation will occur. Random samples will be taken and composited for an annual check for PCBs.

Chemolite also serves as an accumulation storage point for nonincinerable hazardous waste awaiting shipment to other EPA approved treatment and disposal facilities. An example of these wastes is EP toxic inorganic materials. Since Chemolite frequently receives shipments of incinerable waste from 3M plants located all over the U.S., it is a convenient location for such accumulation and storage. It also serves as an accumulation point for PCB watses.

C-1a Proper Packaging of Hazardous Waste

Three programs have been or are being developed to ensure 3M hazardous wastes have been properly labeled, packaged, and manifested. The first involves the aforementioned wastestreams. Each wastestream has handling, labeling, packaging, and manifest requirements clearly defined. Second is the 3M Waste Preparation Procedures Manual, which explains

and expands upon the information contained on the approved wastestream summaries. These two programs and their associated training, which is discussed in Section H, help guarantee that 3M wastes fully comply with the applicable EPA and DOT regulations. Besides DOT and EPA regulations, 3M has internal handling and packaging requirements that facilitate the operation of the Chemolite incinerator. These requirements have also been factored into the wastestream summaries and the Manual. An example is the two label requirement, one on the side of the drum and the other on the top. Another example is the plastic bag liner to facilitate reclaiming the drum.

Drum reclaiming refers to the process whereby a waste filled drum is emptied down the kiln feed chute instead of being fed into the kiln with its contents. Upon entering the drum feed airlock, the drum to be reclaimed is grabbed near its bottom by hydraulically operated clamps, rotated upside down in the feed chute, emptied, and returned to the airlock. Reclaimed drums, depending upon their condition, are reused to transport wastes, shipped to a drum reconditioner, or sold as scrap.

When a drum isn't properly filled with waste material, it creates a handling problem and may not be reclaimable even if the drum is in good condition. The incinerator operators sort the drums according to the label description, i.e., pumpable to the pump room and nonpumpable to the drum feeder. Once on the conveyor to the drum feeder, the drum is opened and inspected. If it contains free flammable liquid in substantial quantities, generally more than 5 gallons, the drum is rejected and transferred by forklift to the pump room. Likewise, if a drum is labeled pumpable and found to be partially filled with nonpumpable material, the free liquid is pumped out and the drum is taken to the drum feeder.

If the waste material in a drum to be reclaimed won't empty out in a reasonable time period with the drum up-ended, the drum is fed into the incinerator. Approximately 30% of nonpumpable drums are fed into the kiln. This percentage has been lowered significantly over the past couple of years.

Finally, the third program involves verification and feedback information from the incinerator whereby, surcharges are assessed the generators for not fully complying with the waste summary recommendations. For example, drums of pumpable waste that contain nonpumpable items, such as gloves, filters, rags, etc., are charged double the regular charges. With the future addition of bar-coding and the currently undergoing start-up process computer, it will be possible to greatly increase the verification of contents and proper packaging, i.e., does the combustion process respond within the required operating parameters after the drum is fed into the kiln. If there is excessive heat release, a surcharge will be attached and the generator will be required to either reduce the size of the container for that

wastestream or improve their packaging. It may be necessary to establish another wastestream for high heat release wastes with smaller containers specified. Therefore the incinerator operating personnel will be able to provide better feedback to the generators and through surcharges encourage compliance with packaging quidelines.

C-1b Chemolite Hazardous Waste Generation

Table C-2 lists the waste generated on-site in 1982, 1984, and 1986 separated according to disposal/treatment. Most of the incinerated wastes generated at Chemolite are hazardous due to ignitability. The D002 wastes can be either incinerated, neutralized at the wastewater treatment plant, or shipped off-site to an EPA RCRA approved treatment/ disposal facility.

Since the Chemolite facility contains a variety of manufacturing facilities and serves as a scale-up pilot plant facility for 3M, the waste codes listed in Table C-2 would be expected to change slightly from year to year, as shown by the 1982, 1984, and 1986 volumes.

The incinerator scrubber sludge listed under the landfill category in Table C-2 is shipped to an EPA RCRA-approved landfill. This sludge is generated by caustic and lime addition to the wastewater from the incinerator air pollution control equipment. Upon neutralization, metal hydroxides precipitate and settle in two clarifiers. The solids are pumped from the bottom of the clarifier to a dedicated thickener, reserved for this sludge. From the thickener, the sludge is dewatered to 30% solids on a belt filter. Future plans include reburning this sludge in the incinerator.

Item 2B in Table C-2 refers to the shredded residual nonmagnetic incinerator ash after it passes through the magnetic separation portion of the ash handling system. This ash is either reburned in the incinerator or shipped to either an EPA RCRA-approved landfill or a recycler. The high-iron-content ash removed by the magnetic separation system is loaded into trucks for recycling as scrap metal.

The last landfilled item, 2C in Table C-2, refers to nonincinerable waste accumulated at the incinerator and shipped to an EPA approveld disposal facility. This is a relatively small quantity averaging 3 to 4 truckloads per year.

Table C-3 contains a description of the waste characteristics and boundary conditions selected for wastes generated at Chemolite.

TABLE C-2
Hazardous Wastes Generated at 3M Chemolite

1. Incinerated on-site

Waste Code			Approximate Number of Drums 1986	1984	1982
D001			19,600	21,000	17,000
D002			820	1,100	1,000
D003			30	70	60
D004			5	--	--
D005			1	--	--
D006			--	1,300	--
D007			--	500	--
D008			70	35	--
D009			<1	15	--
D011			1	--	--
D014			--	--	2
F001			<1	--	--
F002			50	60	50
F003			175	--	--
P003			1	--	--
P067			7	<10	20
P077			1	--	--
P115			--	1	--
U019			20	--	--
U044			3	1	--
U057			2	--	--
U080			1	--	--
U082			<1	--	--
U134			25	--	--
U159			--	--	100
U188			2	--	--
U226			5	--	--
U227			2	--	--
U228			4	--	--
D001	D002		12	--	--
D002	D009		4	--	--
D008	D001		1	--	--
D001	D008		--	--	--
D001	D002	D008	15	--	--
D002	D008		7	--	--

2. Landfilled

A. Incinerator Scrubber Sludge - 5,000 tons/yr at >30% solids
Waste Codes: F001, F002, F003, and F005
Currently Landfilled at: CWM Landfill, Fort Wayne, Indiana

B. Nonmagnetic Incinerator Ash - 2000 tons/yr
Waste Codes: F001, F002, F003, and F005
Currently Processed at: Marine Shale, Amelia, Louisiana

C. Mercury and Other Inorganic hazardous Wastes
Waste Codes: P and U listed inorganics
Currently Landfilled at: CWM Landfill, Emelle, Alabama

TABLE C-2 (CON'T)

3. Recycle

   A. Incinerator Ash - 2,000 tons/yr
      Currently sold as scrap iron to American Iron & Steel.

   B. Various solvents and silver bearing wastes.
      Scrap solvent to Marine Shale for fuel.

TABLE C-3

Chemolite On-Site Waste Generation, Characterization, and Boundary Conditions

Waste Code	Quantity (Drums)	Characteristics	Boundary Conditions
1. D001 F001 F002 F003 F005	21,200 (6000)	Pumpable: 1) chlorinated	Pump into blend tank. Pump directly into kiln thru "B" burner or lance at feedrate less than determined in Total Burn assuming 75% Cl.
		2) nonchlorinated	Sample and decide whether to decant, pump directly to "B" burner or storage tanks, >10% water phase and/or ash-decant. Sample and analyze prior to burning.
		3) polymerizable	Observe tank contents if too viscous, add other compatible waste solvents. Pump to scrap solvent storage tanks.
	(15000)	Nonpumpable: 1) homogeneous	Note heat release in kiln and restrict quantity per drum based upon THC/ CO peak (hold to less than value determined by Trial Burn). Take small sample, composite. for heavy metal analysis.
		2) nonhomogeneous	Physical inspection for free liquid: >3 to 5 gallons attempt to remove free liquid, if volatile solvents
2. D002	1,100	High & Low pH wastes	Limit based upon lime and caustic neutralization capacity. Neutralization at wastewater treatment plant is preferred.
3. D003 U & P Listed	70	Special waste	Each waste inspected by trained Env. Engineer(s) prior to disposal

TABLE C-3 (CON'T)

Waste Code	Quantity (Drums)	Characteristics	Boundary Conditions
4. D006	1,300	Cd based pigments, in waste	If mostly organic and/or mostly liquid incinerate. If inorganic landfill.
5. D007	500	Cr based pigments in waste	Same as cadmium
6. D008	35	Pb based pigments in waste	Same as cadmium
7. D009	15	Hg based catalyst in resin	Same as cadmium, except limit amount burned/day.
8. P067	<10	Special waste	See D003
9. P115	1	Special waste	Shipped to secure landfill
10. U044	1	Special waste	See D003
11. PCBs (MN03)	10	Special waste (3M in process of replacing all PCB containing electrical eqpt)®	Stored in Bldg. 60 in designated area until shipment to EPA permitted facility

C-1c Hazardous Waste Shipments to Chemolite

Table C-4 lists 3M facilities which currently ship hazardous waste to Chemolite either for incineration or transfer to a proper EPA approved disposal facility. Those that routinely ship waste to Chemolite have EPA Identification Numbers. This list is continually growing.

Table C-5 is a summary of all hazardous wastes handled in 1986 at Chemolite by waste codes. Note once again the preponderance of D001 waste. Major Appendix VIII compounds contained in 3M wastes are summarized in Table C-6. The Appendix VIII compounds are listed in Table C-6 according to their estimated ranking in terms of frequency as a contaminant and volume of waste involved.

Figure C-3 is an example of a Daily Treatment Log. This form is used to document the wastes burned each day. The drum code, assigned when the wastes are received, allows the wastes to be tracked from generation to date of incineration. Once barcoding is operational, this log will be automatically maintained by the computer.

Tables C-7, C-8, and C-9 contain descriptions of wastes from typical 3M manufacturing facilities. In terms of waste production, these facilities generate most of the 3M hazardous wastes. Waste profile summary sheets are being developed for each plant for use by incinerator personnel to one, identify the waste, and two, decide the appropriate handling procedures to follow.

Table C-10 contains the 1984 estimated volume and a brief description of each off-site 3M generated waste shipped to Chemolite. Due to research at 3M Center in St. Paul, practically every P and U listed wastes may at some point be shipped to Chemolite. Volume is generally less than 1 drum per year for research wastes.

A copy of the Trial Burn Report, Vol. 1, outlining the selected POHC's as well as the sampling and analytical procedures which were used is presented in Appendix A. The Trial Burn Report includes a description of the waste mixture which was used as well as the physical and chemical properties which were measured.

TABLE C-4
SUMMARY OF 3M PLANTS AND VENDORS SHIPPING
WASTE TO CHEMOLITE

PLANT CODE	EPA ID	CITY	STATE	DESCRIPTION	
ABER	SDD980954648G	ABERDEEN	SD	3M OH&SP PLANT	A
ALEX	MND056073299G	ALEXANDRIA	MN	3M INDUSTRIAL ABRASIVES PLANT	A
AMES	IAD089979058G	AMES	IA	3M INDUSTRIAL ABRASIVES PLANT	A
AMRY	WID981100530G	AMERY 715-268-8146	WI	AMERY TECHNICAL PRODUCTS, INC.	A
ANAR	MID980615132G	ANN ARBOR	MI	3M SARNS, INC.	A
ANNA	MID099660359G	ANN ARBOR 313-973-1500	MI	INTERACTIVE SYSTEMS PLANT/SALES	A
ATLB	GAD980500227GQ	ATLANTA	GA	3M BRANCH SALES CENTER W/H	A
ATLC	GAD042857706GQ	ATLANTA	GA	3M BPSC W/H	A
AURB	TXD490011137G	AUSTIN 512-331-2626	TX	TEST & MEASUREMENT FACILITY	A
AUSI	TXD981047079G	AUSTIN 512-834-6547	TX	BRAKER SITE	A
BDPK	ILD006220123G	BEDFORD PARK	IL	3M INDUSTRIAL TAPE PLANT	A
_L	NJD002520088G	BELLE MEAD	NJ	3M IMP PLANT	A
BILR	MAD980523971G	BILLERICA	MA	3M BUS COMM PROD	A
BLMG	ILD049291735GQ	BLOOMINGTON	IL	3M ITC CORP PLT	A
BLUE	OHD076777788G	BLUE ASH	OH	3M INDUSTRIAL OPTICS PLANT	A
BRDG	ILD096460795GQ	CHICAGO-BRIDGEVIEW	IL	BSC	A
BRIS	PAD000766170G	BRISTOL	PA	3M PACK SYSTEMS/AC&S PLANT	A
BROK	SDD078668696G	BROOKINGS	SD	3M MEDICAL PRODUCT	A
BROW	TXD001806868G	BROWNWOOD	TX	3M TCM/DEC/TRANS. COMM. GR	A
BURL 9870312	MAT000016667G	BURLINGTON 617-272-8761	MA	ECC,BEDFORD ST. SO.	A 1
CAMA	CAD080079601G	CAMARILLO	CA	3M DRP PLANT	A
CAMB	MAD043408657G	CAMBRIDGE	MA	3M MEDICAL PLANT	A
CHEM	MND006172969GF	CHEMOLITE	MN	3M PLANT/INCINERATOR	A
CHMS	MAD069346799G	CHELMSFORD	MA	STATIC CONTROLS	A
C.PA	OHD980681498GQ	CINCINNATI	OH	BRANCH SALES CENTER	A
COLU	MOD054950670G	COLUMBIA	MO	3M ELECTRONIC/VISUAL PLANT	A

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TABLE C-4(CONT.)

CLEV	OHD980681480G	CLEVELAND	OH3M BRANCH SALES CENTER	A
COMP	CAX000019554G	L A COMPTON	CA3M BSC W/H	A
RD	ILD054236443GF	CORDOVA	IL3M CHEM RESOURCES & MAG A/V	A
CORO	CAT000617613G	CORONA	CA3M IMP PLANT	A
CUMB	WID043858935G	CUMBERLAND	WI3M INDUSTRIAL ABRASIVES PLANT	A
CYNT	KYD103537700G	CYNTHIANA 606-234-5671	KY3M EMRD PLANT	A
DASA	TXD980873533GQ	DALLAS 214-324-8100	TX3M BSC WAREHOUSE	A
DCTR	ALD004023164G	DECATUR	AL3M SPEC FILM/SPEC CHEM PLANT	A
DEKA 9861101	ILD981094279G	DEKALB 815-756-5087	ILREG.WAREHOUSE 3050 CORP.DR.	A 1
DETA	MID980614267G	DETROIT	MI3M INDUSTRIAL ABASIVES PLANT	A
EAGN	MND980792758GQ	EAGAN	MN3M BRANCH SALES CENTER	A
FAIR	MND006173025G	FAIRMONT	MN3M ISD PLANT	A
FARM	MID050621911GQ	FARMINGTON	MI3M BRANCH SALES CENTER	A
FORE	IAD980686323G	FOREST CITY	IA3M DISTRIBUTION CENTER	A
FREE	NJD002520484G	FREEHOLD	NJ3M MAG AV/ELECTRO -IEP PLT	A
LN	NJD010952810G	FAIR LAWN	NJ3M ORTHOPEDIC PRODUCTS	A
GAIB	MDD000766188GQ	GAITHERSBURG	MD3M EMRD PLANT	A
GREN	SCD980602841G	GREENVILLE	SC3M PACK SYSTEMS PLT	A
GROV	OHD004302360G	GROVE CITY	OH3M AC&S PLT	A
GRPR	TXD081544470GQ	GRAND PRAIRIE	TXBPSC W/H	A
GRVL	SCD073704975G	GREENVILLE	SC3M SPEC FILM PLT	A
GUIN	ALD004019691G	GUIN	AL3M TCM PLANT	A
HART	IND990850299G	HARTFORD CITY	IN3M OFFICE SYSTEMS PLT	A
HIGH	NCD980803597GQ	HIGH POINT	NC3M BRANCH WAREHOUSE	A
HINS	HINSDALE GQ	HINSDALE	IL	A
HONY	NYD000689059G	HONEOYE	NY3M GRAPHIC PREP SYSTEM	A
HUNT	ALD021259205G	HUNTSVILLE	AL3M EMRD PLT	A
HUTC	MND006172902G	HUTCHINSON	MN3M MAG AV/COMM TAPE PLT	A
INDS	MND980996037G	INVER GROVE HTS 612-457-3930	MNINDUSTRIAL SERVICE INC.	A
IRVE 9870312	CAD981401151G	IRVINE 714-250-9237	CAORTHOPEDICS PLANT	A 1
IRVG	IRVING G	IRVING	TXELECTRONIC PRODUCTS	A

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TABLE C-4(CONT.)

IRVN	CAD0841604O7G	IRVINE-MCGRAW	CA3M DENTAL PROD PLT	A
KERR	MND9809017716	KERRICK	MN3M LANDFILL	A
KNOX	IAD075846824G	KNOXVILLE	IA3M INDUSTRIAL TAPE PLT	A
LAMI	CAX000019547G	L A LAMIRADA	CA3M BRANCH SALES CENTER W/H	A
LIRA	ARD000804211G	LIT ROCK ARCH	AR3M IMP PLANT	A
LIRK	ARD006356083G	LITTLE ROCK	AR3M IMP PLANT	A
LOND	MIT270012321G	LONDON,ONTARIO 519-451-2500	CNCANADA INC. 1840 OXFORD ST. E.	A 1
9861028				
LOSA	CAD072950348G	L A GARFIELD	CA3M BRANCH SALES CENT W/H	A
LOXL	LOXLEY G	LOXLEY	ALRESEARCH FARM	A
MEDF	ORD041265372G	MEDFORD	OR3M FILE MGMT PROD PLT	A
MENO	WID078673084G	MENOMONIE	WI3M STAFF MFG PLT	A
MIDL	MID000722223GQ	MIDLAND	MNSCIENTIFIC ANGLERS	A
MIDW	WVD003095536G	MIDDLEWAY	WV3M PRINTING & REPRO PLT	A
MONR	CAD990667099G	MONROVIA	CA3M SPECIALTY FILM PLT	A
MVW	CAD980695696G	MOUNTAIN VIEW	CA3M OPT RECORD. PROJ. PLT	A
NEKO	WID980793681G	NEKOOSA 715-886-4700	WICARBONLESS PRODUCTS	A
NEVA	MOD057894321GF	NEVADA	MO3M DECOATIVE /TRANS C GRAPH	A
NEWK	NJD002172609G	NEWARK	NJ3M SPCH/PACK SYSTEM PLT	A
NEWU	MND079723979G	NEW ULM	MN3M ELECTRO PROD/EMRD PLT	A
NORF	NED020184412G	NORFOLK	NB3M ELECTRO/IEP PLT	A
NORT	CAD050807122G	NORTHRIDGE	CA3M RIKER LAB/PLT	A
OAKB	ILD0770049926Q	OAK BROOK	IL3M BPSC	A
PARA	NJD980755094GQ	PARAMUS	NJ3M BPSC	A
PAUL	NJD980786347G	PAULSBORO 609-423-5990	NJADCOPAK CORP	A
PENS	NJD005212469GQ	PENNSAUKEN	NJ3M BPSC W/H	A
PETA	CAT080033368G	PETALUMA	CA3M OPT TECK CENTER/OSG PLT	A
PHIL	PHILADELPHIAG	PHILADELPHIA	PABRANCH SALES CENTER	A
PINE	MNT280010620G	PINE CITY	MN3M C&EP PLANT	A
PRAI	WID000808964G	PRAIRIE DU CHIEN	WI3M BS&CP PLT (#2)	A
PRDC	WID006430623G	PRAIRIE DU CHIEN	WIBS&CP PLT #1	A

TABLE C-4(CONT.)

ROCH	NYD045606480G	ROCHESTER	NY3M PHOTO PLT	A
SnBA	CAD075304444G	SANTA BARBARA	CA3M SURGICAL PLANT	A
SEAT	SEATTLE G	SEATTLE	WABRANCH SALES CENTER	A
SECA	NJD077557577G	SECAUCUS	NJ3M BPSC	A
SFLD	MID037746872GQ	DETROIT-SOUTHFIELD	MI3M BPSC	A
SP27	MND000824045GQ	ST PAUL	MN3M BLDG 27	A
SPBG	SCD000772012GQ	SPARTANBURG	SC3M DYNACOLOR	A
SPFD	MOD043937895G	SPRINGFIELD	MO3M AC&S PLANT	A
STAP	STAPLES G	STAPLES	MN3M MACHINE SHOP	A
STLS	MOD980858989GQ	ST LOUIS	MO3M BSC	A
STPA	MND006173082GT	ST PAUL	MN3M OFFICE/LAB COMPLEX	A
STPB	MND048160964G	ST PAUL	MN3M BENZ BLDG (53)	A
STPD	MNT280010778G	ST PAUL	MN3M INTL EXPORT (DC)	A
STPE	BLDG 96 G	ST PAUL	MN3M MACH SHOP (BLDG 96)	A
STPH	HOLMAN FIELDG	ST PAUL	MNHOLMAN FIELD AIRPORT	A
STPM	MND000824029G	ST PAUL	MN3M MAIN PLANT	A
STPR	MND980898001GQ	ST PAUL	MNRIVERVIEW BLDG 552	A
STPS	MND980619266G	OAKDALE	MN3M OAKDALE	A
STPU	MND980701593G	ST PAUL	MN3M REINFORCED PLASTICS IND BLDG 71A	
STPV	MND980898019GQ	VADNAIS HEIGHTS	MN3M BLDG 544	A
TCAP	MND000824003GQ	NEW BRIGHTON	MN3M BLDG 590 TCAAP	A
VALY	NED028196103G	VALLEY	NBOH&SP PLANT	A
VARO	MND006252993G	MPLS-ARO IND	MNARO IND INC -TELCOMM VENDORSHOP	A
VAVI	MID005167192G	NILES	MIAVIEX 1800 TERMINAL RD	A 1
9861022		616-683-6767		
VBGT	MND006161152G	ST PAUL	MNBERG-TORSETH,INC VENDORSHOP	A
VCCC	MND000808923G	MPLS	MNCONSOLIDATED CONT-27TH AVE	A
VCON	MND006196034G	MPLS	MNCONSOLIDATED CONT-3RD ST	A
VCON	MND000808915G	MPLS	MNCONSOLIDATED CONTAINER	A
VDIT	MND010535680G	NEW ULM	MNDITTRICH-EMRD VENDORSHOP	A
VEDU	TXD981046329G	JUAREZ CHIHUAHUA	MXEDUMEX	A 1
9870312				

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TABLE C-4(CONT.)

VGOR	MND079732251GQ	MILACA	MNGORECKI MFG,VENDORSHIP	A
VMEX	TXD981046329GT	JUAREZ	MXMEXICO VENDORSHOP	A 1
9861008	99961			
VMEY	MEYERS PRINTG	MINNEAPOLIS 612-333-8240	MNMEYERS PRINTING	A
VMPC	MND980903553G	ST PAUL	MNMAT PROCESSING CORP-VENDOR	A
VMPC	MND980903553G	ST PAUL	MNMATERIALS PROCESSING CORP,VENDOR	A
VMPC	MND908903553G	ST. PAUL 612-292-4850	MNMATERIALS PROCESSING CORP.	A
VNRI	WID000685719G	NEW RICHMOND	WINEW RICHMOND IND-VENDORSHOP	A
VP3C	MND981092034G	STILLWATER 612-439-9252	MNPART THREE CORP.	A 1
9861205				
VSAR	SARREL REC G	EAGAN	MNSARREL RECONDITIONERS	A
VSSC	WID071499776G	NEW RICHMOND	WIS&S COATINGS	A 1
9861230				
VTAP	MND006173802G	W.ST.PAUL 455-1611	MNTAPEMARK COMPANY	A
VTHM	MND051438810G	ST.PAUL 612-631-3288	MNTECH MACH 1484 CTY RD C	A 1
9861103				
VVOM	MND981529498G	ST PAUL 612-224-2354	MNVOMELA SPECIALTY CO	A 1
51014				
VWIL	MOD981496870G	BILLINGS	MOWILCORP IND.	A 1
9870107				
W518	MNT280010786G	WOODBURY	MN3M BLDG 518	A
W553	MND000685610G	WOODBURY	MN3M BLDG 553 (TCM SIGN MAT'L LAB)	A
W582	MND000685628G	WOODBURY	MN3M BLDG 582 (TCM SIGN MAT'L LAB)	A
WAHP	NDD084497775G	WAHPETON	ND3M MAG/TELCOMM PLANT	A
WAUG	WID000808956G	GREYSTONE	WI3M IMP QUARRY	A
WAUS	WID006125660G	WAUSAU	WI3M IMP DTWN PLANT	A
WAYN	MID006405443G	WAYNE	MI3M AC&S PLANT	A
WEAT	OKD062267448G	WEATHERFORD	OK3M DRP/GRAPHIC PREP/PHOTO CENTER	A
WESC	NJD052441664G	W CALDWELL	NJ3M BSC	A
WESD	NJD053293957G	WEST DEPTFORD	NJ3M ELECTRO-IEP PLANT	A
WEST	MDD022688329G	WESTMINSTER	MD3M NATIONAL AD/SIGN MATERIALS	A
WILM	MAT000016668G	WILMINGTON 617-657-8030	MAECC,23 INDUSTRIAL WAY	A 1
9870312				
WOOD	ILD060370236GQ	WOODDALE	IL3M BPSC D.C.	A

TABLE C-5

3M CHEMOLITE CENTER

CONTAINER CODE SUMMARY REPORT

BY WASTE CODE

1/01/1986 - 12/31/1986

Jan-29-1987

WASTE CODE	DM1	DM2	DM3	DM4	DM5	DM6	DM7	DM8	DM9
D001	70866	895	131	118	6965	4013	435	0	0
D002	3467	80	20	15	348	5	89	0	0
D003	391	203	2	2	393	0	6	0	0
D004	3	0	0	0	1	0	0	0	0
D005	462	0	2	0	54	36	0	0	0
D006	504	35	0	0	23	12	0	0	0
D007	904	0	1	0	11	80	2	0	0
D008	1127	6	0	0	252	0	0	0	0
D009	56	0	1	0	41	0	12	0	0
D010	12	0	0	0	2	0	0	0	0
D011	52	0	0	0	4	0	0	0	0
F001	693	10	7	4	233	1	4	0	0
F002	1361	16	14	0	259	12	3	0	0
F003	2532	83	0	0	44	0	10	0	0
F004	1	0	0	0	0	0	0	0	0
F005	5335	0	0	0	6	0	17	0	0
F007	2	0	0	0	0	0	0	0	0
F010	8	0	0	0	0	0	0	0	0
[illegible]	1	0	0	0	9	0	0	0	0
[illegible]	52	0	0	0	7	0	0	0	0
→ NONH	18505	9540	112	833	7292	25718	186	1	0
P001	1	0	0	0	0	0	0	0	0
P010	1	0	0	0	0	0	0	0	0
P015	0	0	0	0	1	0	0	0	0
P022	0	0	0	0	1	0	0	0	0
P024	0	0	0	0	1	0	0	0	0
P030	0	0	0	0	1	0	0	0	0
P033	1	0	0	0	0	0	0	0	0
P067	10	24	0	0	0	0	0	0	0
P081	0	0	0	0	6	0	0	0	0
P098	1	0	0	0	1	0	0	0	0
P105	0	0	0	0	1	0	0	0	0
P106	0	0	0	0	2	0	0	0	0
P121	0	0	0	0	1	0	0	0	0
U002	2	0	0	0	0	0	0	0	0
U004	2	0	0	0	0	0	0	0	0
U007	1	0	0	0	1	0	0	0	0
U009	1	2	0	0	11	0	0	0	0
U012	0	0	0	0	1	0	0	0	0
U014	0	0	0	0	1	0	0	0	0
U019	20	0	1	0	2	0	0	0	0
U020	0	0	0	0	1	0	0	0	0
U024	0	0	0	0	1	0	0	0	0
U029	0	0	0	0	1	0	0	0	0
U0[illegible]	0	0	0	0	1	0	0	0	0
U037	0	0	0	0	1	0	0	0	0

TABLE C-5(CONT.)

3M CHEMOLITE CENTER
CONTAINER CODE SUMMARY REPORT
BY WASTE CODE
1/01/1986 - 12/31/1986

Jan-29-1987

WASTE CODE	DM1	DM2	DM3	DM4	DM5	DM6	DM7	DM8	DM9
U041	0	0	0	0	8	0	0	0	0
U044	20	0	0	0	37	0	4	0	0
U049	1	0	0	0	0	0	0	0	0
U056	2	0	0	0	2	0	0	0	0
U057	2	0	0	0	0	0	0	0	0
U061	0	0	0	0	0	0	1	0	0
U070	0	0	0	0	2	0	0	0	0
U080	123	1	1	0	38	0	1	0	0
U082	0	0	1	0	0	0	0	0	0
U084	0	0	0	0	1	0	0	0	0
U088	656	0	0	0	0	0	0	0	0
U107	4	0	0	0	1	0	0	0	0
U108	0	0	0	0	5	0	0	0	0
U117	0	0	0	0	2	0	0	0	0
U122	301	8	0	0	35	0	0	0	0
U123	0	0	0	0	1	0	0	0	0
U133	274	0	0	0	0	0	1	0	0
U134	0	0	0	0	1	0	0	0	0
U147	0	0	0	0	1	0	0	0	0
U151	0	0	0	0	1	0	0	0	0
U154	3	8	0	0	3	0	0	0	0
U159	2	0	0	0	0	0	0	0	0
U169	0	0	0	0	3	0	0	0	0
U188	3	0	0	0	10	0	0	0	0
U196	0	0	0	0	3	0	0	0	0
U206	0	0	0	0	21	0	0	0	0
U208	0	0	0	0	1	0	0	0	0
U209	0	0	0	0	3	0	0	0	0
U210	1	0	0	0	1	0	0	0	0
U211	0	0	0	0	8	0	0	0	0
U213	0	0	0	0	1	0	0	0	0
U221	1	0	0	0	0	0	0	0	0
U223	17	27	0	0	6	0	3	0	0
U225	0	0	0	0	1	0	0	0	0
U226	113	6	1	0	21	0	0	0	0
U227	744	0	0	0	18	0	0	0	0
U228	1	0	0	3	10	0	0	0	0
U238	17	1	0	0	31	0	0	0	0
U239	2	0	0	0	0	0	0	0	0
TOTAL	108661	10945	294	975	16256	29877	774	1	0

3MA00152603

TABLE C-5(CONT.)
3M CHEMOLITE CENTER
CONTAINER CODE SUMMARY REPORT
BY WASTE CODE
1/01/1986 - 12/31/1986

Jan-29-1987

WASTE CODE	TT	TT1	TT2	TT3	TP1	TP2	TP3
D001	170	26483	3272	1003	360	0	0
D002	0	160	0	90	0	0	0
F002	0	0	105	0	0	0	0
F003	0	989	75	0	0	0	0
F005	0	2641	217	0	7	0	0
NONH	0	192	228	944	24	42	14
U056	0	84	0	102	0	0	0
TOTAL	170	30549	3897	2139	391	42	14

WASTE CODE	DF1	DF2	DF3	DF4	DF5	DF6	CF1	CF2	BA1	BA2
D001	1573	53	47	2	113	555	928	995	9	0
D002	442	75	23	4	26	1	821	28	1	0
D003	2	1	2	0	1	0	0	2	0	0
D006	0	0	0	0	0	0	0	0	5	0
D007	0	0	0	0	0	0	27	24	0	0
D008	175	47	0	4	0	0	24	0	0	0
D009	0	0	0	0	0	0	171	3	0	0
D010	0	0	0	0	0	0	135	0	0	0
D011	1	1	1	0	0	0	0	0	0	0
F001	0	0	0	0	18	0	208	0	0	0
F002	49	0	28	0	1	0	418	30	0	0
F003	0	0	0	0	0	0	160	0	0	0
F005	0	0	0	0	0	0	15	0	0	0
MN03	0	0	0	0	0	0	0	4	0	0
NONH	2352	2348	924	853	848	1174	5456	7602	405	7
U080	1	0	0	0	0	0	0	0	0	0
U122	4	13	0	0	0	0	0	0	0	0
U151	0	0	0	0	0	0	24	0	0	0
TOTAL	4599	2538	1025	863	1007	1730	8387	8688	420	7

CONTAINER CODES:
DM1 - 55 gallon Metal Drum
DM2 - empty
DM3 - 30 gallon Metal Drum
DM4 - empty
DM5 - 5 gallon Metal Pail
DM6 - empty
DF - Fiber

3MA00152604

Table C-6

Appendix VIII Compounds Used by 3M

Toluene
MEK
Hydrogen Fluoride
1,1,1-Trichloroethane
Formaldehyde
Phenol
Methyl Methacrylate
Diethyl Pthalate
Methylene Chloride
Ethylene Dichloride
Phthalic Anhydride
1,1,2-Trichloroethane
Toluene Di-isocyanate
Aniline
2-Ethoxyethanol
Di(2-Ethylhexyl) Phthalate
Carbon Disulfide
Benzene
Ethyl Methacrylate
Epichlorohydrin

Note: Compounds listed in order of volume.
Usage infers potential presence in wastes

3M Chemolite Center

Incinerator Treatment Log

Form 27679 - PWO

Figure C-3

Date	

☐ Pak ☐ Pump	Shift ☐ 1 ☐ 2 ☐ 3	Runtime	Employee No.	Page of

Drum Code	TYPE*	Quantity		Recharge Codes	Drum Code	TYPE*	Quantity		Recharge Codes
BV95	1	6		1-3 2-2 5-1					

Notes. a) Type 1 - Drum 2 - Pail 3 - Boxes 4 Fiber 5 - Empty Drums 6 - Empty Pails 7. BH [illegible]
b) All boxes as equivalent drums 8. [illegible]
c) Underline last drum fed or pumped on the hour

3MA00152606

C-2 Waste Analysis Plan

A. 3M Wastes

The Chemolite incinerator, as demonstrated by the Trial Burn, is capable of achieving the 99.99% DRE under a wide range of conditions and for essentially all organic compounds used by 3M. 3M does not intend to burn either PCB or dioxin materials unless as part of a test required by the MPCA and/or EPA. No 3M product is produced using either PCB or dioxin contaminated raw materials, nor could 3M conceivably produce a byproduct containing either compound.

3M does have a PCB electrical equipment replacement program almost completed whereby all PCB containing transformers are being replaced. All PCB wastes are shipped to EPA approved disposal facilities. 3M also collects all fluorescent light ballasts that may contain PCBs and treats them as PCB wastes, shipping them off-site to approved disposal facilities.

3M has had a purchasing data base for raw materials for years. Significant efforts have been expended to expand this data base to include detailed compositional information. Additional incentives to expand this data base was provided by the Right-to-Know regulations. Since the vast majority of 3M processes involve mixing, compounding, and polymerization, the state of the raw materials may change, i.e., liquid to solid, but not the compounds involved. Thus the composition of the raw materials is the composition of the wastes from the process.

3M believes that the aforementioned knowledge, complete waste custody, i.e., hazardous wastes are shipped from 3M generating facilities to the incinerator by 3M transportation, and the wastestream identification, manifesting, and labeling program provides sufficient information on the organics in the wastes to ensure proper packaging, handling, and storage without extensive waste analysis.

Once the wastestreams have been identified, an appropriate verification program will be established for each. In most cases, especially for D001 wastes, the procedure will involve physical appearance and random GC/MS testing for specific solvents in the drum headspace. To minimize handling and worker exposure, composite samples, except for pumpable wastes, sludges, and some homogeneous jelled wastes will not be required.

As mentioned previously, a summary sheet of the wastestreams from each plant will be maintained at the incinerator. If the information on the drum label or manifest, does not fit the information for the wastestream in question, the drum will be set aside for investigation and a surcharge will be assessed. If a nonpumpable waste in a drum does not fit the physical description for the wastestream, fails the headspace test, or in any other way arouses the suspicion of one of the workers at the incinerator, the drum will be resealed and stored until a more thorough investigation can be conducted.

Sludges and fairly homogeneous jelled materials will be sampled as they are fed, composited, and analyzed for ash and heavy metal content. Other tests may be required based upon the source of the jelled material and sludge and their wastestream profile recommendations. Analyses will become less frequent as the wastestream information is verified.

Pumpable hazardous wastes will continue to be sampled and analyzed as required by the permit. In addition, random samples from drums, tankers, and tote tanks will be taken, labeled, and stored for eventual GC/MS analysis. On an annual basis, at least one pumpable waste sample from all plants will be analyzed by GC/MS for major organic components. Major pumpable waste generators will be sampled and analyzed monthly initially and then less frequently if the analyses confirms the wastestream information. As before, incorrect information will ensure additional testing and larger surcharges. Distilled scrap solvents, when burned in the incinerator, will not be analyzed for ash and heavy metals.

No analyses will be run on the Special Wastes from the 3M Center. The special handling required from point of generation to disposal and the small quantities involved negates the need for additional verification. Deviation from the procedures by a generator will result in a significant surcharge.

Should certain Appendix VIII compounds be excluded in the final RCRA permit for the incinerator, the corporate data bases will be searched to identify the raw materials that contain the compound and the plants that use these raw materials. Next the plant contact would review the process, identify the waste streams potentially containing the compound, and obtain samples for laboratory analysis. If the compound is found in significant quantities, the waste stream would be barred from disposal at the Chemolite Incinerator.

Sampling and analysis techniques are in accordance with approved EPA procedures as published in manuals such as, "Sampling and Analysis Methods for Hazardous Waste Incineration." Most analyses are done internally by 3M. An ongoing quality assurance program monitors the accuracy and performance of the results, whether obtained internally or by an outside contract laboratory.

B. 3M Product Wastes Returned by Users

3M has started to accept return of spent 3M products as hazardous wastes from some of its customers. No wastes will be returned without physical, onsite inspection by a 3M employee experienced with both the process involved and the wastes generated. If the waste appears to be uncontaminated by other wastes, a 3M waste label will be affixed and the drum closed. If contamination is suspected, a sample will be taken and analyzed prior to approval. Upon processing at the incinerator, samples will be taken from each drum and forwarded to the sponsoring Division for inspection, compositing, and eventual testing.

C-2a and b Waste Receiving

Every waste shipment, whether on-site or off-site will be logged in using the form depicted in Figure C-4. This form will change in the future with the planned barcoding and computer data-logging. Due to the handling procedures and equipment installed on the Chemolite incinerator and the nature of the wastes handled, 3M generated, elaborate testing and analyses are not required, see Table C-11. When a drum is selected for analysis, the analytical methods listed in Table C-12 will be used.

C-2c and e Waste Verification

The person responsible for receiving the wastes will be provided with a breakdown of the types of wastes, the waste profiles, expected from each 3M plant and both a contact at the plant and the name of the 3M Environmental Engineer responsible for that plant. From this information he will determine which tests best characterize the waste. For ignitable nonhomogenous wastes the testing will consist of random sampling of the drum headspace for identification of the major solvents.

C-2d Changes in Waste Streams from Generating Plants

Receiving person will have information on each type of waste generated at each facility plus access to all the previously described data bases and trained personnel. If needed, he will specify testing from Table C-12.

Chemolite nter Incinerator
Manifest S. .us Log
Form 27206

Figure C-4

Date	Code

Number Code	Plant Code	Manifest Number	Department Number	Waste Code	Type of Containers	Number	Storage/Staging Location	Waste Profile (Y/N)	Sampled (✓)	Disposal Date	Description

1349.0061

3MA00152610

C-2f Special Waste Shipments

Each special waste container will be inspected by a trained Environmental Engineer and the handling and disposal procedures will be according to his recommendation. If there is some doubt as to the contents, he will specify the required testing from Table C-12.

C-2g QA/QC Plan

The 3M Environmental Laboratory has an ongoing quality assurance program for both internal and external sample.

