7

File: CHEM-2a

bcc: C. S. Chow/M. Santoro - 21-2W-05
D. Thune - 42-5E-02
A. Rabins - 42-5E-02
G. Ries - 42-5E-02

August 14, 1987

Subject: Chemolite Site Air Permit Application

Certified Mail

Ms. Elizabeth Henderson
Regulatory Compliance Section-Permits Unit
Division of Air Quality
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155

Dear Ms. Henderson:

Attached herewith is a copy of the air emissions permit application for the Specialty Chemicals Division facility located at 3M's Chemolite Center in Cottage Grove, Minnesota. This application covers all sources of air emissions for the Specialty Chemicals Division site.

The potential emission rates for the reactor systems are based on actual source testing conducted at Chemolite Building 25 on July 23, 1987. A photocopy of the recording chart is attached in the appendix of the permit application as a reference.

"Please note that the confidential information has been deleted from this application and is being included separately in an envelope marked 'confidential'."

If you have any questions or need additional information, please feel free to call me at 612-778-4403.

Sincerely,

Joel A. Barvels

Joel A. Barvels
Environmental Technologist
Building 21-2W-05

JAB/cel

Attachment: The application with the confidential information is enclosed in a separate envelope marked confidential.

TABLE OF CONTENTS

Minnesota Pollution Control Agency
Division of Air Quality

For Agency Use Only
DAQ File No. _____

APPLICATION FOR AIR EMISSION FACILITY PERMIT

FORM A

1. **OWNER**
   Name 3M Company
   Street Address P.O. Box 33331 Bldg 21-2W-05
   City St. Paul State Minnesota Zip Code 55133

2. **OPERATOR (if different from owner)**
   Name _____
   Street Address _____
   City _____ State _____ Zip Code _____

3. **EMISSION FACILITY**
   Name Chemolite Center (Specialty Chemicals Division)
   Street Address Hwy 61 and Cty Rd. 19
   City Cottage Grove State Minnesota Zip Code 55016
   County Washington

CORRESPONDENCE
All correspondence should be addressed to (check one):
Owner X Operator ____ Facility ____

5. **REASON FOR APPLICATION**
   A. New Facility ____
   B. Expiration of Existing Permit ____
   C. Modification to Existing Facility ____
   D. Agency Request X
   E. Other, specify _____

   If new facility, give date operations are expected to begin: _____

6. **DESCRIPTION OF FACILITY AND PRINCIPAL BUSINESS ACTIVITY**
   Please describe the facility and the principal business activities which occur there.

7. **FACILITY MODIFICATIONS**
   A. If submission of this application is due to expiration of your current permit (5.B above), please review the attached Emission Inventory. If there have been no significant changes to your facility (including but not limited to production increases or decreases, facility expansions, process or pollution control equipment modifications, or increased emissions), initial here ____, and proceed to item 8.
   B. If modifications have been made to the facility since issuance of your last permit or permit amendment, or if this is a new application, please fill out the attached sheets and proceed to item 8.

8. APPLICATION FEE
Minn. Rules Part 7002.0010 to 7002.0100 require that a permit application fee of $50.00 made payable to the Minnesota Pollution Control Agency be attached to the permit application. A permit application cannot be processed unless accompanied by the application fee and will be returned.

9. Minn. Rules part 7001.0060 requires that a permit application must be signed as follows:

A. for a corporation, by a principal executive officer of at least the level of vice-president or the duly authorized representative or agent of the executive officer if the representative or agent is responsible for the overall operation of the facility that is the subject of the permit application;

B. for a partnership or sole proprietorship, by a general partner or the proprietor, respectively;

C. for a municipality, state, federal, or other public agency, by either a principal executive officer or ranking elected official;

D. if the operator of the facility for which the application is submitted is different from the owner, both the owner and the operator shall sign the application according to items A to C. Except in the case of a hazardous waste facility permit application, if the director finds that this requirement is impracticable under the circumstances, the director shall require the operator to sign the application according to items A to C.

Minn. Rules part 7001.0070 requires that the person who signs a permit application shall make the following certification:

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

R.P. Bringer
Signature

R.P. Bringer
Printed Name of Person Signing

Vice President
Title

8/24/87
Date

Signature

Printed Name of Person Signing

Title

Date

vmm11.50

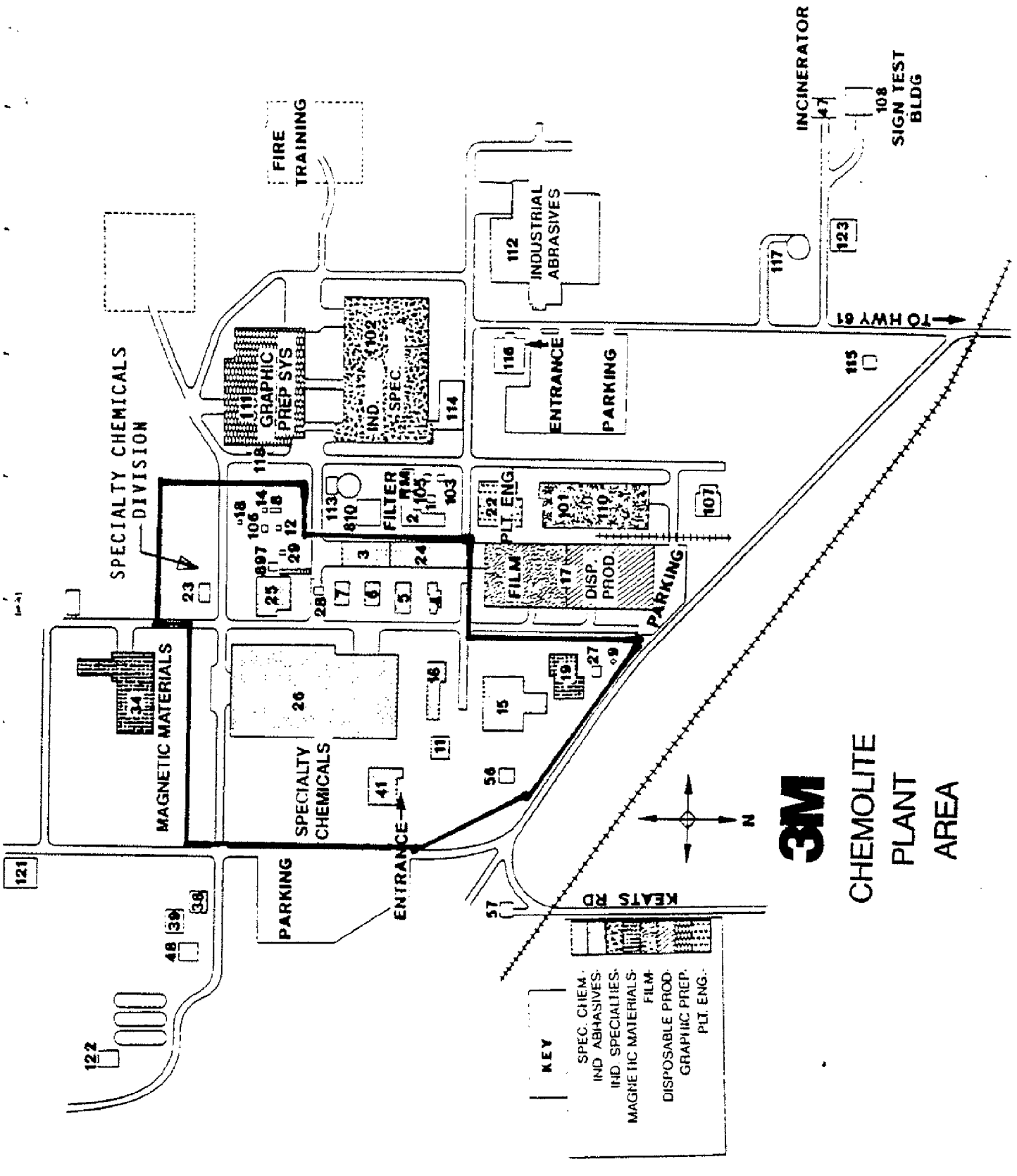
DESCRIPTION OF FACILITY AND PRINCIPAL BUSINESS ACTIVITY

3M's Specialty Chemical Division located at the Chemolite Center in Cottage Grove, Minnesota, manufactures a large variety of products and fine chemicals. Many of these are used by other 3M divisions as intermediates to produce finished goods or products. The principal products produced are adhesives and fluorochemicals.

The facility is designed for multipurpose process functions for the production capability of a wide selection of chemicals. The facilities present are of two basic types: chemical reactors and electrochemical cells. A typical reactor system has chemicals charged into the reactor. It is then heated and put under vacuum. The vapors are separated using vacuum jets and condenser and are collected in the decanter or receiver. The receivers are used for blending the finished product. A process diagram of the system described above can be found on page 7. The reactors range in size from 70 gallons to 6,000 gallons. The emissions from these reactors are based on a year's production (or worst case) using one chemical. When other chemicals are produced, emissions will be similar in quantity and type to the example presented on page 9.

There are 19 fluorochemical cells located in Building 15. A detailed Process Flow diagram can be found on page 6. A sample emission calculation can be found on page 8.

Two water scrubbers have been included to reduce the acid emissions from the fluorochemical cells. This type of installation is currently used on other fluorochemical product equipment. The scrubber is added as a safety precaution because of the acidic nature of HF and also used for acid emission reduction.