Much of the work is done by internal 3M laboratories but contracts have been established with numerous outside laboratories to handle special tests and overload testing. A full time chemist prepares QA samples of known concentrations and submits them with the other samples. He then compares the results and tabulates them for each laboratory. The 3M laboratory also participates in a local round-robin quality assurance program. The basic components of the 3M QA/QC program include:

1. Representative sampling
2. Proper containers and preservatives
3. Well maintained and calibrated equipment
4. Use of approved methods
5. Both blind and known QC samples
6. Checks on data handling and reporting
7. Quality audits
8. Team review of errors with prevention emphasis

TABLE C-7

Description and Chemical Composition of Typical Hazardous Wastes Generated at 3M Batch Chemical Manufacturing Facilities

Description	Hazardous Characteristics	Waste Code	Chemical Characteristics
Waste Toluene	Ignitable, Toxic	F005	>90% Toluene
Waste Methyl Ethyl Ketone	Ignitable, Toxic	F005	>90% MEK
Waste Acetone	Ignitable	F003	>90% Acetone
Waste Xylene	Ignitable	F003	>90% Xylene
Mixed Scrap Solvents	Ignitable	D001	Flash Point <30°F
Solution Polymer Filters	Ignitable	D001	Flash Point <140°F
Scrap Solvent Contaminated With Mercury	Ignitable, EP Toxic	D001, D009	Leachate >0.2 mg/l Mercury, Flash Point <140°F
Solid Scrap Contaminated With Mercury	EP Toxic	D009	Leachate >0.2 mg/l Hg
Sand and Caustic Mixture	Corrosive	D002	pH >12
Solid Scrap Contaminated With Chromium	EP Toxic	D007	Leachate >5.0 mg/l Cr
Empty Sodium Cyanide Drums	Toxic	P106	Contains NaCN Residue
Product Still Bottoms	Ignitable	D001	Flash Point <140°F
Scrap Polymer and Resin Solutions	Ignitable	D001	Flash Point <140°F
Off-Spec. Finished	Ignitable	D001	Flash Point Good 30-80°F 5% Halogenated 15-25% Ketone 15-25% Polymer Solids No Heavy Metals

TABLE C-7 (CON'T)

Description	Hazardous Characteristics	Waste Code	Chemical Characteristics
Cell Tars From Electrofluorination of Organic Compounds	Corrosive	D002	50% Solids pH <1 50% HF
Cell Product Tars	Corrosive	D002	99% Solids pH <2 0-0.5% HF
Urethane Prepolymer	Ignitable	D001	>50% solids pH = 7 Flash Point <140°F 50-100% Urethane Polymer 0-50% Solvent <1% Toluene Diisocyanate
Filled Polyglycol	EP Toxic	D009	pH = 7 <15-55% Polyglycol 1000 ppm Hg 500 ppm Pb
Synthetic Adhesive	Ignitable	D001	20% Solids Flash Point 30°F 20-40% Acrylate Polymer 20-40% Ethyl Acetate 20-40% Heptane
Chlorinated Solvent Chloride	Toxic	F001	0-100% Methylene 1,1,1-Trichloroethane
Silica Gel with Cyclohexane and Xylene	Solid	D001	0-50% Silica Gel 0-50% Cyclohexane
Fluorochemical Polymerlactices	Liquid	D001	0-60% Water 0-30% Ketone 0-40% Polymer Solids

TABLE C-8

Description and Chemical Composition of Typical Hazardous Wastes Generated at 3M Tape Coating Manufacturing Facilities

Description	Hazardous Characteristics	Waste Code	Chemical Characteristics
1. Waste Heptane	Ignitable	D001	>90% Heptane
2. Waste Toluene	Ignitable Toxic	F005	>90% Toluene
3. Waste MEK	Ignitable Toxic	F005	>90% MEK
4. Waste Mineral Spirits	Ignitable	D001	>90% Mineral Spirits
5. Waste Xylene	Ignitable	F003	>90% Xylene
6. Waste Acetone	Ignitable	F003	>90% Acetone
7. Waste Degreaser	Toxic	F001	>90% 1,1,1-Trichloroethane
8. Waste Adhesives	Ignitable Toxic	D001	45% Solvents (MEK, Heptane, Toluene, Mineral Spirits, Ethyl Acetate, and Ethyl Alcohol) 55% Silicone and Catalysts, Rubber Resin, Acrylates
9. Adhesive Contaminated Dry Scrap	Ignitable	D001	Gloves, Filters, Rags, etc., contaminated by adhesives
10. Reacted Isocyanate	Ignitable	D001	>70% Polyols 20% Resin 7% Reacted Isocyanate <.05% Lead

TABLE C-9

Description and Chemical Composition of Typical Hazardous Wastes Generated at 3M Recording and Printing Products Manufacturing Facilities

Description	Hazardous Characteristics	Waste Code	Chemical Characteristics
1. Polishing Oil	Ignitable	D001	>90% Mineral Spirits, Traces SiC, Al_2O_3, and Polyurethane
2. Aluminum Sludge	Ignitable	D001	<20% Mineral Spirits, ≥80% SIC, Al_2O_3, Polyurethane, and trace 1,1,1-Trichloroethane
3. Scrap Coating Solution	Ignitable, Toxic	D005	>15% Fe_2O_3 MEK Binders and Wetting Agents
4. Solvent Contaminated Dry Scrap	Ignitable, Toxic	D001	Rags, Gloves, Filters, Paper, etc., contaminated by one or more of MEK, toluene, cyclohexanone, alcohol, etc. (Items 5 & 7)
5. Scrap Solvent Mixtures	Ignitable, Toxic	D001	Kerosene, methanol, cyclohexanone, chlorothene, and isopropyl alcohol
6. Scrap Degreaser	Toxic	F001	>90% 1,1,2-trichloroethane <10% grease, dirt, resins, and pigments
7. Waste Cleaning Solvents	Ignitable, Toxic	F001	Mixture containing varying % of following: 1,1,2-trichloroethane, MEK, methanol, ethylene dichloride, ethyl acetate, dimethyl formaldehyde, and cellosolve acetate

TABLE C-10

Chemolite Off-Site Waste Types, Characterization, and Boundary Conditions

Waste Code	1984 Estimated Quantity(Drums)	Characterization
D001	70,000	Same as on-site
D002	3,500	Same as on-site
D003	450	Same as on-site
D004	20	Same as on-site for cadmium
D005	25	Same as on-site for cadmium
D006	240	Same as on-site
D007	120	Same as on-site
D008	2,100	Same as on-site
D009	40	Same as on-site
D010	80	Same as on-site for cadmium
D011	15	Same as on-site for cadmium
D014	2	Special waste
D016	20	Special waste
F001	550	Special waste
F002	1,300	Same as on-site
F003	4,400	Same as on-site pump. nonchlorinated
F005	920	Same as on-site pump. nonchlorinated
F007	6	Treated as nonpumpable and incinerated
F008	9	Treated as nonpumpable and incinerated
P002	2	Treated as nonpumpable and incinerated
P003	<1	Special waste
P011	<1	Special waste
P064	2	Special waste
P068	<1	Special waste
P078	<1	Special waste
P097	2	Treated as nonpumpable and incinerated
P106	260	Special waste
P116	<1	Treated as nonpumpable and incinerated
U004	<1	Treated as nonpumpable and incinerated
U007	<1	Treated as nonpumpable and incinerated
U009	1	Special waste
U011	8	Special waste
U014	<1	Same as U007
U019	10	Special waste
U044	22	Special waste
U048	<1	Same as U007
U070	<1	Same as U007
U076	<1	Same as U007
U078	10	Treated as D001 pumpable chlorinated
U080	75	Treated as D001 pumpable chlorinated
U096	<1	Special waste
U117	<1	Special waste
U122	25	Special waste
U126	<1	Same as U007
U128	<1	Special waste
U133	35	Special waste
U144	<1	Special waste
U147	<1	Same as U007
U149	<1	Same as U007

TABLE C-10 (CON'T)

Waste Code	1984 Estimated Quantity(Drums)	Characterization
U151	<1	Special waste (landfilled)
U154	1	Treated as D001 pumpable nonchlorinated
U157	1	Same as U007
U158	1	Special waste
U169	3	Special waste
U186	4	Special waste
U188	1	Special waste
U190	2	Same as U007
U196	<1	Same as U154
U201	1	Same as U007
U210	<1	Same as U007
U211	<1	Special waste
U213	1	Same as U154
U221	<1	Same as U007
U223	95	Special waste
U225	<1	Same as U007
U226	60	Same as U078
U227	796	Same as U078
U228	<1	Same as U078
U232	1	Same as U007
U238	5	Same as U007

TABLE C-11

Rationale for 3M Waste Analysis Program

Parameter	Rationale
PCB Content	3M is required to know location of PCB wastes. No 3M processes currently generate a PCB waste. Where PCB content is suspected, such as the Oakdale waste, sampling and analyses are completed prior to shipment to the incinerator to ensure levels below 50 ppm.
Organically Bound Chloride Content	Due to the extensive air pollution control equipment installed on the incinerator and the volume of water (2 mgd) used in the control devices, greater than 99% HCl removal is assured no matter what loading. As an additional protection, when possible, chlorinated solvents are fed at a fixed rate through "B" burner and pumpable scrap solvent will be tested for chloride content prior to incineration.
Ash Content Solids Content	Ash content of all pumpable samples will be determined prior to incineration.
Flash Point and Explosivity	Low flash point and explosive wastes are labelled "Special" and receive special handling. Explosives are not shipped to Chemolite.
Elemental Analysis	Normally the incinerator operates between 200 and 300% excess air making elemental analysis unnecessary.
Cyanide and Sulfide	Reactive wastes are handled as special wastes. Blend tanks allow reactive and polymerizable wastes to be kept separate from other wastes until incinerated.
Heat Content	Important for burner wastes so that temperatures can be maintained at their setpoints. Pumpable wastes will be analyzed for heat content prior to incineration.
Rate of Heat Release	CO and soot forms when too rapid combustion occurs. Can only be determined by experimental burning in existing kiln facility. Limits will be placed on waste streams found to contain excessive heat release under existing kiln operating conditions. Barcoding and the process computer will facilitate required data acquisition.
Heavy Metals	Pumpable wastes will be composited and analyzed for heavy metals. Database searches of raw materials used will identify potential sources for investigation and eventual segregation or substitution.

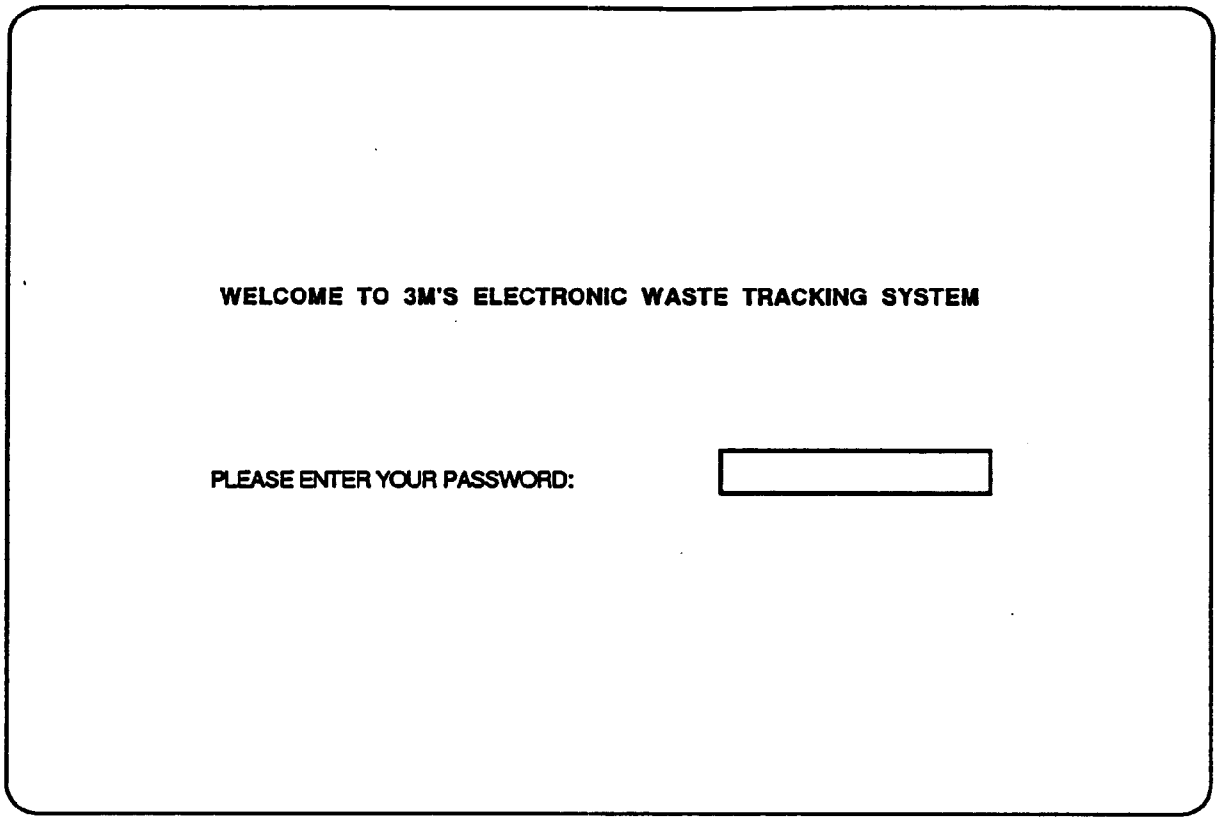
Table C-12
ACCEPTABLE ANALYTICAL METHODS FOR WASTE ANALYSIS

PARAMETER	METHOD(S)*	COMMENTS
Heating Value	SA A006	Methods D2015 and D3826 are applicable to solid wastes and D240 is applicable to liquid wastes
Chlorine (organically bound)	SA A004 ASTM D2361, E442	Combustion method, may be combined with determination of carbon, hydrogen and sulfur
Hazardous Metals:	SA A021	Summary of atomic absorption and ICAP methods
Mercury	SW 8.57	These methods are based on detection of mercury vapor by atomic absorption spectrophotometer, and are subject to interferences. Spiked samples should be analyzed to establish recovery. Methods involving strong oxidation, such as ASTM D3223, should be avoided because of the possibility of explosions. Alternatively, atomic absorption may be used with a graphite furnace
Arsenic Selenium	SW 8.51 SW 8.59	Gaseous hydride generation coupled with atomic absorption detection is recommended. This method is subject to interferences so spiked samples should be analyzed to establish recovery. Colorimetric methods, such as EPA 206.4 or ASTM D3081, should not be used because of interferences. Alternatively, atomic absorption may be used with a graphite furnace.
Barium Beryllium Cadmium Chromium Nickel Thallium Lead Silver Antimony	SW 8.52, EPA 208.1 EPA 210.1 SW 8.53, EPA 213.1 SW 8.54, EPA 218.1 SW 8.58, EPA 249.1 EPA 279.1 SW 8.56, EPA 239.1 SW 8.60, EPA 272.1 SW 8.50, EPA 204.1	These methods are for direct aspiration, flame, atomic absorption spectroscopy. Sample preparation should be performed in accordance with Section 200.1 of the EPA manual. Generally, the sensitivity achieved with the graphite furnace techniques is not required with hazardous waste samples, and the furnace methods are subject to interference.
Hazardous Constituents, Including PCB	Sampling and Analysis Manual	Hazardous constituents listed in Appendix VIII of Part 261 and those in Table 1 of §261.24 may be analyzed by methods in SW-846.
Kinematic Viscosity	SA A005 ASTM D445 or D88	A variety of methods may be employed using various types instruments, including rational, piston, float, vibrating-probe or capillary types.
Percent Solids	ASTM D1888	A distinction should be noted between water insoluble solids and solids not soluble in organcl solvents. Any of a variety of separation techniques may be employed; vacuum filtration, centrifugation, pressure filtration, etc.
Sulfur	ASTM D3177, E443	Combustion methods.
Ash	SA A001-A002 ASTM D3174 or D482	D3174 is for solid wastes and D482 is for liquid wastes.
Flash Point	ASTM D93, D3278, or D1310	Methods D93 and D3278 are pursuant to the definition of ignitable wastes in Section 261.21 of the regulations. D1310 provides comparable results.
Carbon and Hydrogen	ASTM D3178	Combustion method.
Moisture	SA A001-A002 ASTM D95, D3173	D95 is a xylene co-distillation and is recommended for most wastes. D3173 and A001-A002 are intended for solid wastes, but the oven heating will drive off volatile compounds in addition water. D1796 is a centrifuge method intended for use with liquids.

* SA refers to Sampling and Analysis Manual for Hazardous Waste Incineration
SW refers to Test Methods for Evaluating Solid Waste, SW-846
ASTM refers to American Society for Testing and Materials Standards
EPA refers to Chemical Analysis of Water and Watses, EPA 600/4-79-020

12/28/88

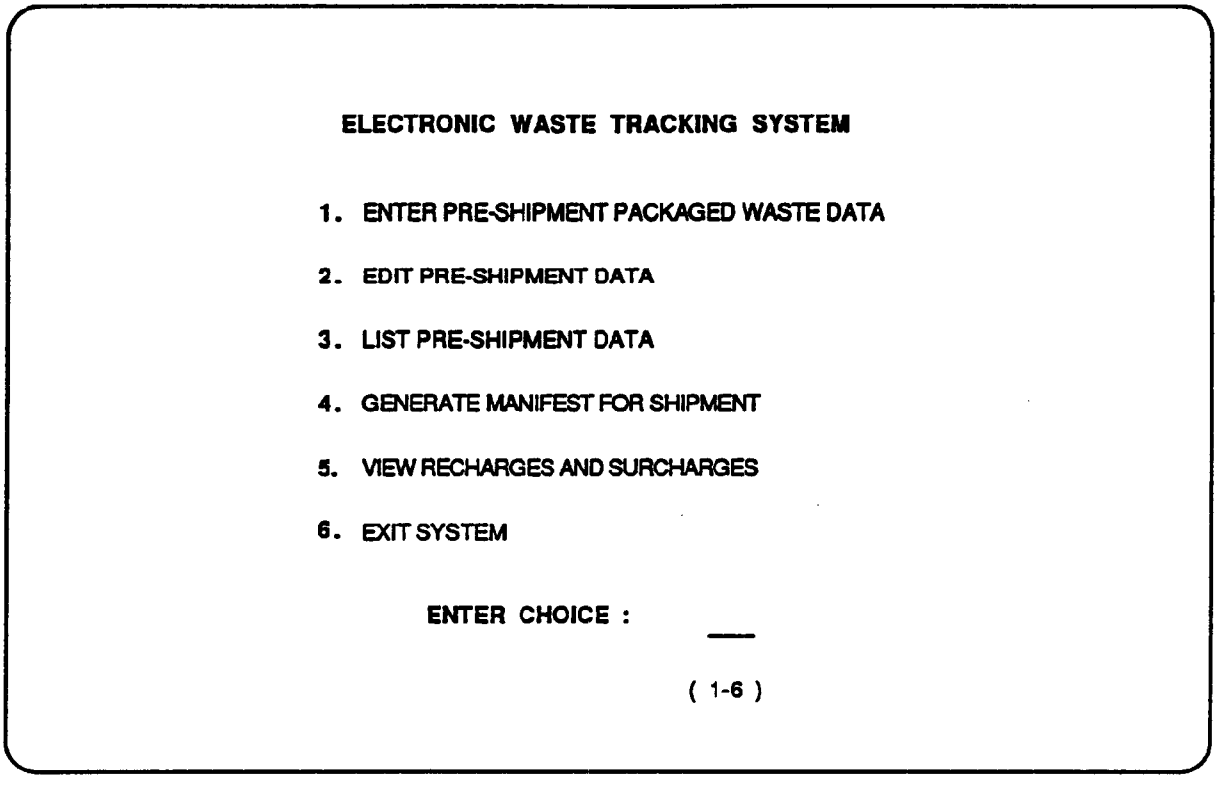
EXAMPLES OF POSSIBLE INTERACTIVE SCREENS FOR THE 3M ELECTRONIC WASTE TRACKING SYSTEM EWTS



OPENING SCREEN:

Allows on-line user to enter password for access into the Electronic Waste Tracking System. If password entered is found in the password database, access should be granted and the main menu should follow. If the password does not exist, access should be denied. Access granted should be limited to the databases and information that pertains to that particular plant or waste generator.

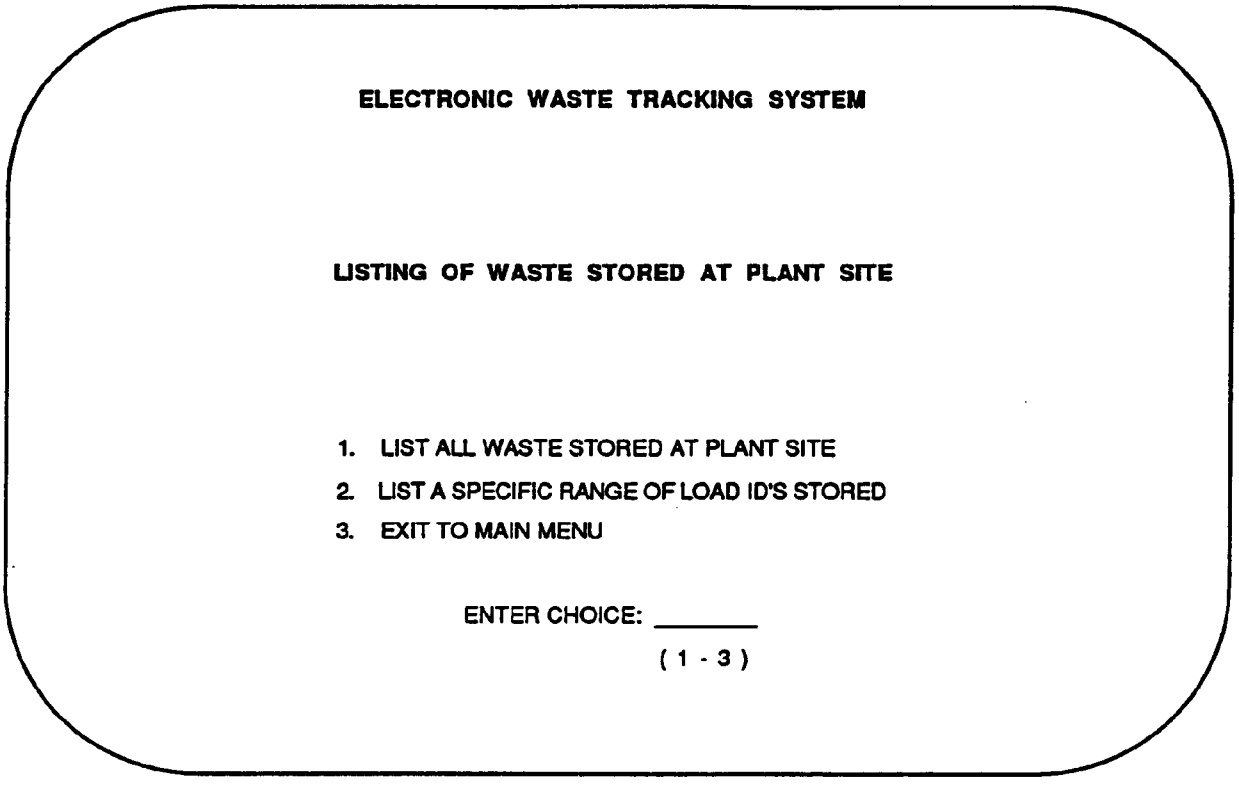
EWTS OPENING SCREEN



MAIN MENU:

The main menu is the first screen viewed after access is granted. It lists the options that the user has within the Electronic Waste Tracking System (EWTS). A selection by the user will prompt the user through a series of screens tailored for that particular task. Each of these options and their related screens are detailed in the following pages.

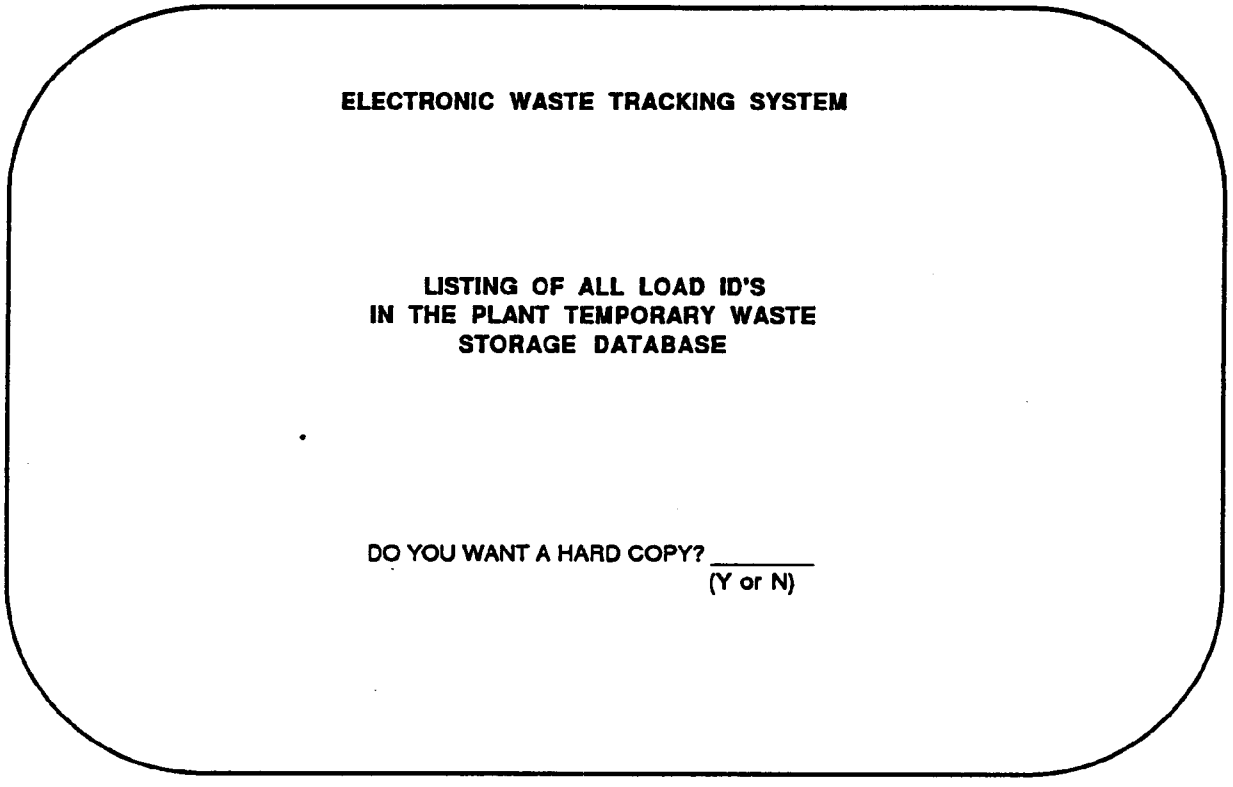
EWTS MAIN MENU



OPTION 3: LISTING OF THE PLANT WASTE STORAGE DATABASE

Screen appears after user selects option 3 from the main menu. It offers the choice of listing the entire PLTSTRG database, a range of records in the database, or returning to the main menu. If option 3 is selected the user is taken back to the main menu. If option 1 is selected each record in the plant waste storage database is output after asking the user whether of not to output the listing to the printer. The same occurs when the user selects option 2 with the exception of being prompted for the particular range he/she wants to view.

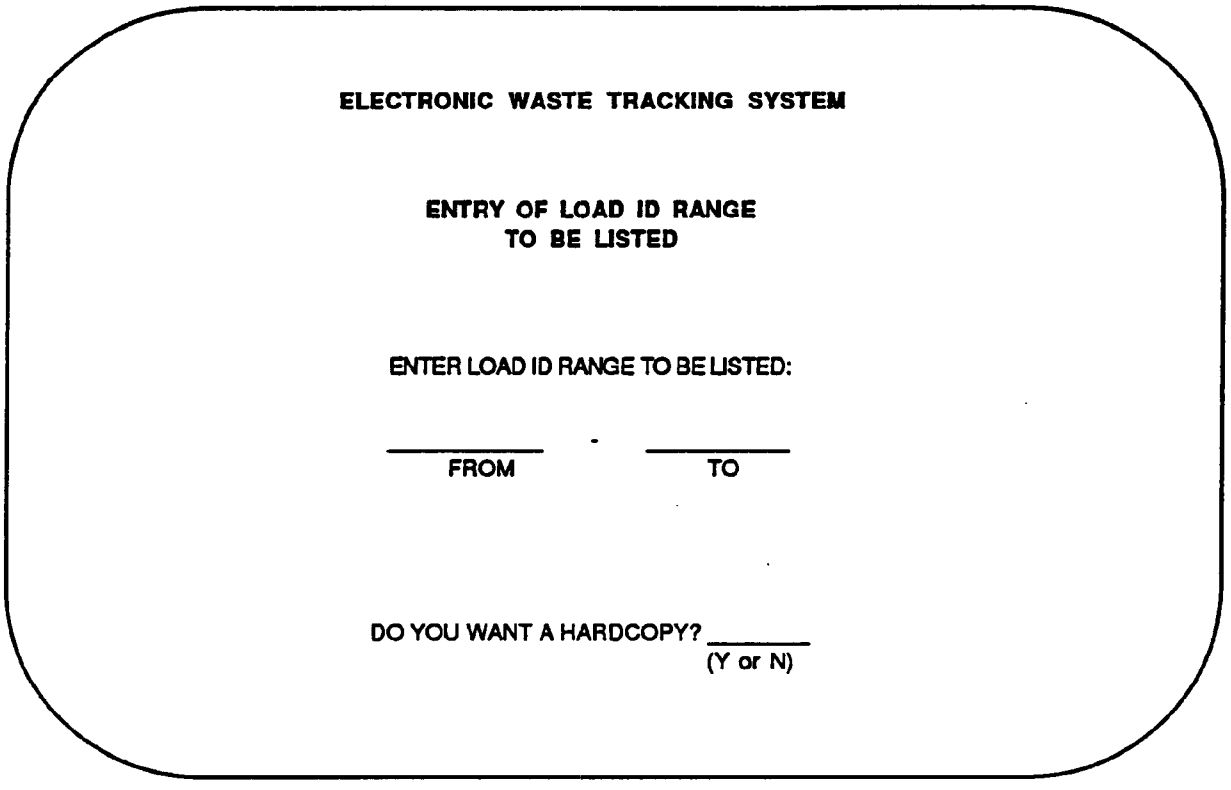
EWTS OPT 3, SCR 1



LISTING OF ALL LOAD ID'S IN TEMPORARY STORAGE:

Screen allows user to direct the output listing of load ID's to the printer instead of viewing the listing on the monitor. After the listing is output to the screen or printer, the first screen in this option should reappear.

EWTS OPT 3, SCR 2A



LISTING OF A PARTICULAR RANGE OF LOAD ID'S:

Screen allows user to view a particular range of load ID's that exist in the plant temporary waste storage database. It also allows the user to direct the output to a printer instead of viewing the listing on the video display terminal. After the range of load ID's has been listed, the viewer will again be prompted with the menu that exists on the first screen under this option.

EWTS OPT 3, SCR 2B

ELECTRONIC WASTE TRACKING SYSTEM

LISTING OF WASTE STORED AT PLANT SITE

1. LIST ALL WASTE STORED AT PLANT SITE
2. LIST A SPECIFIC RANGE OF LOAD ID'S STORED
3. EXIT TO MAIN MENU

ENTER CHOICE: _____

(1 - 3)

EWTS OPT 3, SCR 3

ELECTRONIC WASTE TRACKING SYSTEM

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. MND000824029	Manifest Document No. 42558	2. Page 1 of
3. Generator's Name and Mailing Address 3M Mark Manuel - 01/027 AMES 900 Dayton Ames Iowa 00000 4. Generator's Phone: (515) 555-1212			A. State Manifest Document No. MN 0045779 B. State Generator's ID
5. Transporter 1 Company Name 3M Private Carriage	6. US EPA ID Number MND0006173360		C. State Transportor's ID D. Transportor's Phone
7. Transporter 2 Company Name	8. US EPA ID Number		E. State Transportor's ID F. Transportor's Phone
9. Designated Facility Name & Site 3M Chemolite, Bldg. 47 Hwy 61 and County Rd. 19 Cottage Grove, MN 55016	10. US EPA ID Number MND0006172969		G. State Facility's ID H. Facility's Phone 612-458-2141

ARE DEFAULTED VALUES CORRECT? _____
(Y or N)

MANIFEST GENERATION MENU:

First screen after user selects option 4 from the main menu. Prints out a replica of the top half of the Minnesota shipping manifest, with defaulted values. User should have the option of changing various values or accepting the defaulted values. Some of the defaults (i.e. Manifest Number, Chemolite Address, Chemolite ID Number, etc.) will not be open to change to the generator. All of these values will be held in the Manifest #1 Database.

EWTS OPT 4, SCR 1

ELECTRONIC WASTE TRACKING SYSTEM

GENERATION OF MANIFEST FOR SHIPMENT OF WASTE

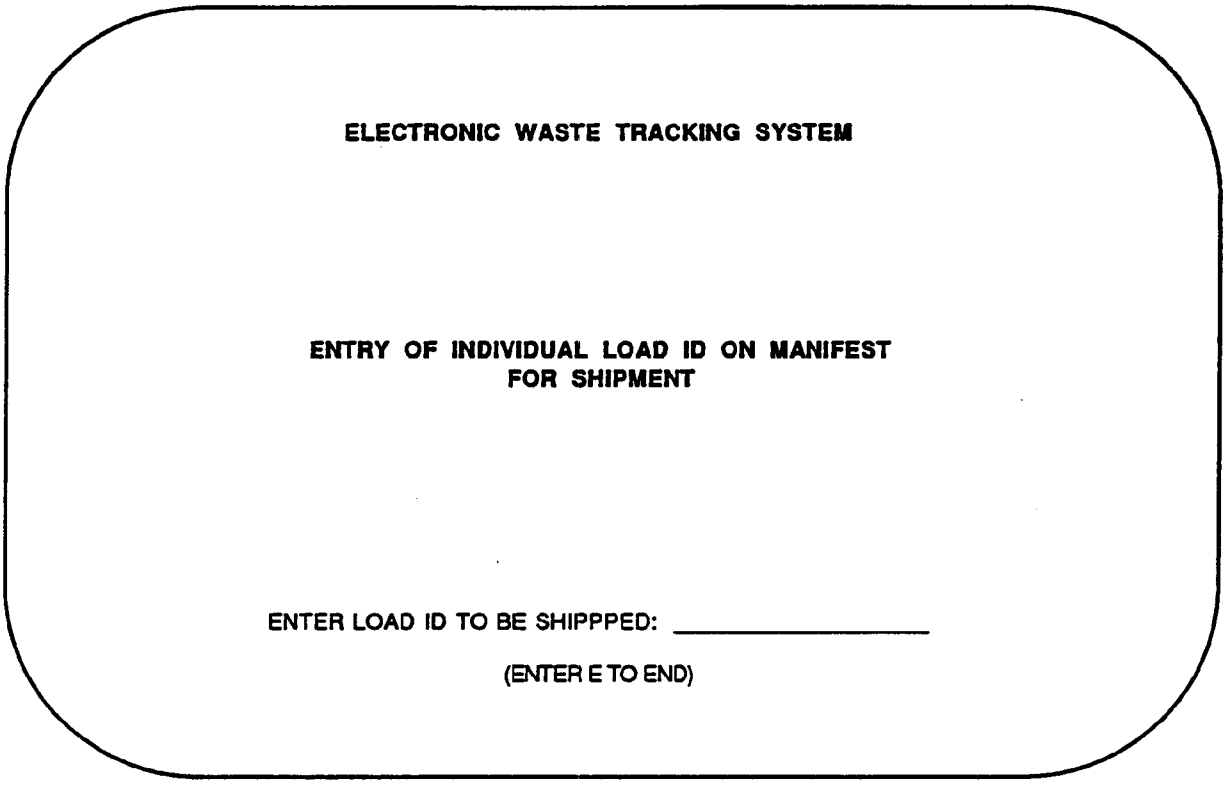
1. ENTER INDIVIDUAL LOAD ID'S FOR SHIPMENT
2. ENTER RANGE OF LOAD ID'S FOR SHIPMENT
3. END OF SHIPPING MANIFEST
4. RETURN TO MAIN MENU

ENTER CHOICE: _____
(1 - 4)

MANIFEST GENERATION MENU:

The second screen under option four on the main menu gives the user the option of entering load ID's individually, by range, ending the manifest, or returning to the main menu. This menu will be returned to after the user inputs the load ID (s). The END OF MANIFEST option will complete the manifest by summarizing, verifying, and moving on the following screens in this option. The RETURN TO MENU option will return the user to the main menu and disregard all entries in that data input session.

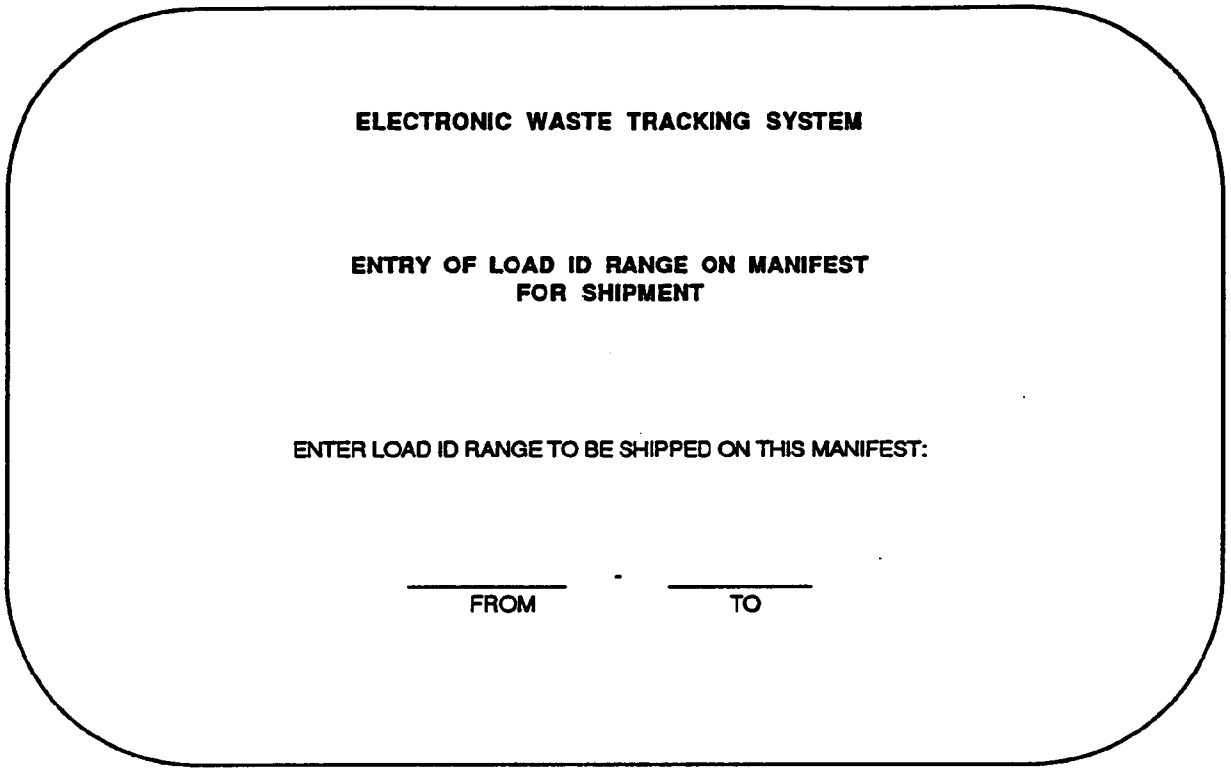
EWTS OPT 4, SCR 2



INDIVIDUAL LOAD ID ENTRY:

Screen for individual entry of Load ID's to be shipped. After the user enters a load ID and presses return, the screen should prompt for another Load ID. The user can return to the previous screen by entering E, which then gives the option of more entries, returning to the main menu, or completing the manifest (see Manifest Generation Menu). In effect, this will mark the indicated record for shipment in the PLTSTRG database. If the record is not found in the PLTSTRG database, the following screen will appear (see EWTS 4, SCR 4).

EWTS OPT 4, SCR 3A



RANGE LOAD ID ENTRY:

Much like the screen that provides data entry for individual load ID's, this screen allows a particular range of load id's to be entered. After a range is entered, the screen will prompt for another range of Load ID's to be shipped. The user may return to the option menu by entering E in the first ID prompt. Again, the user will have the options explained on the previous page (the Manifest Generation Menu). This will mark the entered records in the PLTSTRG database for shipment. If a record is not found, the following screen will appear (see EWTS 4, SCR 4).

EWTS OPT 4, SCR 3B

ELECTRONIC WASTE TRACKING SYSTEM

LOAD ID *AM00000000* DOES NOT EXIST

IN

PLANT STORAGE DATABASE

This entry will not be included on current manifest!

DO YOU WISH TO REENTER LOAD ID? _____
(Y or N)

INCORRECT LOAD ID ENTERED

This screen alerts the user that the Load ID in question does not exist in the PLTSTRG database. This may be caused by a number of reasons (typographic error, drum already shipped, etc.). At this point that Load ID will not be included on the manifest currently being generated. The user will have the option of entering the corrected version of the Load ID so that it is included on the current manifest (see last prompt on this screen). If the user responds No to the prompt, the manifest will be generated without that particular Load ID.

EWTS OPT 4, SCR 4

ELECTRONIC WASTE TRACKING SYSTEM

UNIFORM HAZARDOUS WASTE MANIFEST	1. Generator's US EPA ID No. MND000824029	Manifest Document No. 42558	2. Page 1 of
3. Generator's Name and Mailing Address 3M Mark Manuel - 01/027 AMES 900 Dayton Ames Iowa 00000 4. Generator's Phone: (515) 555-1212			A. State Manifest Document No. MN 0045779 B. State Generator's ID
5. Transporter 1 Company Name 3M Private Carriage	6. US EPA ID Number MND0006173360		C. State Transportor's ID D. Transportor's Phone
7. Transporter 2 Company Name	8. US EPA ID Number		E. State Transportor's ID F. Transportor's Phone
9. Designated Facility Name & Site 3M Chemolite, Bldg. 47 Hwy 61 and County Rd. 19 Cottage Grove, MN 55016	10. US EPA ID Number MND0006172969		G. State Facility's ID H. Facility's Phone 612-458-2141

HIT RETURN TO CONTINUE

MANIFEST RECHECK - TOP HALF:

This screen is much like the first screen viewed after selecting the fourth option on the Main Menu. It will allow the user to double check the information that has been defaulted or entered during the generation of the manifest. It only appears after the manifest has been verified.

EWTS OPT 4, SCR 5

ELECTRONIC WASTE TRACKING SYSTEM

11. US DOT Desc. (including Proper Shipping Name,Hazard Class, and ID Number)			12. Cont. No	12. Cont. Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.	X	Waste, Flammable Liquid, NOS, Flammable Liquid, UN1993, (Methyl Ethyl Keytone, Adhesive)	9	DM	3500	P	F005
b.	X	Waste, Flammable Liquid, NOS, Flammable Liquid, UN1993, (Acetone, Methyl Ethyl Keytone; Adhesive)	16	DM	2200	P	F003 F005
c.	X	Waste, Compressed Gas, NOS, Flammable Gas, UN1954, (Chemicals, NOI) Limited Quantity,	2	DM	400	P	D001
d.	X	Waste, Combustible Liquid, NOS, Combustible Liquid, NA1993, (Rubbing Compound)	1	DM	450	P	D001

j. Additional Descriptions for Materials Listed Above

a. b.

c. d.