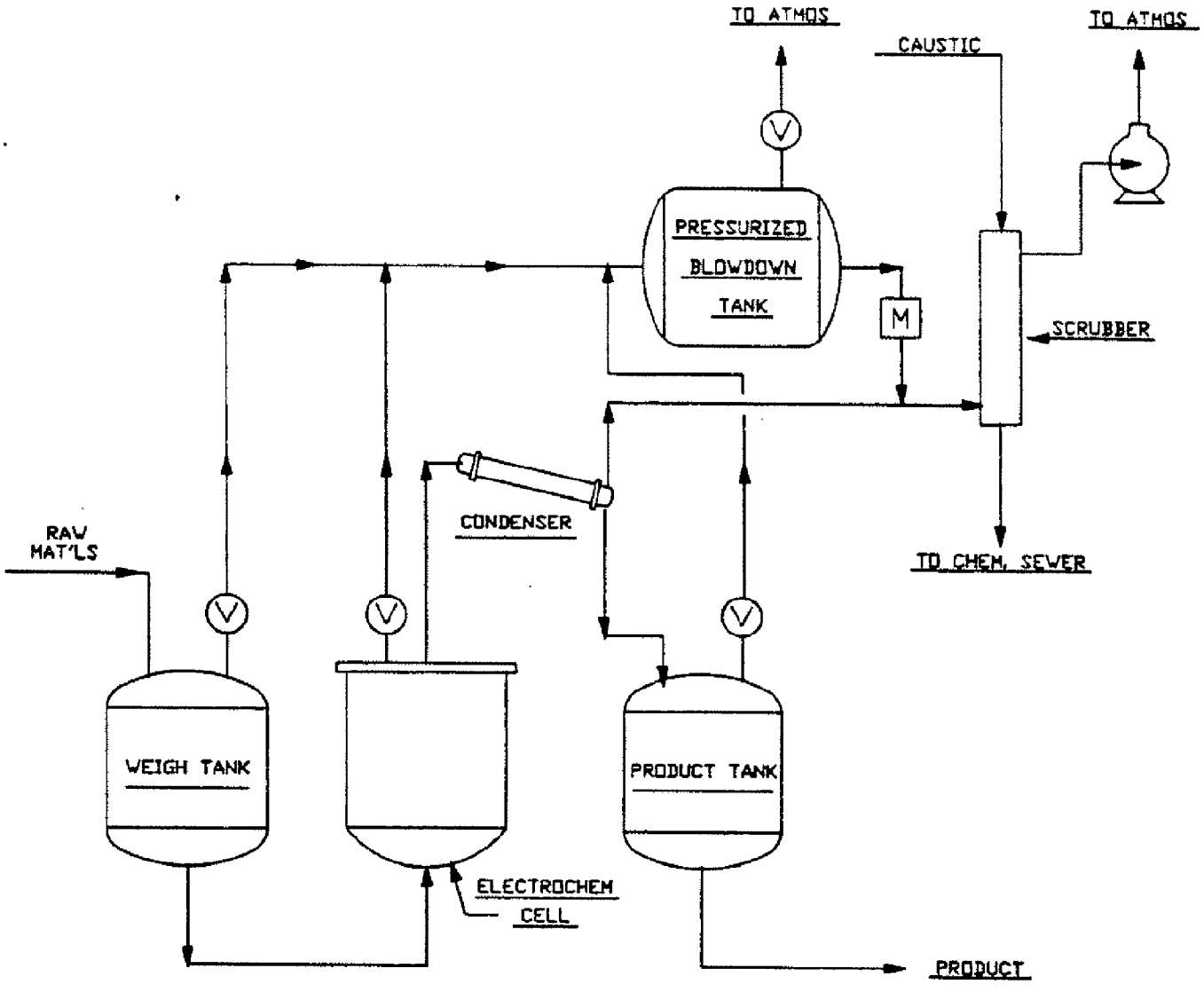


PROCESS FLOW DIAGRAMS

The drawings found on page 6 and page 7 show typical flow sheet for fluorochemical and reactor systems.

Each reactor vents directly to the roof through blowdown tank, with the exception of reactors 15-01, 15-02, 15-08, and 15-17 which vent through a water scrubber. The fluorochemical cells vent through a water scrubber.

The volume of pollutants for each process are reported on MPCA Form B.



SYMBOL LEGEND

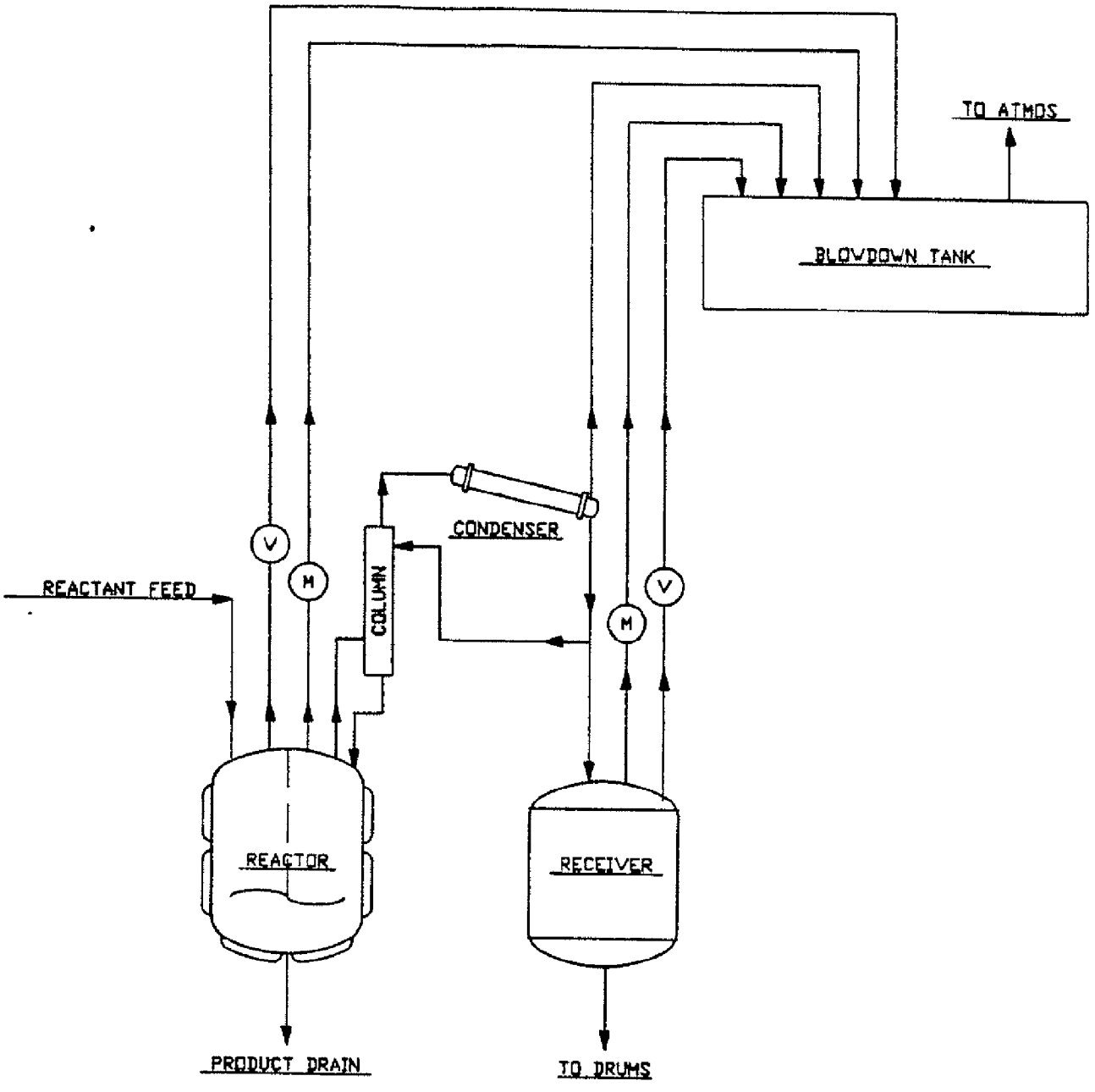
M = MANUAL VENT

V = RUPTURE DISC BACKED BY RELIEF VALVE

PROCESS FLOW DIAGRAM

TYPICAL FLUOROCHEMICAL CELL

SPECIALTY CHEMICALS DIVISION



SYMBOL LEGEND

M = MANUAL VENT

V = RUPTURE DISC BACKED BY RELIEF VALVE

PROCESS FLOW DIAGRAM

TYPICAL REACTOR SYSTEM

SPECIALTY CHEMICALS DIVISION

CALCULATION OF EMISSIONS FROM FLUOROCHEMICAL CELL

The following emission data is based on basic research done by 3M.

The off gases consist of inerts and fluorocompounds in the form of C_nF_{2n+2} (n from 1 to 4). They are not hydrocarbons based on the USEPA's organic compounds definition.

The emission rate is less than 0.40 lbs fluorocarbons/1000 amp hr.

Example:

Emissions from 10,000 amp system X amperage of 10-cell system = emissions lb/hr.

i.e., $\frac{0.400 \text{ lb/hr off gas}}{1000}$ X 10,000 x 10 cells = 40 lbs/hr.

40 lbs/hr. X 8760 hrs/yr X ton/2000 lbs = 175 tons/yr

Total emission from a 10-cell system = 175 tons/yr.

Note: These calculations are based on a maximum production year of 8736 hours or a "worst case" emission. A more typical operating level would be 7,000 hours annually.

Calculation for Determining Hydrocarbon Emissions for a Reactor.

The only time hydrocarbon emissions occur is during venting of the N_2 filled reactor in reaction period or after product drain. This routine usually occurs two (2) times in a product run. When the reactor is cleaned, it consists of an eight-hour solvent boil at which time vapors are vented through a condenser.

The following calculation is based on actual source testing conducted at Chemolite Building 25 on July 23, 1987. The product being produced was a solution polymer and the solvent used was xylene.