15. Special Handling Instructions and Additional Information PLACECARDS REQUIRED:

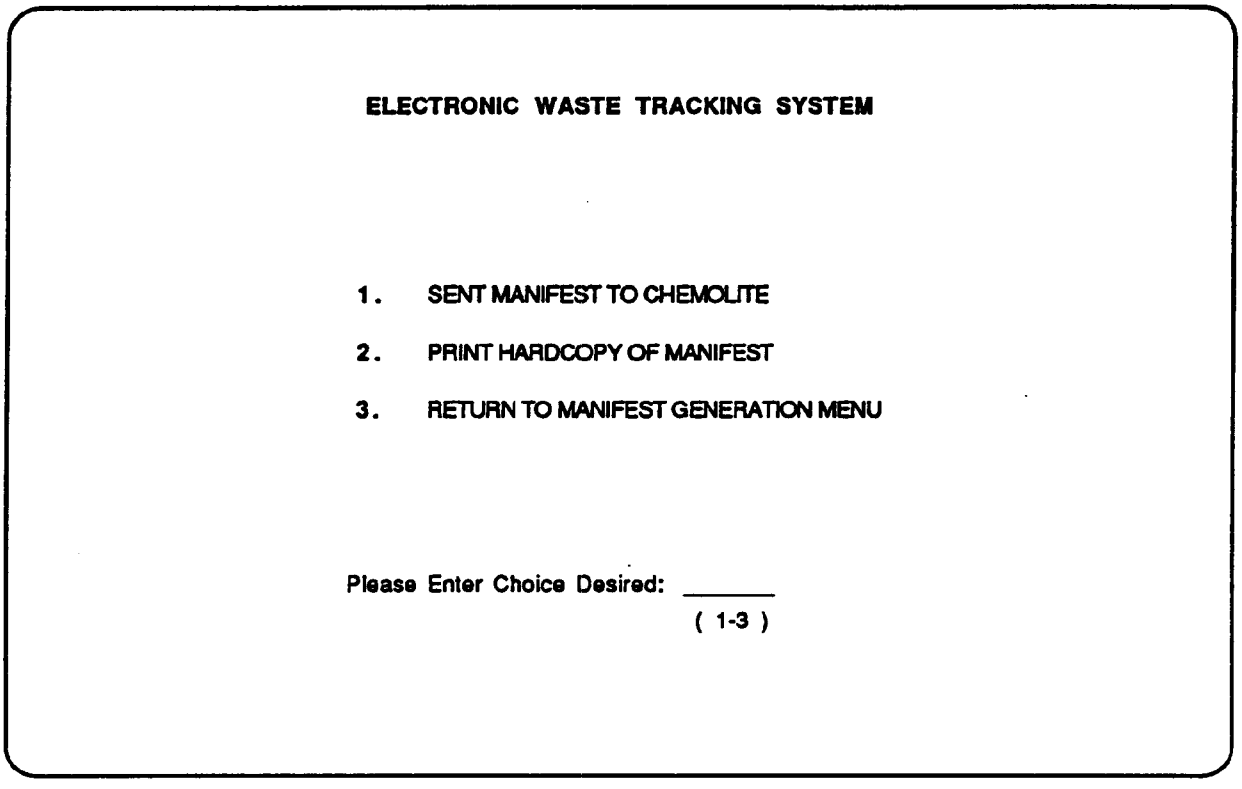
TRAILER # 74779 FLAMMABLE

HIT RETURN TO CONTINUE

MANIFEST RECHECK - BOTTOM HALF:

This screen is a summation of the Load ID's that have been entered for shipment on this manifest. Load ID's are grouped by the waste stream identifying number and printed in the format shown. Each of the descriptions found will be taken from different fields in the Waste Stream Master Database.

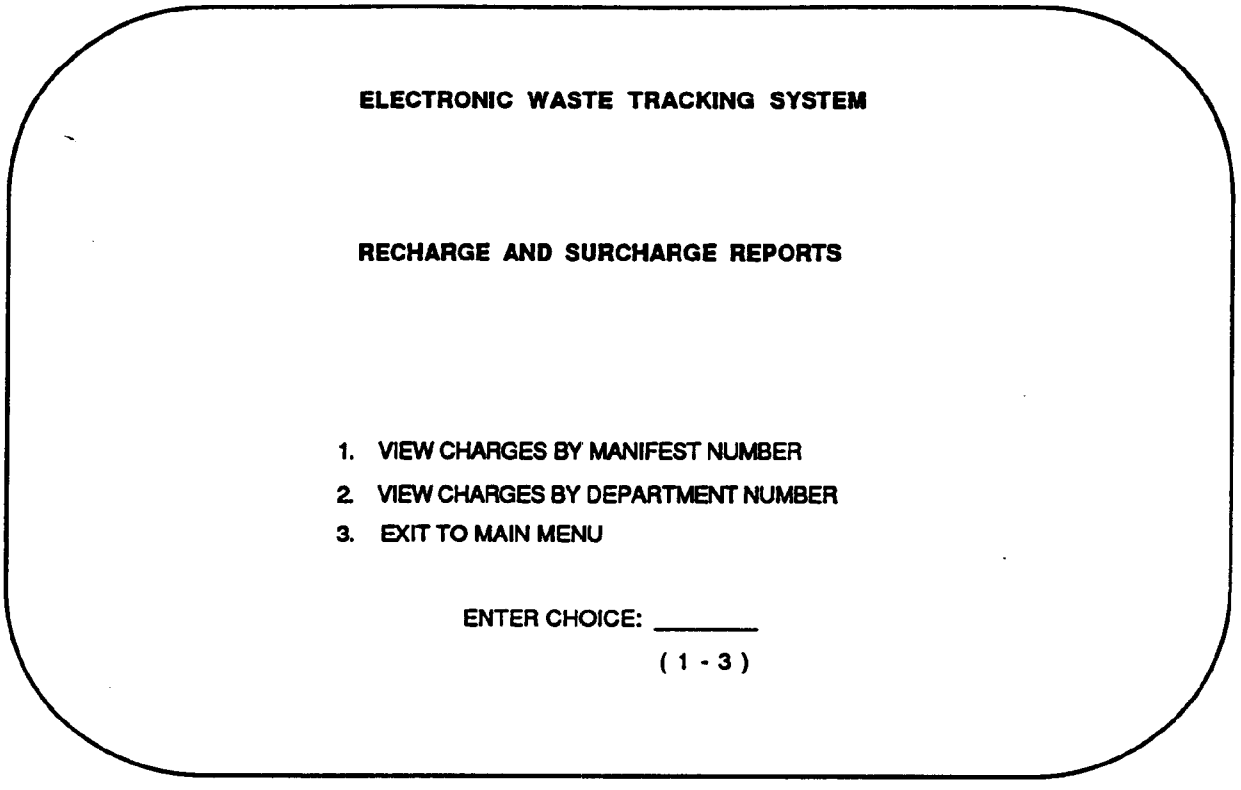
EWTS OPT 4, SCR 6



COMPLETED MANIFEST MENU:

Screen will appear after the top and bottom parts of the manifest have been verified. Selecting option 1 will send the manifest to Chemolite, indicating that the shipment has been made. Option 2 will print a hard copy of the manifest for shipping purposes. Option 3 will return the user to the Manifest Generation Menu. If a generator does not have printing capabilities, Chemolite will be able to print a manifest and mail it to them for shipment.

EWTS OPT 4, SCR 7



RECHARGE AND SURCHARGE REPORTS:

First screen encountered after choosing option 5 from the main menu. This option will allow the generator to view the charges that they have incurred for each drumthat has been disposed of at the Chemolite facility. This menu gives the option of looking at the charges by the manifest they were shipped on, or the department they were generated in. Option 3 returns the user to the main menu.

EWTS OPT 5, SCR 1

ELECTRONIC WASTE TRACKING SYSTEM

RECHARGE AND SURCHARGE REPORTS

ENTER SHIPPING MANIFEST NUMBER: _____

(TYPE E TO RETURN TO MENU)

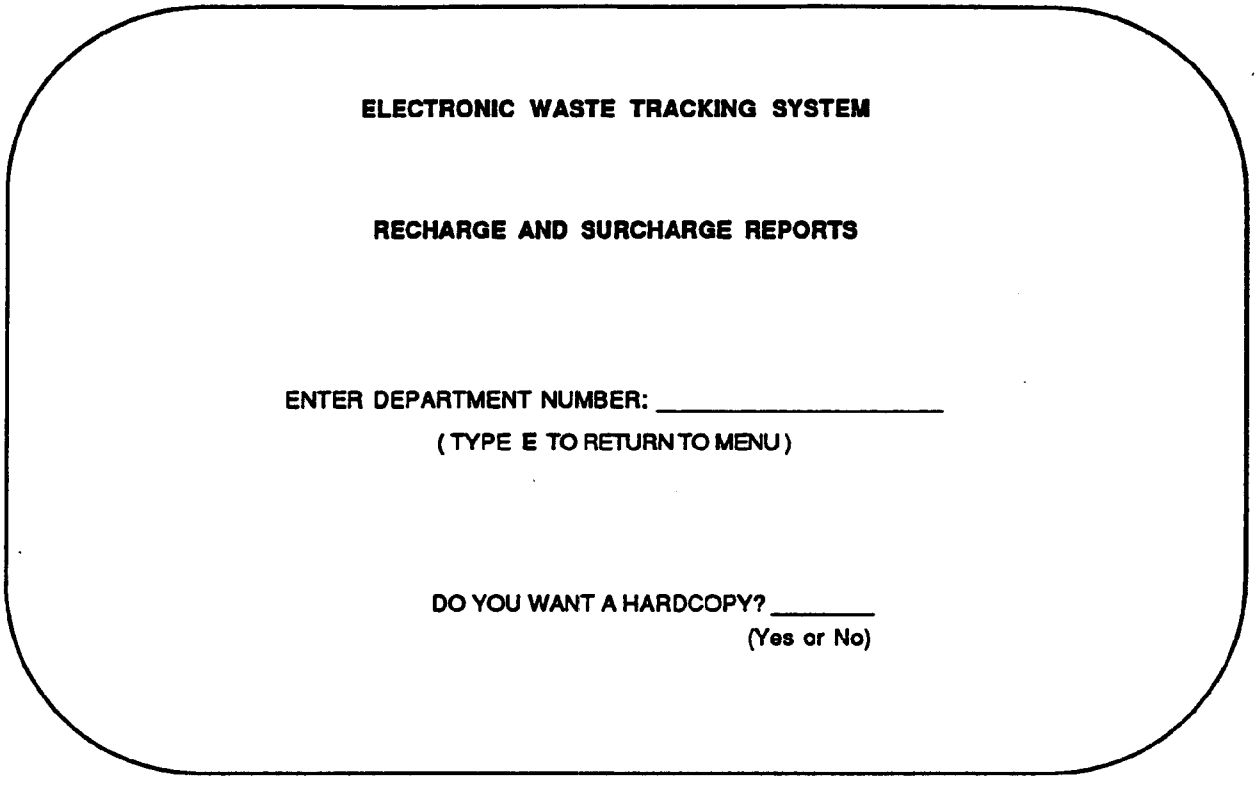
DO YOU WANT A HARDCOPY? _____

(Yes or No)

VIEWING CHARGES BY MANIFEST NUMBER:

Screen follows the selection of the first option on the Recharge and Surcharge Menu. After the user is prompted for the manifest number, he/she will be asked whether or not to direct the output to the printer.Entering E will return the user to the previous menu, which can then be exited to the main menu. After the listing, the user should return to the Recharge and Surcharge Menu.

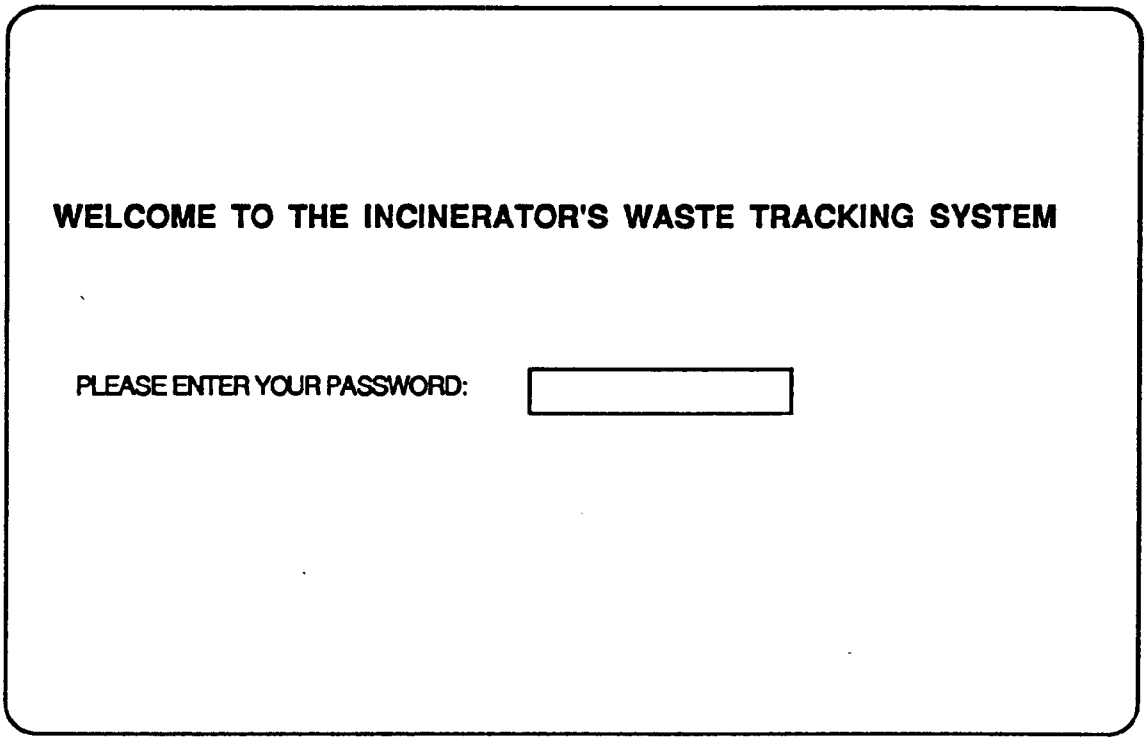
EWTS OPT 5, SCR 2A



VIEWING CHARGES BY DEPARTMENT NUMBER:

Screen follows the selection of the second option on the Recharge and Surcharge Menu. After the user is prompted for the department number, he/she will be askedwhether or not to direct the output to the printer.Entering E will return the user to the previous menu, which can then be exited to the main menu. After the listing, the user should return to the Recharge and Surcharge Menu.

EWTS OPT 5, SCR 2B



CHEMOLITE OPENING SCREEN

The Chemolite opening screen is the first screen that is seen by the Chemolite personnel. Allows on-line users to enter their password for access into the Incinerator Waste Tracking System. A user will have three chances to try and access the system, if access is denied after the third chance, the computer will exit them from the system. Depending on a users security clearance, access should only be granted for their respective area of concern.

OPENING SCR

WELCOME TO THE INCINERATOR'S WASTE TRACKING SYSTEM

1. ELETRONIC WASTE TRACKING SYSTEM
2. RECEIVED MANIFESTS
3. STORAGE LOCATIONS
4. DISPOSED MATERIAL
5. PRINT REPORTS
6. APPROVED WASTE STREAMS
7. EXIT SYSTEM

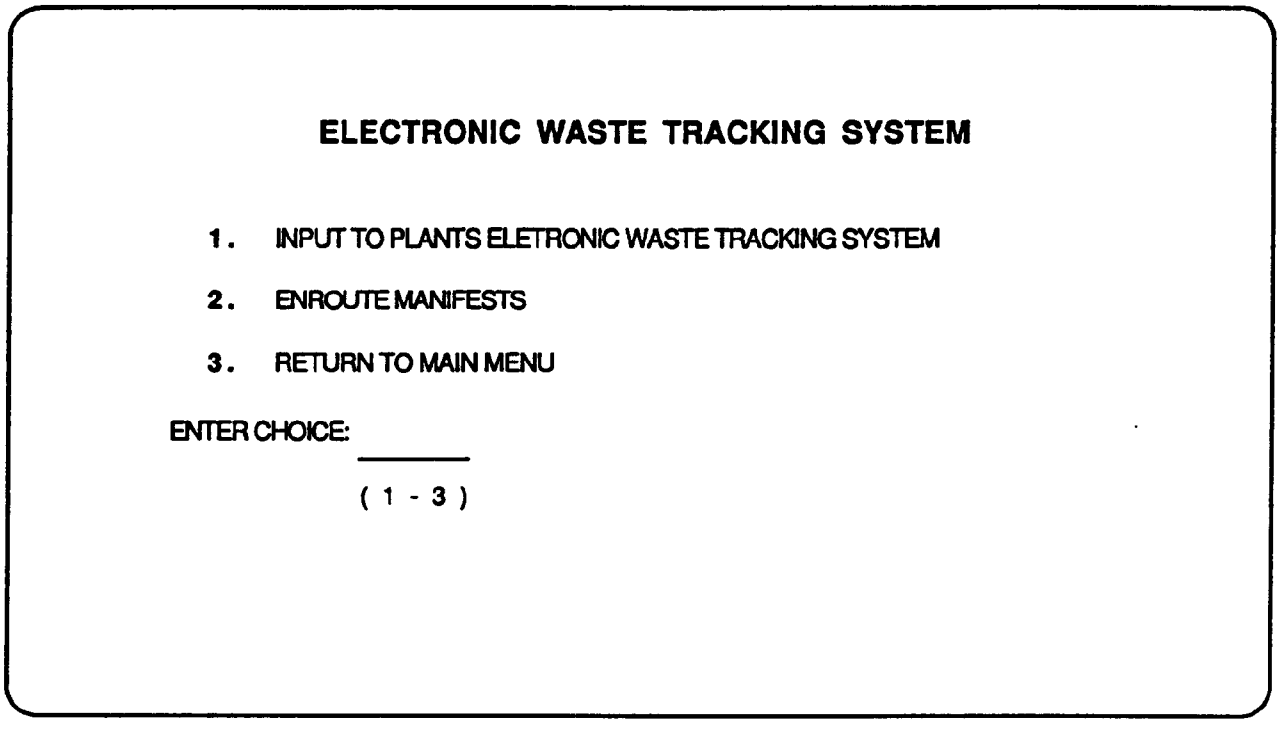
ENTER CHOICE: _____

(1 - 7)

CHEMOLITE MAIN MENU

The Chemolite main menu is the first screen that is seen by the Chemolite personnel if access is granted. It lists the options that are available within the Incinerator waste tracking system. A selection by the user will prompt the user through a series of screens tailored for that particular option. Each of these options and their related screens are described in detail on the following pages.

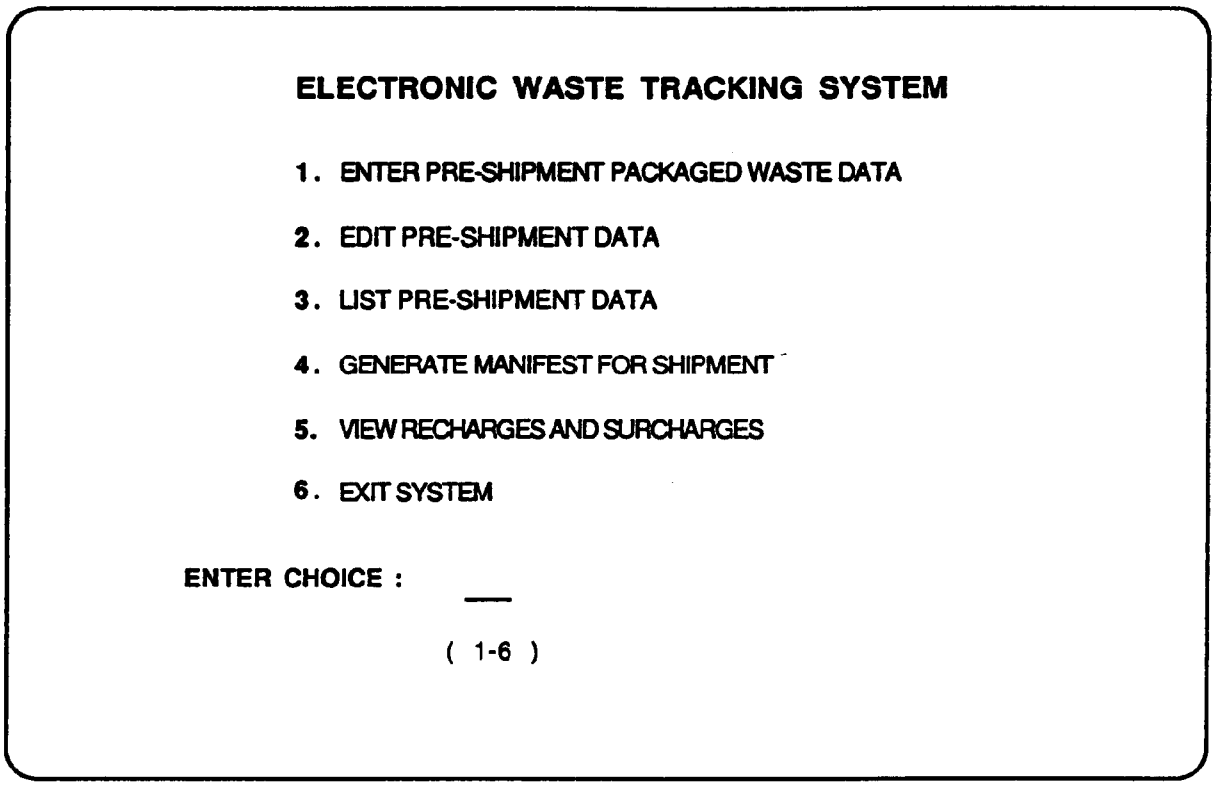
MAIN



ACCESS TO ELECTRONIC WASTE TRACKING SYSTEM

This screen allows the user to connect to the Electronic Waste Tracking System program. Option 1 connects the user directly to the main menu of (EWTS). Option 2 will list all enroute manifests that have been entered into (EWTS). The format of the list is on page INC OPT 1, SCR 2B. Option 3 will return to the main menu.

INC OPT 1, SCR 1



EWTS MAIN MENU

The main menu is the first screen viewed after access is granted. It lists the options that the user has within the Electronic Waste Tracking System (EWTS). A selection by the user will prompt the user through a series of screens tailored for that particular task. Each of these options and their related screens are detailed in the EWTS section.

INC OPT 1, SCR 2A

ENROUTE MANIFESTS

GENERATOR	CONTACT	PHONE #	# OF DRUMS	DATE SHIPPED	MANIFEST #
CORDOVA	PAT SHELLAR	8-111-1111	90	04/27/88	1234567
BRISTOL	JOHN DOE	8-222-2222	85	04/29/88	2332233

HIT RETURN TO CONTINUE

ENROUTE MANIFEST SCREEN

This screen displays the enroute manifests submitted by the generators. Included here is the generators name, contact and phone number, the number of drums shipped, shipping date and manifest number. These fields are taken from the ID DATABASE and the MNFT DATABASE.

INC OPT 1, SCR 2B

RECEIVED MANIFESTS

1. MANIFEST SUMMATION BY PLANT
2. MANIFEST SUMMATION BY DATE
3. PRINT ALL MANIFESTS RECEIVED
4. RETURN TO MAIN MENU

ENTER CHOICE: _____

(1 - 4)

RECEIVED MANIFESTS

This screen allows the user to view all received manifests that have been sent to the incinerator. The manifest information will be stored indefinitely. Choosing option 1 will give a summation by plant or generator, the format for the printout and screen is on page INC OPT 2, SCR 3A. Option 2 is a summation by date received, the format is on page INC OPT 2, SCR 3B. Option 3 will give a summation by plant and then by date for all manifests received, format on page INC OPT 2, SCR 3C. All options will have the ability to print a hardcopy if so desired.

INC OPT 2, SCR 1

MANIFEST SUMMATION BY PLANT/GENERATOR

ENTER PLANT OR GENERATORS NAME: _____

PLANT/GENERATOR INPUT REQUEST

This screen is an input screen requesting for the plant/generators name.

INC OPT 2, SCR 2A

MANIFEST SUMMATION AT: _____

CONTACT	PHONE #	# OF DRUMS	DATE SHIPPED	DATE RECEIVED	MANIFEST #
PAT SHELLAR	8-111-1111	90	01/10/88	01/15/88	1234567
PAT SHELLAR	8-111-1111	88	02/15/88	02/24/88	1234388
PAT SHELLAR	8-111-1111	95	02/28/88	03/09/88	1234499
PAT SHELLAR	8-111-1111	90	03/15/88	03/22/88	1234555
PAT SHELLAR	8-111-1111	92	03/27/88	04/10/88	1234667

HIT RETURN TO CONTINUE

PLANT/GENERATOR MANIFEST SUMMATION

This is the screen or printout format for manifest summations by plant/generator. The fields are plant/generator contact and phone number, number of drums, date shipped and received and the manifest number. The databases used are: ID , MNFT and RCVD.

INC OPT 2, SCR 3A

MANIFEST SUMMATION BY DATE

ENTER BEGINNING AND ENDING DATES: _____ _____

(BEGINNING) (ENDING)

BEGINNING AND ENDING DATE REQUEST

This screen is an input screen requesting for the beginning and ending date.

INC OPT 2, SCR 2B

MANIFEST SUMMATION BETWEEN _____ AND _____

GENERATOR	CONTACT	PHONE	# OF # DRUMS	DATE SHIPPED	DATE RECEIVED	MANIFEST #
CORDOVA	PAT SHELLAR	8-111-1111	90	03/27/88	04/02/88	1234567
AMES	JOHN DOE	8-222-2222	85	04/02/88	04/10/88	2332232
BRISTOL	JIM SMITH	8-333-3333	91	04/04/88	04/11/88	3223544
HUTCHINSON	PETE JOHNSON	8-444-4444	85	04/04/88	04/12/88	8455884
BROWNWOOD	TOM CHESTER	8-888-8888	86	04/06/88	04/15/88	9949439

HIT RETURN TO CONTINUE

DATE MANIFEST SUMMATION

This is the screen or printout format for manifest summation by a beginning and ending date. The fields are plant/generator, plant contact, phone number, number of drums, date shipped and received and the manifest number. The databases used are: ID, MNFT and RCVD.

INC OPT 2, SCR 3B

MANIFEST SUMMATION AT: _____

GENERATOR	CONTACT	PHONE #	# OF DRUMS	DATE SHIPPED	DATE RECEIVED	MANIFEST #
CORDOVA	PAT SHELLAR	8-111-1111	90	01/10/88	01/15/88	1234567
CORDOVA	PAT SHELLAR	8-111-1111	88	02/15/88	02/24/88	1234388
CORDOVA	PAT SHELLAR	8-111-1111	89	03/10//88	03/24/88	1234388

MANIFEST SUMMATION AT: _____

AMES	JOHN DOE	8-222-2222	85	01/02/88	01/10/88	2332232
AMES	JOHN DOE	8-222-2222	89	03/02/88	03/10/88	8978787
AMES	JOHN DOE	8-222-2222	90	05/02/88	05/10/88	2335675

HIT RETURN TO CONTINUE

PLANT/GENERATOR AND DATE MANIFEST SUMMATION

This is the screen or printout format for manifest summations by plant/generator and also sorted by date received. The fields are plant/generator, plant contact and phone number, number of drums, date shipped and received and the manifest number. The databases used are: ID , MNFT and RCVD.

INC OPT 2, SCR 3C

STORAGE LOACTIONS

1. ADD MATERIAL TO STORAGE (PASSWORD REQUIRED)
2. EDIT MATERIAL IN STORAGE (PASSWORD REQUIRED)
3. DELETE MATERIAL FROM STORAGE (PASSWORD REQUIRED)
4. VIEW MATERIAL IN STORAGE
5. RETURN TO MAIN MENU

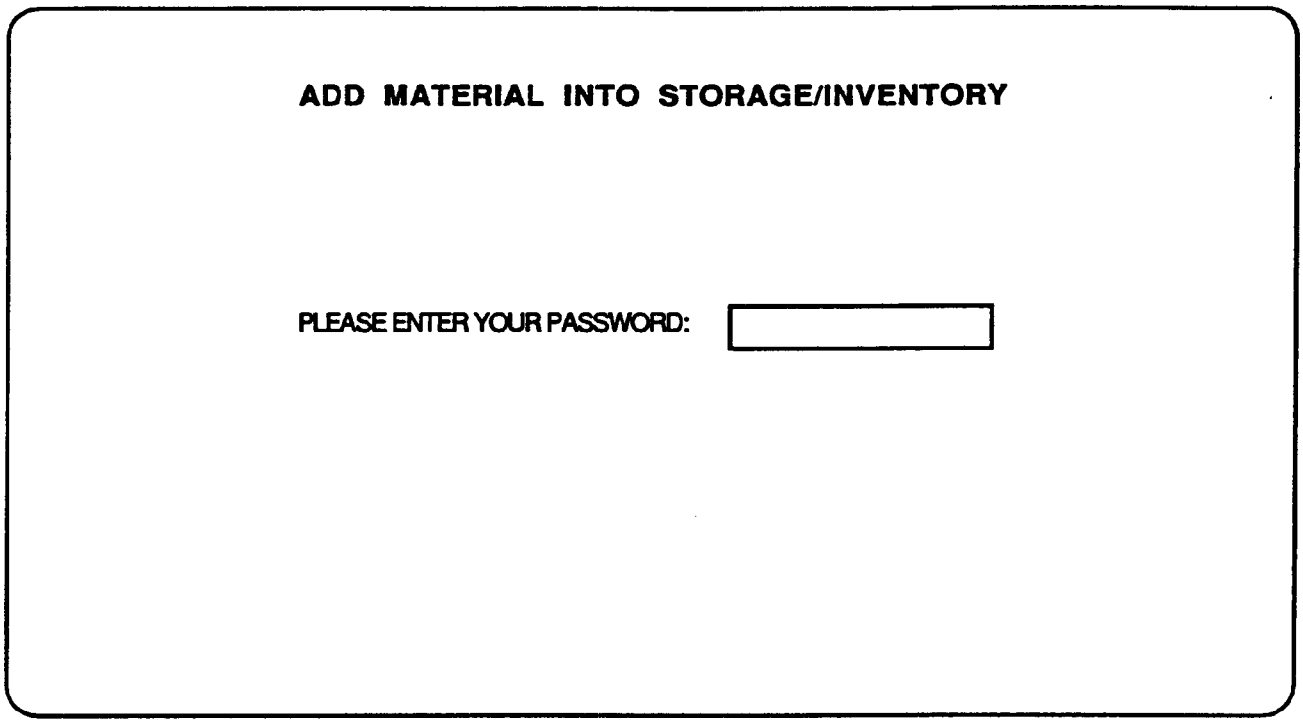
ENTER CHOICE: _____

(1 - 5)

STORAGE/INVENTORY MENU

This screen is the main screen for storage or inventory. There will be a group of users who can only access this screen and not the rest of the system. This group will be in the receiving dept. and the switcher. Before any material can show up here, the system must do error checking to be sure it has been received. This is done by mapping to the received database. Options 1,2 and 3 are adding, editing and deleting material from inventory. These three options will require a special password if selected. Option 4 can be accessed without the special password and can be viewed by all who have been given access.

INC OPT 3, SCR 1



PASSWORD SCREEN FOR ADDING MATERIAL

This screen is designed for extra security into the INVT database. Only certain key users can have access to this password.

INC OPT 3, SCR 2A

ADD MATERIAL INTO STORAGE/INVENTORY

1. ADD MATERIAL BY INDIVIDUAL ID NUMBERS
2. ADD MATERIAL BY TRAILER

ENTER CHOICE: _____
(1 OR 2)

ADD MATERIAL TO STORAGE/INVENTORY MENU

This screen is designed to give the user an option to either enter material into storage/ inventory by individual id numbers or by trailers. Option 1 allows the user to enter individual load id numbers into storage/inventory. Option 2 allows the user to enter a trailer into the system with its corresponding contents or material.

INC OPT 3, SCR 3A

ADD MATERIAL INTO STORAGE/INVENTORY BY INDIVIDUAL ID NUMBERS

ENTER UNIQUE LOAD ID#: _____

ENTER TRAILER NUMBER: _____

ENTER STORAGE LOCATION: _____ _____

(LOT) (STALL)

APPROXIMATE DATE AND TIME SENT TO STORAGE: _____ _____

(DATE) (TIME)

ALL ENTRIES CORRECT: _____

(Y OR N)

ADD MATERIAL INTO STORAGE/INVENTORY BY INDIVIDUAL ID NUMBER

If access is granted to this screen, the user has the ability to add material into the INVT database. Before any material can be accepted into INVT, the system must perform routine error checking to verify the material has been received. This is done by mapping to the RCVD database. The fields used on this screen are: unique id number, trailer number and location. Two other fields from RCVD are transferred to INVT, they are manifest number and handling code.

INC OPT 3, ADD OPT 1, SCR 1A

DISPOSED MATERIAL

1. ADD MATERIAL TO DISPOSED DATABASE (PASSWORD REQUIRED)
2. DELETE MATERIAL FROM DISPOSED DATABASE (PASSWORD REQUIRED)
3. VIEW DISPOSED MATERIAL
4. RETURN TO MAIN MENU

ENTER CHOICE: _____

(1 - 4)

DISPOSED MATERIAL MENU

This screen is the first viewed after the selection of option 4 from the main menu. It allows the user access to the DSPSL database. The first two options on this menu will be password protected (see next screens). Option 3 will allow the user to view the DSPSL database and the final option will return the user to the main menu.

INC OPT 4, SCR 1

ON DEMAND REPORTS

1. WEEKLY INVENTORY UPDATE REPORT
2. DETAILED WEEKLY INVENTORY REPORT
3. WEEKLY DRUM EQUIVALENTS PROCESSED REPORT
4. GRAPHS
5. WEEKLY TRAILER REPORT **
6. WEEKLY MISC TRAILER REPORT **
7. RETURN TO MAIN MENU

ENTER CHOICE: _____

(1 - 7)

ON DEMAND REPORT SELECTION MENU

This screen allows the user to select which report should be viewed. The user should have the option of printing the reports in addition to viewing them on screen. The majority of the information contained in the reports will come from the databases, however, some data will be accessed from the process control system. Choosing option 5 on this menu will return the user to the main menu.

** The trailer reports, if desired in the detail shown in the following pages, will require additional databases in the system, along with some manual data entry.

INC OPT 5, SCR 1

APPROVED WASTE STREAMS

1. VIEW APPROVED WASTE STREAMS BY GENERATOR
2. RETURN TO MAIN MENU

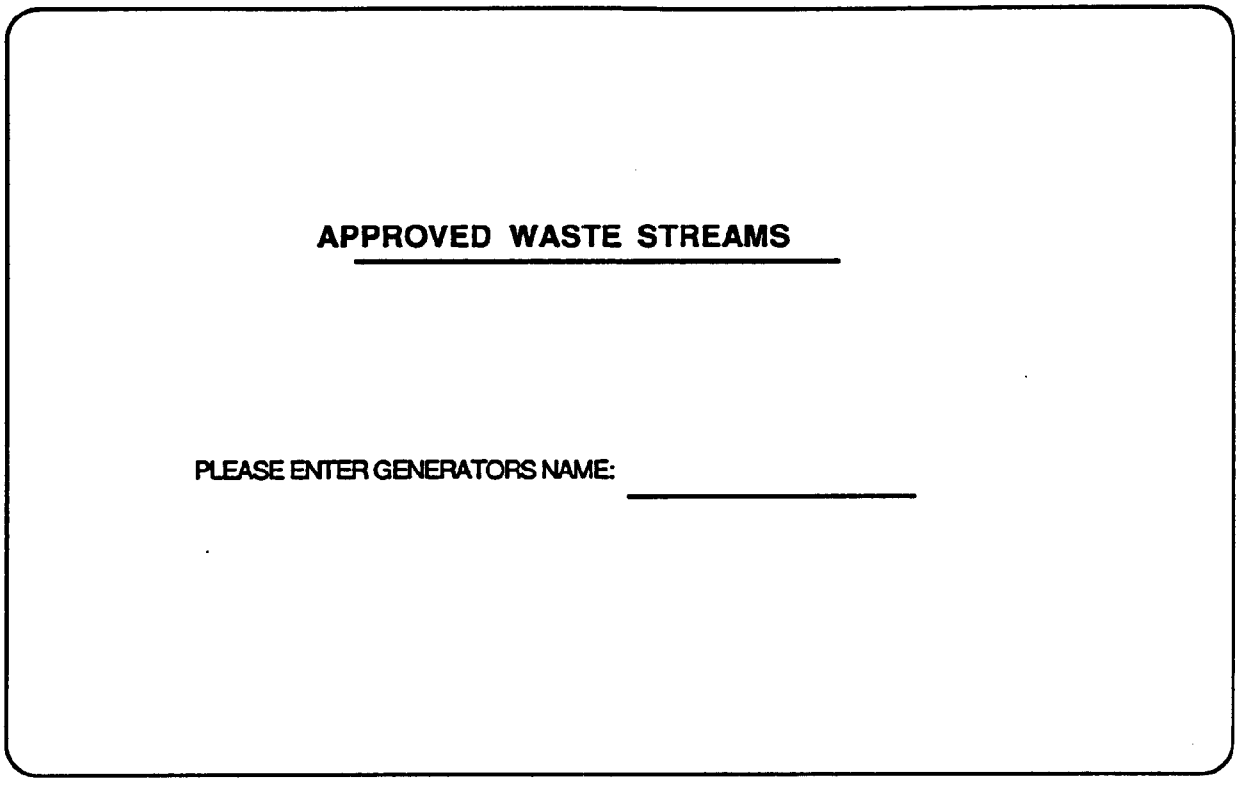
ENTER CHOICE: _____

(1 - 2)

VIEWING APPROVED WASTE STREAMS FOR EACH GENERATOR

First screen to be viewed after the user selects option 6 from the main menu. This option allows the user to view the approved waste streams for any particular generating location. Selecting 1 at this point will take the user to the next screen, where the selection of number 2 will return the user to the main menu.

INC OPT 6, SCR 1



VIEWING APPROVED WASTE STREAMS - SELECTION OF GENERATOR

The second screen viewed in option 6. This screen prompts the user for the name of the generator whose waste streams are to be viewed. After the user enters a generator name, the next screen in option 6 (inc opt 6, scr 3) will appear with the requested information.

INC OPT 6, SCR 2

APPROVED WASTE STREAMS FOR *GENERATORS NAME*

WASTE CODE: _____

EPA CODE: _____

DOT CODE: _____

HANDLING CODE: _____

BILL OF MATERIAL: _____

PROCESS CODE: _____

HIT RETURN FOR NEXT WASTE STREAM

E TO RETURN TO PREVIOUS MENU

APPROVED WASTE CODE FOR REQUESTED GENERATOR

This is the third screen under option 6 in the main menu. The initial screen will print out a waste code along with its related EPA, DOT, Handling, and Process Codes, and its Bill of Materials. At that point the user willhave the option of viewing the next approved waste code for the requested generator or exiting to the potion 6 menu. By hitting return the user should be able to page through the approved waste codes for the chosen generator. Entering E should take the user back to previous menu (option 6 menu -- see inc opt 6 scr 1).

INC OPT 6 SCR 3

SECTION D

Process Information

D.1 Containers

Wastes are transported to the Chemolite Incinerator by truck in a variety of containers. Hazardous wastes are generally transported in DOT approved drums. Other approved containers used are tote tanks, bulk tankers, boxes, fiber drums, bags, and 5-gallon pails. Container selection, packaging, and labeling are discussed in Section C.

A procedure has also been established with the approval and assistance of the Minnesota Pollution Control Agency (MPCA) to feed bulk solid waste into the kiln. Bulk material is delivered either by dump truck or roll-off boxes. This procedure is used to solvent contaminated soil or Chemolite wastewater treatment sludge. Figures D-1 and D-2 are two of the design drawings for the bulk feed system. Bulk wastes were fed as part of the Trial Burn.

D.1a Containers with Free Liquids

Labels on the hazardous waste drums denote whether they contain pumpable (free liquid) or nonpumpable (without free liquid) wastes. Upon arrival at the incinerator dock, operating personnel sort through the drums and segregate the pumpable from the nonpumpable (see Figure D-3). If the staging area for drummed pumpable waste in the Material Handling Building is full, the drums are loaded into storage trailers. Once a storage trailer is full of drums, it is moved from one of the incinerator docks to either storage area S-1, a diked, bentonite lined parking area southwest of the incinerator, storage area S-3, another bentonite lined, runoff controlled parking area, near the wastewater treatment plant, and S-7, the new runoff controlled, bentonite lined trailer parking area near the coal pile.

Within plant production areas, liquid hazardous wastes are accumulated in either drums, pails, tote tanks, or bulk tankers, and one hazardous waste tank. The type of containers used and labeling requirements are determined by referring to the Waste Disposal Procedures Manual. On a regular basis, the liquid hazardous wastes are transported to the incinerator for processing.

Normally the number of drums of pumpable waste stored at the incinerator in trailers would be less than 2,000. This varies due to periodic shutdowns for routine maintenance and new equipment installation. Shortly after a lengthy shutdown, the number of drums of pumpable waste could be as high as 5,000. Pumpable drums are processed at a rate of 700 per week and therefore the storage period would average only several weeks, rising to a maximum of 7 to 8 weeks after a long shutdown.

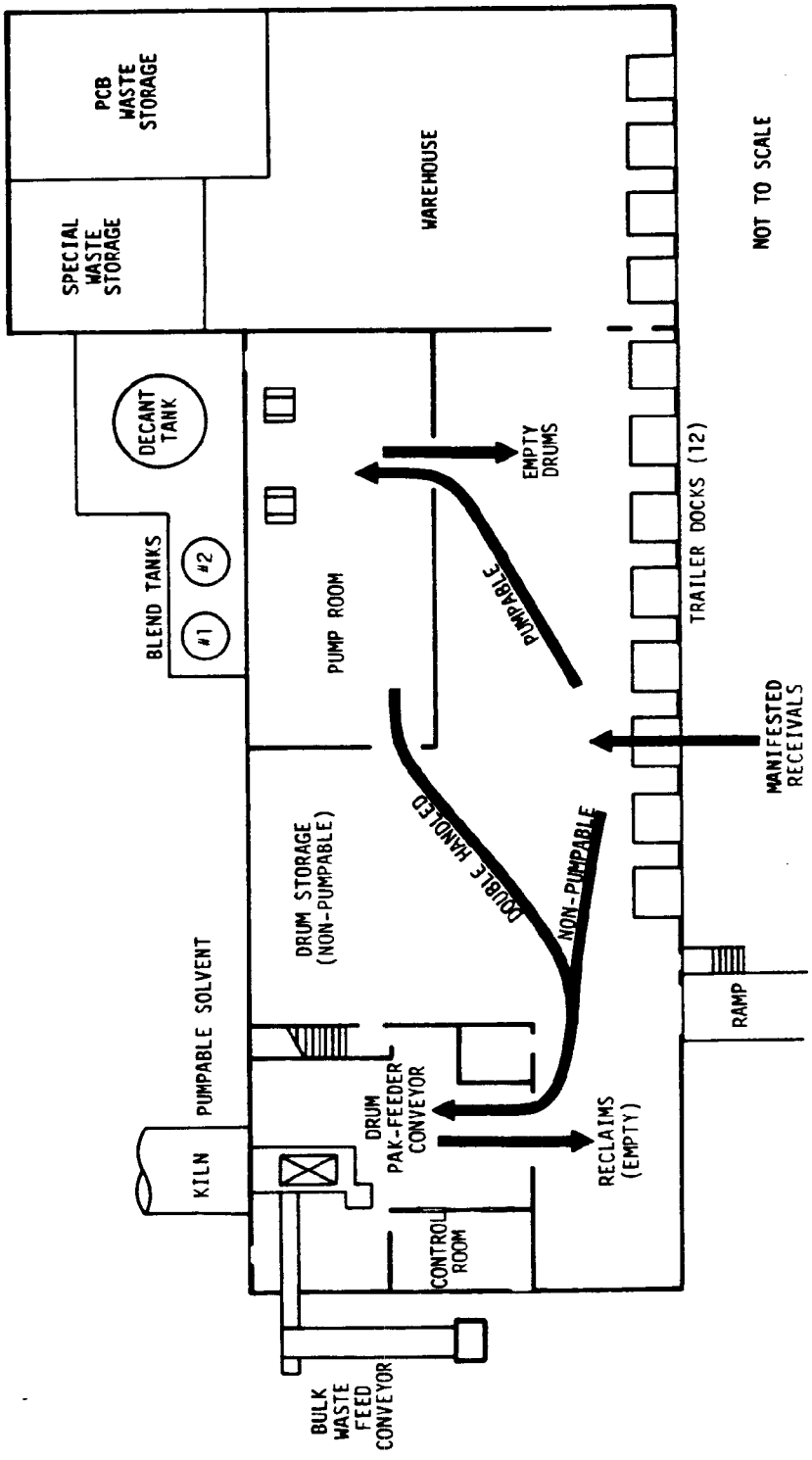


Figure D-3. Container staging areas.

Since the drums are stored off the ground in trailers, leaking drums are easy to find during periodic inspections. Also since the drums are stored in trailers, they are protected from the elements. Therefore, leaked waste would accumulate in the trailers and not be washed away by rainfall. Construction details of the two storage areas are shown in Figures D-4 and D-5. Storage Area S-7 was constructed similarly as the other areas, see Table D-1. The containment areas can hold considerably more waste liquid than would ever conceivably be spilled. The diked area (storage area S-1) is able to hold 330,000 gallons, storage area S-3 runoff pond holds 180,000 gallons, and storage area S-4 runoff pond holds 37,250 gallons.

Should a leak be discovered during routine inspection of the storage areas, absorbent materials would be spread. For a fairly minor leak, the trailer would be moved to the incinerator dock for unloading. If there appeared to be substantial risk of a significant spill in moving the trailer, specially trained personnel would be called to identify and remove the leaking drum(s) and clean-up any spill residue. All spill clean-up waste would be drummed and burned in the incinerator.

Finally, three storage areas were installed for Oakdale cleanup wastes. These areas were approved by the MPCA. An overlayment of gravel protects an impermeable geo-textile barrier. The impermeable barrier is sloped to a run-off collection and removal sump equipped with a standpipe. These areas will be used in an emergency to park trailers, hold containers of incinerator ash, etc. Trailer capacity for the three pads is a maximum of 50 or 6,000 drums. They were labeled S-4, S-5, and S-6 on Figure B-1.

As mentioned previously, up to 500 drums of waste are also staged in the Incinerator Material Handling Building. Approximately 1,000 drums can be stored in trailers at the 12 docks and an additional 500 in the storage areas of Bldg. 60 and in the various processing areas, i.e., receiving, pump room, and pak-feeder. Drums are stacked a maximum of two high. Due to the relatively rapid drum processing rate, the normal drum retention time is 24 hours with a maximum of about 3 days over holiday weekends. Inspection aisles are maintained between every 4 rows of stacked drums. Main aisles for the forklift trucks are always maintained in front of the loading docks, to and from the pump room, to the adjacent warehouse, and directly in front of the drum feeder conveyor. Drums are handled by forklift trucks equipped with special attachments.

Drawing D-6 shows the location of floor trenches in the Material Handling Building. The concrete floor is sloped to the floor trenches. These trenches are intended to contain spills and therefore have no drains. The floor trench near the truck dock does empty into a 600-gallon sump. The floor trenches and sump are periodically cleaned. All waste materials removed from the sump and trenches are incinerated.

TABLE D-1

3M Chemolite Incinerator Trailer Storage Areas

I. New Trailer Storage Area (100 trailers) S-4

A new trailer storage area will be constructed adjacent to the coal pile. Its maximum capacity is 12,000 drums of hazardous wastes.

1. It is designed as follows:

   a) The containment will be provided by 6 inches of clay compacted to 95% of Standard Proctor.

   b) The clay will be covered by 12 inches of gravel.

   c) A continuous strip of concrete, 8 feet wide, will be provided for each lane of trailers for the metal, front trailer supports.

   d) The surface will be sloped to drain to a collection ditch designed to contain a 10-year storm. A valved drain pipe, normally closed, will be provided to allow the accumulated water to be drawn-off.

2. The area is designed for 100 trailers with each trailer alotted a space of 10 feet by 50 feet.

3. The layout is for two rows of trailers on each side of a center lane 60 feet wide.

4. The spacing between the two rows of trailers on each side of the center lane will normally be 10 feet, except when the trailers are overlong, i.e., 45 feet rather than the normal 40 feet. Then the spacing will be 5 feet.

5. The spacing between the trailers in each row will average 2 feet.

II. Existing Storage Areas

1. Asphalt Pad (45 trailers, 4,000 drums of hazardous waste)

   a) Restricted to:

      1) Recently arrived over-the-road trailers.

      2) Trailers containing drums of hazardous waste that have been inspected and found not to contain free liquids. This will mainly be wastes destined for landfilling.

      3) Trailers containing empty drums, empty overpaks, and other nonhazardous wastes.

TABLE D-1 (CON'T)

b) Spacing will be an average of 2 feet between each trailer and 5 feet between each row of trailers.

2. Diked Storage Area (64 trailers, 7,500 drums of hazardous waste)

a) Existing loading ramp will be removed and the clay containment layer extended. Twelve inches of gravel will be placed over the clay.

b) Concrete strips will be installed for the metal, front trailer supports.

c) As with the new storage area, two rows of trailers will be situated on each side of a 60-foot wide middle aisle. The spacing between trailers will be the same, i.e., an average of 2 feet between trailers and a minimum of 5 feet between rows of trailers.

3. Old Coal Pile Storage Area (64 trailers, 7,500 drums of hazardous waste)

This is intended to be a short-term, overflow trailer parking area for major shutdowns. Spacing and layout will be the same as for the new storage area with 4 rows of trailers and a 60 feet wide middle aisle.

4. Oakdale Pads 1, 2, and 3 (50 trailers, 6,000 drums of hazardous waste)

III. Summary of Trailer Capacity

	Maximum Drums
New Trailer Storage Area - S-4	12,000
Asphalt Pad - S-2	4,000
Diked Storage Area - S-1	7,500
Old Coal Pile Area - S-3	7,500
Oakdale Pads - P-1, P-2, P-3	6,000
Total	37,000

IV. Location of Storage Areas - Figure 1

D-1b Containers Without Free Liquid

The proper packaging of containers, without free liquids (nonpumpable) is specified in the 3M Waste Disposal Procedures Manual. Upon arrival at the incinerator the drums without free liquid are either placed in the staging area for incineration or in storage trailers. Storage trailers filled with these drums are parked on an asphalt paved area referred to as S-2. Should this area be full of trailers, they would either be parked in area S-1 or S-3. Normally 3,000 to 5,000 drums of nonpumpable wastes should be stored at any one time. This number can go as high as 15,000 to 25,000 during lengthy shutdowns. Since the incinerator treats approximately 3,000+ drums of nonpumpable waste each week, the storage interval is once again fairly short, averaging 1 to 2 weeks.

The proper packaging of excluded wastes are specified in the 3M Waste Disposal Procedure Manual. Upon arrival at the incinerator drums containing special or excluded wastes are segregated and stored in a separate building adjacent to the building containing the pumpable and nonpumpable container storage areas. The excluded wastes are stored until a sufficient quantity can be accumulated for shipment to an EPA approved landfill. Other special wastes are stored until they can be inspected and approved for incineration. Figure D-7 presents construction details for this storage area.

D-2 Tanks

D-2a Description of Tanks

All but one of the hazardous waste storage tanks at Chemolite are located at the incinerator. They are as follows: three blend tanks, 3400 gallons each; five storage tanks, 12,900 gallons each; two burner supply tanks, 12,900 gallons each; and one decant tank, 10,000 gallons. The tank specifications are given at the end of this section. Also Figures D-8, D-9, and D-10 show tank locations, cross-sections, and additional specifications. All tanks are diked. The diked areas storage volumes are sufficient to contain the tank volumes contained within. The volumes have been calculated as follows:

Tanks	Tank Volumes(gals)	Dike Volume
1. Decant	10,000	10,500
2. Blend Tanks (3)	10,200	14,000
3. Blend Storage (2)	25,800	80,000
Fuel Oil (not haz. waste)	17,000	
Scrap Solvent	12,900	
4. Scrap Solvent (4)	51,600	80,000
5. Scrap Solvent (1) (situated in mfg area)	20,000	30,000
Hazardous Waste Total =	130,500 gallons	

Figure D-11 presents a schematic of the incinerator scrubber water treatment system. This is a flow through system and the retention time of the waste stream in any of the tanks is much less than 90 days.

D-2b Tank Corrosion and Erosion

All the tanks were designed with corrosion allowances as listed in the different specifications. The tanks are visually inspected periodically both inside and out. All the tanks were checked in 1986 for remaining metal thickness. On an annual basis, two of the tanks will be checked in the future, both by visual inspection and thickness testing. Since the tanks sit on concrete and steel columns which elevate them several feet above the ground, any leaks would be easily spotted. Should any tank develop a leak, it will be immediately taken out-of-service, emptied, cleaned, inspected, and checked for remaining metal thickness and cause of the leak.

D-2c Tank Management Practices

Incompatible pumpable wastes received at the facility are stored in separate tanks. When such a waste is received on-site if necessary, a test is performed to determine its compatibility with other wastes currently in storage. If it is determined that the waste must be stored in a separate empty tank a check is made to determine the composition of the previously stored waste. If the wastes are not compatible the tank is cleaned to remove any residual waste from the tank. Only compatibility problem encountered to date has been polymerization of tank contents.

The test involves mixing the new waste with increasing amounts of the stored waste in a 5-gallon pail. Tank cleaning involves flushing with either No. 2 fuel oil or a compatible solvent.

D-2c(1) Blend Tanks (3)

Drummed pumpable liquids are first transferred to the blend tanks. The blend tanks are equipped with level monitors and high level alarms.

Blend tank contents are mixed by agitators and pump recirculation. Label information and operator training minimizes incompatable waste problems. Historically, the only problems in the blend tanks has been with polymerization, whereby the liquid has turned too viscous to pump. To remove such reacted material, the tank may be steam heated to see if it can be sufficiently liquified to be pumped directly to the kiln high viscosity "B" burner, or the tank access doors are removed and the material is manually removed and drummed. This waste material is then fed to the kiln through the drum feeder.

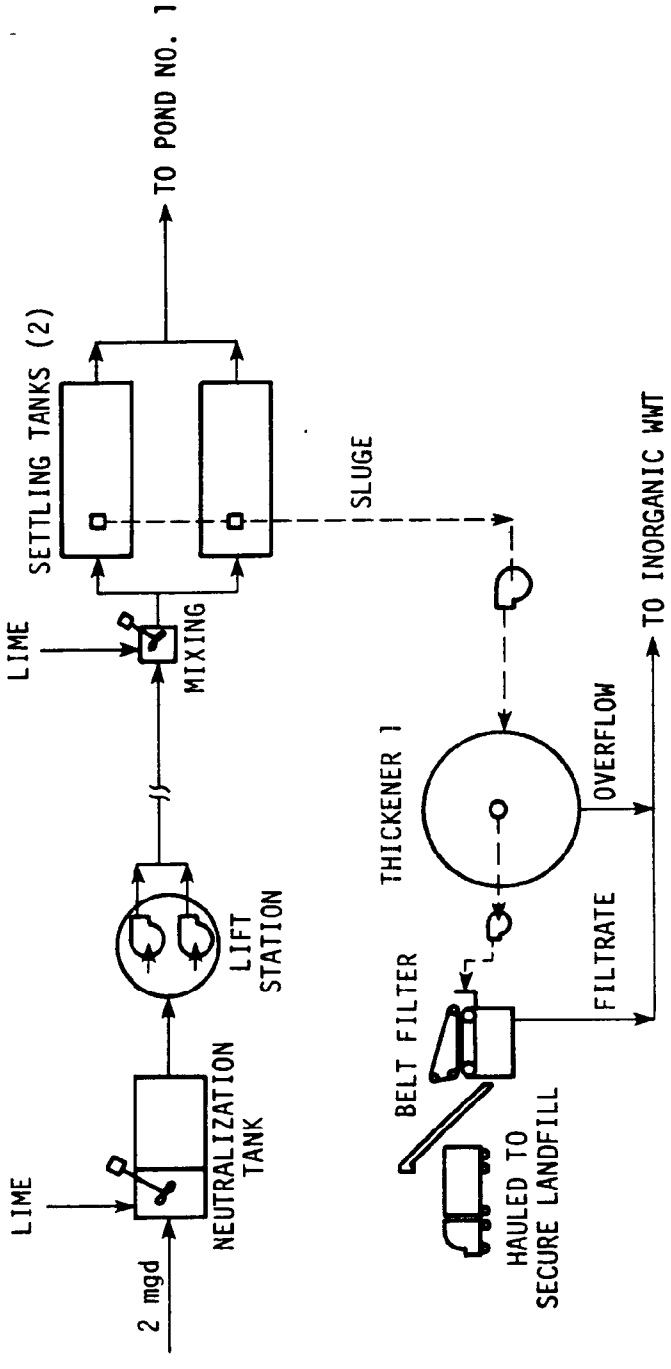


Figure D-11. Incinerator Scrubber Water Treatment.

D-2c(2) Storage Tanks (5)

Bulk tankers may be unloaded directly into one of the three storage tanks. The bulk tanker unloading area is contained within a diked area which can withhold a volume of 7,700 gallons. This quantity is sufficient to contain the bulk tanker volume. Figure D-12 presents the construction details to the bulk tanker unloading area. Contents of the blend tanks can also be transferred over to one of the storage tanks. The storage tanks have level monitors. Operators monitor the level indicators to ensure adequate capacity before transferring waste liquid. In addition, the seven waste tanks (five storage and two burner supply) are connected by overflow protection piping.

D-2c(3) Decant Tank (1)

Waste liquid can be transferred from one of the storage tanks or one of the blend tanks to the decant tank. The purpose of the decant tank is to increase the BTU content and lower the solids content of the waste solvent to be supplied to the main kiln, referred to as "A" burner. This is achieved by quiescent settling and allowing sufficient time for a phase split to develop. The top, better quality, waste solvent is transferred to one of the burner supply tanks while the bottom material is pumped directly to "B" burner for disposal. The tank is equipped with level alarms and overflow return to one of the solvent storage tanks.

D-2c(4) Burner Supply Tanks (2)

The two burner supply tanks are equipped with level indicators and high level alarms. Both "A" burner in the kiln and the secondary burner, commonly referred to as "C," are supplied from either one of these two tanks or from the fuel oil storage tank.

D-3 Waste Piles

Under current operating conditions, there will be one enclosed waste pile. It will be in the Oakdale Bulk Feed Building. In the future, the waste may be the incinerator sludge prior to reburning. Currently it is the nonmagnetic ash. It can also be other types of either hazardous or nonhazardous bulk wastes. Maximum storage capacity is 80 cy.

Should there be conveyor problems in the ash handling building, two temporary waste piles may be required to continue operating the incinerator. These would also be enclosed with a maximum storage of 50 cyds.

3M intends to pursue delisting of the incinerator ash which would affect both the number of waste piles and quantity contained in them.

D-5 Incinerator

D-5a Justification for Exemption

Even though a high percentage of 3M waste is hazardous because of ignitability, a request for exemption will not be made. Should trial burns show significant operational changes are required to meet the 99.99% DRE, 3M may reconsider and apply for an exemption. This is not anticipated at the present time.

D-5b Trial Burn

A brief description of the incinerator is contained as part of the facilities description in Section B of this application. The incinerator was designed by Dow with help from International Incinerator, Inc., and 3M. It is a rotary kiln incinerator designed for a rated capacity of 90 million BTUs per hour. This value includes the heat from the secondary burner. The incinerator is normally operated between 60-70 million BTUs per hour, but can achieve a maximum of 110 million BTUs/hr with the secondary burner operating.

A trial burn plan describing the following parameters has been included in the Part B application and is presented in Appendix A. A revised Trial Burn Plan is being developed.

Detailed Description and Engineering Drawings of the Incinerator

An engineering description detailing the design specifications of the incinerator is presented in Section 3 of the trial burn plan. Significant changes have been made to the incinerator and will be fully described in the revised Trial Burner Plan.

A schematic depicting a cross-sectional view of the incinerator and air pollution control equipment is shown in Figure D-13. Figure D-14 is a plan view showing the location of the waste heat recovery boiler with respect to the other components making up the incineration system.

A schematic depicting the location of the incineration system's sampling ports, flow meters and flue gas monitors are shown in Figure D-15. The incinerators temperature monitoring and pressure measurement locations are shown in Figure D-16. Revised figures will be supplied once start-up of the new equipment is complete and the sensors have been appropriate located.

Monitoring

Section 3 of the Trial Burn Plan describes the incinerators monitoring equipment. 3M has installed a computer process control system which will be used to monitor and record the operating parameters.

Waste Feed Cutoff

A description of the parameters which cause the incinerator to automatically shutdown when selected operating conditions are not met are presented in Section 7 of the Trial Burn Report, Vol. 1. This list has been revised to minimize the number of occasions that the safety relief vent is used. Emergency shutdown of the incinerator is triggered by only two events, loss of sufficient water supply to the APC equipment and loss of power to the induced draft fan. Waste feed cutoff occurs for those conditions but also for low feedwater in the boiler, excessive duration of positive pressure in the combustion chambers, excessive levels of either CO or THC as determined by the Trial Burn Plan, etc.

PLANT	FILE/JOB NO.
LOCATION BLDG. NO.	CHARGE NO.
MANUFACTURER NO. UNITS	B/M NO.
	P. O. NO.

FIELD ERECTED YES (NO) | NO. UNITS 7 | TOTAL VOLUME 12,900 (ea.) GAL

DESIGN DATA

No.	Item	Value		
1	Operating Pressure psig	3 In. H_2O		
2	Operating Temperature °F	100		
3	Liquid Specific Gravity	1.2		
4	Contents Lethal	Yes (No)		
5	Design Pressure psig	4 In. H_2O		
6	Design Temperature °F	200°		
7				
8				
9	Hydrostatic Test psig	0.75		
10	Shell / Heads Corr. Allow. In.	1/16"	1/16"	
11	Shell / Heads Joint Eff. %	CODE	CODE	
12	Code: API 620		Stamp Yes (No)	
13	Radiograph: NO		Stress Relieve: NO	
14	National Board No.			
15	Type Supports: 4 LEGS EQUALLY SPACED			
16	Insulation: NO			
17	Fireproofing: NO			
18	Sandblast: YES		Paint: (1) Coat Met. Prim.	
19	Manhole	24"		
20	Platform Clips: NO	Ladder Clips: NO	Insul. Rings: NO	
21	Pipe Supports: YES			
22	Wind Load: 100 MPH		Seismic: NO	
23	Wt. Empty 11,500 lb		Wt Full 140,000 lb	

MATERIALS

No.	Item	Thickness	Mat'l Class	Mat'l - Minimum Quality
24	Item	Thickness	Mat'l Class	Mat'l - Minimum Quality
25	Shell	3/8 In.		A-285-C
26	Heads (Btm)	3/8 In.		A-285-C
27	Heads (Top)	3/8 In.		A-285-C
28				
29	M.H. Noz.			A-285-C
30	Nozzle Necks			A-53-B
31	Flanges			A-181-Gr.I (Except MH)
32	Coupling			A-105 Gr. II
33	M.H. Cover	& Flange		A-516-70
34	Supports			A-36
35	Bolts/Studs			A-307-B
36	Nuts			A-307-B
37	Gaskets			1/8" J.M. 60 or Eq.

NOZZLE SCHEDULE

No.	Service	Mark	No.	Size	Rating	Face	Type	
38	Service	Mark	No.	Size	Rating	Face	Type	
39	Manhole	A	1	24"	50#	F.F.	S.O.	
40	Outlet	B	1	4"	150#	R.F.	S.O.	
41	Level Trans.	C	1	3"	"	"	"	
42	Clean Out	D	1	3"	"	"	"	
43	Drain	E	1	1 1/2"	3000#	Cplg.		
44	Inlet	F	1	4"	150#	R.F.	S.O.	DIPE PIPE
45	Agitator	G	1	8 3/4"	Special			
46	Spare *	H	1	2"	150#	R.F.	S.O.	DIP PIPE
47	Gage Well	J	1	6"	"	"	"	
48	Flame Arrest.	K	1	2"	"	"	"	
49	Inlet	L	1	4"	"	"	"	DIP PIPE
50		M						
51		N						
52		P						
53		Q						
54		R						
55	*Nozzle to be Plugged or Blinded							

VESSEL SKETCH

MIN. THICKNESS OF NOZ NECKS:
SCH. 80 FOR SIZES < 6"
SCH. 40 FOR SIZES ≥ 6"
UNLESS SPECIFIED OTHERWISE

VENDOR TO PROVIDE ALL STUDS, NUTS, AND GASKETS FOR COMPLETED CONNECTIONS.

VENDOR TO PROTECT ALL OPENINGS FOR SHIPMENT WITH POLYETHLYENE & WOOD COVERS.

EQUIP MUST BEAR MFR'S. NAME PLATE SHOWING MAX. DESIGN CONDITIONS & MFR'S. SERIAL No.

ALL BOLT HOLES TO STRADDLE CENTERLINES UNLESS OTHERWISE NOTED.

VENDORS SHOP DRAWINGS MUST SHOW COMPLETE FABRICATION DETAILS INCLUDING COMPLETE WELDING DETAILS SHOWING LOCATION, SIZE & TYPE OF WELD SEAMS.

TAG EQUIP WITH EQUIP. No AND PROJECT No.

ALL WELDING TO BE CONTINUOUS NO STAGGERED WELDS ACCEPTABLE.

For Further Details, See Sheet No. 2,3,4,5,6,7,8

SPEC. BY V.A. / WK	MINNESOTA MINING & MANUFACTURING COMPANY					EQUIP. NO. TK-3001-3007
CHECKED: R.D. Jones	SERVICE STORAGE TANKS					VERTICAL VESSEL SPECIFICATIONS
APP'D: CNH ARB						
DATE: 9-12-69	REVISION DATE	A	1-2-70	B	C	SPEC. NO. Z5-002-69-579
VENDOR TO COMPLETE ALL INFORMATION MARKED ____					SHEET 1 OF 8	

3MA00152669

1349.0120

PLANT		FILE/JOB NO.
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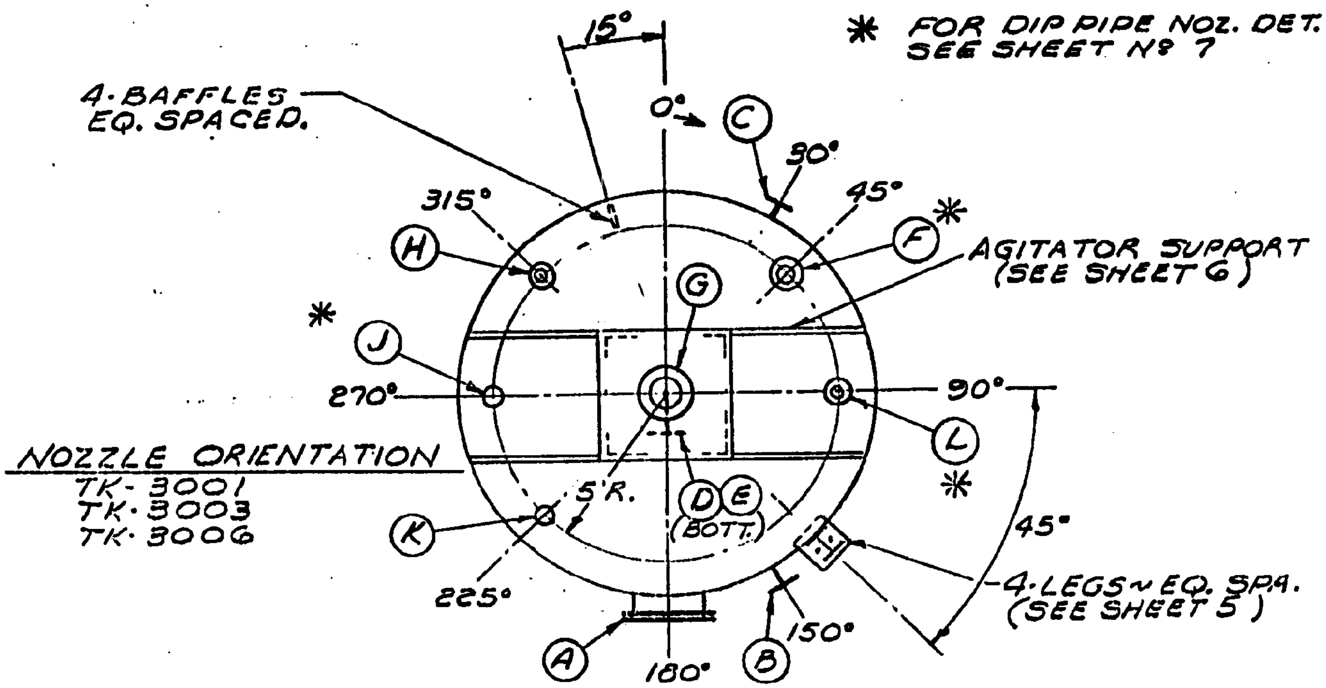
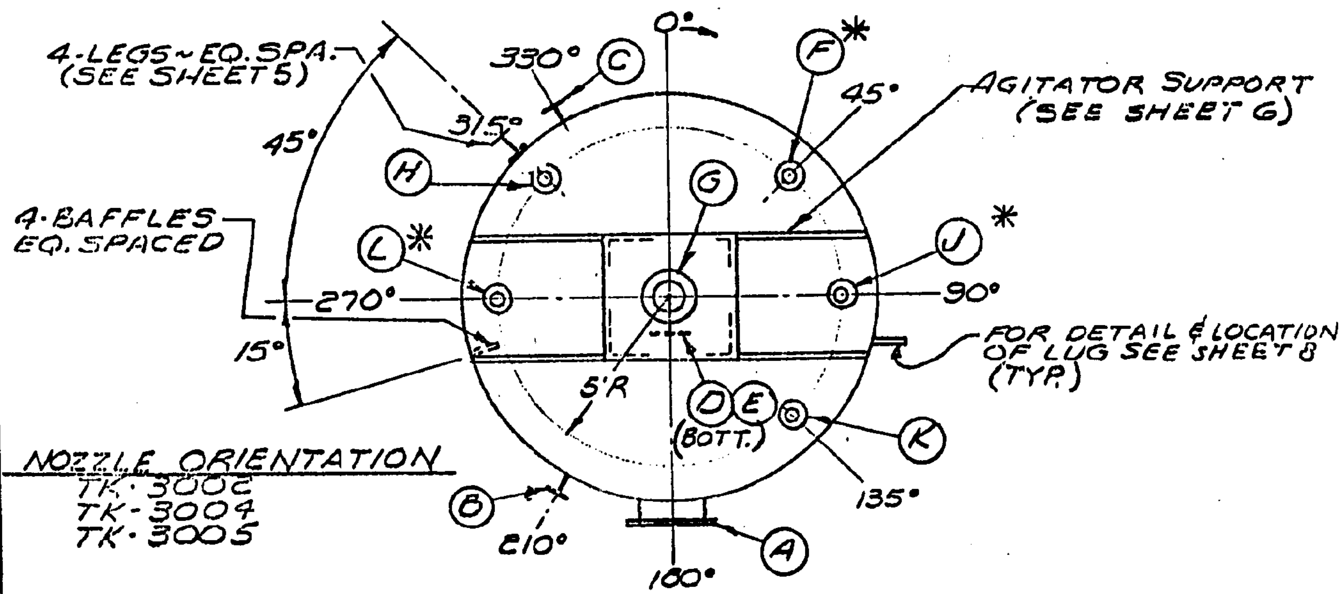
MANUFACTURER	NO. UNITS	B/M NO.
		P. O. NO.





SPEC. BY *KELLEY*	MINNESOTA MINING & MANUFACTURING COMPANY	EQUIP. NO. *TK-3001 - 3007*
CHECKED: *P.D. Jones*	SERVICE *NOZZLE ORIENTATION (TK-3001 - 3006)*	SPECIFICATIONS
APP'D: *CUH* ... *ARB*		
DATE: *9-12-69*	REVISION DATE A *1-2-70* B C	SPEC. NO. *25-002-69-57…*
VENDOR TO COMPLETE ALL INFORMATION MARKED	SHEET *2* OF *8*	

25430 3-68

3MA00152670

PLANT		FILE/JOB NO.
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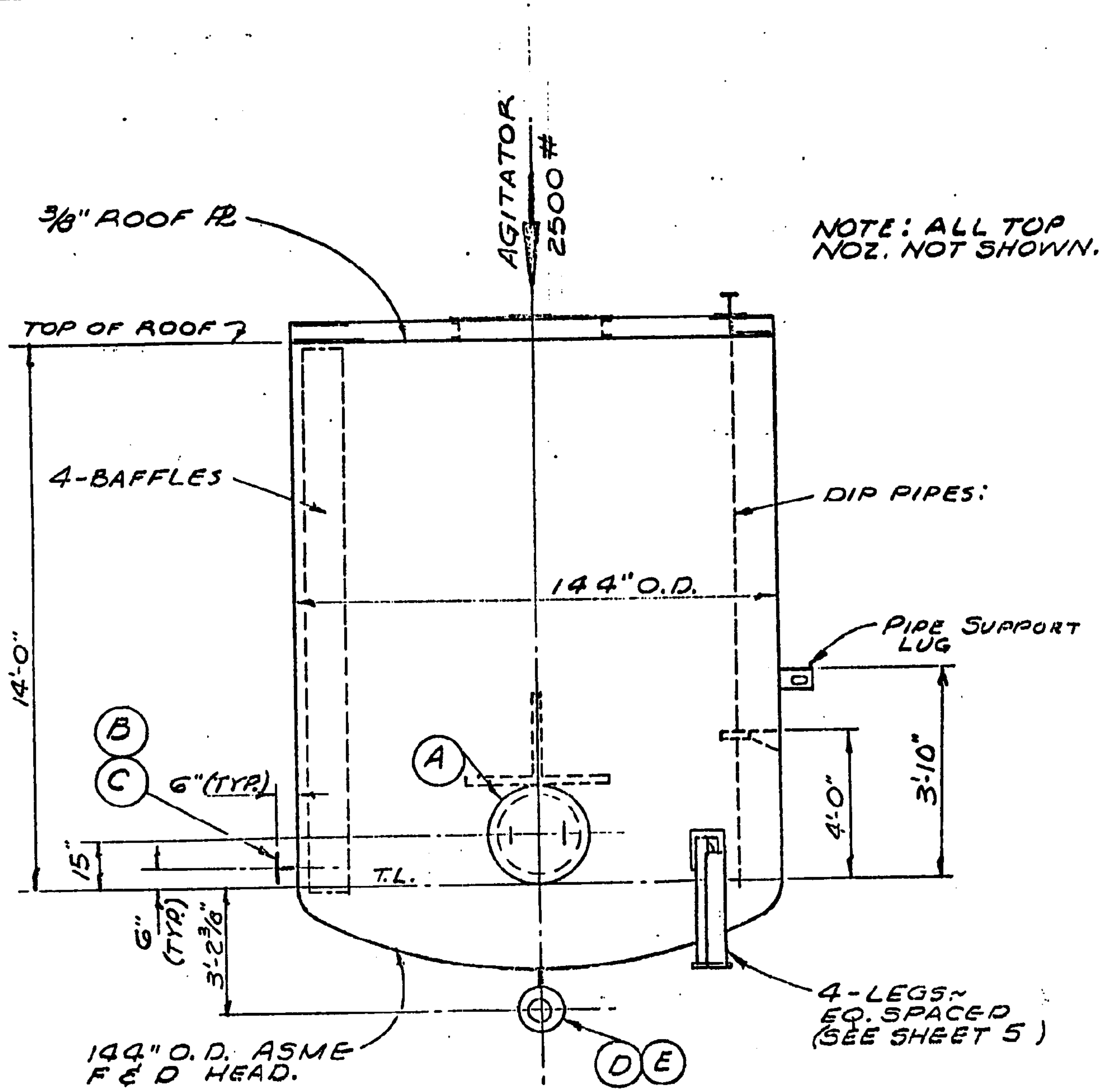
MANUFACTURER	NO. UNITS	B/M NO.
		P. O. NO.



SPEC. BY *KELLEY*	MINNESOTA MINING & MANUFACTURING COMPANY						EQUIP. NO. *TK-3001 - 3007*
CHECKED: *R.D. Jones*	SERVICE *TANK ELEVATION*						SPECIFICATIONS
APP'D: [illegible]							
DATE: *9-12-69*	REVISION DATE	A	*1-2-70*	B		C	SPEC. NO. *E5-002-69-578*
VENDOR TO COMPLETE ALL INFORMATION MARKED					SHEET *4* OF *8*		

3MA00152671

PLANT		FILE/JOB NO.
LOCATION	BLDG. NO.	CHARGE NO.
MANUFACTURER	NO. UNITS	B/M NO.
		P. O. NO.

FIELD ERECTED YES (NO) | NO. UNITS THREE | TOTAL VOLUME 3,400 (Act.) GAL.

DESIGN DATA

Operating Pressure	psig	3 in. H_2O		
Operating Temperature	°F	100°		
Liquid Specific Gravity		1.2		
Contents Lethal		Yes (No)		
Design Pressure	psig	2.0		
Design Temperature	°F	200°		
Hydrostatic Test	psig	3.0		
Shell / Heads Corr. Allow.	in.	1/16"	1/16"	
Shell / Heads Joint Eff.	%	Code	Code	
Code: API 620		Stamp Yes (No)		
Radiograph: No		Stress Reliever: No		
National Board No.				
Type Supports: (4) Legs equally Spaced				
Insulation: No				
Fireproofing: No				
Sandblast: Yes		Paint: (1) coat Metal Primer		
Manhole		24"		
Platform Clips: No	Ladder Clips: No	Insul. Rings: No		
Pipe Supports: No				
Wind Load: 100 MPH		Seismic: No		
Wt. Empty 7,300 lb		Wt Full of Water 27,300 lb		

MATERIALS

Item	Thickness	Mat'l Class	Mat'l - Minimum Quality
Shell	5/16 in.		A-285-C
Heads (Btm.)	5/16 in.		A-285-C
Heads (Top	3/8 in.		A-285-C
	in.		
M.H. Nozzle neck			A-285-C
Nozzle Necks			A-53-B
Flanges			A-181-Gr. I (Except M.H.)
Coupling			A-105 Gr. II
M.H. Cover	# Flange		A-516-70
Supports			A-36
Bolts/Studs			A-307-B
Nuts			A-307-B
Gaskets			1/8 J.M. 60 or Eq.

NOZZLE SCHEDULE

Service	Mark	No.	Size	Rating	Face	Type
Manhole	A	1	24"	50#	F.F.	S.O.
Outlet	B	1	4"	150#	R.F.	S.O.
Outlet	C	1	4"	"	"	"
Outlet *	D	1	8"	"	"	
Drain	E	1	1½"	3000#	Cl. 2	Plug
Inlet	F	1	10	150#	R.F.	S.O.
Em. Relief	G	1	15¼	SEE SHEET # 7		
Spare *	H	1	2"	150#	R.F.	S.O.
Spare (Wall)	J	1	6"	"	"	"
Fl. Arrestor	K	1	2"	"	"	"
Inlet	L	1	6"	"	"	"
Level Trans.	M	1	3"	"	"	"
Spare *	N	1	3"	"	"	"
Agitator	P	1	8"	Special		
	Q					
	R					

*Nozzle to be Plugged or Blinded

VESSEL SKETCH

MIN. THICKNESS OF NOZZLE NECKS:
SCHD. 60 FOR SIZES ≤ 6"
SCHD. 40 FOR SIZES ≥ 6"
UNLESS SPECIFIED OTHERWISE

VENDOR TO PROVIDE ALL STUDS, NUTS, AND GASKETS FOR COMPLETED CONNECTIONS.

VENDOR TO PROTECT ALL OPENINGS FOR SHIPMENT WITH POLYETHLYENE & WOOD COVERS.

EQUIP MUST BEAR MFR'S NAME PLATE SHOWING MAX. DESIGN CONDITIONS & MFR'S. SERIAL Nº

ALL BOLT HOLES TO STRADDLE CENTERLINES UNLESS OTHERWISE NOTED.

VENDORS SHOP DRAWINGS MUST SHOW COMPLETE FABRICATION DETAILS INCLUDING COMPLETE WELDING DETAILS SHOWING LOCATION, SIZE & TYPE OF WELD SEAMS.

TAG EQUIP. WITH EQUIP Nº AND PROJECT Nº

ALL WELDING TO BE CONTINUOUS NO STAGGERED WELDS ACCEPTABLE.

(6" ON TK-1001 ONLY)
(TK-1001 ONLY)

FOR FURTHER DETAILS SEE SHEET # 2, 3, 4, 5, 6 & 7

SPEC. BY V.A./W.K | MINNESOTA MINING & MANUFACTURING COMPANY | TK-1001 TK-1002 | EQUIP. NO. TK-1003

CHECKED: R.D. Jones | SERVICE BLENDING TANKS | VERTICAL VESSEL SPECIFICATIONS

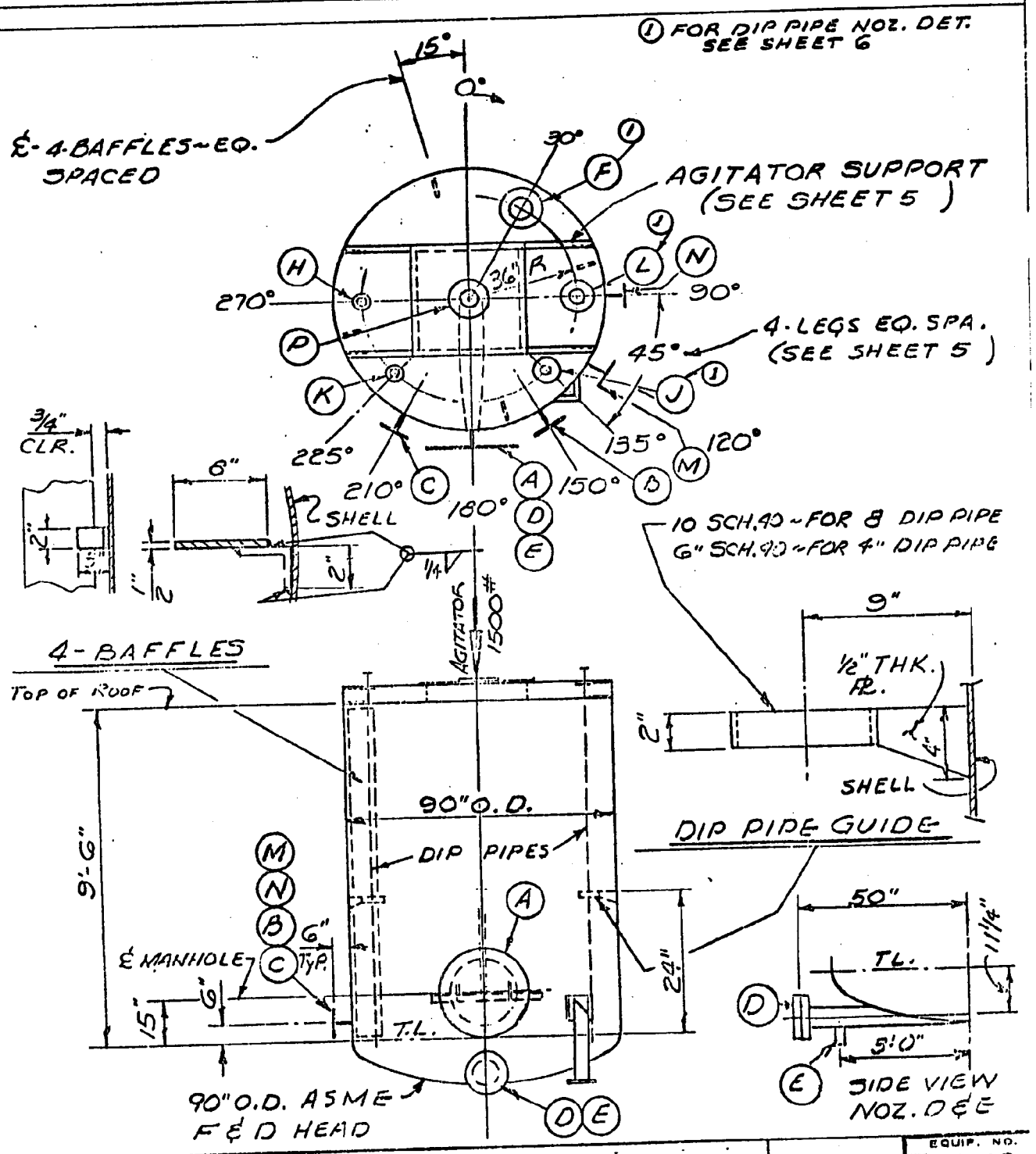
APP'D: Carl V.K.-W.K.B

DATE: 9-16-69 | REVISION DATE A 1-2-70 B W.K. 1-30-70 C | SPEC. NO. 75-001-69-57X

VENDOR TO COMPLETE ALL INFORMATION MARKED _____ | SHEET 1 OF 7

25840 3-68

PLANT		FILE/JOB NO.
LOCATION	BLDG. NO.	CHARGE NO.
MANUFACTURER	NO. UNITS	B/M NO.
		P. O. NO.



SPEC. BY KELLEY	MINNESOTA MINING & MANUFACTURING COMPANY						EQUIP. NO. TK-1002
CHECKED: K.D. Jones	SERVICE DETAILS						SPECIFICATIONS
APP'D: [illegible]	REVISION DATE	A 1-2-70	B WR 1-30-70	C WR 2-10-70			SPEC. NO. 25-001-69-5796
DATE: 9-16-69					SHEET 3 OF 7		
VENDOR TO COMPLETE ALL INFORMATION MARKED							

PLANT		FILE/JOB NO.
LOCATION	BLDG. NO.	CHARGE NO.
MANUFACTURER	NO. UNITS	B/M NO.
		P. O. NO.