Source	Compound Name	Molecular Wt.	Air Flow (DSCFM)	PPM V/V	Emission Rate
Boil out	Xylene	106	10.0	1,100	0.18 lbs/hr.*
	8-hour boil cleaning - 1.44 lb/batch 1 batch every 17 hours				
Venting	Xylene	106	71.0	1,000,000	19.6 lbs/min.**

Reaction Emission Rate Calculation: 2 venting periods per 17-hour batch time of 4.5 min. each.

$$\frac{\underset{\text{Boil Out}}{0.18 \text{ lb/hr} \times 8 \text{ hr}} + \underset{\text{Vent}}{19.6 \text{ lbs/min} \times 4.5 \text{ min.}} + \underset{\text{Vent}}{19.6 \text{ lbs/min} \times 4.5 \text{ min.}}}{17 \text{ hrs.}} = 10.40 \text{ lbs/hr.}$$

*Calculation to determine the emission rate for a boil out.

$$\frac{1100 \text{ ppm xyl}}{1{,}000{,}000} \times \frac{\text{mol xyl}}{24.05 \text{ L}} \times \frac{106 \text{ g xyl}}{1 \text{ mol xyl}} \times \frac{28.5 \text{ L}}{1 \text{ ft}^3 \text{ xyl}} \times \frac{1 \text{ lb xyl}}{454 \text{ g xyl}} \times \frac{10 \text{ scfm}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} = 0.18 \text{ lb/hr}$$

**Calculation to determine the emission rate for a reactor venting.

$$\frac{1{,}000{,}000 \text{ xyl}}{1{,}000{,}000} \times \frac{\text{mol xyl}}{24.05 \text{ L}} \times \frac{106 \text{ g xyl}}{1 \text{ mol xyl}} \times \frac{28.5 \text{ L}}{1 \text{ ft}^3 \text{ xyl}} \times \frac{1 \text{ lb xyl}}{454 \text{ g xyl}} \times \frac{71 \text{scfm}}{1 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} =$$

1181 lbs/hr or $\frac{1181 \text{ lbs/hr}}{60 \text{ min/hr}} = 19.6 \text{ lbs/min}$

Calculations for Determining Potential Hydrocarbon Emissions for a Receiver.

Following is the calculation used to determine potential hydrocarbon emissions from a product receiver. A receiver only emits hydrocarbons during the venting process. This venting takes place a total of eight (8) hours every twenty-four (24) hours and uses N_2 gas, a purge medium.

Assumptions: Xylene is at $100^{\circ}F$
N_2 purge is at 5 scfm

Partial pressure of Xylene at $100^{\circ}F$ = 15.5 mm Hg or 0.02 lb/in^2

Therefore:

$$\frac{5\ ft^3\ purge}{min.} \times \frac{0.02\ ft^3\ xyl}{1\ ft^3\ purge} \times \frac{28.5\ L}{1\ ft^3\ xyl} \times \frac{mol\ xyl}{22.4\ L} \times \frac{106\ g\ xyl}{1\ mol\ xyl}$$

$$\times \frac{lb\ xyl}{454\ g\ xyl} \times \frac{60\ min}{1\ hr} = 1.78\ lbs/hr\ xylene$$

Since venting only occurs 8 hrs. every 24 hrs:

$$\frac{1.78\ lbs/hr\ xyl \times 8\ hrs.}{24\ hrs.} = 0.59\ lbs/hr\ xylene$$

BUILDING #4
EQUIPMENT LISTING

FLOOR #1

4-01: 300 GAL. TANK
4-02: 2000 GAL. TANK
4-03: 3000 GAL. RECEIVER
4-04: 350 GAL. REACTOR
4-05: 650 GAL. RECEIVER

FLOOR #2

4-06: 1000 GAL. REACTOR
4-07: 2000 GAL. REACTOR
4-08: 1000 GAL. REACTOR
4-09: 1500 GAL. REACTOR
4-10: 250 GAL. TANK

M B

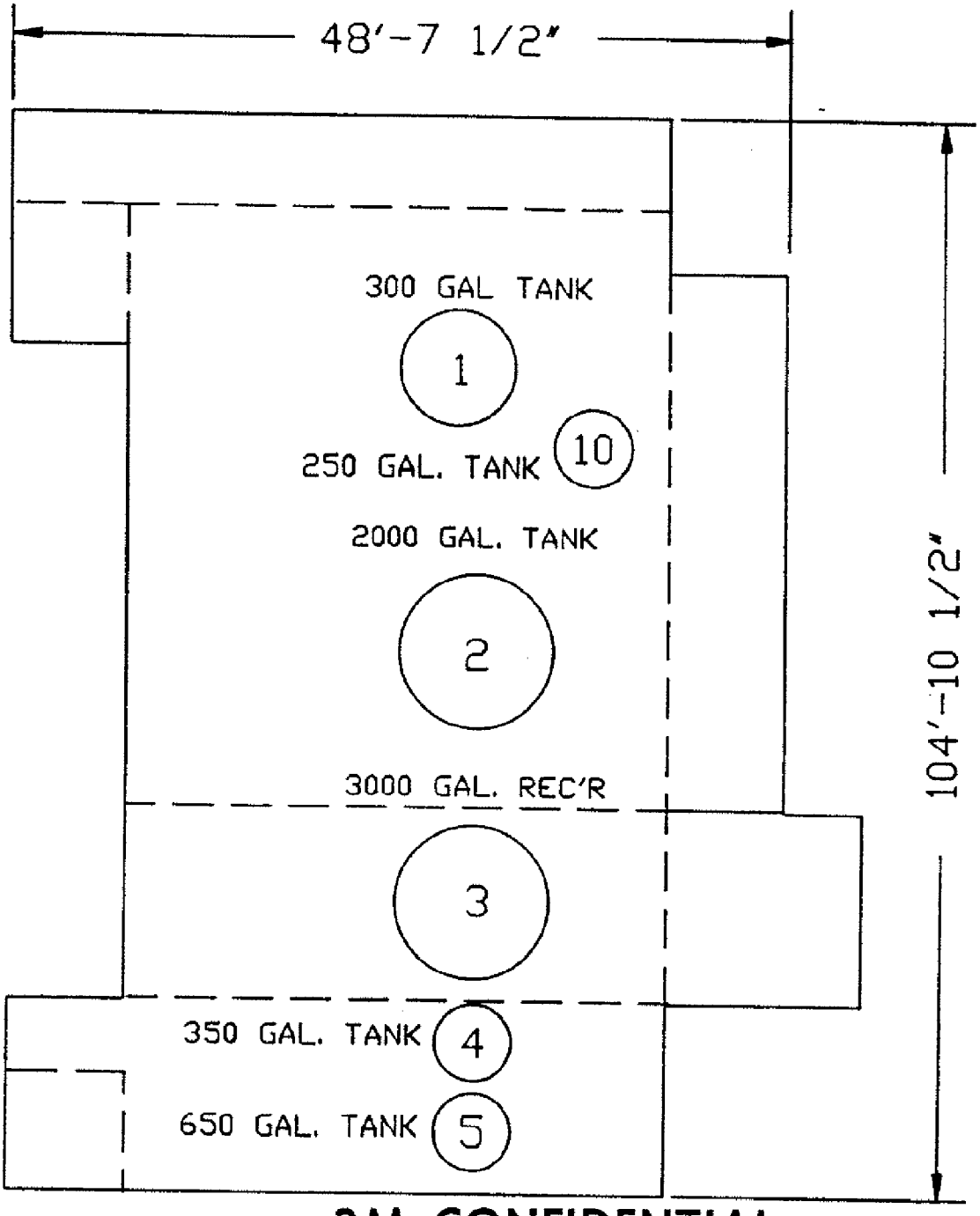
Application for Air Emission Facility Permit Minnesota Pollution Control Agency

For Agency Use
DAQ File No. _____

1	2	3	4	5	6	7	8	9	10	11	12
					Pollutants Emitted lbs/hr MCR*						
ck ber	Stack Height (ft)	Stack Exit Diameter (ft)	Stack Gas Exit Temp. (°F)	Gas Exit Flow Rate (acfm)	Particulate Matter (PM)	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NO_x)	Hydro Carbons (HC)	Carbon Monox- (CO)	Lead Compounds (Pb)	Pollution Control Equipment**
4-01	40	0.16	68	0.0392	none	none	none	<1.0	none	none	none
4-02	40	0.16	68	0.0392	none	none	none	<1.0	none	none	none
4-03	40	0.16	68	0.393	none	none	none	0.59	none	none	none
4-04	40	0.16	68	11.24	none	none	none	10.40	none	none	none
4-05	40	0.16	68	0.085	none	none	none	0.59	none	none	none
4-06	40	0.16	68	11.24	none	none	none	10.40	none	none	none
4-07	40	0.16	68	11.24	none	none	none	10.40	none	none	none
4-08	40	0.16	68	11.24	none	none	none	10.40	none	none	none
4-09	40	0.16	68	11.24	none	none	none	10.40	none	none	none
4-10	40	0.16	68	11.24	none	none	none	<1.0	none	none	none