FIELD ERECTED YES (NO) — NO. UNITS 2 — TOTAL VOLUME 12,900 (Gal.) GA

1	DESIGN DATA	Operating Pressure psig	3 In. H_2O	
2		Operating Temperature °F	100	
3		Liquid Specific Gravity	1.2	
4		Contents Lethal	Yes (No)	
5		Design Pressure psig	4 In H_2O	
6		Design Temperature °F	200	
7				
8				
9		Hydrostatic Test psig	0.75	
10		Shell / Heads Corr. Allow. in.	1/16"	1/16"
11		Shell / Heads Joint Eff. %	CODE	CODE
12		Code: API 650	Stamp Yes (No)	
13		Radiograph: No	Stress Relieve: No	
14		National Board No.		
15		Type Supports: (4) LEGS ~ EQ. SPACED		
16		Insulation: 1½" THK. BY INSUL. CONTR.		
17		Fireproofing: No		
18		Sandblast: YES	Paint: (1) COAT MET. PRIM.	
19		Manhole 24"		
20		Platform Clips: No / Ladder Clips: No	Insul. Rings: YES	
21		Pipe Supports: YES		
22		Wind Load: 100 MPH	Seismic: No	
23		Wt. Empty 11,300 lb	Wt Full 140,000 lb	

		Item	Thickness	Mat'l Class	Mat'l - Minimum Quality
24	MATERIALS	Item	Thickness	Mat'l Class	Mat'l - Minimum Quality
25		Shell	3/8 in.		A-285-C
26		Heads (Btm.)	3/8 in.		A-285-C
27		Head (Top)	3/8 in.		A-285-C
28					
29		M.H. Noz.			A-285-C
30		Nozzle Necks			A-53-B
31		Flanges			A-181-Gr.I (Except MH)
32		Coupling			A-105-Gr.II
33		M.H. Cover	& Flange		A-516-70
34		Supports			A-36
35		Bolts/Studs			A-307-B
36		Nuts			A-307-B
37		Gaskets			1/8" J.M. 60 or Eq.

		Service	Mark	No.	Size	Rating	Face	Type
38	NOZZLE SCHEDULE	Service	Mark	No.	Size	Rating	Face	Type
39		Manway	A	1	24"	50#	F.F.	S.O.
40		Outlet	B	1	4"	150#	R.F.	S.O.
41		Level Trans.	C	1	3"	"	"	"
42		Clean Out	D	1	8"	"	"	"
43		Drain	E	1	1½"	3000#	Colg.	
44		Inlet	F	1	6"	150#	R.F.	S.O.
45		Outlet	G	1	4"	"	"	"
46		Spare *	H	1	2"	"	"	"
47		Inlet	J	1		"	"	"
48		Flame Arrest.	K	1	2"	"	"	"
49		Gage Well	L	1	6"	"	"	"
50		Agitator	M	1	8¾	Special		
51			N					
52			P					
53			Q					
54			R					
55		*Nozzle to be Plugged or Blinded						

VESSEL SKETCH

MIN. THICKNESS OF NOZ. NECKS:
SCHD. 80 FOR SIZES < 6"
SCHD. 40 FOR SIZES ≥ 6"
UNLESS SPECIFIED OTHERWISE.

VENDOR TO PROVIDE ALL STUDS, NUTS, AND GASKETS FOR COMPLETED CONNECTIONS.

VENDOR TO PROTECT ALL OPENINGS FOR SHIPMENT WITH POLYETHLYENE & WOOD COVERS

EQUIP. MUST BEAR MFR'S. NAME PLATE SHOWING MAX. DESIGN CONDITIONS & MFR'S. SERIAL N

ALL BOLT HOLES TO STRADDLE CENTERLINES UNLESS OTHERWISE NOTED.

VENDORS SHOP DRAWINGS MUS SHOW COMPLETE FABRICATION DETAILS INCLUDING COMPLETE WELDING DETAILS SHOWING LOCATION, SIZE & TYPE OF WELD SEAMS.

TAG EQUIP. WITH EQUIP. No AND PROJECT No

ALL WELDING TO BE CONTINUO NO STAGGERED WELDS ACCEPTABLE.

DIP PIPE (F)

DIP PIPE (J)

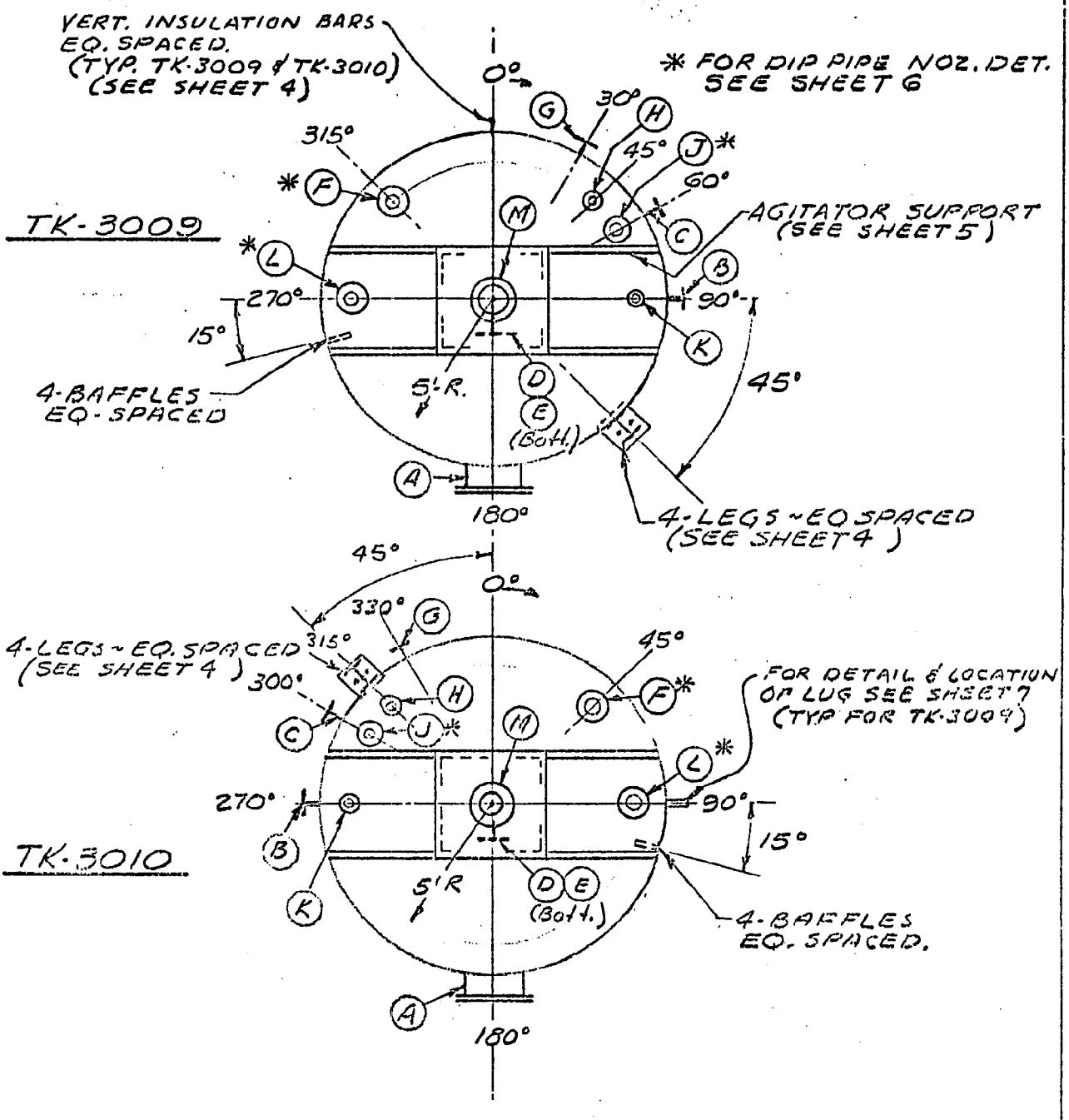
DIP PIPE (L)

For Further Details, See Sheet No. 2, 3, 4, 5, 6 & 7

SPEC. BY K.A./H.K.	MINNESOTA MINING & MANUFACTURING COMPANY	EQUIP. N: TK-3009 & TK-3010
CHECKED: R.D. Jones	SERVICE: BURNER SUPPLY TANKS	VERTICAL VESSEL SPECIFICATIONS
APP'D: [illegible] ARB		
DATE: 9-16-69	REVISION DATE A 1-2-70 B C	SPEC. NO. Z5-004-69-57
VENDOR TO COMPLETE ALL INFORMATION MARKED ____	SHEET 1 OF 7	

3MA00152674

PLANT		FILE/JOB NO.
LOCATION	BLDG. NO.	CHARGE NO.
MANUFACTURER	NO. UNITS	B/M NO.
		P. O. NO.

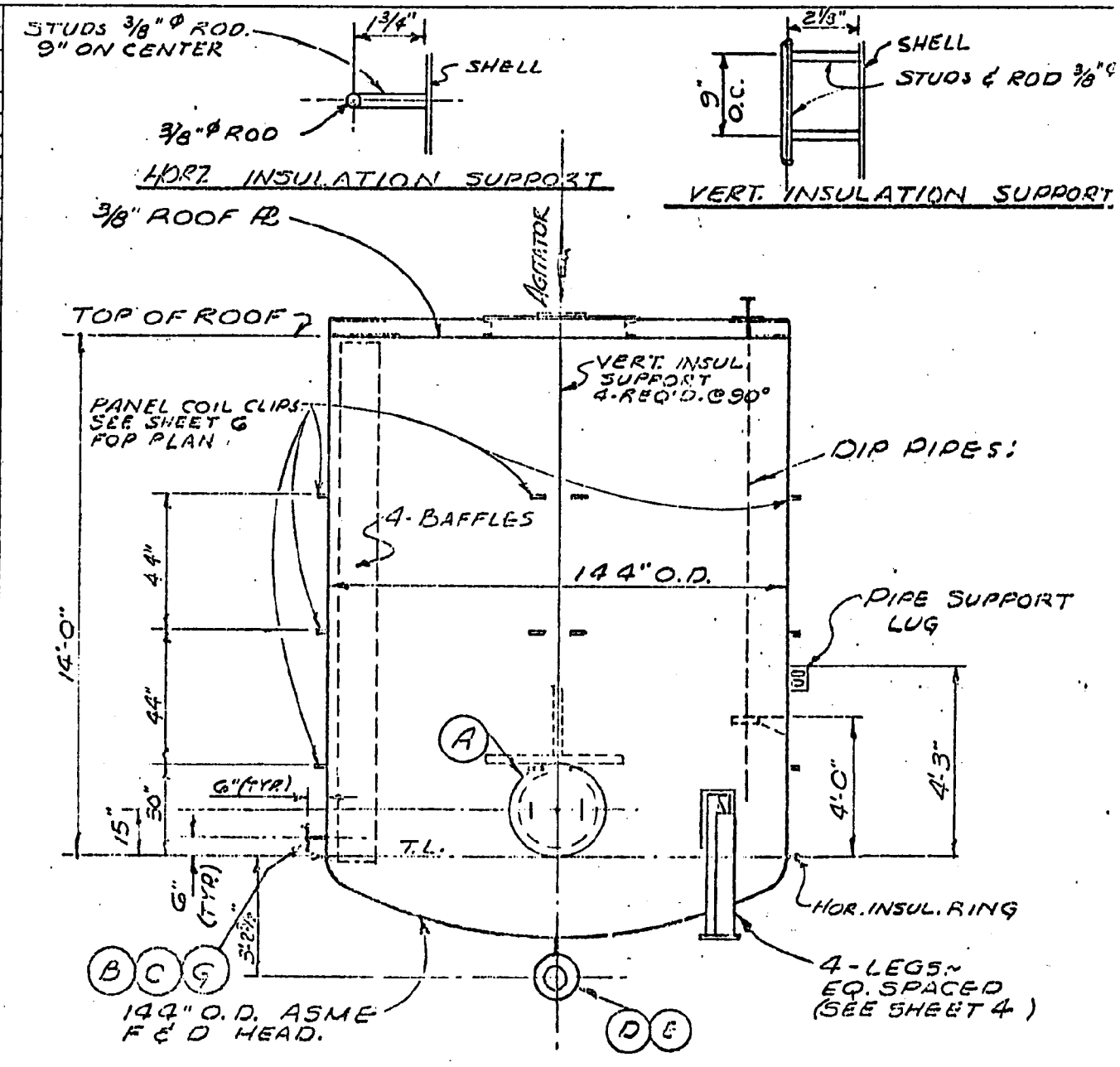


SPEC. BY KELLEY	MINNESOTA MINING & MANUFACTURING COMPANY						EQUIP. NO. TK-3009 & TK-3010	
CHECKED: R.D. JENSEN	SERVICE NOZZLE ORIENTATION						SPECIFICATIONS	
APP'D: CAMPBELL								
DATE: 9-16-69	REVISION DATE	A	1-2-70	B		C	SPEC. NO. 25-004-69-5796	
VENDOR TO COMPLETE ALL INFORMATION MARKED					SHEET 2 OF 7			

25430 3-68

3MA00152675

PLANT		FILE JOB NO.
LOCATION	BLDG. NO.	CHARGE NO.
MANUFACTURER	NO. UNITS	B/M NO.
		P. O. NO.



SPEC. BY KELLEY	MINNESOTA MINING & MANUFACTURING COMPANY					EQUIP. NO. TK-3009 & TK-3010	
CHECKED: R D JONES	SERVICE TANK ELEVATION					SPECIFICATIONS	
APP'D:							
DATE 9-16-69	REVISION	DATE	A	1-2-70	B	C	SPEC. NO. ES-004-69-[illegible]
SECTION TO COMPLETE ALL INFORMATION MARKED						SHEET 5 OF 7	

The following alphabetical list establishes device identification letters and provides a page reference where a drawing symbol used to represent a device may be found.

The "Symbol Detail Number" refers to a sequentially numbered page starting at 70K11.05 and continuing on the pages following.

EXAMPLE:

ITEM: Auto Transformer

SYMBOL DETAIL NUMBER: "1N" — Turn to page 70K11.05; in the upper left hand corner of page, find "1"; find figure "N". The symbol shown adjacent to "N" represents "auto-transformer".

Sequentially-numbered pages contain symbols for classes of items as follows:

1. Coils
2. Miscellaneous
3. Resistors & Capacitors
4. Rotating Equipment
5. Semi-Conductors
6. Switches
7. Tubes
8-11. Wiring Diagram Symbols

In some cases the symbol used on a wiring diagram differs from that used on an elementary diagram, as for example for a "Contactor". In this case there are two references, i.e. "1A" and "8A".

ITEM	Device Identification	SYMBOL DETAIL NO.	
		Elementary Diagram	Wiring Diagram
Annunciator Indicator	AI	2A	2D
Alarm Horn	AH	2D	3I
Ammeter	AM	3I	
Amplifier	AMP	2S	2S
Annunciator	ANN		
Annunciator Relay	AR		
Arc Suppressor	CRAS	5L	5L
Auto Transformer	T	1N	2S
Battery	BAT	2G	2G
Barrier Strip	ISB	2S	2S
Bell	B	2E	2E
Bin Motor	BM		
Brake	BR	1A	1A
Buzzer	BUZ	2F	2F
Capacitor (Fixed)	C	3F	3F
Capacitor (Variable)	C	3E	3E
Choke	L	1E, 1F	1E, 1F
Circuit Breaker	CB	6G	6G
Clock	CLK	2S	2S
Clutch	CL	1A	1A
Clutch-Brake Controller	CLB	2S	2S
Collector Ring	COL	4E	4E
Compactor	COM	2S	2S
Connector	CON	2H	2H
Contactor (Heater)	HC	1A	8A
Contactor (Power)	PC	1A	8A
Contacts (General)		6U	6U

ITEM	Device Identification	SY
		Elementar Diagram
Control Interrupt	CI	6A
Control Relay	CR	1A
Control Transformer	T	1C, 1
Counter	CTR	1A
Current Transformer	CT	1G
Decibel Meter	DB	3I
Differential Synchro		2K
Diode	CRD	5H
Disconnect	DS	6H &
Drive Controller	DC	2S
Electric Pneumatic Relay	EP	1A
Emergency Stop	ES	6N
Fan Motion Detector	FMD	2S, 6
Field Loss Meter Relay	FLM	
Field Loss Relay	FL	1A
Flame Detector	FD	2S
Flame Guard Relay	FGR	2S
Float Switch	FS	6F
Flow Switch	FLS	6F
Foot Switch	FTS	6A &
Force Transmitter	KT	1I
Flasher	FLR	
Frequency Meter	FM	3I
Fuse	FU	3D
Galvanometer	GM	3I
Gap Detector	GD	2S
Generator	GEN	4D
Ground	GRD	2L
Ground Detector	GDR	2S
Heater (Single Phase)	H	3C
Heater (Three Phase)	H	3C
High Current Limiter	HCL	2S
Ignition Transformer	IT	1L
Illuminated Pushbutton	PB	6P
Impulse Switch	IS	6F
Inspection Light	IL	2B
Integrator	INT	2S
Jack	J	2H
Key Switch	KS	6A, 6B, 6C 8
Latching Relay	LR	1B
Level Control	LC	2S
Level Element	LE	2R
Light Emitting Diode	LED	5P
Light Source (For Photocell)	LP	2B
Limit Switch	LS	6F
Magnetic Motor Starter	M	6R
Mag. Reversing Mtr. Starter	M	6T
Mag. Two Speed Starter	M	6S
Manual Motor Starter	MSW	6I
Mechanical Valve (Safety Shut Off)	MV	1M

ITEM	Device Identification	SYMBOL DETAIL NO.	
		Elementary Diagram	Wiring Diagram
Microammeter	UA	3I	3I
Milliammeter	MA	3I	3I
Motor (DC)	M	4C	4C
Motor (Stepper)	SM	4A	10A
Motor (Single Phase)	M	4A	10A
Motor (Three Phase)	M	4B	10B
Nixie Tube	NT	2S	2S
Optical Switch	OS	2S	2S
Phone	PH	2I	2I
Photocell	PV	5N	5N
Photoelectric Relay	PER	2S	2S
Pilot Light	PL	2A	2A
Pilot Light (Push to test)	PL	2C	9B
Plug	PG	2H	2H
Plugging Switch	PLS	6F	6F
Potential Transformer	PT	1K	2S
Potentiometer	P	3K	3K
Power Unit	PU	2S	2S
Pressure Switch	PS	6F	6F
Printer	PTR		
Programmable Logic Controller	PLC	2S	2S
Programmer (Stepping Relay)	PR	2S & 6U	
Proximity Element	PXE	2Q	2S
Proximity Switch	PXS	6F	6F
Pulser	PUL	2S	2S
Pushbutton (E30 Type)	PB	7J	11F, 11G, 11H
Pushbutton (Maintained Contact)	PB	6Q	11F
Pushbutton (Start)	PB	6L	11G
Pushbutton (Stop)	PB	6M	11H
Quantitative Servo Valve	QSV	2S	2S
Receptacle	RE	2T	2T
Reactor	RX	1E & 1F	1E & 1F
Recorder (See Instr. Codes)			
Rectifer (Bridge)	REC	5I	5I
Resistance Thermometer	RTD	2S	2S
Resistor (Fixed)	R	3B	3B
Resistor (Adjustable)	R	3A	3A
Resolver		2J	2J
Rheostat	RH	3J	3J
Rotary Proximity Pulse Gen.	PXG	7I	7I
Roto-Pushbutton	RB	3I	3I
Running Time Meter	RTM	6F	6F
Safety Cable	SC	6A	11I
Safe Stop	SS	6D	11I
Safe Stop-Test (Spring Return from Test)	SST		
Selector Switch (2 Pos.)	SW	6A, 6B & 6C	11I
Selector Switch (3 Pos.)	SW	6A, 6B, 6C, & 6D	9D & 11I
Semi-Conductors (By Types)	CR___	5	5
Sensing Element	SE	2R	2R
Shielded Cable:		2M	8H
Signal Shield	SSH		
Ground Shield	GSH		
Low Voltage Shield (24V)	PSH		

ITEM	Device Identification	SYMBOL DET
		Elementary Diagram
Shunt	SH	3G
Signal Transmitter	ST	2S
Silicone Control Rectifier	CRSCR	5E
Solenoid	SOL	1A
Solenoid Valve	SV	1A
Spark Plug	SP	1L
Speed Switch	SSW	6U
Static Sequence Card	SSC	2S
Stepper Motor	SM	4A
Stepping Relay	CR	6J & 6K
Synchro		2J
Tachometer (Speed Indicator)	SI	3I
Tach Generator (AC or DC)	TG	4F
Tally Switch	LS	6F
Tension Indicator	KI	3I
Tension Unit (Power Supply)	KU	2S
Terminal Block	TB	
Thermocouple	TE	3H
Thermal Overload	OL	1J
Thermostat	TS	6F
Thermocouple Jack Strip	T/CJ	2S
Thermistor	CRT	5F
Thickness Recorder	THR	2S
Thyrector	CRTH	5M
Time Delay Relay	TD	1A
Time Delay Relay Meter	TDM	2S
Timer, Mech. (Cam, etc.)	MT	4A & 6U
Translator	TLR	2S
Tunnel Diode	CRTD	5K
Ultrasonic Relay	USR	2S
Tubes		7
Vacuum Switch	VS	6F
Variable Transformer	VAR	1H
Varistor	CRV	5G
Voltmeter	VM	3I
Warning Light	WL	2B
Wattmeter	WM	3I
Watt Transducer	WT	2S
Web Detector	WD	2S
Web Sensor (Guide)	WS	2S
Weight Element	WE	2S
Wire (Twisted Pair)		
Wire Connection		2N & 2P
Wire Sizes	(See 70K5.00)	
Zener Diode	CRZD	5J

The following alphabetical list establishes device identification letters and provides a page reference where a drawing symbol used to represent a device may be found.

The "Symbol Detail Number" refers to a sequentially-numbered page starting at 70K13.02 and continuing on the pages following.

EXAMPLE:

ITEM: Control Damper

SYMBOL DETAIL NUMBER: 2A

Turn to page 70K13.03; in upper left hand corner find "2"; find figure "A". This symbol represents a control damper on a flow diagram.

Note that the symbol used on the "Flow" diagram differs from the symbol used on a "Piping" diagram. In the example above the symbol for a control damper used on the latter diagram is found on 8A.

ITEM	DEVICE IDENTIFICATION	SYMBOL DETAIL NUMBER	
		Flow Diagram	Field Piping Diagram
Air Brake	AB	5A	5A
Air Clutch	AC	5A	5A
Air Control Valve	ACV	5E	5E
Air Cylinder	AY	5E	5E
Air Dampener	AD	5B	5B
Air Filter	AF	5C	5C
Air Lubricator	AL	5C	5C
Air Pump	AP	5H	5H
Air Valve	AV	1A	7A
Analysis Element	AE	6A	6A
Butterfly Valve	BFV	5F	5F
Capacity Tank	CAP	5C	5C
Control Damper	CD	2A	8A
Control Valve	CV	3A	8A
Current to Pressure Transducer	I/P	6D	6D
Flow Control Valve	FCV	2B	8B
Flow Indicator	FI	6C	6C
Flow Indicator Manual Control	FIMC	4B	4B
Flow Switch	FLS	6B	6B
Flow Transmitter	FT	6B	6B
Force Controller	KC	4B	4B
Force Transmitter	KT	6B	6B
Hand Valve	HV	1B	7B
Level Controller	LC	4B	4B
Level Indicator	LI	6E	6E
Level Indicating Controller	LIC	4B	4B
Level Recorder	LR	4B	4B
Level Recording Controlling	LRC	4B	4B
Level Transmitter	LT	6B	6B
Manometer	PI	6G	6G
Mechanical Valve	MV	1C	7C
Motor (Air)	AM	5D	5D
Motor Operated Valve	MOV	5G	5G
Motorized Pulser	MP	6B	6B
Oil Brake	OB	5A	5A
Oil Cylinder	OY	5E	5E
Oil Filter	OF	5C	5C
Oil Motor	OM	5D	5D
Oil Pump	OP	5H	5H

ITEM	Device Identification	SYMBOL DETAIL NUMBER	
		Flow Diagram	Field Piping Diagram
Positioner (Air) Bellofram Type	APB	4A	4A
Positioner (Oil) Bellofram Type	OPB	4A	4A
Pressure Control Valve	PCV	5C	5C
Pressure Control Valve (with Gage)	PCV-PI	8C	8C
Pressure Controller	PC	4B	4B
Pressure Differential Element	PDE	6F	6F
Pressure Element	PE	5J	5J
Pressure Indicator	PI	6C, 6G	6C, 6G
Pressure Indicator Manual Control	PIMC	5B	5B
Pressure Indicating Controller	PIC	4B	4B
Pressure Recording Controler	PRC	4B	4B
Pressure Switch	PS	6J	6J
Pressure Transmitter	PT	6B	6B
Purge Blower	M	5H	5H
Quick Disconnect	QD	5M	5M
Quick Exhaust Valve	QEV	2E	8F
Relay – Amplifying	XA	4C	4C
Relay – Amplifying (Rev.)	XAR	4C	4C
Relay – Biasing	XBI	4C	4C
Relay – Booster	XBO	4C	4C
Relay – Cut-Off (Direct)	XCD	4C	4C
Relay – Cut-Off (Reverse)	XCR	4C	4C
Relay – Derivative (Direct)	XDD	4C	4C
Relay – Derivative (Inverse)	XDI	4C	4C
Relay – High Limit	XHL	4C	4C
Relay – Low Limit	XLL	4C	4C
Relay – Multi-Function	XMF	4C	4C
Relay – Precision (Direct)	XP	4C	4C
Relay – Precision (Reverse)	XPR	4C	4C
Relay – Pressure Selector (High)	XHP	4C	4C
Relay – Pressure Selector (Low)	XLP	4C	4C
Relay – Ratio	XR	4C	4C
Relay – Reversing	XI	4C	4C
Relay – Square Root	XS	4C	4C
Relief Valve	RV	2C	8D
Rotary Union	RU	2F	8E
Set Point	SP	5C	5C
Solenoid Valve	SV	1E	7E
Temperature Control Valve	TCV	6H	6H
Temperature Controller	TC	2G	2G
Temperature Element	TE	5K	5K
Temperature Indicating Controller	TIC	2G	4B
Temperature Indicator	TI	6C	6C
Temperature Recorder	TR	4B	4B
Temperature Recording Controller	TRC	2G	4B
Temperature Switch	TS	6B	6B
Temperature Transmitter	TT	6B	6B
Unidirectional (Check) Valve	UV	2J	8B
Unidirectional Shuttle Valve	USV	2H	8G
Vacuum Indicator	VI	6C	6C
Vacuum Pump	VP	5H	5H
Vacuum Switch	VS	6B	6B
Weight Element	WE	5L	5L

1 OPERATING VALVES | USED ON: INSTRUMEN

① START WITH OPERATOR

A AV – AIR VALVE
EXT. PILOT
INT. PILOT

B HV – HAND VALVE
MANUAL
PUSHBUTTON
LEVER

C MV - MECHANICAL VALVE

D DETENT (LINE INDICATES DETENT USED)

E SV. - SOLENOID VALVE

② ADD BODY

2 POSITION
POSITION - 1 | POSITION-

3 POSITION
POSITION - 1 | POSITIO
(CENTER) POSITION - 3

NOTE : ADDITIONAL POSITIONS MA
ADDED ON HAND VALVES.

③ ADD RETURN (IF NEEDED)

SPRING

EXAMPLES (SHOWN IN DE-ENERGIZED POSITION)

TYP.
3-POSITION
SOL.-PILOT
RETURN T
DETENT O

1349.0131

3MA00152680

SECTION F

PROCEDURES TO PREVENT HAZARDS

The information provided in this section is submitted in accordance with the requirements of 40 CFR 270.14(b) (4), (5), (6), (8) and (9). Other regulations addressed to complete the section include 40 CFR §264.14, §264.15, §264.17, §264.174, §264.194 and §264.347.

3M Company will address the following subject areas (referenced above): general security provisions; inspection schedule; request for a waiver of preparedness and prevention requirements; spill prevention, containment and countermeasures plan; and prevention of accidental ignition or reaction of ignitable, reactive or incompatible wastes.

F-1 Security

F-1a Security Procedures and Equipment

In addition to the general security provisions of fencing, gates and guards discussed below, several other features contribute to the safety and security of the facility. Ample lighting is provided throughout the site. Security personnel are equipped with hand-held, two-way radios to immediately report abnormal conditions. In addition to the two-way portable radios carried by guards, a base station for the public address system is located at the main guard station. The internal telephone system for the plant is also used for external communications. Employees are required to show identification cards or vehicle parking passes when reporting for work in the main plant area. Visitors and contractors entering the main plant area must sign a log sheet (Figure F-1, F-2) and obtain visitor passes in Building 116. Personnel entering the incinerator area are also required to check in at Building 116 during normal working hours (7 AM to 4 PM). The incinerator entrance gate is normally kept closed and operated by remote control during off-hours.

F-1a (1) 24-Hour Surveillance System

Security at 3M Chemolite is maintained by a staff of trained security guards, who primarily monitor entry and exit from the active portion of the facility and provide security measures within the plant premises.

The main security station is located in Building 65 and is staffed with security personnel 24 hours a day, seven days a week. Guards normally work in eight-hour shifts with a crew of two guards. From 6:30 a.m. to 4:30 p.m., one guard will be stationed in Building 65 and one in Building 116. The guard in Building 65 checks employees for passes and directs visitors and contractors to Building 116 for registration.

FIGURE F-1

FORM 3396

PLANT VISITOR REGISTER

STATION _____

DAY _____

DATE _____

SIGNATURE	REPRESENTING	TO SEE	AUTHORIZED BY	ADMITTED BY	TIME IN	TIME OUT	BADGE #	✓

CHEMOLITE CONTRACTOR LOG

STATION _____

DATE _____

NAME	COMPANY	BLDG #	CONTRACTOR REP	3M REP	GUARD	TIME IN	TIME OUT	BADGE #

3MA00152682

FIGURE F-2

Carrier and Vendor Register for (Date)_____

Chemolite Plant Regulations

SAFETY GLASSES REQUIRED

No smoking in plant.
Driving speed in the plant is 10 mph.
Drivers must double chock trailers when at dock.
Drivers are responsible for placing supports under trailer nose when spotting a trailer at a dock.
All vehicles entering the plant are subject to inspection when entering or leaving.
Drivers must sign in and out.
Drivers only allowed in the plant. Passengers will be asked to wait in lobby. (Exception: both team drivers may go with the vehicle.)
Security may ask to see bills of lading, materials and/or seals.
I have no 3M products on this vehicle that are my personal property.

PLEASE READ BEFORE SIGNING

CARRIER	DRIVERS SIGNATURE	PICK-UP AT BLDG.#	DELIVERY AT BLDG.#	TIME IN	TIME OUT

3MA00152683

The guard in Building 116 registers all visitors, contractors, and non-Chemolite 3M employees and controls vehicular traffic in and out of the building 116 gate through the use of stop arms. From 4:30 p.m. to 6:30 a.m., one guard maintains control of plant access from Bldg. 65 while the other conducts inspections throughout the facility.

In addition to the security staff, numerous continuous television cameras are also used to provide 24-hour surveillance of the plant site. The following summarizes the location and function of the various cameras:

Location	Type	Function
Building 65	PTZ*	Observe traffic on main road south of Building 65
Building 116	PTZ	Observe traffic on main road west of Building 116
Building 47	PTZ	Observe traffic on entrance/exit road to incinerator
Building 41	PTZ, Fixed	Observe employee entrance in Building 41 east lobby
Building 41	Fixed	Employee pass reader in Building 41 east lobby
Building 116	PT	Observe employee entrance in Building 116 lobby
Courtesy Gate, Main Parking Lot	Fixed	Observe employee entrance
Building 22	PTZ, Fixed	Observe Building 22 stockroom

*PTZ - plan, tilt, and zoom; PT - plan, tilt

All of the above are displayed in Building 65 which is staffed 24 hours a day.

F-1a (2) Barrier and Means to Control Entry

F-1b (2) (a) Barrier

The entire developed portion of the 3M Chemolite site is enclosed within a single seven-foot high, chain-link fence topped by three strands of barbed wire. The main entrance to the plant is County Road 19 with a checkpoint at Building 65. This is normally the only entrance/exit to the plant. In an emergency, there are three other access points which can be used for vehicular entrance or exit. These secondary entrances are shown in Figure B-1 and are located as follows:

1. Keats Road with gates at the railroad underpass.

2. Miller Road with a gate due north of Building 123.

3. Road to Cottage Grove Wastewater Treatment Plant with a gate northwest of the coal storage area.

There are two other gates in the perimeter fence which access deadend roads. These gates are also shown on Figure B-1. The gate east of the wastewater treatment area is used to provide access to the Mississippi River for sampling purposes. Access to Production Wells 5 and 6 is provided by a gate which is located in the vicinity of Building 36. With the exception of the main entrance, all gates are normally locked.

Within the perimeter fence, the incinerator and its associated storage areas are enclosed with a second fence similar to that previously described. Three gates are provided for access. The main entrance gate is remotely controlled from the Building 65 security center. A second gate has been provided for access to the boiler ash landfill. The third gate is provided as an emergency exit and is located northwest of the coal storage area.

Figure B-1 shows the location of the facility barriers.

F-1a (2) (b) Means to Control Entry

All vehicles entering the plant are initially cleared through the Building 65 security center. Employees must show their identification cards as they drive through while contractors and other visitors are stopped and instructed to register in Building 116.

As a rule, vehicular traffic is not allowed within the plant proper (i.e., beyond Building 116). Exceptions are as follows:

1. Trucks making deliveries or picking up materials.

2. 3M maintenance vehicles.

3. Contractors' vehicles (only when equipment or supplies must be brought into the plant).

4. Each division has been issued two "in-plant" parking passes for personal vehicles. These passes are issued to individuals by the respective plant managers based on need.

A shuttle van service is used from 6:30 a.m. to 4:30 p.m. to move 3M employees and visitors about in the plant.

Employees enter the plant proper at four locations:

1. Building 116 lobby.

2. Building 41 east lobby.

3. Courtesy gate in southeast corner of main parking lot.

4. Bldg. 47 office complex.

All of the above have turnstyles which are operated by employee passes coded with magnetic strips. All locations are also monitored by television cameras from the Building 65 security center.

Employees working in Buildings 123 and 47/60 report directly to their work area where parking is provided for personal vehicles. The south-viewing Building 65 camera and the camera on the incinerator entrance gate are used to monitor traffic on the road to the incinerator.

As stated previously, all visitors and non-Chemolite 3M employees must register on log sheets in Building 116. Temporary daily passes are then issued for each visitor to wear on their person. When leaving the plant, each visitor must turn in their pass and sign out.

F-1a (3) Warning Signs

Signs which are legible from a distance of 25 feet are posted at all fence gates and several other fence locations around the active portion of the facility; these signs are visible from all angles of approach and bear the legend "Danger - All Unauthorized Personnel Keep Out." Also "No Smoking" signs which are legible for a distance of 25 feet have been placed in the container storage areas.

F-1b Waiver

The 3M Company does not request a waiver of the requirements stated in Part 264.14 (a) (1) and (2) regarding injury to intruder and violation by intruder.

F-2 Inspection Schedule

F-2a General Inspection Requirements

The 3M Company security guards and supervisory personnel conduct regular inspections of the facility for equipment malfunctions, structural deterioration, operator errors and discharges that could cause or lead to the release of hazardous waste constituents and adversely affect the environment or threaten human health.

F-2a (1) Types of Problems

Table F-1 presents the schedule for inspecting monitoring equipment, safety and emergency equipment, security devices, operating and structural equipment, container storage areas, the tank storage areas, bulk feed storage area, and incinerator. The items listed in the table are considered important because of their role in preventing, detecting or responding to environmental or human health hazards.

F-2a (2) Frequency of Inspection

Also provided in Table F-1 is a recommended frequency of inspection for each item.

F-2b Specific Process Inspection Requirements

Figure F-3 shows the inspection log which is used at the incinerator. Information requested on the log sheets includes the inspector's initials, date and time of inspection, item(s) of inspection, and status of the item(s). Any items which are found to be unsatisfactory are noted in the incinerator operating log which is shown in Figure F-4. The notation will include all pertinent observations and a description of the remedial action taken. The operating log also functions as a secondary inspection log. The existing operating log will be changed in the future to incorporate permit requirements, capabilities of the process computer, and the new APC equipment.

F-2b (1) Container Inspection

The procedure for inspecting containers involves walking throughout each of the seven container storage areas shown on Figure B-1. As this is done, each individual trailer is visually inspected for evidence of container leakage within or structural deterioration. In addition, the integrity of the storage areas themselves is noted. For storage area S-1* and S-7*, the dike drainage valve is checked to ensure that it is in its normally closed position. The quantity and quality of accumulated precipitation is also checked to see if drainage is required and allowable. Inspection of storage area S-3* involves noting the water level and quality in the runoff holding pond. Storage area S-2* is examined for general integrity of the asphalt pad (erosion, cracking, etc.).

As noted in Table F-1, container storage areas will be inspected on a daily basis. Results of each inspection will be recorded on inspection log sheets entitled, "Chemolite Center Incinerator- Inspection Log" (Figure F-3). Upon completion of the inspection log sheets, they will be inserted in an inspection log.

* A complete description of each storage area is provided under Item F-4b (1).

TABLE F-1. INSPECTION SCHEDULE

Area/equipment	Specific item	Types of problems	Frequency of inspection
Monitoring equipment	Flow rate and liquid level indicators	Readings outside of acceptable range	Daily
	pH indicator	Readings outside of acceptable range	Daily
	Pressure sensors	Readings outside of acceptable range	Daily
	Thermocouples	Readings outside of acceptable range	Daily
	CO, O_2, CO_2 monitors and recorders	Readings outside of acceptable range	Daily
	High-level alarms	Readings outside of acceptable range	Daily
Safety and emergency equipment	55-gallon steel drums, empty	Corrosion, structural damage	Monthly
	Emergency shower and eyewash stations	Water pressure, leakage, drainage	Monthly
	Face shield and extra protective eyeglasses	Broken or dirty equipment	Monthly
	Self-contained breathing apparatus	Low air quantity in reserve air delivery system, moisture in tank	Monthly
	Fire blankets	Out of stock	Monthly/as used
	Fire extinguishers	Needs recharging	Semiannually/after each use
	CO_2 fire protection system	Pressure, leakage	Semiannually
	Telephone system	Power failure	Per NFPA
	First aid equipment and supplies	Items out of stock or inoperative	As used
	Safety equipment (protective clothing, gloves, boots, etc.)	Holes, normal wear and tear	As used
	Emergency lighting	Burned out bulb	Every 5 weeks
	Sprinkler system	Water pressure, leakage	Bimonthly
	Spill equipment (sand, sand bags, booms, floor dry)	Out of stock	Monthly/as used
Security devices	Facility fence	Damage to chain-link fence or barbed wire	Daily
	Two-way radios	Not operational	Upon failure
	Facility lighting	Burned out bulb	Daily
Operating and structural equipment	Ventilation equipment	Functional, corrosion, deterioration	Weekly
	Dikes	Deterioration, chipping, spalling, leaks	Daily
	Trailers	Deterioration, leaks	Daily
	Foundation structures	Deterioration, chipping, spalling, leaks	Daily
	Ramps	Deterioration, cracks, spalling of concrete	Daily
	Tank structural support	Concrete deterioration and cracking, corrosion of pipe supports	Daily
	Piping to holding tanks	Loss of metal thickness, leaks, corrosion or deterioration	Daily
	Storage areas	Leaks, spills	Daily
	Sump pumps	Power, clogging	Weekly

(continued)

TABLE F-1 (continued)

Area/equipment	Specific item	Types of problems	Frequency of inspection
Container storage areas	Container placement and stacking	Aisle space, height of stacks	Daily
	Sealing of containers	Open lids	Daily
	Labeling of containers	Improper identification, date missing	Daily
	Containers	Corrosion, leakage, structural defects	Daily
	Base or foundation	Cracks, spalling, uneven settlement, erosion, wet spots	Daily
	Segregation of wastes	Storage of pumpable wastes in nonpumpable storage area	Daily
	Dike drainage valve (S-1)	Open position	Daily
	Runoff holding pond (S-3)	Inadequate capacity	Daily
Tank storage area, blending tanks, and decant tank	Pumps	Temperature, leaks, vibration	Daily
	Pipes	Leaks, corrosion, deterioration	Daily
	Valves	Leaks, corrosion, deterioration	Daily
	Tank shell (external)	Corrosion, erosion, leaks	Daily
	Tank shell (internal)	Corrosion, erosion, leaks	Daily
	Pipe connections	External corrosion, cracks, distortion	Daily
	Anchor bolts	Distortion, corrosion	Daily
	Containment dikes	Deterioration	Daily
	Dike drainage valve	Open position	Daily
Bulk feed storage area	Dike	Corrosion, leakage, structural defects	Daily
	Base or foundation	Cracks, spalling, uneven settlement, erosion	Daily
	Valves	Leaks, corrosion, deterioration	Daily
Incinerator	Pumps	Leaks, vibrations, pressures	Daily
	Pumps	Bearings and seal wear	Annual
	Drive feed unit	Not operational	Daily
	Fans	Vibration	Daily
	Fans	Bearings, balance	Annual
	Instruments	Not operational	Daily
	Instruments	Calibration	Monthly
	Process equipment	Condition, not operational	Daily
	Interior shell	Refractory condition	Bimonthly
Miscellaneous	Infrared pyrometers	Readings outside of acceptable range	Monthly
	pH probes	Calibration	Monthly
	Lime storage and feed	Leaks, deterioration, corrosion	Daily

Figure F-3

Chemolite Center Incinerator - Inspection Log
Daily Checklist

Form 27198 - PWO

Month

Check if satisfactory (√) (X) if unsatisfactory. Note probelm in operating log.	Day																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Inspector Initials																															
Time																															
I. Monitoring Equipment																															
Flowmeters																															
1. Flue Gas																															
2. Burner Fuel																															
3. Scrubber Water																															
Tank Level Indicators & Alarms																															
Thermocouples																															
Pyrometers																															
Pressure Sensors																															
CO, O_2, & CO_2 Monitors																															
pH Monitors																															
II. Safety & Emergency Equipment																															
Spill Equipment																															
Bypass Stack																															
Emer. Shutdown System (Weekly)																															
III. Operating & Structural Equipment																															
A. Incinerator Bldg.																															
Drum Unloading Pumps																															
Drum Staging Areas																															
Shredder																															
B. Tanks & Tanker Unloading																															
Pumps																															
Piping																															
Tanks (Exterior)																															
Dikes																															
Drainage Valves (Closed)																															
C. Container Storage Areas																															
Trailers																															
Dikes																															
Drainage Valve																															
IV. Miscellaneous																															
Lime Storage & Feed																															
Lift Station Pumps																															
Lift Station Piping																															

Figure F-4

Chemolite Center Incinerator Daily Operating Log

Form 27198 PWO

Date _____

Shift & Operator Initials	Time	Temperatures (°F)									Draft Readings (°H₂O)								Scrubber Water Flows (GPM)									WESP				Wastewater			Remarks
		Kiln Brick	M.C.	Sec.	Boiler In	Boiler Out	Quench	WESP	Fan	Ash Quench	F.C.	F.D.	M.C.	Sec.	Boiler	Venturi Δp	Demister Δp	Fan	Quench 1	Quench 2	Quench 3	Quench 4	WESP	Venturi	Demister Top	Demister Bottom	Well	Millamps High	Millamps Low	Kilovolts High	Kilovolts Low	Lime Status	pH In	pH Out	
1 (7 - 3)	7		>1700						<90							>16																	
___	11																																
2 (3 - 11)	3																																
___	7																																
3 (11 - 7)	11																																
___	3																																

Shift	Time	Waste Heat Boiler									Kiln		Fan		Flue Gas (Avgs)				By-Pass Usage		Other Setpoints		Lubricating Oil		Remarks
		Steam Generated #s/Hr	Steam Generated °F	Steam Generated PSI	Steam to Plant °F	Steam to Plant PSI	Feedwater PSI	Feedwater Deaer °F	Feedwater Econ °F	Turbine KWH	Speed Setting	Amps	Amps	Vibr. Mills	CO_2 %	O_2 %	CO ppm	Flow SDCFM	Time Hrs.	Cause	Item	Setting	Location	Status	
1	7																	<40,000					Pak-Feeder		
	11																						Air Compressor		
2	3																						Trunnions		
	7																						I.D. Fan		
3	11																								
	3																						Shredder		

Shift	Time	Burner Information							Tank Levels													Pak-Feeder			Bulk Feed		Pumpable Samples*		Remarks
		Burner A Fuel	Burner A Totalizer	Burner B Fuel	Burner B Totalizer	Burner C Fuel	Burner C Totalizer	Pumps In Use	Blend 1	Blend 2	Blend 3	Storage 4	Storage 5	Storage 6	Storage 7	Storage 8	Burner Supply 9	Burner Supply 10	Burner Supply 11	Burner Supply 12	Decant Status	Runtime Hours	No. of	Pounds	Material	CY	Material	Time	
1	7																						Drums						
	11																						Pails						
																							Boxes						
2	3																						Drums						
	7																						Pails						
																							Boxes						
3	11																						Drums						
	3																						Pails						
																							Boxes						

Avg 22/hr (Hazardous)

*One Pint Samples

Steam Totalizer @ 7:00 a.m. _____

SDCFM - Standard Dry Cubic Feet Per Minute
KWH - Kilowatt Hours
PPM - Parts Per Million
F.C. - Feed Chute
F.D. - Forced Draft
I.D. - Induced Draft
CY - Cubic Yards
Sec - Secondary
M.C. - Mixing Chamber
Deaer - Deaerator
Econ - Economizer
WESP - Wet Electrostatic Precipitor
Vibr - Vibrations
PSI - Pounds Per Square Inch
> Greater Than
< Less Than

1349.0142

3MA00152691

F-2b (2) Tank Inspection

The procedure for inspecting storage tanks involves visually examining each tank and its associated piping, connections, valves, etc., for indications of leakage. All tanks are located aboveground and are easily accessible to facilitate thorough inspections.