* MCR - maximum continuous rating

** C - Cyclone; ESP - electrostatic precipitator; FF - fabric filter; S - Scrubber; AB - afterburner; I - incinerator

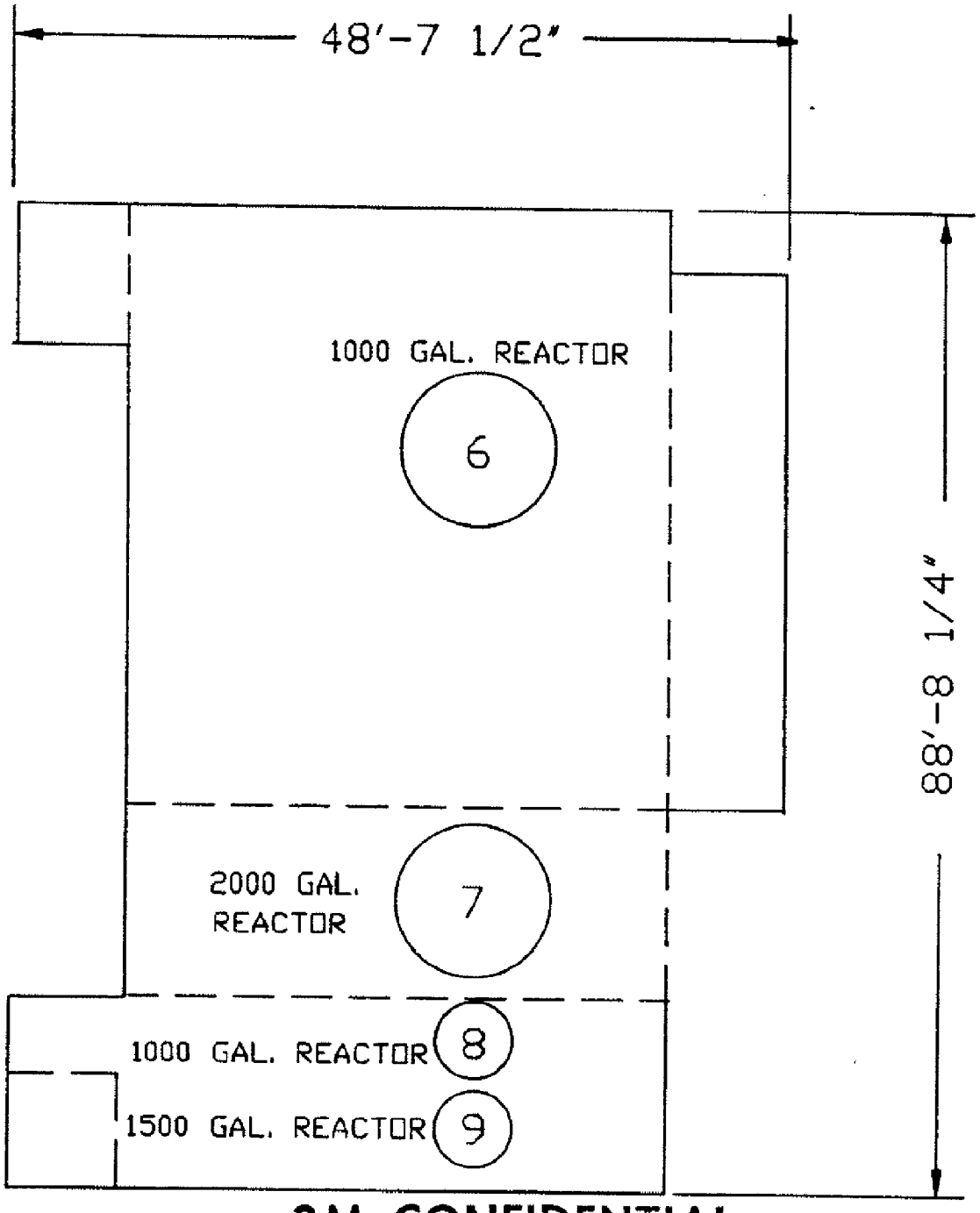


N →

BLDG. NO. 4

1 ST FLOOR

SPECIALTY CHEMICALS DIVISION



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BUILDING NO. 4

2 ND FLOOR

SPECIALTY CHEMICALS DIVISION

BUILDING #6
EQUIPMENT LISTING

FLOOR #3

6-01: 200 GAL. REACTOR
6-02: 200 GAL. RECEIVER
6-03: 1000 GAL. REACTOR
6-04: 300 GAL. GLASS REACTOR
6-05: 300 GAL. GLASS RECEIVER
6-06: 2000 GAL. REACTOR

M B

Application for
Air Emission Facility Permit
Minnesota Pollution Control Age.