In addition to the tanks themselves, the containment dikes are examined for general integrity and evidence of tank leakage. The dike drainage valve is checked to ensure that it is in the normal closed position.

As noted in Table F-1, tank storage areas will be inspected on a daily basis. Results of each inspection will be recorded on inspection log sheets entitled, "Chemolite Center Incinerator-Inspection Log" (Figure F-3). Upon completion of the inspection log sheets, they will be inserted in an inspection log.

F-2b (3) Waste Pile Inspection

3M normally operates one waste pile. The material in the waste pile is nonmagnetic incinerator ash which is temporarily stored at the facility prior to ultimate disposal in a secure landfill. This waste pile is maintained in the bulk solids feed building (see Figure F-6) and is used to accumulate truckload quantities of ash for shipment off-site. The maximum volume for this waste pile is about 150 cubic yards. At times, a second waste pile is maintained in the lower ash house (see Figure F-6) and is used to accumulate a daily quantity of ash or less. The maximum volume for this waste pile is about 50 cubic yards. Both waste piles are contained within buildings so precipitation run-on is precluded. Runoff from the waste piles is minimal and is contained and treated in the incinerator wastewater treatment system.

F-2b (4) Incinerator Inspection

Incinerator inspections will be conducted according to the inspection schedule provided in Table F-1. Results of each inspection will be recorded on inspection log sheets entitled, "Chemolite Center Incinerator-Inspection Log" (Figure F-3). Upon completion of the inspection log sheets, they will be inserted in an inspection log. In addition to the inspection log, the lead operator also completes the daily operating log (Figure F-4) every four hours. In this fashion, the operating log serves as a secondary inspection log.

F-2c Remedial Action

If inspections reveal that non-emergency maintenance is needed, they will be completed as soon as possible to preclude further damage and reduce the need for emergency repairs. If a hazard is imminent or has already occurred during the course of an inspection or any time between inspections, remedial action will be taken immediately. 3M Company personnel will notify the appropriate authorities per the Contingency Plan (see Section G) and initiate remedial actions. In the event of an emergency involving the release of hazardous constituents to the environment, efforts will be directed towards containing the hazard, negating it, and subsequently decontaminating the affected area. Procedures described in the Contingency Plan (Section G) will be followed. Refer to the Contingency Plan for further details.

F-2d Inspection Log

Inspection logs are maintained for each calender year and are always kept with the inspection schedule at the incinerator facility. As required by law, records of inspection are kept for at least three years from the date of inspection. Copies of the inspection log sheet is shown in Figure F-3.

F-3 Waiver of Preparedness and Prevention Requirements

The applicant does not request a waiver of the preparedness and prevention requirements under 40 CFR §264 Subpart C. Requirements of this subpart are primarily addressed in Section D, Section F and Section G of this application.

F-3a Equipment Requirements

Internal and external communications, emergency equipment and fire control equipment are discussed in Section G and elsewhere in this section.

F-3b Aisle Space Requirements

As many as 500 drums of waste can be staged in the Incinerator Material Handling Building. The general floor plan for the building is shown in Figure F-5. Two areas for drum staging are identified on the figure. Area A is used for containers that do not contain free liquids and normally holds slightly more than 300 drums. Flammable liquids are staged in Area B which has a capacity of about 200 drums. Wastes that enter the building are normally burned within 24 hours. Over holiday weekends, the detention time may reach a maximum of 3 days.

Because the waste handling process at the Material Handling Building is a staging operation and not drum storage, NFPA 30 does not appear to apply to this operation. However, many of the recommended guidelines from NFPA 30 have been adopted. These include:

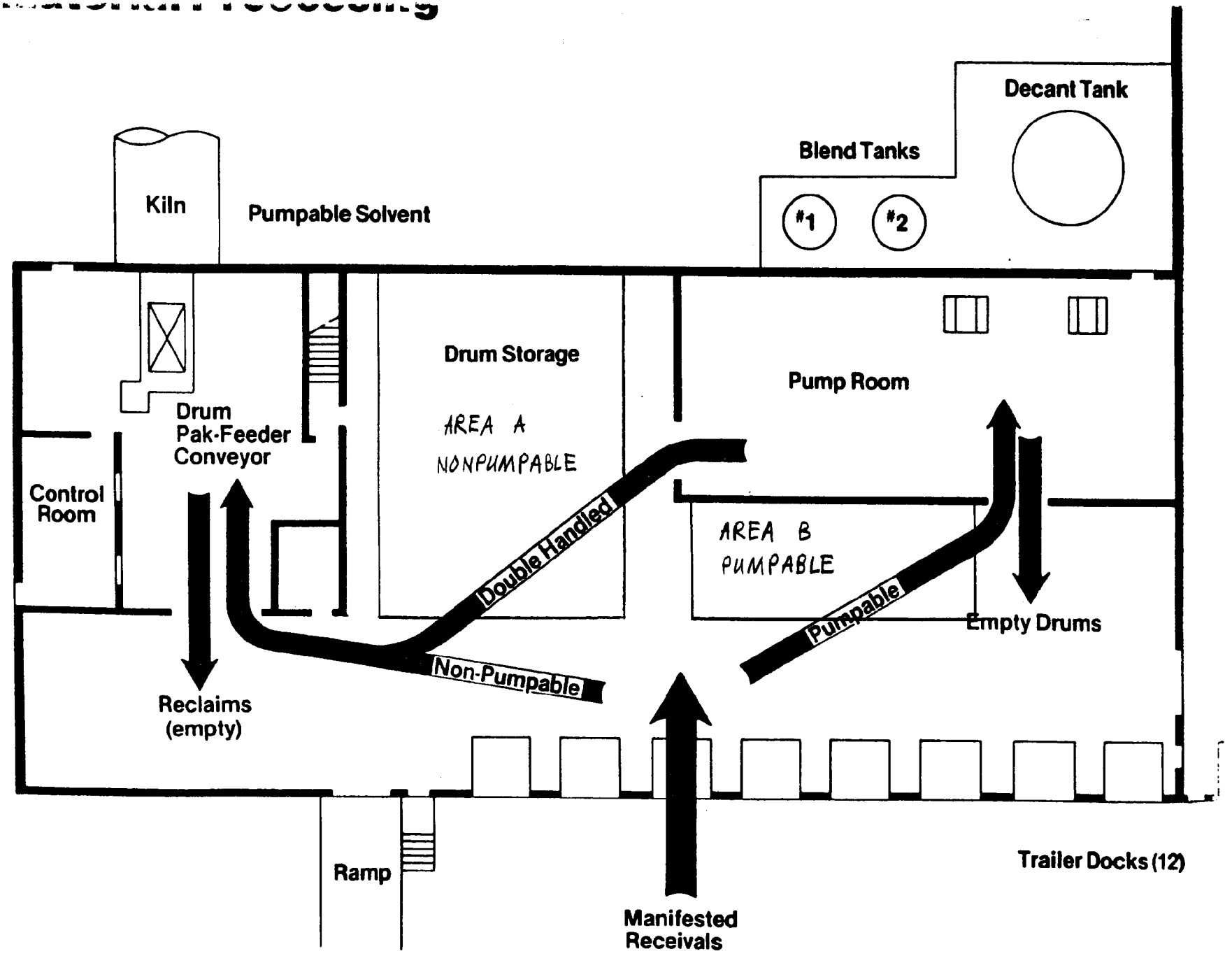


FIGURE F-5

1. Eight foot wide main aisles are maintained in front of the truck docks, to and from the pump room, to the adjacent warehouse, and in front of the drum feeder conveyor.

2. Drums are stored a maximum of two high.

3. Secondary aisles are provided for drum inspection and access in the unlikely event of a spill or fire.

4. Contiguous groupings of drums are restricted to a maximum quantity of 5,000 gallons.

Rows of drums do not exceed eight feet in width. Aisles between rows of drums are three feet wide. In addition to the above, the entire building is protected by an automatic sprinkler system and proper ventilation is provided, thus minimizing the fire risk.

F-4 Preventive Procedures, Structures and Equipment

F-4a Loading/Unloading Operations

Loading operations at the facility occur mainly in the production areas. Spills are unlikely during loading operations; however, in the event of an accident, the material will be contained with 3M Oil Sorbent or other absorbant material. Spill cabinets are generally located in close proximity to loading docks.

The areas that involve unloading operations at 3M Chemolite are the loading docks at the Material Handling Building and the incinerator waste solvent tank farm.

Several precautions have been taken to reduce the potential for hazards during unloading operations at the Material Handling Building. First, off-load ramps have been designed and constructed to facilitate movement of a forklift truck in and out of storage trailers. Second, adequate aisle space is maintained at all times. Third, trailer wheels are chocked and dolly braces are placed underneath the front of the trailer for support in the event of a leg failure.

The unloading of bulk shipments of liquid waste at the incinerator waste solvent tank farm has been safeguarded in numerous ways. All seven 12,900 gallon storage tanks have been located within a concrete lined and diked storage area. In addition, all seven tanks have been built with continuous readout level indicators. The output for these indicators is remotely displayed in the incinerator control room. One of the tanks is used as an overflow tank for the rest of the system. This tank is normally left empty and is connected by overflow piping to the other taks. A high level alarm on the overflow tank is used to alert the incinerator operators that

an overflow condition exists. When a tank truck arrives for unloading, the incinerator operators choose one of the waste storage tanks to unload into based on the tank levels. An operator supervises the unloading procedure from beginning to end. The unloading area is paved, diked, and drains to a concrete sump. Figure D-12 shows the design and dimensions of this unloading area.

Spill containment supplies and fire extinguishers are kept in close proximity to the tanker unloading station. In addition, all the incinerator operators receive SPCC training (see Section 4).

F-4b Runoff

F-4b (1) Container Storage Areas

Container storage at the Chemolite facility is accomplished in the areas shown on Figure B-1. At all seven areas, containers are placed in truck trailers to prevent precipitation from contacting the containers.

Area S-1 and S-7 are clay lined and diked area which are used for the storage of 3M Special Scrap, nonpumpable, and pumpable wastes. Runoff from each storage area is drained by design to one corner of the storage pad where a valve is used to control the discharge. The drainage valve is only opened when:

1. Routine inspections of the area have not revealed any accidental discharges,
2. A visual inspection of the accumulated water reveals no contamination, and
3. The accumulation of water impairs normal facility operation.

As soon as drainage is complete, the valve is returned to its normal closed position.

Storage area S-3 is also a clay lined area which is used for the storage of 3M Special Scrap, nonpumpable, and pumpable wastes. Runoff from this area is collected in the holding pond shown in Figure B-3. Discharge from the holding pond is only allowed when routine inspections of the area have not revealed any accidental discharges and a visual inspection of the accumulated water reveals no contamination. The accumulated water can be pumped to either the cooling water pond or the wastewater treatment system.

Storage area S-2 is a paved storage pad which is used for the storage of nonhazardous wastes and nonpumpable wastes which are known to contain no free liquids. Since this material is nonhazardous and/or nonliquid and contained in trailers, no provisions are deemed necessary for the collection of runoff. Storage areas S-4, S-5, and S-6, were constructed using geo-textiles to receive the wastes from the Oakdale Superfund cleanup, and store the Oakdale soil after decontamination. Either containers of ash or trailers are currently stored in these areas.

F-4b (2) Waste Pile Area

The waste pile areas previously described in Section F-2b(3) are both located within buildings, thereby precluding the possibility of precipitation run-on. The moisture content of the waste is relatively low, minimizing the amount of runoff generated. Any runoff that does result is contained and treated in the incinerator wastewater treatment system.

F-4c Water Supplies

Groundwater and surface water contamination is eliminated by preventing the discharge of hazardous materials onto the unprotected ground. Any accidental discharges that do occur are promptly cleaned up. Section F-4b describes some of the system design details which have been implemented to prevent water supply contamination. Routine sampling and analysis of all water supplies is used to monitor water quality at the site.

F-4d Equipment and Power Failure

In the unlikely event of a power interruption, the incinerator goes through an automatic shutdown procedure which is designed to protect both workers and equipment in the area. Emergency lighting is provided for any power failure. Once power is restored, the normal incinerator start-up procedure is executed.

F-4e Personnel Protection Equipment

Available protective equipment is presented under Emergency Equipment and Provisions of the Contingency Plan (see Section G). Use of the protective equipment is covered in the initial and annual Personnel Training Programs (see Section H), which satisfies the Occupational Safety and Health Standards of 29 CFR Part 1910 Subpart I--Personal Protective Equipment.

F-5 Prevention of Reaction of Ignitable, Corrosive, Reactive and Incompatible Wastes

F-5a Precautions to prevent Ignition or Reaction of Wastes in Containers

All waste materials received at the Chemolite Incinerator are to be properly labeled and packaged in compatible containers. Proper packaging greatly minimizes the possibility of internal ignition of the waste. To minimize the possibility of external ignition, all material handling areas are well ventilated and "No Smoking" signs are posted wherever ignitable waste are stored. Spark resistant tools (brass hammers, wrenches, etc.) are used on all containers and tanks storing ignitable materials. Correct labeling helps to

ensure that materials are properly handled, stored and disposed. Containers are normally stored on pallets to minimize contact with precipitation or accidental discharges. In addition, they are seldom stacked more than two containers high and adequate aisle widths are maintained to minimize the risk of a forklift scraping or puncturing any container.

The two areas where ignitable waste containers are opened for processing are the pakfeeder area for nonpumpable wastes and the pumproom. Both locations are restricted as Class I, Group D areas. All equipment used in these areas during normal operations must meet or exceed the Class I, Group D rating.

All container storage areas are located a minimum of 700 feet from the closest company property line (Figure B-1), which complies with the National Fire Code Standards for outdoor storage of containers holding ignitable or reactive wastes.

Special procedures have been set up to minimize the hazards associated with the handling and disposal of "Special" waste (see Section C for excerpts from the 3M Waste Disposal Procedures Manual). "Special" wastes include such materials as explosives, poisons, oxidizers, compressed gases, carcinogens, biological wastes and substances which may react violently or explosively with water or which may be capable of polymerizing violently. All "Special" wastes are stored either in designated "Special" waste trailers based on compatibility, or segregated in DOT categories in the back room of Bldg. 60. Figure F-5 is a floor plan of the container staging area which shows the segregation of wastes into classified areas.

F-5b Precautions to Prevent Ignition or Reaction of Wastes in Tanks

When a waste is determined to be reactive or polymerizable, it can be introduced into the incinerator by one of the following two methods:

1. If the waste is pumpable and there is a significant quantity, the waste can be pumped into one of the three blend tanks and from the blend tank, into the rotary kiln. In this mode, no other wastes are mixed in the blend tank, thus preventing undesirable reactions.

2. If the waste is nonpumpable, small in quantity, or for some other reason it is undesirable to open the drum, the waste can be left in the drum and placed on the semiautomatic drum feed conveyor for delivery into the rotary kiln.

Reactive and polymerizable wastes are generally not pumped to the waste solvent storage tanks. The aforementioned procedures have proven to be successful in minimizing waste incompatibility problems in the various incinerator tanks.

If a waste is thought to be potentially reactive or polymerizable, a simple jar test may be employed to ensure proper handling. A sample of waste liquid from a candidate storage tank will be taken and placed in a small container. Minute but increasing amounts of the test waste will then be slowly added to the storage tank solution. If the wastes are compatible, then the material will be pumped to the selected storage tank. If the wastes appear to be incompatible, then alternate means of processing will be investigated. It should be noted that incompatibility (when it occurs) between 3M wastes is generally characterized by dramatic increases in solution viscosity or solidification rather than violent reactions.

F-6 OSHA Requirements

F-6a Hazard Communication Program

In order to provide the highest possible level of worker health and safety, a hazard communication program is being developed for all employees at the incinerator facility. This program will meet the requirements of 29 CFR 1910.1200. Included in the program will be explanations of the various hazards present in wastes received at the incinerator, instruction on how and where to obtain information on waste hazards, and training on precautionary measures to be used to safeguard against each type of hazard. MSDS information on 3M raw materials, intermediates, and finished goods is currently available on microfiche maintained at the facility. For specific information on the content of the hazard communication program, see Section H, Personnel Training.

F-6b Medical Surveillance Program

3M has long had a medical surveillance program for the purpose of detecting adverse health effects, especially those caused by hazards in the work environment. The existing program is being reviewed to ensure compliance with 29 CFR 1910.120. At least annual medical examinations and consultations will be provided for every incinerator employee. Records will be kept according to the criteria set forth in 29 CFR 1910.20.

F-6c Safety and Health Program

A formal safety and health program exists for workers at the incinerator facility. This program has been designed to identify, evaluate and control safety and health hazards at the site. Table F-2 illustrates the portion of the program relating to industrial hygiene. In addition, emergency response procedures are periodically reviewed to ensure employee protection in the event of an incident. This program is being reviewed to ensure compliance with 29 CFR 1910.120.

Table 7-2

INDUSTRIAL HYGIENE PROGRAM
PLANT ENGINEERING - CHEMOLITE INCINERATOR - CHEMOLITE, MN

Activity	OSHA Requirement	Frequency	Responsibility I.H.	Responsibility Plant	1985/86 Schedule for Activity
I. PLANT SURVEYS/AIR SAMPLING					
A. FULL FACILITY SURVEY - including overall program audit; noise, dust, solvent vapor, and/or other sampling; written report.		Annual	X		3rd Quarter
B. ROUTINE AIR SAMPLING - recommended for maintaining current information on substances or operations of special concern.					
1. Solvent Vapor Sampling - Pak & Feed Line and Pump Room - solvent waste handling (OVM).	X	Quarterly		X	Rotate the shifts surveyed - 1st Q - 1st shift. 2nd Q - 2nd shift. 3rd Q - 3rd shift. 4th Q - 1st shift. Record the amount (# of barrels) and the typ and chemical waste handled.
C. SPECIAL AIR SAMPLING - recommended for defining worker exposures during new or unusual waste handling and reevaluating exposures covered by recent health hazard alerts; for coverage of specific problems, concerns, or complaints; or for other special projects.					
1. New or unusual waste - solvent or material (OVM or Impinger).		As needed	X	X	As needed

Activity		OSHA Requirement	Frequency	Responsibility I.H.	Responsibility Plant	1985/86 Schedule for Activity
	2. Asbestos dust sampling. During any demolition/removal of asbestos insulation (filter samples).	X	As needed		X	As needed
	3. Total particulate and metal dust exposure - WARCO personnel - Ash Pit.		Initial		X	By the end of 4th Q 1985
	4. Coverage of specific complaints or concerns that may arise.		As needed		X	As needed
II.	HEARING CONSERVATION PROGRAM					
	A. AREA NOISE MONITORING to maintain current information throughout the plant.	X	Initial		X	Complete by end of 4th Q 1985
	B. NOISE DOSIMETRY MONITORING.	X	Initial		X	Sample each job classification in the facility with exception of Fork Truck Operators. Complete by end of 4th Q 1985.
	C. EDUCATION AND TRAINING, including presentation of videotape; review of plant noise exposure information; description of ear protectors available, instructions on proper use and fitting, and review of plant policies on usage.	X	If needed	X	X	If determined to be necessary based on monitoring results.
	D. SPECIAL NOISE DOSIMETRY MONITORING to check effectiveness of noise control efforts in areas where TWA exposures are $\geq$ 90 dBA or to check exposures following equipment or process changes.	X	As needed		X	As soon as possible after changes.

Activity	OSHA Requirement	Frequency	Responsibility I.H.	Responsibility Plant	1985/86 Schedule for Activity
E. POSTING OF OSHA NOISE STANDARD, including Hearing Conservation Amendment.	X	Continuous		X	Leave posted
F. AUDIOMETRIC TESTING.	X	Annual - if needed		X	If necessary, coordinated by Rena Glaser - Medical Dept.
III. RESPIRATOR PROGRAM					
A. WRITING OF RESPIRATOR PROGRAM, including records specified in Section X.	X	As needed		X	3rd Q 1985
B. EDUCATION AND TRAINING sessions for employees wearing respirators on the job; including presentation of the videotape programs, a "hands on" respirator identification session, and qualitative fit testing. Workers in the following departments should be covered.	X	Initial Annual		X	4th Q 1985
C. PROGRAM REVIEW, including survey of use, storage, maintenance, and cleaning.	X	Annual	X	X	4th Q 1985
IV. CHEMICAL HAZARD INFORMATION PROGRAM					
A. FEDERAL HAZARD COMMUNICATION STANDARD REQUIREMENTS**					
1. WRITTEN HAZARD COMMUNICATION PROGRAM, describing how standard requirements will be met.	X	Develop		X	Must be available upon request

Activity		OSHA Requirement	Frequency	Responsibility I.H.	Responsibility Plant	1985/86 Schedule for Activity
2.	UPDATING OF LISTS OF WASTES, and other hazardous chemicals being handled in facility.	X	Continuous		X	Must be available upon request
3.	COMPILATION OF MATERIAL SAFETY DATA SHEETS or equivalent information for all hazardous chemicals.	X	Continuous		X	Must be available upon request - microfiche of all raw materials
4.	INDEXING of MSDS's on file, periodic review to identify any MSDS's not available in plant.		Quarterly (updating)		X	1st-4th Quarters
5.	DISTRIBUTION OF MSDS's and general health and safety information to workplace locations for easy worker access to needed information.	X	Continuous		X	As information received
6.	LABELING OF CONTAINERS of hazardous waste chemicals with identity in accordance with the approved hazardous waste program.	X	Continuous		X	
7.	MAINTENANCE OF UP-TO-DATE PROCEDURES and other written information describing potential hazards and measures to be taken to minimize these hazards.		Continuous		X	Review General Procedures annually (4th Q). Review Process Standards as updated or as new information dictates.
8.	METHODS FOR INFORMING EMPLOYEES about hazards of non-routine tasks and for informing contractors about hazards in plant.	X	Must be defined		X	Must be available and in use as needed

Activity	OSHA Requirement	Frequency	Responsibility I.H.	Responsibility Plant	1985/86 Schedule for Activity
9. EMPLOYEE EDUCATION AND TRAINING, including information on the requirements of the standard, identification of work areas where hazardous chemicals are present, details of the written hazard communication program, description of methods used to detect hazardous chemicals, explanation of how to access and use MSDS's (Chemical Hazard Videotape and pamphlet available), explanation of how employees can protect themselves (Chemical Handling videotapes, Safe Procedures, Process Safety Messages, etc.).	X	Initial		X	Upon hiring or introduction of new chemicals in process
B. MEDICAL AND EXPOSURE RECORDS REQUIREMENTS					
1. PROVISION OF PAST EXPOSURE DATA to employees.	X	Upon request		X	Within 15 days of request
2. POSTING AND REVIEW OF EMPLOYEE RIGHTS under this standard.	X	Annual		X	October-November
C. 3M POLICY ON EMPLOYEE COMMUNICATION					
1. COMMUNICATION OF RESULTS of industrial hygiene surveys and other air sampling reports to employees.		As received		X	Following receipt of reports
2. COMMUNICATION OF CORRECTIVE ACTION needed (if any) to employees.		If needed		X	Following receipt of reports

Activity	OSHA Requirement	Frequency	Responsibility I.H.	Responsibility Plant	1985/86 Schedule for Activity
D. ADDITIONAL EDUCATION AND TRAINING FOR SPECIFIC CHEMICALS					
1. ASBESTOS HANDLING PROCEDURES, videotape available for loan.	X	Periodic		X	Before demolition/ removal jobs
V. PROJECT REVIEWS AND STATUS REPORTS					
A. WRITTEN RESPONSE TO RECOMMENDATIONS in Industrial Hygiene Reports - including plant plans for improvements or a description of corrective action taken.		As needed		X	Within 6 weeks of receipt of reports
B. HAZARD REVIEW for new chemical wastes or processes entering facility.		As needed	X	X	Review changes - contact I.H. if assistance needed
C. REVIEW OF ENGINEERING CONTROL PROJECTS, new processes, new materials.		As needed	X	X	Upon request
D. REVIEW OF MATERIAL SAFETY DATA FILE - Status Report.		Annual	X		3rd Q
E. REVIEW OF INDUSTRIAL HYGIENE PROGRAM proposals for upcoming year.		Annual	X	X	3rd Q
VI. IN-PLANT INSPECTIONS					
A. PREVENTIVE MAINTENANCE on local exhaust systems, including filter changes and airflow checks.		Semi-annually		X	Continuous

Activity	OSHA Requirement	Frequency	Responsibility I.H.	Responsibility Plant	1985/86 Schedule for Activity
B. SUPERVISORY ENFORCEMENT of existing respirator, ear protector, eye protection, impervious glove, and other protective equipment usage; notification of proper work practices where needed.		Daily		X	Continuous
C. FACILITY INDUSTRIAL HYGIENE-SAFETY TOUR. Observe protective equipment use, work practices, exhaust system use and performance, etc.		Quarterly		X	Continuous

RECOMMENDED EQUIPMENT FOR IN-PLANT SAMPLING

PURCHASE

3M 3500 Organic Vapor Monitors (20) (OH&SP Stock #70-0700-3214-2)
3M 3520 Organic Vapor Monitors (5) (OH&SP Stock #70-0700-6199-2)

LOAN AVAILABILITY - I.H.

Sound Level Meter; General Radio 1565-B or equivalent
3M 6230 Personal Noise Dosimeters (2) (OH&SP Stock #78-8029-4305-6)
3M 6240 Noise Dosimeter Reader/Calibrator (1) (OH&SP Stock #78-8029-4305-6)
3M 6244 Reusable Dosimeter Attachments (2) (OH&SP Stock #78-8029-4413-8)
MSA (or equivalent) portable air sampling pump; flow rate 1-3 Lpm range
Filter cassettes with Millipore® filters
Velometer or Anemometer for air velocity measurements (1)
Rotameter (0-4 Lpm) for calibration of MSA pump (1)

IH18.26

F-6d Decontamination Procedure

In order to minimize health and safety hazards following an incident, a formal decontamination procedure will be implemented. This procedure will include definition of the contaminated area and methods for the decontamination or disposal of protective clothing and equipment, tools and process equipment.

Under normal work conditions, employees wear disposable gloves, uniforms, and safety shoes or work boots. The uniforms are laundered on-site and lockers are provided for all work apparel. All workers are allowed to shower at the end of their shift. These procedures are followed to guard against off-site contamination.

SECTION G

CONTINGENCY PLAN

The information contained herein is submitted in accordance with the requirements for a Contingency Plan, as contained in 40 CFR 270.14(b)(7) and 264 Subpart D.

Contingency Plan [40 CFR 270.14(b)(7)]

The intent of 264 Subpart D (Contingency Plan and Emergency Procedures), of RCRA is to ensure that facilities that treat, store, or dispose of hazardous wastes have established planned procedures to follow in the event an emergency situation should arise.

G-1 General Information

This contingency plan is for the 3M Chemolite plant, Highway 61 and Chemolite Blvd., Cottage Grove, Minnesota 55016. The 3M Company, St. Paul, Minnesota, is the owner and operator of the facility. 3M Chemolite Security can be reached on a 24-hour basis, 7 days a week at (612)458-2244 (458-2222 to report an emergency).

The 3M Chemolite Incinerator facility stores waste materials in several locations. A general site plan and a full description of the facility is contained in Section B. 3M Chemolite has traditionally maintained a close working relationship with the local emergency organizations, who are familiar with the general site.

G-2 Emergency Coordinators

In the event of an emergency, the first call for help should be made to site security (ext. 2222). Security will coordinate the emergency response based on the nature of the incident. In addition to this immediate notification, the division emergency coordinator should also be contacted according to the emergency call list included in this section (Table G-1). The primary emergency coordinator heads the list; alternates are listed in the order in which they will assume responsibility. Security is also responsible for contacting the emergency coordinator for the division.

G-3 Implementation of the Contingency Plan

The decision to implement the contingency plan depends on whether or not an imminent or actual incident could threaten human health or the environment. The purpose of this section is to provide guidance to the emergency coordinator in making this decision by providing decision-making criteria.

The contingency plan will be implemented in the following situations:

1. Fire and/or Explosion:

    a) A fire causes the release of toxic fumes.

REVISION DATE 10-1-85

TABLE G-1

EMERGENCY CALL LIST

BLDG./AREA: 47/60 INCINERATOR

DIVISION: PLANT ENGINEERING

PERSON FILLING OUT FORM: DOUG JOHNSON PH.#: 2203

EMERGENCY CALL LIST		EMERGENCY CALL LIST
1.	FIRE	1. FALSE FIRE ALARMS
2.	PERSONAL INJURY	2.
3.	PROPERTY DAMAGE	3.
4.	MAJOR SPILLS	4.
5.	HI/LO PH G. WEUM/*M. OSBORNE	5.
6.		6.

NAMES AND PHONE NUMBERS		NAMES AND PHONE NUMBERS
1.	SHIFT SUPERVISOR	1. SHIFT SUPERVISOR
2.	GORDY WEUM 128, 2130; 459-3770	2. GORDY WEUM (SAME)
3.	*DOUG JOHNSON 113, 2203; 825-6458	3.
4.	~~TOM PIETAS 123, 2229; 698-8764~~	4.
5.	PETE RIEHLE 2276; 439-8624	5.
6.		6.

SPECIAL INSTRUCTIONS:

* M. OSBORNE OFFICE 778-6135, HOME 439-3140

* IN THE EVENT OF FIRE, PERSONAL INJURY, PROPERTY DAMAGE PLEASE SE THAT DOUG JOHNSON IS CALLED.

3MA00152709

b) After initial attempts to control a fire, the fire continues to spread.

c) Use of fire suppressents results in contaminated runoff.

d) An imminent danger of explosion exists, that could: 1) ignite other materials; 2) release toxic materials; or 3) cause a safety hazard from flying fragments.

2. Spills or Material Release:

a) The spill causes the release of toxic vapors.

b) The spill cannot be contained on-site, resulting in offsite soil contamination and/or ground or surface water pollution.

G-4 Emergency Response Procedures

A summary of the general emergency procedures and responsibilities for the Chemolite Center is provided in Table G-2. In particular, this summary illustrates the distributed responsibility which exists during an emergency. Details relating to each step in the process are described in the following section.

G-4a Notification [40 CFR 264.56(a)]

In the event of an emergency situation, one of the emergency coordinators is notified first; subsequently, appropriate facility and corporate personnel (including 3M Chemolite's emergency response team), federal, state, and local agencies, and the fire or police departments will also be notified. In the event one of the primary emergency coordinators cannot be located, an alternate emergency coordinator will be notified.

G-4b Identification of Hazardous Wastes [40 CFR 264.56(b)]

The emergency coordinator and/or the personnel reporting the incident will attempt to identify the character, exact source, amount and affected area of the problem. The initial identification will be based on visual analysis of the material (such as by the labels and markings on containers) and location of the release.

G-4c Assessment [40 CFR 264.56(c) and (d)]

The emergency coordinator will assess possible direct and indirect hazards to human health or the environment that may result from a release, fire, or explosion. All emergency coordinators are trained to be able to evaluate hazardous situations and decide on the appropriate course of action. Depending on this hazard assessment, the emergency coordinator will notify the appropriate authorities.

TABLE G-2

3M CHEMOLITE CENTER
GENERAL EMERGENCY PROCEDURES AND RESPONSIBILITIES

In the event of an emergency, numerous decisions and/or actions will be required. These are outlined as follows:

ACTION	PERSONNEL RESPONSIBLE
1. Activate alarms - whenever there is an imminent or actual emergency situation, plant personnel must immediately activate internal alarms or communication systems.	Area workers and/or area supervisors.
2. Identify released material - whenever there is a spill, vapor release, fire, or explosion, the character, exact source, amount, and areal extent of any released material must be determined.	Area workers, area supervisors, and/or division management.
3. Assessment of hazards - the possible hazards to human health or the environment that may result from the spill, vapor release, fire, or explosion must be assessed. This assessment must consider both direct and indirect effects of the spill, vapor release, fire, or explosion; the effects of any toxic, irritating, or asphyxiating gases that are generated; and the effects of any hazardous surface water run-off from water or chemical agents used to control fire and heat-induced explosions.	Area workers, area supervisors, division management, site management, site safety coordinator, and/or corporate staff groups including Safety, Environmental Engineering and Pollution Control, Industrial Hygiene, Toxicology, and Medical.
4. Report on released material - if an emergency threatens human health or the environment outside the facility, the following apply:	
A. If evacuation of local areas may be advisable, the appropriate local authorities must be immediately notified.	Security, site safety coordinator, site management, and/or Safety Dept.
B. The MPCA's emergency response unit must be immediately notified.	Environmental Engineering and Pollution Control.

TABLE G-2 (CON'T)

. Containment measures - all reasonable measures shall be taken to ensure that fires, explosions, spills, and vapor releases do not occur, recur, or spread.	Area workers, area supervisors, division management, site emergency squad.
6. Facility monitoring - if operations are stopped in response to a fire, explosion, spill, or vapor release, plant personnel shall monitor for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment, wherever this is appropriate.	Area workers, area supervisors.

G-4d Control Procedures [40 CFR 264.52(a)]

Fire and/or Explosion - All hazardous waste storage areas are accessible by firefighting and other emergency vehicles and equipment. A paved black top road or gravel roads in good condition pass within 100 feet of each of the waste storage areas. 3M Chemolite Spill and Emergency Response Teams are on standby 24 hours a day. If a fire does break out, the plant firefighting unit will respond and fight the fire until the Cottage Grove Fire Department arrives.

The following actions will be taken in the areas affected by the fire or explosion:

1. Fire doors in building will be closed.

2. Work in the surrounding areas handling hazardous materials will cease immediately.

3. The area will be cleared of all personnel not involved in fighting the fire. Operating personnel in the area at the time a fire occurs report to their shift supervisor immediately for accountability.

4. All injured persons will be removed and medical treatment administered by qualified personnel.

In the unlikely event of a catastrophic fire, it is conceivable that the plant site would be evacuated as a precautionary measure.

Until evacuation is signaled, personnel who are not in the affected area will stay in their respective work areas.

Spills or Material Release - In the event of a major emergency involving a chemical spill, the following general procedures will be used for rapid and safe response and control of the situation.

If an employee discovers a chemical spill or process upset resulting in a vapor release, he or she will immediately report it to his/her supervisor.

The supervisor will contact security at the time of the incident. When notified, security will contact the coordinator who will obtain information pertaining to the following:

1. The material spilled or released.

2. Location of the release or spillage of material.

3. An estimate of quantity released and the rate at which it is being released.

4. The direction in which the spill or vapor or smoke release is heading.

5. Any injuries involved.

6. Fire and/or explosion or possibility of these events.

This information will help the emergency coordinator to assess the magnitude and potential seriousness of the spill or release. The emergency coordinator will then contact and deploy the appropriate plant response team or teams.

The initial response to any emergency will be to protect human health and safety, and then the environment. Identification, containment, treatment, and disposal assessment will be the secondary response.

In the event of a leak or spill in a tank area, all feed lines to the tanks will be closed. The dike surrounding the tank area has the capacity to hold the largest tank volume and any rainfall. Immediately after the spill is detected, the spill response team or emergency coordinator will determine the best method for clean-up. Disposal of the contaminated material will be in accordance with acceptable practices for that type of waste.

If for some reason a chemical spill is not contained within a dike or sump area, an area of isolation will be established around the spill. The size of the area will generally depend on the size of the spill and the materials involved. When any spill occurs, only those persons involved in overseeing or performing emergency operations will be allowed within the designated hazard area. If possible, the area will be roped or otherwise blocked off.

If a spill or fire results in the formation of a toxic vapor, evacuation of certain surrounding areas would be considered. Because the distance to the closest urban area is about 2 miles, it is unlikely that evacuation of its population will be necessary in the event of a release of toxic material. However, should the situation warrant and certain wind conditions exist, consideration would be given to stopping traffic on the railroads bordering the site, the Mississippi River south of the plant, and State Highway 61. A meteorological station is maintained at Building 65 and monitored by security personnel. This station and wind socks located strategically in the plant proper can be used to ascertain potentially affected areas during a release.

If the control and cleanup of a spill, release, or fire is within the capabilities of company personnel and local response teams, the National Response Center will only be notified if one of the following occurs:

- A spill occurs and the quantity of hazardous material spilled is equal to or greater than the reportable quantity specified under 40 CFR Part 117.

- The spill involves other hazardous materials not listed but used at the plant if they pose an actual or potential hazard to life or property.

As called for in regulations developed under the Comprehensive Environmental Liability and Compensation Act of 1980 (Superfund), it is 3M's policy to report a spill of a pound or more of any hazardous material for which a reportable quantity has not been established and which is listed under the Solid Waste Disposal Act, Clean Air Act, Clean Water Act, or TSCA. It is 3M policy to inform the Minnesota Pollution Control Agency (MPCA) of any spill that could adversely affect the environment.

If the emergency coordinator determines that the company is unable to handle the emergency, then local, state, and federal authorities will be notified of the situation. Evacuation of all potentially affected plant areas will be initiated as required.

The following guidelines will be used in case of an accidental episode involving waste materials. These are general guidelines, and circumstances may dictate some alterations to these procedures.

Most waste spills and leaks are easily contained within the dikes and sumps provided in the tank area. Small spills occurring in a diked area are cleaned up with absorbent material. If necessary, a portable sump pump would be used to pump the waste material into 55-gallon drums.

For all large spills or serious leaks, the following guidelines will be followed as closely as possible:

1. If a leak develops or a spill occurs from a waste storage tank, pipeline, pump, etc., the person discovering the discharge will leave the immediate area and contact the emergency coordinator. The emergency coordinator will obtain the following information:

    a) Person(s), if any, injured and seriousness of injury.

    b) Location of the spill or leak, material involved, and source (tank, pipeline, etc.).

    c) The approximate amount spilled, an estimate of the liquid and/or gas discharge rate, and the direction the liquid flow or gaseous cloud is moving.

    d) Whether or not a fire is involved.

2. Next, the emergency coordinator will:

    a) Contact plant security personnel and appraise them of the situation.

b) Initiate evacuation of the hazard area.

c) Organize the emergency response.

3. Plant security personnel will:

a) Call the local fire department if a fire is involved. If a rising sound comes from a venting device or the tank begins to discolor, withdraw from the area immediately.

b) Obtain medical attention for any injured persons. It may be helpful to instruct the caller in initial first aid procedures. Then call the hospital.

c) Dispatch emergency personnel, including the site emergency response team, to the site to take the appropriate action.

4. Cleanup personnel will:

a) Put on protective clothing and equipment.

b) Make sure all unnecessary persons are removed from the hazard area.

c) Removal all surrounding materials that could be especially reactive with materials in the waste. Determine the major components in the waste at the time of the spill.

d) If a flammable waste is involved, remove all ignition sources, and use spark and explosion proof equipment and clothing in containment and cleanup.

e) If possible, try to stop the leak. Special materials will be kept on hand for temporary repairs.

f) Use absorbent pads, booms, earth, sandbags, sand, and other inert materials to contain, divert and cleanup a spill if it has not been contained by a dike. Most spills contained within the dike can be pumped back into the appropriate storage tank or drum. Isolate storm sewer drains by using sand, earth, sandbags, absorbent material booms, etc., to prevent material from leaving the plant site.

g) Place all containment and cleanup materials in drums for proper disposal. Some items, such as absorbent rags or booms may have to be cut up.

All essential equipment used in the emergency must be cleaned and ready for use before resumption of plant operations in the affected areas.

G-4e Prevention of Recurrence or Spread of Fires, Explosions or Releases [40 CFR 264.56(e)]

Actions to prevent the recurrence or spread of fires, explosions or releases include stopping processes and operations, collecting and containing released waste, and recovering or isolating containers. In addition, if the facility stops operations in response to an emergency, the emergency coordinator and plant personnel will monitor valves, pipes, and other equipment for leaks, pressure build up, gas generation or ruptures.

G-4f Storage and Treatment of Released Material [40 CFR 264.56(g)]

Immediately after an emergency, the emergency coordinator or designee will make arrangements for treatment, storage, or disposal of recovered waste, contaminated soil, or other contaminated material.

G-4g Incompatible Wastes [40 CFR 264.56(h)(1)]

The emergency coordinator will ensure that wastes which may be incompatible with the released material are segregated and properly stored until cleanup procedures are completed.

G-4h Post-Emergency Equipment Maintenance [40 CFR 264.56(h)(2)]

After an emergency event, all emergency equipment listed in Section G-5 will be cleaned so that it is fit for further use or it will be replaced.

G-4i Container Spills and Leakage [40 CFR 264.171]

Refer to Section G-4d for a discussion of emergency response procedures for spills and leakage.

G-4j Tank Spills and Leakage [40 CFR 264.194(c)]

Refer to Section G-4d for a discussion of spills and leakage emergency response procedures.

G-5 Emergency Equipment

Table G-3 provides a summary of the emergency equipment maintained at the Chemolite Center Incinerator. Detailed descriptions of some of the equipment is provided in the following section.

The plant employs several mechanisms for fire control. Fire hydrants are strategically located in the plant area (see Figure G-1).

Also available for fire control are portable fire extinguishers; at least one extinguisher is located in each of the following areas:

3M CHEMOLITE CENTER INCINERATOR
EMERGENCY EQUIPMENT

ABREV.	NAME	LOCATION	DESCRIPTION	CAPABILITIES
SCS	Spill Containment Supplies	N wall of B-47 opposite pakfeeder room W end of pumproom N wall of storage area, B-60 N wall of receiving area, B-60	Shovels, brooms, squeegees, scrapers	Used for containment and cleanup of small spills
SC	Spill Cart	N wall of B-47 opposite pakfeeder room W end of pumproom Outside east door to pumproom	Absorbant material	Used for containment and cleanup of small spills
EGS	Emergency Gas Shutoff	Inside main entrance to B-47 By exit from pakfeeder room Outside east door to pumproom Outside north door to pumproom By exit from kiln head room	Pushbutton activated switch	Used to shut off burners and pakfeeder conveyor

TABLE G-3

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FH	Fire Hose	Between Docks 2 & 3 on No wall of B-47	75' of 2" fire hose connected to aqueous film forming foam (AFFF; i.e., "Light Water") delivery system	Used to control and extinguish major fires
		Outside on NE corner of B-47	75' of 2" fire hose connected to high pressure water	
		SW corner of receiving area, B-60	75' of 2" fire hose connected to AFFF delivery system	
		Stairway landing, basement of B-47	75' of 2" fire hose connected to high pressure water	
EC	Emergency Cabinet	N wall of B-47 opposite pakfeeder room	Cabinet containing: 1. Box of dust masks (1) 2. Flashlight (1) 3. Rubber gloves (2 pr.) 4. Face shields (2 plus extra plastic shield) 5. Goggles (2) 6. Organic vapor/acid gas respirators (4) 7. Solestates (4 pr.) 8. Bottle of alcohol (1) 9. Full face gas mask with canisters 10. Extra canisters (8) 11. Safety harness (1) 12. Extra compressed air tanks for SCBA units (2) 13. Rubber boots (1 pr.) 14. 10' ropes (2) 15. Stretchers (2) 16. MSA SCBA units (2) 17. Rubber suits (2) 18. Ear plugs (3 pr)	Use for most equipment is self-explanatory. In general, equipment is available for spill containment and cleanup, to effect a rescue, or to evacuate an area. Used to ground footwear Used to clean masks

TABLE G-3 (CON'T)

	Telephone	Control Room, B-47	N/A	Provide 2-way communication in the event of an emergency. Can also be used to access site P.A. system.
		Supervisor's office, B-47 (2)		
		By exit from pumproom		
		Basement of B-47 opposite men's room		
		Data room, basement of B-47 (2)		
		SW corner of receiving area, B-60		
		Block bldg. by tanker unloading		
WR	Two-way Radio	Control room, B-47	Rechargeable, handheld 2-way radios	Provide 2-way communication from remote locations to control room
S	Emergency Supplies	Control room, B-47	5-minute air capsules and masks (2)	Used to evacuate an area or effect a rescue
			MSA SCBA units (2)	Available for use to contain and clean up spills, to effect a rescue, or to evacuate an area
		Data room, basement of B-47	5-minute air capsules and masks (2)	
		Men's room, basement of B-47	5-minute air capsules and masks (4)	
-	Fire Extinguishers	Portable fire extinguishers are located throughout the facility	30 lb. dry chemical 15 lb. CO_2	Used to control and extinguish incipient fires
-	Sprinkler Systems	All first floor areas of B-47 and B-60	Sprinkler system with heat activated sprinkler heads connected to high pressure water	Used to control and extinguish major fires. Water flow in system automatically sounds alarm
		Kiln head room		
		Ash handling area		

TABLE G-3 (CON'T)

CHEMOLITE

EMERGENCY SQUAD

TRUCK EQUIPMENT SURVEY

I. CAB (List Equipment)

(a) Radio - 2 channel
(b) First aid cabinet
(c) Portable radio & recharger
(d) Blow horn - no batteries
(e) MSA analyzer (combustible gas indicator)
(f) Gate keys

II. 500 Gallon PUMPER (Front of Truck) List number and condition

(a)	NOZZLES	2 - 1 1/2" adjustable
(b)	INJECTOR	1 lightwater
(c)	HOSES	4 - 100 foot 1 1/2"
(d)	VALVES	1 drain valve sticky
		1 wrench spanner

III. TOP OF TRUCK (list equipment)

(a) Water compartment - 250 gallons
(b) 2 hose reels 200 foot each 1" high pressure hoses with adjustable nozzles.
(c) 2 fire picks, 4 - 50 ft. 2 1/2" hoses, 1 - 2 1/2" y.
(d) 1 stretcher & harness
(e) 2 smoke fans
(f) 1 extension ladder aluminum
(g) 1 wall ladder
(h) 2 hose reels 200 foot each 1" high pressure hoses with adjustable nozzles.
(i) 1 rubber slapper fire broom
(j) 4 brush grass fire brooms

IV. BACK OF TRUCK & STORAGE BAY

(a) 4 fire axes
(b) 9 - 5 gallon pails light water
(c) 2 - CO_2 fire extinguisers
(d) 2 dry chemical
(e) 3 hydrant wrenches and 1 spanner wrench
(f) 2 spanner belts
(g) 3 hose carriers,
(h) 5 - 50 ft 2 1/2" hoses

V. LEFT SIDE (Drivers side) (List items)

A. COMPARTMENT No. 1
1. Portable oxygen set - no spare bottles
2. 6 hoods for hot suits
3. 2 blankets

4. 6 pairs hot suit pants
5. 1 pair gloves
6. 1 spare analyzer hose
7. 1 old cloth helmet liner

B. COMPARTMENT No. 2
1. 2 MSA mask air pressure at 22#
2. 2 - 100 foot 1 1/2" lines
3. 2 hose carriers
4. 1 spanner wrench
5. 1 adjustable 1 1/2" hose valve

C. COMPARTMENT No. 3
1. 4 portable lights
2. Air chisel kit for cutting
3. Tool kit - wrenches, pipe wrenches, rubber hammer and more hydrant wrenches.
4. Pump repair kit
5. Door popper, 1 short handled round nose spade
6. 2 hose clamps
7. 1 shovel
8. 1 bolt cutter
9. 2 explosion proof extension cords
10. 2 adapters from duplex receptacle to explosion proof

D. COMPARTMENT NO. 4
1.
2.
3.

E. COMPARTMENT No. 5
1. 2 flood lights
2. 1 generator

VI. <u>RIGHT SIDE</u> (List items)

A. COMPARTMENT No. 1 - Front
1. 3 entry harnesses
2. Stretcher harness
3. 2 entry harness ropes
4. 4 coil ropes
5. 2 hot suits and 2 pair mitts

B. COMPARTMENT No. 2
1. 2 MSA Masks in box pressure at 22#
2. 3 spare air tanks pressure at 15#

C. COMPARTMENT No. 3
1. 2 light water exinguishers
2. 2 hand pumps (back pack grass fire sprayers)
3. Reducer 4 1/2" to 2 1/2"
4. 2 1/2 to 1 1/2 y. splitter
5. 3 brass nozzles (1 inch, straight flow, lightwater foamer)
6. 3 - 1 1/2" adjustable valves

7. 2 - 1 1/2" to 1" ball valve
8. 2 hydrant wrenches
9. 1 spanner wrench
10. 3 extended nozzles (2 adjustable & 1 straight flow)
11. Double handle adjustable nozzle
12. 1 - 2 1/2" gate valve

D. COMPARTMENT No. 4
1. Generator
2. 2 flood lights

E. COMPARTMENT No. 5
1.
2.

VI. CHARIOT (List number & condition)
A. HOSES 4 - 50 ft 2 1/2" hoses - 2 foaming injectors
B. NOZZLES 1 - 2 1/2" adjustable nozzle (500 gallon)

VII. NEED EQUIPMENT
A.
B.
C
D.

Drum storage area
Storage tank area
Processing area
Warehouse

These fire extinguishers are dry chemical Types A, B, and C. Type A is capable of extinguishing fires involving ordinary combustible materials such as wood, cloth, paper, rubber, and many plastics; Types B is capable of extinguishing fires involving flammable liquids, oils, greases, tars, oil base paints, lacquers, and flammable gases; and Type C is capable of extinguishing fires involving energized electrical equipment. All extinguishers comply with National Fire Code standards for portable fire extinguishers, and are inspected routinely.

Equipment for use while containing and cleaning up spilled hazardous wastes is stored on a cart in the pump room. The equipment and materials stored include bags of FLOOR-DRY and non-sparking shovels.

First aid supplies at the first aid station include the following:

Bandage materials
band aids
gauze pads and rolls
adhesive tape
butterfly bandages
Antibacterial ointments
Splints
Aspirin
Emetic - syrup of ipecac
Local and topical anesthetics
Eyewash bottle and solution

In addition, a nurse is available two shifts a day at the plant nursing station to treat injuries.

Emergency eyewash fountains and showers are located in most operating areas. Each unit consists of a drench showerhead with "panic bar" - operated frost-proof valve and an eyewash with a dirt cover and "panic bar" - operated frost-proof valve. A sign reading "EMERGENCY SHOWER AND EYEWASH FOUNTAIN" is posted at each unit.

Protective clothing and equipment is provided to protect employees during normal and emergency operations. Hard hats, protective eyewear, and steel-toed boots or shoes are the minimum protective clothing in designated areas. Other protective clothing equipment and materials available in the cabinet in the drum feeding area are described in Table G-3.

G-6 Coordination Agreements

Copies of the contingency plan have been given to the local police and fire departments, and the St. Paul Ramsey Medical Center. The letters to the agencies are given as attachments to this Section. Arrangements with local authorities are described as follows:

1. Police - City of Cottage Grove police are available to direct traffic, control crowds, and provide other emergency services. City of Hastings police would serve as a backup.

2. Fire Department - the City of Cottage Grove Fire Department will respond to fires and other emergency incidents providing back up fire protection and rescue services. At least annually, a training sessions is conducted at the Chemolite Center for the Cottage Grove Fire Department. The training session is led by the site safety coordinator and provides a classroom review of all site operations and locations of hazardous materials. The session also includes a walk- through review of site operations.

   Personnel from the 3M Safety Department also assist the Cottage Grove Fire Department in "hands on" fire training. This training is conducted at the Chemolite Center fire training grounds.

   Other local fire departments are available to serve as backups. These would include Hastings, St. Paul Park, Newport.

3. Hospitals - the Hastings Regina Memorial Hospital and St. Paul-Ramsey Medical Center are available to provide medical service.

G-7 Evacuation Plan

All emergencies require prompt and deliberate action. In the event of any major emergency, it will be necessary to follow an established set of procedures. Such established procedures will be followed as closely as possible; however, in specific emergency situations, the emergency coordinator may deviate from the procedures to provide a more effective plan for bringing the situation under control. The emergency coordinator is responsible for determining which emergency situations require plant evacuation.

A fire alarm system is installed with alarm boxes located at critical areas throughout the plant. The fire alarms automatically summon the Cottage Grove Fire Department. All employees are familiar with alarm box locations.

In the event plant evacuation is called for by the emergency coordinator, the following actions will be taken:

1. The message will be given to plant personnel to evacuate the site over the public address system.

2. The guards will immediately open the gates. No further entry of visitors, contractors, or trucks will be permitted.

3. All 3M personnel except emergency response team members, visitors, and contractors will immediately leave through the nearest gate.

4. No persons shall remain or reenter the location unless specifically authorized by the person or persons calling for the evaluation. Those within the fenced area will normally only include firefighting personnel or emergency teams.

5. All persons will be accounted for by their immediate supervisors. Supervisors will designate certain gates as the safest exits for his or her employees and will also choose an alternate exit if the first choice is unaccessible. To assist in this endeavor, the emergency coordinator will use the p.a. system to notify personnel as to the nature of the emergency.

6. During exit, the supervisor should try to keep his or her group together. Immediately upon exit through the gate, the highest ranking supervisor will prepare a list of all personnel at the exit gate. All other personnel who have persons reporting to them should report immediately to the front gate for final accounting.

7. Upon completion of the employee list, the supervisor in charge will hand-carry the list to the emergency coordinator. All other personnel will remain at the gate area.

8. Contract personnel should also be listed with the name of their company. Contract foremen should report to the front gate.

9. The names of 3M Chemolite emergency team members involved in the emergency response will be reported.

10. A final tally of persons will be made by the emergency coordinator.

11. No attempt to find persons not accounted for will involve endangering lives of others by reentry into emergency areas.

12. A plant guard at each gate will also maintain an updated list of all personnel to aid in the accountability procedure.

13. Reentry into the fenced area will be made only after clearance is given by the emergency coordinator. At his direction, a signal or other notification will be given for reentry into the plant.

14. In all questions of accountability, immediate supervisors will be held responsible for those persons reporting to them. Visitors will be the responsibility of those employees they are seeing. Contractors are the responsibility of those persons administering the individual contract. Truck drivers are the responsibility of the warehouse supervisor or the area supervisor where the truck is loading/unloading. The guards will aid in accounting for visitors, contractors, and truckers by reference to the sign-in sheets.

G-8 Required Reports [40 CFR 264.56(i) and 264.56(ji)]

As required by §264.56(j), any emergency event (e.g., fire, explosion, etc.) that requires implementing the contingency plan will be reported in writing within 15 days to the EPA Regional Administrator. A reporting form for emergency events is shown in Figure G-2.

In addition to these reporting requirements for state and federal authorities, 3M Company also has internal reporting policies. The following incidents require that an incident report be completed and returned to safety personnel:

1. All fires.

2. All injuries except minor cuts and bruises (all burns and chemical irritations).

3. All major spills.

G-9 Amendments to the Contingency Plan

The contingency plan will be reviewed and amended, if necessary, whenever:

1. The facility permit is revised.

2. The plan fails in an emergency.

3. The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosives, or releases of hazardous waste constituents, or changes in the response necessary in any emergency.

4. The list of emergency coordinators change.

5. The list of emergency equipment changes.

3M Chemolite has an SPCC Plan under separate cover.

FIGURE G-2
CHEMOLITE CENTER
INCIDENT REPORT

A. Owner/Operator Information

3M Company
Env. Eng. & Poll. Cont. Dept.
Bldg. 21-2W-05
900 Bush Avenue
P. O. Box 33331
St. Paul, MN 55133
612/778-4791

B. Facility Information

3M Chemolite Center
Highway 61 & County Rd 19
Cottage Grove, MN 55016
Mail to: P. O. Box 33131
St. Paul, MN 55133
612/458-2203(Utilities Dept.)

C. Incident

Date:_____ Time:_____ Type:_____

Location:_____

D. Material Involved

Material(s):_____

_____

Quantity:_____

_____

E. Injuries:_____

_____

F. Incident Summary:_____

_____

_____

_____

_____

_____

_____

G. Response Summary:_____

_____

_____

_____

_____

_____

_____

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G-10 Chemolite Center Emergency Squad

Chemolite has a 20-30 member emergency squad comprised mostly of supervisory people. The squad is coordinated by the Chemolite Safety Coordinator who also serves as the emergency squad chief.

The duties of the Chemolite Emergency Squad can be summarized as follows:

1. To effect rescue.

2. To be on hand for first control of a fire or a potential fire.

3. To apprise the local fire departments of any first action taken in response to a fire. Local fire departments are in charge upon arrival at Chemolite.

4. To warn fire department of hazardous areas.

5. To shut off fire protection water and stand by while sprinkler systems are restored to service.

6. To have squad members serve as unofficial safety representatives in their respective areas of the plant.

The emergency squad is called into action by the guards. An attention getting alarm sound (boo-bee-boo) is sounded over the plant paging system. The location of the emergency is also given plus a code for the type of emergency. Code red indicates a fire or an ADT alarm and flow. Code yellow indicates an explosion, explosion hazard gas leak, propane leak, or solvent spill. Code blue indicates a health hazard, such as an anhydrous ammonia leak, HF leak or a toxic chemical spill. Code green refers to a personal injury. This includes all injuries, sudden illnesses and rescues that require the emergency squad.

The emergency squad responds to approximately 15 to 20 calls in an average year. Many of these, however, are false alarms since the squad always responds to any water flow signal.

The squad members are volunteers, any interested supervisor can become a candidate for the Chemolite Emergency Squad by talking to his department manager.

The emergency squad is extensively supplied with emergency equipment. Included in this section is a detailed list of this equipment. The emergency squad truck is maintained in Building 67.

G-11 Chemolite Center Site Security

Security at 3M Chemolite is maintained by a staff of trained security guards who primarily monitor entry and exit from the active portion of the facility and provide security measures within the plant premises.

The only entrance gate is located at the northwest end of the plant site and is staff 24 hours a day, seven days a week. Guards normally work in eight hour shifts with a crew of two guards. During each shift, one of the guards makes an inspection of the facility while the other remains at the guard station.

In the event of an emergency, all plant personnel are instructed to make their first call for help to site security on extension 2222. Security will coordinate the emergency response based on the nature of the incident. This can include calling out:

1. The site emergency squad.
2. Local fire departments.
3. Local paramedic units.
4. Local police departments.

In addition to the above, the security staff is instructed to contact someone from an emergency call list for the appropriate area. A volume of call lists for the entire site is kept at the security building and is updated at least quarterly.

If the emergency involes an actual or potential release of material to the environment, site security will also be responsible for calling 3M Environmental Engineering and Pollution Control.

The 3M Chemolite security center also functions as the central alarm monitoring location. Water flows in sprinkler systems and discharges from many CO_2 extinguishing systems are automatically detected from the security building. Location is indicated by the alarm system.

G-12 Chemolite Center Public Address System

Chemolite Center has a public address (P.A.) system that can be used to alert and/or advise all persons within the facility. A hi-low warble alarm is sounded for emergency situations. This is followed by an emergency message stating the location and nature of the emergency. The message is reported at least twice to ensure that it is understood by all persons within the center.

The site-wide public address system is accessible from any telephone by dialing 6000. Authorized plant personnel can use this system to announce an emergency situation. In addition, the P.A. system is networked such that announcements can be restricted to specific areas. For Buildings 47/60, messages can be issued by dialing 6121.

12/28/88

REPORTING FORM FOR EMERGENCY EVENTS

Name, address, and phone number of owner or operator

Name, address, and phone number of facility

Date, time, and type of incident (e.g., fire, explosion, etc.)

Name and quantity of material(s) involved

Extent of injuries (if any)

Assessment of actual or potential hazards to human health or the environment (if applicable)

Estimated quantity and disposition of material recovered from the incident

Send to: (Name)
U.S. EPA, Region V
Regional Administrator (EPA)
Chicago, Illinois

Sample reporting form for emergency events.

SECTION H

Personnel Training

The information contained in this section outlines the personnel training program for the 3M Chemolite TSD facility in accordance with the requirements of 40 CFR §270.14(b)(12) and §264.16 and OSHA 51 FR No. 244.

H-1 Outline of Training Program (40 CFR 270.14(b)(12))

H-1a Job Titles and Duties

Figure H-1 shows the organization of personnel at the facility. Thirty-one employees are directly involved with the handling of waste at the incinerator: 5 incinerator operations supervisors, the waste shipping and receiving supervisor, and 25 operators. Management responsibilities involving compliance with RCRA regulations but not involving actual handling of the wastes are assumed by the 3M Environmental Engineering and Pollution Control Department and Chemolite plant management. Maintenance personnel (i.e., electricians, millwrights, mechanics, etc.) work in the waste handling area, but do not handle wastes directly. The duties and responsibilities of each position follow:

Position Title: Incinerator Operations Supervisor

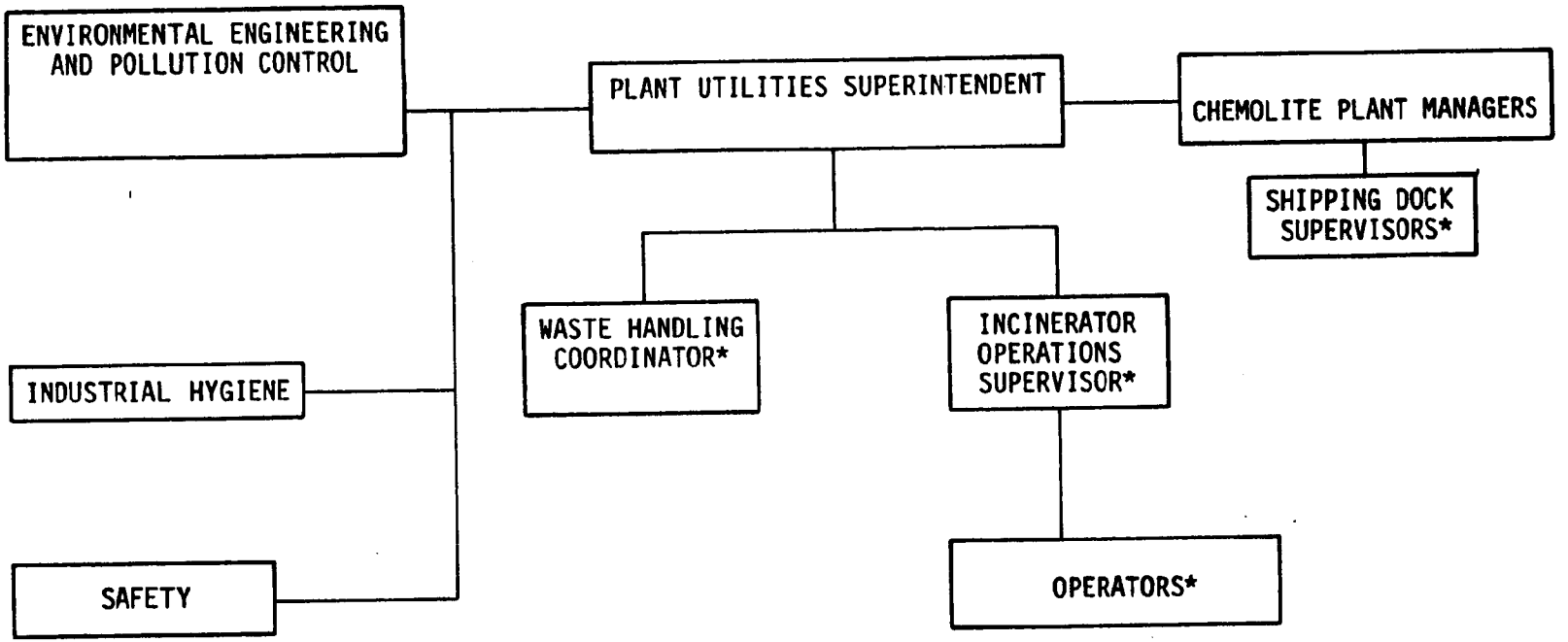
Position Responsibilities and Duties:

1. Supervise operation and maintenance of hazardous waste incinerator.
2. Emergency coordinator for all hazardous waste activities.
3. Train employees in proper operation of incinerator facility.
4. As emergency response coordinator, notify proper authorities in emergency situations.
5. Report to incinerator general supervisor.
6. Regularly inspect plant grounds and all facilities for status of air, water and solid/hazardous waste emissions and controls.
7. Consult and direct maintenance foremen and crews.
8. Maintain operating and personnel records.

Position Title: Waste Shipping and Receiving Supervisor

Position Responsibilities and Duties:

1. Maintain records relating to the receipt of wastes at Building 47.
2. Maintain records relating to the shipment of wastes from Building 47.
3. Inspect emergency equipment on a regular basis.
4. Schedule drivers for pickup and delivery of wastes.
5. Supervise boiler ash landfill operation.
6. Assist in the supervision of Chemolite Incinerator.



* Indicates those personnel directly involved with hazardous waste activities.

Figure H-1. Organization chart for 3M Chemolite incinerator facility.

7. Audit shipping papers for proper shipping descriptions.
8. Maintain records on waste inventory.
9. Stage waste for incineration.
10. Schedule pickup of empty drums for shipment to reclaimer.
11. Contact Environmental Engineering and Pollution Control and/or Transportation Departments on improper packaging or shipment of material.
12. Inspect storage areas for spills.

Position Title: Operator

Position Responsibilities and Duties:

1. Operate hazardous waste rotary kiln incinerator.
2. Operate drum feed and recovery mechanism.
3. Coordinate and direct storage and inspection of materials for disposal.
4. Keep operating logs.
5. Operate pumpable waste pumps.
6. Clean pump screens and waste transfer lines.
7. Call in such crews or personnel as necessary for service or maintenance and repairs.
8. Perform routine maintenance as necessary.
9. Be responsible for and perform such housekeeping duties as directed by supervision.
10. Operate fork lift truck.
11. Maintain and inspect pollution control equipment.

H-1b Training Content, Frequency, and Technique

Employee training will be conducted in three major phases. They are as follows:

Orientation Training Program
Job Related Training Program
Special Training Program

All employees will attend refresher courses to verify familiarity with all of the policies and procedures for the safe and effective operation of the facility. Experienced employees will be encouraged to participate in the presentation of various aspects of the training programs.

Personnel from the corporate Safety, Industrial Hygiene, and Environmental Engineering and Pollution Control Departments will be called upon periodically to audit the training, safety, and environmental protection programs to ensure that they are effective and consistent with 3M policies and procedures and with the requirements of applicable laws and regulations. Both the operating and training programs will be updated in accordance with the recommendations of these audits.

Orientation Training Program

The Orientation Training Program will be conducted for the benefit of all new employees. Representatives of management and members of the operations and technical staffs will conduct the Orientation Training Program which will last a minimum of one day and include discussion of the following topics:

- General site safety and emergency procedures.
- The capabilities and limitations of the facility.
- The type of materials handled and the process and equipment used for disposal of the wastes.
- The requirements of government agencies that affect the operation and maintenance of the facility.
- Developing and maintaining good public relations.

Special emphasis will be given to the following:

- Basic review of the chemical and physical hazards of the materials and equipment within the facility including safety precautions which minimize risk of personal injury from these hazards.
- Policies and procedures regarding monitoring equipment and controls.
- Contingency plans and procedures including: personnel safety equipment location and use; firefighting equipment location and use; system waste feed cut-off procedures and controls; emergency process shutdown procedures; emergency alarms; evacuation routes and other emergency response procedures.
- Spill containment and control procedures including: equipment location and use, and proper notification steps.

Also included in the Orientation Training Program will be a comprehensive general tour of the facility. This tour will point out all emergency equipment, first aid stations, emergency showers and eye wash stations, emergency shut-off controls, fire prevention and control equipment, alarm and communication systems and primary and alternate evacuation routes.

Job-Related Training Program

Following the successful completion of the Orientation Training Program, each employee will receive training which relates specifically to his or her new duties. This training program will be conducted by the new employee's crew chief and other supervisor personnel. This segment of the training program will involve extensive on-the-job training.

The Job-Related Training Program will include discussions of the same topics discussed in the Orientation Training Program. Areas not related specifically to the new employee's normal duties will be reviewed for reinforcement. Additional detail will be provided to instruct the employee in how to execute his job safely and effectively. Emphasis will be given on the relationship of the new employee's job to the jobs of other personnel in the area.

Sufficient training will be provided to meet the OSHA requirement of a minimum of 24 hours for new employees.

Special Training Programs

A series of Special Training Programs, which cover various emergency response and safety policies and procedures, will be conducted for all employees on an annual basis. These training programs will be arranged by the Training Coordinator and will typically include presentations by the Safety, Industrial Hygiene, and/or Environmental Engineering and Pollution Control Departments.

Emphasis at these sessions will be placed on the safe operation of all equipment and the safe handling of all materials. Special individual training, which relates to specific duties, will be given to operations personnel. Special attention will be given to the location and use of all safety related equipment.

The Special Training Programs will also emphasize emergency response to fires, spills, and other unusual occurrences which could threaten the environment or the health and safety of the employees or the members of the surrounding communities. Training will include the location and use of all equipment used in an emergency response, procedures for notifying appropriate authorities, and policies and procedures for working with local, state, and federal response groups; such as the Cottage Grove Fire Department.

A list of some of the available 3M training programs is shown in Table H-1.

H-1c Training Coordinator

The personnel training program is directed by one of the incinerator shift supervisors. This person has been trained in all aspects of the facility operation. Records of his/her previous and ongoing training are kept on file at the personnel office.

TABLE H-1. AVAILABLE TRAINING PROGRAMS

*EMERGENCY SQUAD LEADERSHIP TRAINING - An extensive three-day course designed to train leaders of plant emergency squads in the techniques of fire prevention and control.

*ENGINEERS CONTROL TECHNIQUES & TECHNOLOGY TRAINING - A one-day classroom and field session at Bloomington Fire Department and Chemolite fire training grounds. This course is designed to acquaint 3M engineers with the principles and 3M application of fire protection. The use of extinguishers, hand lines, self-contained breathing apparatus and light water are among the topics covered.

*MANUFACTURING OR LABORATORY LOSS PREVENTION SEMINAR - A two-day classroom seminar for safety coordinators and management. Includes lecture, demonstrations, and films on the general principles of loss prevention. The program can be "geared" for the laboratory or manufacturing situation.

*ENGINEERS LOSS PREVENTION - A one-day classroom seminar for engineers covering such topics as OSHA, industrial hygiene, construction, safety regulations and fire prevention.

*PORTABLE EXTINGUISHER TRAINING - A three-hour program conducted at the Chemolite fire training grounds. This course familiarizes the student with different types of fires and portable extinguishers. Students gain actual hands-on experience with the different methods of fire extinguishment.

*TEXAS A & M - A concentrated one-week course at Texas A & M dealing with industrial fire fighting. This course provides exposure to large fires and use of protective equipment.

TABLE H-1 (Continued)

*KEY PERSON PROGRAM - A National Safety Council program designed for supervisors on up to plant managers. This is a twelve-hour program with textbook covering accident prevention, training and leadership. Textbook provides excellent reference material dealing with industrial hygiene and safety.

*SAFETY WORKSHOP - This program is a follow-up to the key person course. Projects initiated in the previous session is reviewed for effectiveness. A team approach is used to go over specific plant problems and solutions.

*SPCC PROGRAM - Presentation that combines lecture and film to make the student aware of spill problems. The program covers preventive measures as well as clean-up procedures tailored to specific facility situations.

*WASTE SCRAP DISPOSAL PROCEDURE - A written procedure given to all manufacturing facilities dealing with the proper waste scrap disposal method necessary to reduce cost and hazards and to control pollution. The procedure identified waste scrap for the considerations of segregation, packaging, labeling, and transportation.

TABLE H-1 (Continued)

Additional Training Programs Available (Non-Formal)

AUDIO/VISUAL TRAINING

A directory of films and slide/cassette program can be obtained by contacting the Safety Department, ext. 3-3826.

FILMS

The St. Paul Safety Film Library includes over 130 different films on safety topics. All films are available on a free, short-term loan basis to 3M facilities.

SLIDE/CASSETTE PROGRAMS

Approximately 65 different slide/cassette training programs are available. A complete program includes slides, cassette tape and written narration. Available on a free loan basis with option to have permanent set where continued use is required.

CONSULTATION

SAFETY

Annual safety surveys are conducted at most 3M locations. Consultation on all special projects, safety problems, and OSHA is available with your division safety engineer.

SECURITY

Consultation on security programs or problems and requests for procedural guidelines should be directed to St. Paul Security, ext. 3-6025.

HAZARDOUS WASTE

Consultation on all phases of hazardous waste can be obtained through the Environmental Engineering and Pollution Control contact in St. Paul.

		DATA FOR COMPUTER DATA BASE FILES	
COURSE NUMBER	COURSE NAME	OUTLINE:	LENGTH (hrs)
1	Back Injuries and How to Prevent Them	Precautions that can be taken, long term health effects, lifting recommendations, What If? create hypothetical situations, services within 3M for back health care	1
2	Cardiopulmonary Resuscitation (CPR)	Hands on training by certified instructor, review phone locations and phone numbers to call	4
3	Chemical Hazards	Discuss the chemicals workers are exposed to, long term/short term health effects, suggested protective equipment, exposure survey results, special handling of carcinogen and solvents	6
4	Crew Meetings	Clarify frequency and appropriate topics to discuss (e.b. special burns, new hazards, new laws, new equipments, new procedures, etc.)	1
5	Drum Handling and Storage	Discuss storage areas on floor and trailers, safe transporting, regulation on how long material can be at incinerator, weight of and durability of the containers used, types of containers used	1
6	Drum Recovery	Criteria established for forwarding container to reconditioner, splitting technique and other procedures to reclain steel drum, how to record drums leaving the site for reconditioning, corporate savings by reclaiming	1
7	Electrostatic Precipitator	What the precipitator does, frequency of cleaning, how to determine when to clean, where are the parts located, what supplies and procedure is used for cleaning/repairing	3
8	Emergency Procedures (NOTE: too broad	Who and from where to call, what to say, location of various equipment, What If? (tornado, storm, power outage), how to clean-up spills, location of fire extiguishers, what are persons specific responsibilities, Site Emergency Procedures	
9	Emergency Response	What If? (leaks, fire), staff available for assistance, location of phones and numbers, what constitutes need for outside assistance, where is safety equipment on site	0.75
10	Emergency Shutdown	Valve shut offs, situations that will cause shutdown, review control panel ranges, fire doors?	20 min
11	Evacuation Prodedure	Where to go, what should be done before leaving work area	1
12	Face Masks and Respirators	Types available and for which situations; fitting, testing, and use of; location of ; what to do when out of stock	1
13	Fire Training	Extinguishers, classification of fires, methods of extinguising, protective clothing, incinerator "hot" spots, practice at Chemolite's Fire Training Station, location of fire equipment, valves	3 - 6

14	Forklift Training	Safe operation of, routine maintenace, troubleshooting, understanding gadges, restriction of use in classified areas, pre- post- shift inspections, breakdown maintencance, proper loading, improper usage	8
15	Labeling and Waste Description	DOT, EPA, & 3M labels used, waste codes, major chemical, contact person - who is usally listed on container?, referencing label information to text books, guides, dictionary, generator's labeling process	1
16	Maintenance on Chemolite Site	Crafts; people available, man hours available to incinerator; Shop Work Orders, Maintenance priority policy; Who to contact, when, and how; what work is contracted	0.25
17	Microfishe System		?
18	OSHA Hazard Communication Standard	Site health hazards, training procedure for new hazards, forum styled session to explain the information generated by this program, question/answer to insure understanding;(Note: questions or add'l information available from Toxicology,Industrial Hygiene, and division laboratory toxicology contacts	2
19	PH System	Mechanics of the system, accepted operating ranges, when and how to clean the equipment, What If? (troubleshooting), accepted level in lime silo, routine maintenace, correcting the ph level	1
20	Plant Site Tour	Present facility layout, tour the facility	1.5
21	Protection Equipment (Chemical & Fire	Review the required uniforms (clothing, glasses, shoes, hats, gloves, face shields); also review suggested protective clothing/equipment noting situations that may warrant their use	2
22	RCRA Procedures	Explain labels; special waste handling and waste testing, EE & PC regulation - How we need to comply, RCRA history and updates	1
23	Recharge/ Surcharge System	How to identify what containers to charge and recharge; number coding system used; paperwork to complete	0.75
24	Right - To- Know	Identify what "Right To Know" is; review information, reference books available for use; how to use these handbooks; precautions to insure safety	2
25	Safety First	Routine checks on safety equipment (how, when , what to do); specific location of equipment; the value of Common Sense	1
26	Self Contained Breathing Apparatus	Fit, test and use; replacing equipment, situations warranting use; safety checking equipment	0.5
27	Spill Prevention	Loading forklift properly; utilizing proper procedures; proper operator position when handling drums	20 min

28	Start - Up	Control panel; special job duties; troubleshooting (responsable action); what to look for (indicators); preparatory w k required; paperwork to complete, starting burn order, length of warm-up, charting and graphing warm-up	1
29	Static Electricity (offered any more?)	Causes of; how to prevent; conductivity testing; possible consequience, danger of static electricity; use of grounding cables	8
30	Transportation	Proper blocking; pallet loading; placards, paperwork required; spills on received trailer; Waste Disposal Manual	2
31	Waste Packaging	Waste Disposal Manual; how generators choose packages; available packaging options (bags, liners, etc); deciding if burn versus reclaim, splitting; discuss "how can we do it better"	1
NEW:			
32	Preventive Maintenance	When and what preventive maintenance needs to be done in addition to by whom; tools available and tools needed; how to get tools & equipment, why preventive maintenance	1
33	Medical Surveillance Program	Checklist of medical tests required; freqeuncy of each test; services available to conduct tests (internal 3M, outside)	?
34	Decontamination Procedure	Cleaning of uniforms, showering requirements, special precautions with equipment leaving site, other procedures to insure no migration of contamination	1
35	Standard Work Procedures	Specific job duties; required training; crew meetings; organization of incinerator staff	.5 per SO
36	Downtime Tracking	How to complete the tracking form; understanding burden centers; understanding use, operation, & structure of MMS for the incinerator	?

H-1d Relevance of Training to Job Position

The training program is tiered to provide training to personnel that is relevant to their positions. For example, the incinerator operations supervisor receives training in recordkeeping and other procedures required for compliance, whereas the operators do not. Operators are more specifically trained to maintain proper and safe operating procedures and to respond effectively in the event of a spill or other emergency.

H-1e Training for Emergency Response

This training program is designed to ensure that personnel not only handle hazardous wastes in a safe manner but also properly respond to emergency situations. Training elements addressing nonroutine and emergency situations (unscheduled shutdowns and startups related to storms, power outages, fires, explosions, spills, etc.) include:

- Procedures for locating, using, inspecting, repairing, and replacing facility emergency and monitoring equipment.
- Key procedures for automatic waste feed cutoff systems.
- Emergency communication procedures and alarm systems.
- Response to fires or explosions.
- Procedures for containing, controlling, and mitigating spills.
- Shutdown of operations and power failure procedures.
- Procedures for evacuation.

In addition to the hazardous waste management personnel, an emergency squad is on standby for response to all fires and other general plant emergencies. This emergency squad has received both classroom and field firefighting training as well as instruction in first aid and CPR.

H-2 Implementation of Training Program

1. The instructor of the training program and all current personnel involved with the management and handling of hazardous waste have been fully trained at the time of this submittal. In the future, all new personnel who will be involved in the hazardous waste management program will complete this training program within six months of assignment to the hazardous waste facilities or within six months of their date of employment, whichever is later. New employees will not be permitted to work in unsupervised positions until they have completed the required personnel training.

Each employee will participate in an annual review of the training program. Records documenting the job title for each position, job descriptions, names of employees, and completed training programs (both introductory and continuing) are kept on site in 3M's personnel office. These records will be kept until closure of the facility or for 3 years from the date of the individual employee's termination from hazardous waste management activities.

2. Figure H-2 is the form for documenting all training completed by each employee. All formal training is supplemented with extensive on-the-job training.

H-3 Future Direction

A computer based data system is being developed to track and schedule training and medical surveillance.

TRAINING LOG

Employee No. _____ Name _____

Date	Training program	Remarks

Figure H-2. Training Log form.

SECTION I

CLOSURE PLAN, POST-CLOSURE PLAN, AND FINANCIAL REQUIREMENTS

This section is submitted in accordance with the requirements of MPCA HW 7045, Sections .0486, .0488, .0490, .0492, .0494, .0496, .0498, .0502, .0504, .0506, .0508, .0516, .0518, and .0594. This plan identifies all steps that will be necessary to partially or completely close the facility at any point during its intended operating life. The plan also addresses the conditions and reasons under which partial closure would occur. A post-closure plan is not required because this is not a disposal facility and all wastes are being removed at closure.

A copy of the closure plan will be kept at the plant site until the certification of closure completeness has been submitted and accepted by EPA, Region V. The Regional Administrator will be notified at least 180 days prior to the commencement of final closure. The final closure date of this facility has not been determined, but is estimated to be around 2036. Upon completion of closure, a statement of certification will be submitted to the Regional Administrator by 3M and a local independent registered professional engineer. This certification will verify that the facility has been closed in accordance with the specifications in the approved closure plan.

I-1 Closure Plan [HW 7045.0486]

I-1a Closure Performance Standard [HW 7045.0486]

This closure plan was designed so that at final closure the facility will not require further maintenance and controls. It is also designed to minimize or eliminate threats to human health and the environment. All hazardous waste and hazardous waste residues will be removed from the site. If there is evidence of hazardous waste contaminated soil, an evaluation will be made whether the soil can be decontaminated or excavated and disposed of at a proper disposal facility.

The following sections discuss in detail efforts to be made to satisfy the closure performance standard.

I-1b Partial and Final Closure Activities [HW 7045.0488]

Partial closure of storage areas or the incinerator and control equipment is not planned. In the event that future circumstances lead to discontinuing or modifying the hazardous waste tanks or container storage areas, the partial and final closure plans will be updated accordingly.

The boiler ash landfill area formally used as a processing surface for the incinerator ash and sludge, has been closed. All incinerator ash and sludge on the surface of the landfill were removed and properly disposed of either by shipping to a permitted landfill or recycling as scrap metal.

I-1c Maximum Waste Inventory

Listed below are maximum inventory of hazardous wastes in storage at any given time during the operating life of the incinerator.

Containers: 1,950,000 gallons total volume.
Tanks: 110,500 gallons total volume at incinerator.
20,000 gallons total volume in manufacturing area.

I-1d Inventory Removal and Disposal or Decontamination of Equipment

Following waste removal, all piping to and from the storage tanks will be disconnected, dismantled, and decontaminated, if required. The work will be supervised by qualified 3M personnel. Personnel performing the dismantling and decontamination will be equipped with appropriate safety clothing and equipment. Chemical neutralizers and spill control pillows will be employed in the event of any spills resulting from pipe drainage during the dismantling process. Extreme caution will be taken during all decontamination and cleanup activities. Non-sparking tools and equipment will be used as required.

Decontamination of waste storage tanks and associated valves and pumps will be performed by solvent washing and/or steam cleaning, if required. All contaminated wash waters (or solvents) generated as a result of the decontamination process will be collected and disposed in accordance with standard approved disposal methods available at that time.

Soils at the facility are not expected to be contaminated. Some superficial surface contamination may occur during the dismantling procedures. If evidence of soil contamination (in the form of discoloration or odor) exists, the soil will be removed and either decontaminated or sent to a proper disposal site.

I-1d (1) Closure of Containers

All waste stored in containers will be incinerated or hauled off-site to a RCRA-permitted hazardous waste disposal facility. Arrangements will be made for the proper disposal of empty containers remaining at the facility. An assessment as to the decontamination required for the container storage area will be made at the time of final closure.

I-1d (2) Closure of Tanks

All waste stored in tanks will be incinerated. Thus, all tanks would be empty at the time of final closure. However, in the event that some wastes are left, ultimate disposal for the material will depend on the hazard characteristics of the material and the disposal options available to 3M at that time. It is anticipated that due to safety and manpower considerations, the dismantling and decontamination of the tanks and associated piping would be in sequential order. As mentioned previously, decontamination would be by solvent washing and/or steam cleaning, if required.

I-1e Schedule For Closure [HW 7045.0488.1]

The Regional Administrator will be notified at least 180 days before implementing final closure procedures. The proposed schedule for closure is shown on Figure I-1.

Final closure will be supervised and certified by 3M personnel as well as an independent professional engineer as required.

I-1f Extensions for Closure Time [HW 7045.0488.2]

Unforeseen circumstances may result in extending the closure schedule. However, it does not appear that it will take longer than 180 days to complete final closure.

I-2 Post-Closure Plans [HW 7045.0490]

Post-closure care will not be needed for this facility because it is not a disposal facility.

I-3 Notice in Deed and Notice to Local Land Authority [HW 7045.0494 and .0496]

Because the 3M Chemolite plant is only a hazardous waste generator and treatment facility, notification is not necessary in the deed informing potential purchasers of restrictions associated with a disposal site.

I-4 Closure Cost Estimate [HW 7045.0498 and .0502]

The closure cost information presented is submitted in accordance with the requirements of HW 7045.0498 and .0502.

An estimated $1,545,000 (February, 1988, cost estimate) will be needed to close the 3M Chemolite Incinerator facility. Activities include removal of waste inventory, decontamination, disposal of decontamination solutions, and closure certification. See Table I-1.

This closure cost estimate will be kept on file at the facility and will be adjusted annually for inflation. Any revisions to this section will be incorporated at the time of the annual adjustment.

I-5 Financial Assurance Mechanism for Closure [HW 7045.0504]

I-5e Financial Test and Corporate Guarantee [HW 7045.0518 and .0524]

Given in Attachments to this Section are letters to the U.S.E.P.A. Region V Administrator regarding financial assurance for closure of this facility. These letters certify that 3M meets the Financial Test and Corporate Guarantee for closure.

1-6 Post-Closure Cost Estimate [HW 7045.0506]

Since all wastes will be disposed offsite, there will be no post-closure activities or costs.

I-7 Financial Assurance Mechanism for Post-Closure [HW 7045.0508]

Since all wastes will be disposed of offsite, there will be no post-closure activities or costs.

I-8 Liability Insurance [HW 7045.0518.1]

I-8a The 3M Company is self-insured in case of bodily injury and property damage to third parties caused by sudden accidental occurrances arising from operation of this hazardous waste treatment facility. A copy of the letter sent to the U.S.E.P.A. Region V Administrator is given in Attachments to this Section.

I-8b Non-Sudden Insurance [HW 7045.0518.2]

Requirements for nonsudden insurance apply only to surface impoundments, landfills, or land treatment disposal facilities, none of which applies to the 3M Chemolite facility.

I-8c Variance and Adjustment Procedures [HW 7045.0518.3 and .4]

It is not anticipated that the 3M Company will petition the U.S.E.P.A. Region V Administrator for a reduction in the liability amounts.

If future legislation increases the amounts of liability coverage or imposes nonsudden liability coverage requirements to cover incinerators, 3M Company will seek to adjust the insurance provisions discussed previously.

I-9 State Assumption of Responsibility [40 CRF 270.14 (b) (18) and 264.150]

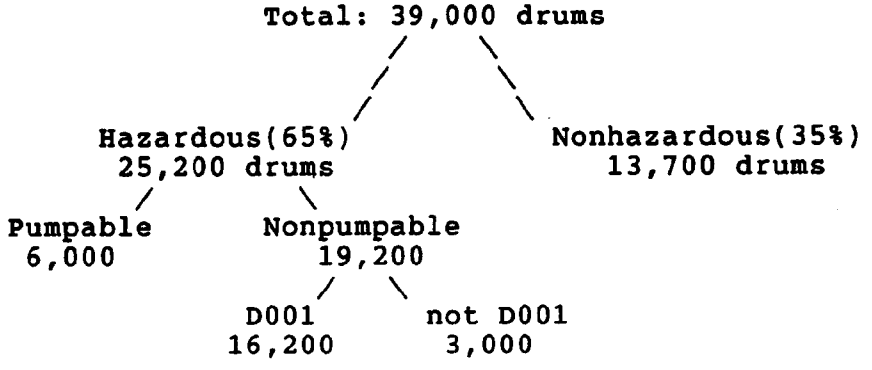
It is not anticipated that 3M Company will request state assumption of the legal or financial responsibilities.

Table I-1
Closure Cost Estimate
Chemolite Center Incinerator

I. Containers

Storage Capacity: 39,000 Total Drums
37,000 in Trailers
2,000 in Bldgs & at Docks

Breakdown according to waste types:



A. Non-Hazardous Disposal

1. Repackage(Empty into Bulk Containers)

13,700 drums x 1 hr/ 8 drums x $25/hr = $42,800.00

2. Sanitary Landfill

13,700 drums x 1 cy/ 5 drums x $20/cy = $54,800.00

$97,600.00

Assume $100,000

B. Ignitable(D001)

1. Devolatize & Recover Solvent
   a. Fabricate Equipment = $75,000
   b. O & M
   ** Labor to load and unload
   16,200 drums x 2 hr/ 20 drums x $25/hr = $40,500
   ** Energy cost
   810 - 12 hr cycles
   810 cycles x 8 hrs/cycle x 2000#s steam/hr
   x $5/1000#s steam = $64,800

Table I-1(cont.)

c. Recovered Solvent

16,200 drums x 3 gals/drum = 48,600 gallons

2. Inspect & Repackage Decontaminated Drums

16,200 drums x 1 hr/ 6 drums x $25/drum = $67,500

3. Ship to Secure Landfill

16,200 drums x 1 cy/ 5 drums x $120/cy = $388,800

$636,600

Assume $640,000

C. Other Hazardous

1. Sewer Corrosives at Chemolite WWT

500 drums x 50 gals/drum x $0.20/gal = $5,000

2. Inspect & Repackage(Bulk)

2200 drums x $120/cy / 5 drum/cy = $52,800

2200 drums x 1 hr/ 4 drums x $25/hr = $13,750

3. Ship Special Waste in Drums

300 drums x $120/drum = $36,000

$107,550

Assume $110,000

Total for Section I: $850,000

II. Tanks & Other Scrap Solvent

Tanks:	130,000	gallons	
Drums:	300,000	"	
Recovered:	48,600	"	
	478,600	"	
	-30,000	"	Chlorinated & Special Wastes
	448,600	"	

Assume 450,000 Gallons

3MA00152751

Table I-1(cont.)

A. Distill & Use Solvent for Boiler Fuel

1. Use existing distillation equipment

450,000 gallons x $0.20/gallon	=	$90,000

2. Dewater distillation bottoms sewering the water and contract incinerating the solids

WWT: 45,000 gallons x $0.12/gallon	=	$5,400
Incinerate: 45,000 gal x $3/gal	=	$135,000

3. Chlorinated & Special Waste Disposal

30,000 gals x $5/gal(T & D)	=	$150,000
		$380,400
Subtract Fuel Value: 387,000 gals x $0.25/g	=	-101,250
		$279,150

Total for Section II: $280,000
****

III. Miscellaneous

A. Disposal of Waste Piles

200 cy x $150/cy	=	$30,000

B. Decontamination of Piping, Pumps, Storage Areas, & Tanks including Disposal

3200 hrs x $25/hr	=	$80,000
200 drums of residue x $200/drum	=	$40,000

C. Decontamination of Wastewater Treatment System, Kiln, Shredder, Bulk Feed, & Incinerator APC Equipment

2000 hrs x $25/hr	=	$50,000
100 drums x $200/drum	=	$20,000
100 cys x $150/cy	=	$15,000

D. Environmental Permits, Approvals, and Training

200 hrs x $50/hr	=	$10,000

E. Legal Assistance

20 hrs x $100/hr	=	$2,000
F. Closure Certification	=	$1,500

G. Supervisory Personnel

700 hrs x $50/hr	=	$35,000
		$283,500

Total for Section III: $285,000
****

Table I-1(cont.)

Cost Summary:

Section I	=	$840,000
Section II	=	280,000
Section III	=	285,000
		$1,405,000
10% Contingency	=	140,000
		$1,545,000

Use $1,545,000 (1988)

****

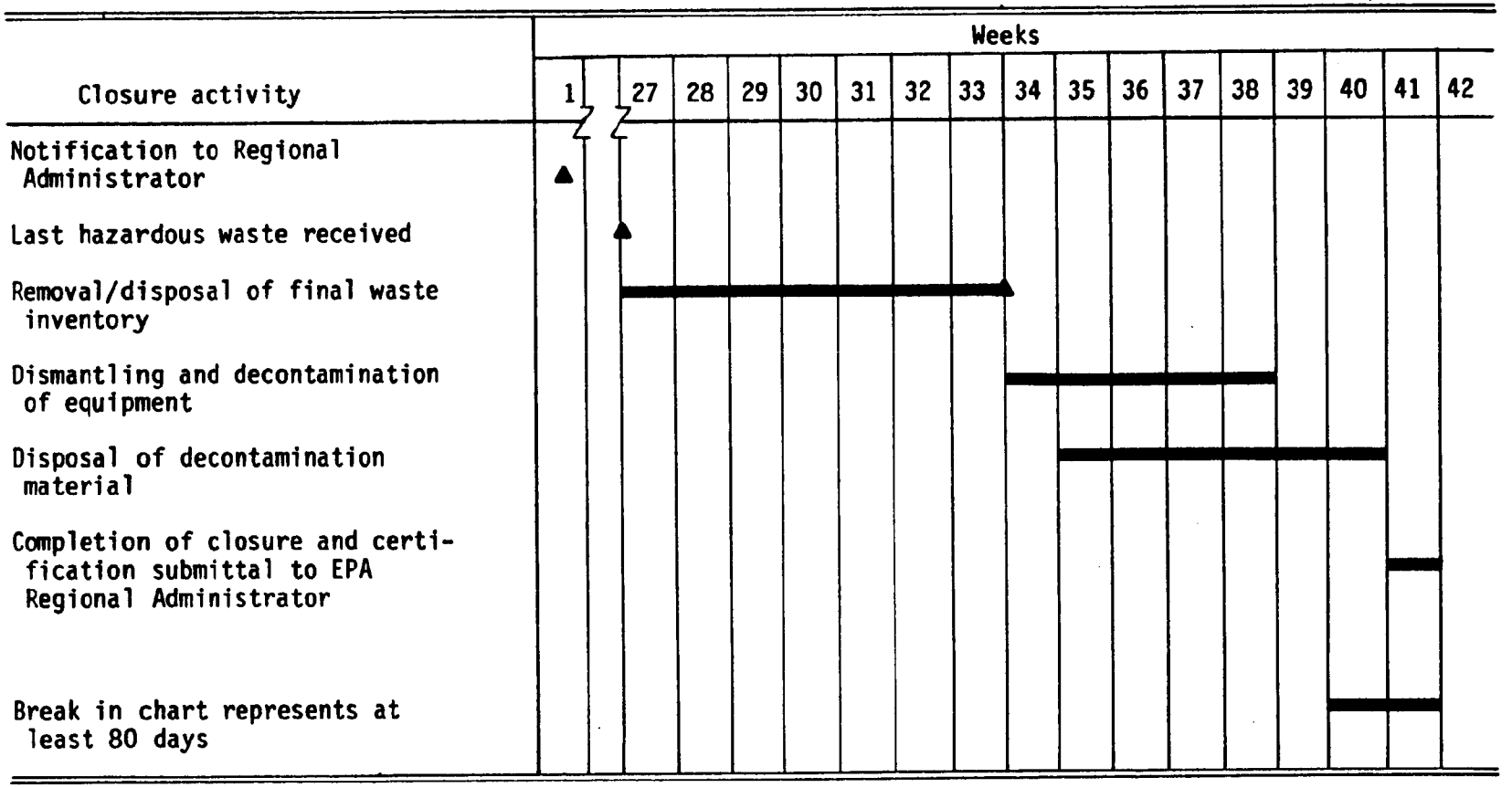


Figure I-1. 3M Chemolite incinerator final closure schedule.

3M Environmental Engineering
and Pollution Control

PO Box 33331
St. Paul, Minnesota 55133-3331
612/778 4791

March 28, 1988

Mr. Valdas Adamkus
Regional Administrator
EPA Region V
230 South Dearborn
Chicago, Illinois 60604

Subject: FINANCIAL ASSURANCE FOR CLOSURE OF HAZARDOUS WASTE STORAGE AND TREATMENT FACILITIES

Dear Mr. Adamkus:

The attached statement from Coopers and Lybrand, Certified Public Accountants and the letter from R. W. Roberts, Vice President, Finance, certify that 3M meets the Financial Test and Corporate Guarantee for closure as required by 40 CFR Parts 264 and 265, subpart H, Section 265.143, paragraph (e).

3M is the owner of a plant located at:

Highway 84 North
P.O. Box 215
Cordova, IL 61242
(EPA ID No. ILD 054236443)

1700 North Minnesota Street
New Ulm, MN 56073
(EPA ID No. MND 079723979)

Highway 61 and County Road 19
Cottage Grove, MN
P.O. Box 33131
St. Paul, MN 55133
(EPA ID No. MND 006172969)

which has interim status as a RCRA hazardous waste storage and treatment facility.

Please contact me at 612/778-4468 if there are any questions or need of additional information. Please direct any correspondence regarding this matter to the undersigned at the address listed in the letterhead.

Sincerely,

Russell H. Susag, Ph.D., P.E.
Director Environmental Regulatory Affairs
Building 21-2W-06

RHS/jp

3M Environmental Engineering
and Pollution Control

PO Box 33331
St. Paul, Minnesota 55133-3331
612/778 4791

March 28, 1988

Mr. James Warner
Minnesota Pollution Control Agency
Hazardous Waste Division
520 Lafayette Road
St. Paul, MN 55155

Subject: **FINANCIAL ASSURANCE FOR CLOSURE OF HAZARDOUS WASTE STORAGE AND TREATMENT FACILITIES**

Dear Mr. Warner:

The attached letter from R. W. Roberts, Vice-President, Finance, and a statement from Coopers and Lybrand, Certified Public Accountants, is being sent to you to certify that 3M meets the Financial Test and Corporate Guarantee for closure as required by 40 CFR Parts 264 and 265, subpart H, Section 265.143, paragraph (e).

3M is the owner of a plant(s) located at:

1700 North Minnesota Street
New Ulm, MN 56073

Highway 61 and County Road 19
Cottage Grove, MN
P.O. Box 33131
St. Paul, MN 55133

which has interim status as a RCRA hazardous waste storage facility.

A similar letter with attachments was also sent to the Regional Administrator for informational purposes.

Please contact me at 612/778-4468 if there are any questions or need for additional information. Please direct any correspondence regarding this matter to the undersigned at the address listed in the letterhead.

Sincerely,

Russell H. Susag, Ph.D., P.E.
Director, Environmental Regulatory Affairs
Building 21-2W-06

RHS/jp

attachment

General Offices/3M

3M Center
St. Paul, Minnesota 55144-1000
612/733 1110

March 18, 1988

Mr. James Warner
Minnesota Pollution Control Agency
Hazardous Waste Division
520 Lafayette Rd., North
St. Paul, MN 55155

Dear Mr. Warner:

I am the chief financial officer of 3M Company, 3M Center, St. Paul, Minnesota 55144. This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage and closure and/or post-closure care as specified in Subpart H of 40 CFR Parts 264 and 265.

The firm identified above is the owner or operator of the following facilities for which liability coverage for sudden accidental occurrences is being demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265.

Facility Location	EPA ID. No.
3M Company 350 S. Lewis Road Camarillo, CA 93010	CAD080079601
3M Company 1331 Commerce Street Petaluma, CA 94952	CAT080033368
3M Company 22614 Route 84 North Cordova, IL 61242	ILD054236443
3M Company 1700 North Minnesota St. New Ulm, MN 56073	MND079723979
3M Company Hwy 61 & Cty Rd 19 Cottage Grove, MN P.O. Box 33131 St. Paul, MN 55133	MND006172969

Facility Location	EPA ID. No.
3M Company 1030 Baltimore Blvd. Westminister, MD 21157	MDD022688329
3M Company P.O. Box 327 Nevada, MO 64772	MOD057894321
3M Company 5400 Route B P.O. Box 1228 (65205) Columbia, MO	MOD054950670
3M Company 1999 Mount Read Blvd. Rochester, NY 14602	NYD045606480
3M Company Highway 377 South Brownwood, TX 76804	TXD001806868
3M Company 900 Dayton Ames, IA 50010	IAD089979058

The firm identified above guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, liability coverage for sudden accidental occurances at the following facilities owned or operated by the following subsidiaries of the firm: None.

1. The firm identified above owns or operates the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility.

Facility Location	EPA ID. No.	Closure Amount
3M Company 900 Dayton Ames, IA 50010	IAD089979058	$15,500

2. This firm identified above guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, the closure and post-closure care of the following facilities owned or operated by its subsidiaries. The current cost estimates for the closure and post-closure care so guaranteed are shown for each facility: None.

3. In States where EPA is not administering the financial requirements of Subpart H of 40 CFR Parts 264 and 265, this firm is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure or post-closure cost estimates covered by such a test are shown for each facility.

Facility Location	EPA ID. No.	Closure Amount
3M Company 350 S. Lewis Road Camarillo, CA 93010	CAD080079601	$143,500
3M Company 1331 Commerce Street Petaluma, CA 94952	CAT080033368	8,600
3M Company 22614 Route 84 North Cordcva, IL 61242	ILD054236443	214,300
3M Company 1700 North Minnesota St New Ulm, MN 56073	MND079723979	8,600
3M Company Hwy 61 & Cty Rd 19 Cottage Grove, MN P.O. Box 33131 St. Paul, MN 55133	MND006172969	1,545,000
3M Company 1030 Baltimore Blvd. Westminister, MD 21157	MDD022688329	27,500
3M Company P.O. Box 327 Nevada, MO 64772	MOD057894321	24,800
3M Company 5400 Route B P.O. Box 1228 (65205) Columbia, MO	MOD054950670 Closure Postclosure 12,773/yr. 30 yr.	154,500 383,200
3M Company 1999 Mount Read Blvd. Rochester, NY 14602	NYD045606480	46,900
3M Company Highway 377 South Brownwood, TX 76804	TXD001806868	53,200

4. The firm identified above owns or operates the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to EPA or a State through the financial test or any other financial assurance mechanisms specified in Subpart H of 40 CFR Parts 264 and 265 or equivalent or substantially equivalent State mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: None.

5. This firm is the owner or operator of the following UIC facilities for which financial assurance for plugging and abandonment is required under Part 144. The current closure cost estimates as required by 40 CFR 144.62 are shown for each facility: None.

This firm is required to file a Form 10-K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on December 31. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended 1987.

ALTERNATIVE II

1.	Sum of current closure and post-closure cost estimates (total of all cost estimates listed above)	$2,625,600
2.	Amount of annual aggregate liability coverage to be demonstrated	$2,000,000
3.	Sum of lines 1 and 2	$4,625,600
4.	Current bond rating of most recent issuance of this firm and name of rating service	AAA - Moody's
5.	Date of issuance of bond	April 1, 1975
6.	Date of maturity of bond	April 1, 1988 - 2005
*7.	Tangible net worth	$4.7 billion
*8.	Total assets in U.S. (required only if less than 90% of assets are located in the U.S.)	$4.5 billion (A)

(A) Excludes certain corporate assets, primarily cash and securities, investments and other current assets.

		Yes	No
9.	Is line 7 at least $10 million	X	
10.	Is line 7 at least 6 times line 3?	X	
*11.	Are at least 90% of firm's assets located in the U.S.? If not, complete line 12		X
12.	Is line 8 at least 6 times line 3?	X	

I hereby certify that the wording of this letter is identical to the wording specified in 40 CFR 264.151(g) as such regulations were constituted on the date shown immediately below.

R. W. Roberts
Vice President, Finance

March 18, 1988

RWR/mrw

SECTION K

Certification

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

Date: 6/13/84 Signature: R P Bringer

Robert P. Bringer
Executive Director

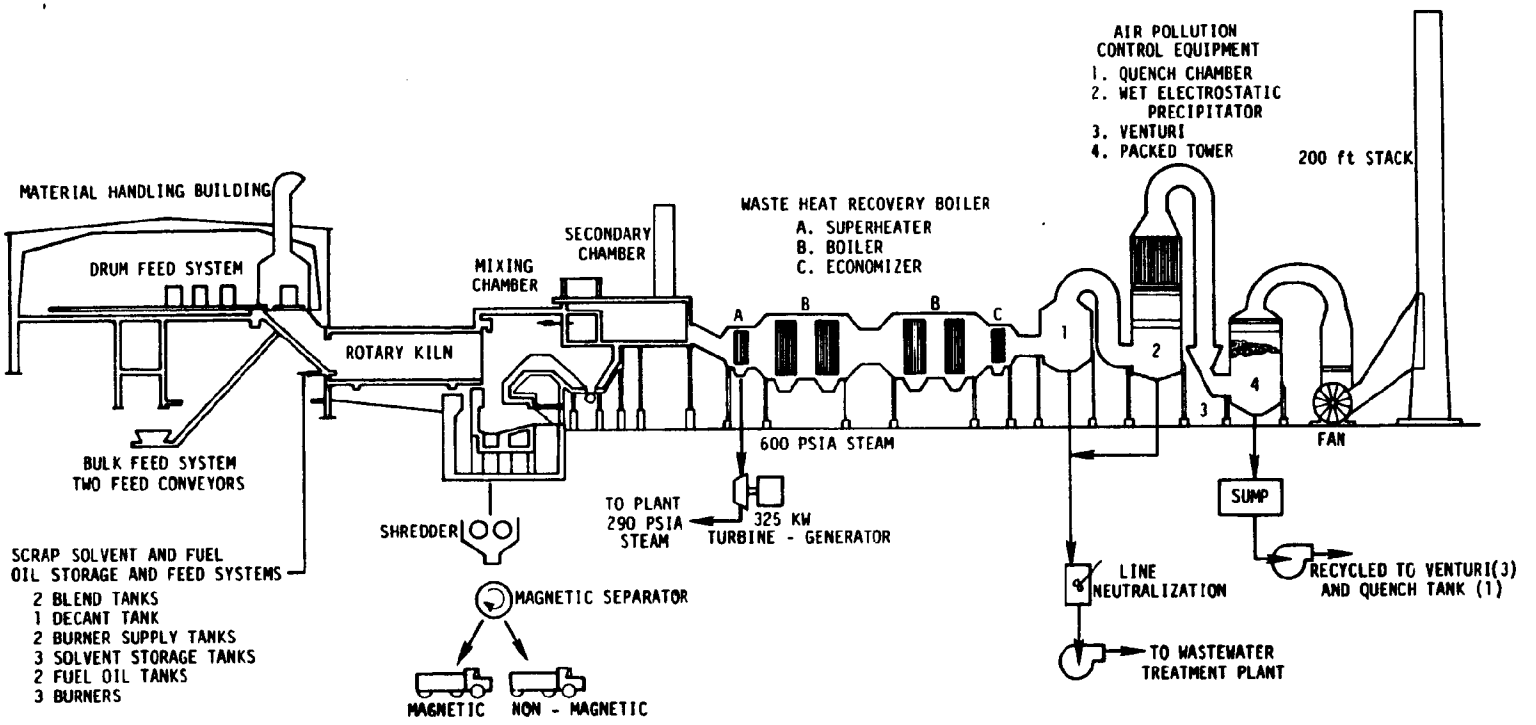


Figure D-13. Chemolite Incinerator Schematic.

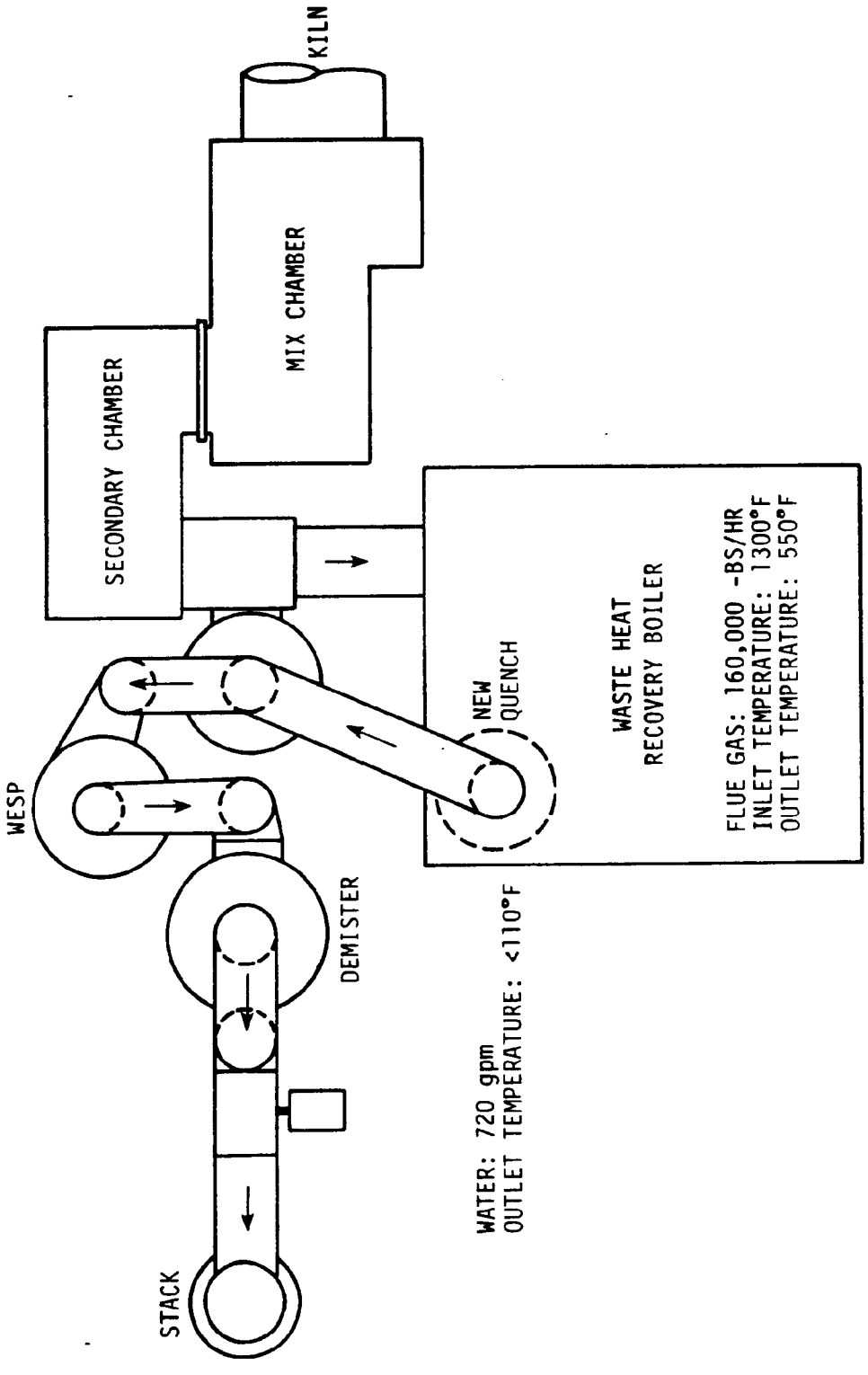


Figure D-14. Plan view of Chemolite Incinerator Waste Heat Recovery Boiler.

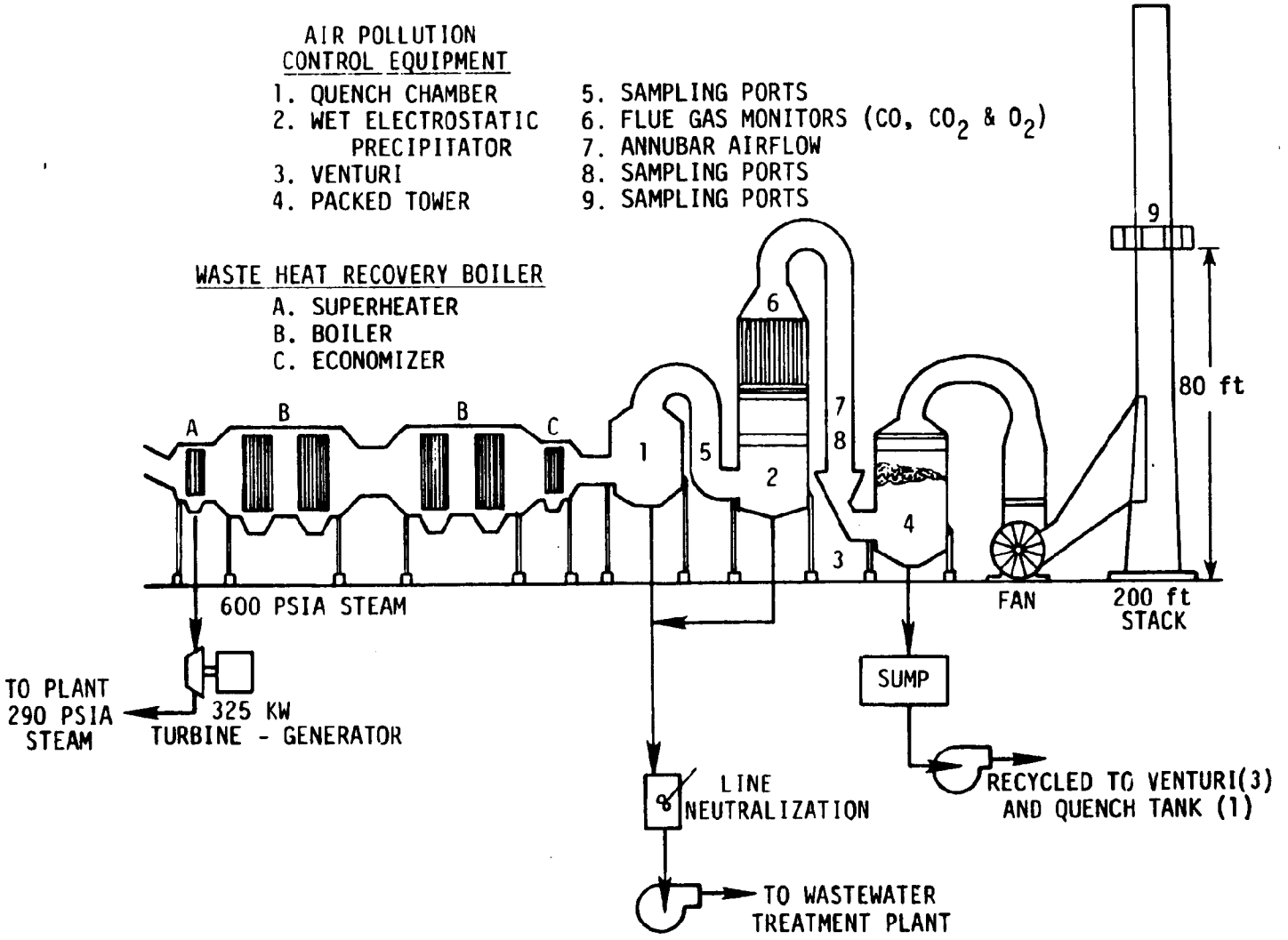


Figure D-15. Chemolite Incinerator Monitoring and Sampling Locations.

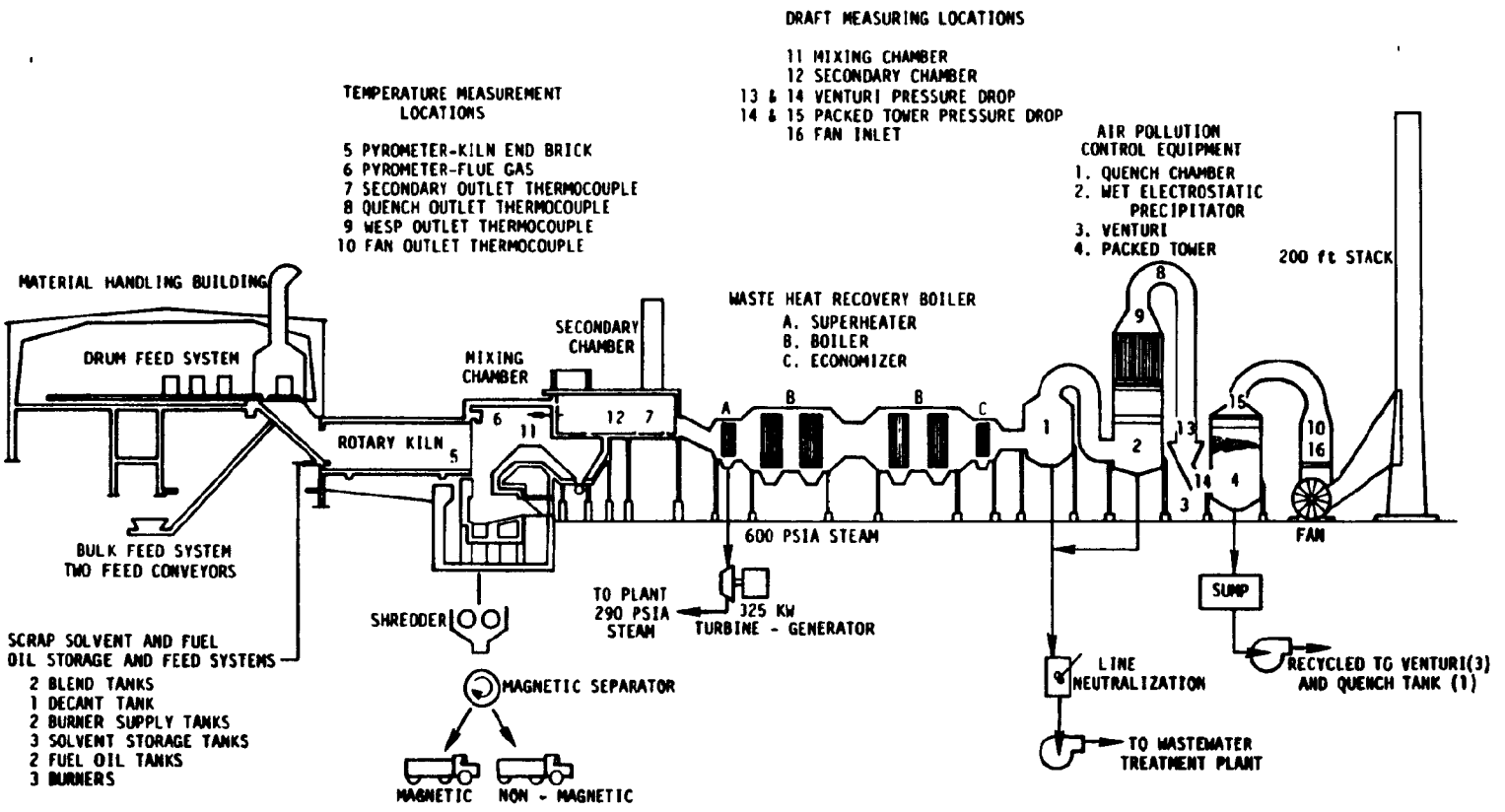


Figure D-16. Chemolite Incinerator temperature and draft gauge monitoring locations.

A 500 horsepower induced draft fan draws the flue gas through the system and exhausts them up the 200 foot stack. The fan blade is constructed of Hastelloy C alloy. A coated iron duplicate fan blade is stored for temporarity replacement. Figure D-17 contains fan curves for the induced draft fan. A revised fan curve is being developed with the new configuration. It will be supplied as part of the revised Trial Burn Plan.

Process and instrumentation drawings for the incinerator are shown in the blueprints marked D-18, D-19 and D-20. Several pages from the 3M Engineering Standards are included at the end of Section D which explains the nomenclature used on 3M electrical drawings. As-built drawings for the computer integrated process control system are currently not available.

Sampling and Monitoring Procedures

Sampling and monitoring procedures and locations, and analytical methods are described in Section 5 of the Trial Burn Plan.

Test Schedule

A proposed test schedule is presented in Section 6 of the Trial Burn Plan.

Test Protocol

A description of the test protocol followed during the trial burn is presented in Section 4 of the Trial Burn Report, Vol. 1.

Pollution Control Devices

A description of the air pollution control equipment including normal operating conditions are presented in Section 3 of the Trial Burn Report, Vol. 1. This will be revised for the new Trial Burn Report.

Shutdown Procedures

A description of the shutdown procedures and controls to be employed in the event of a equipment malfunction is presented in Section 7 of the Trial Burn Plan.

Principal Organic Hazardous Constituents (POHC)

Section 2 of the Trial Burn Report, Vol. 1 presents a list of the proposed POHC's.

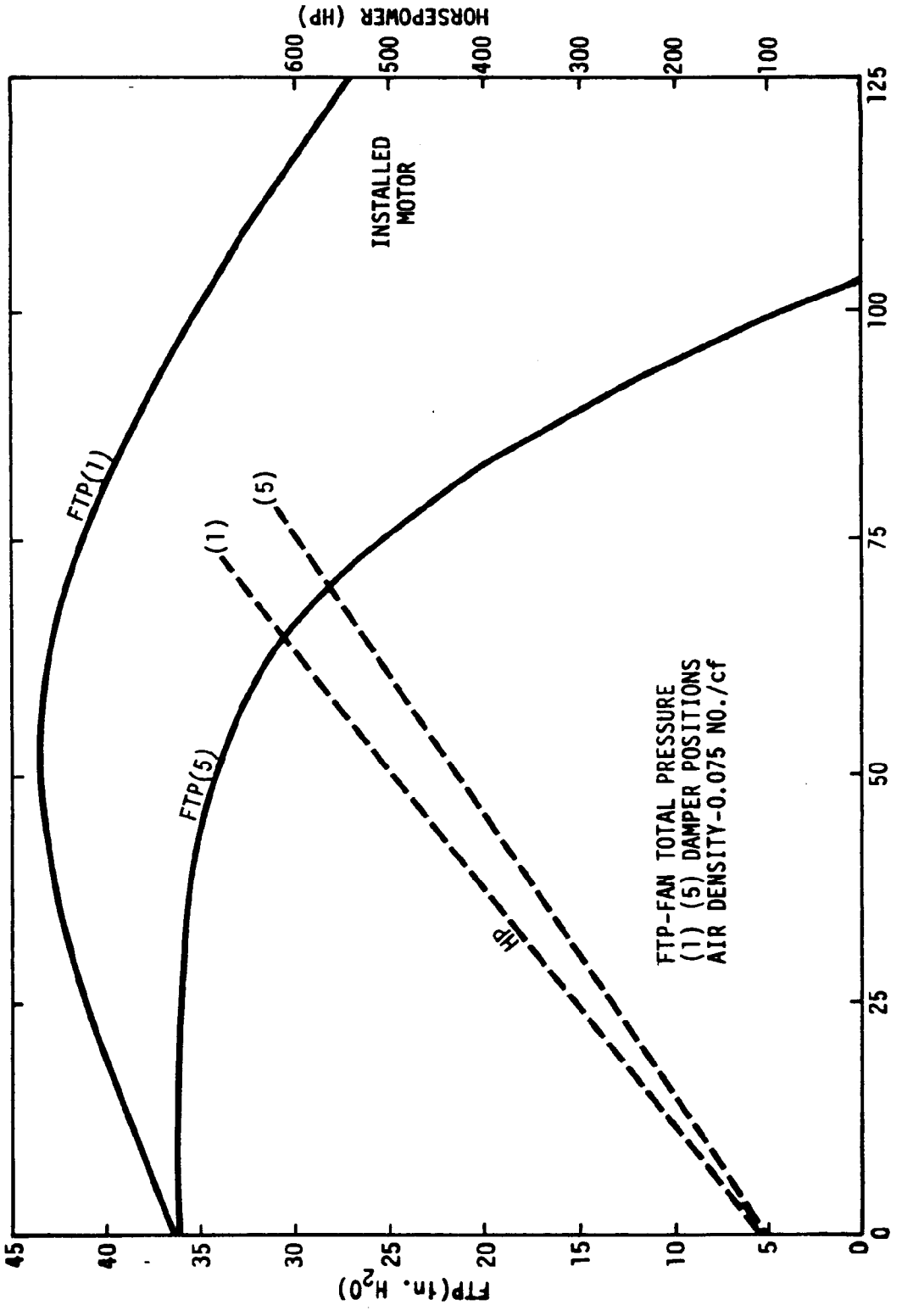


Figure D-17. Chemolite Incinerator Induced Draft Fan.