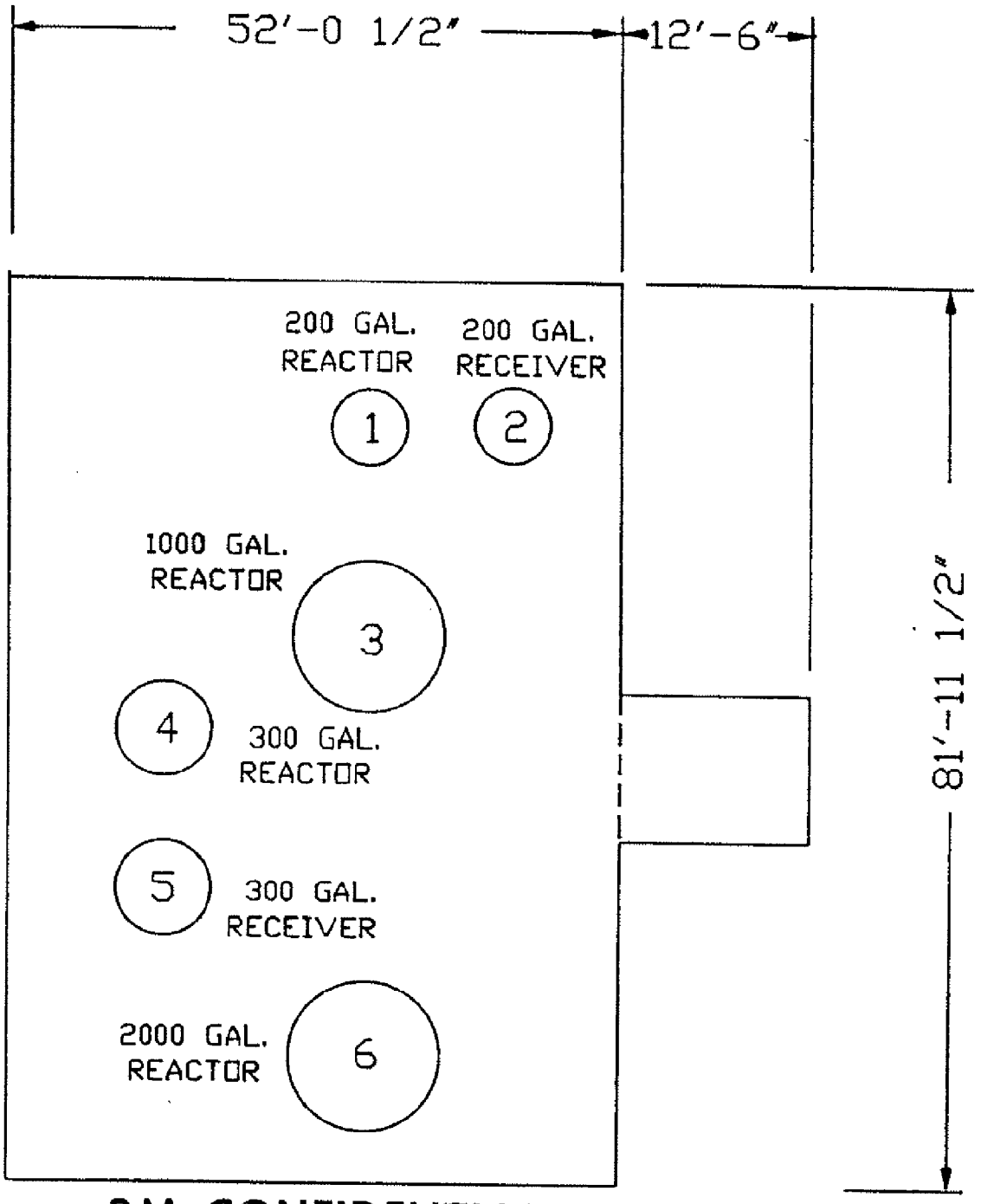
For Agency Use Only
DAQ File No.

1	2	3	4	5	6	7	8	9	10	11	12
					Pollutants Emitted lbs/hr MCR*						
ck ber	Stack Height (ft)	Stack Exit Diameter (ft)	Stack Gas Exit Temp. (°F)	Gas Exit Flow Rate (acfm)	Particulate Matter (PM)	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NO_x)	Hydro Carbons (HC)	Carbon Monox- (CO)	Lead Compounds (Pb)	Pollution Control Equipment**
6-0	31.5	0.16	68	11.24	none	none	none	10.40	none	none	none
6-02	31.5	0.16	68	0.026	none	none	none	0.59	none	none	none
6-03	31.5	0.33	68	11.24	none	none	none	10.40	none	none	none
6-04	31.5	0.33	68	11.24	none	none	none	10.40	none	none	none
6-05	31.5	0.33	68	0.026	none	none	none	0.59	none	none	none
6-06	31.5	0.33	68	11.24	none	none	none	10.40	none	none	none

* MCR - maximum continuous rating

** C_1 - Cyclone; ESP - electrostatic precipitator; FP - fabric filter; S - Scrubber; AB - afterburner; I - incinerator

10.



N →

BUILDING NO. 6
3RD FLOOR
SPECIALTY CHEMICALS DIVISION

BUILDING #7
EQUIPMENT LISTING

FLOOR #2

7-01: 2000 GAL. REACTOR
7-02: 750 GAL. REACTOR
7-03: 2000 GAL. REACTOR
7-04: 2000 GAL. REACTOR

FLOOR #3

7-05: 1000 GAL. REACTOR
7-06: 750 GAL. RECEIVER
7-07: 2000 GAL. REACTOR
7-08: 750 GAL. REACTOR
7-09: 1000 GAL. REACTOR
7-10: 500 GAL. REACTOR
7-11: 2000 GAL. REACTOR
7-12: 2000 GAL. REACTOR

FLOOR #4

7-13: 300 GAL. REACTOR
7-14: 200 GAL. REACTOR
7-15: 500 GAL. REACTOR

M B

Application for Air Emission Facility Permit Minnesota Pollution Control Agency

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1	2	3	4	5	6	7	8	9	10	11	12
					Pollutants Emitted lbs/hr MCR*						
ack Number	Stack Height (ft)	Stack Exit Diameter (ft)	Stack Gas Exit Temp. (°F)	Gas Exit Flow Rate (acfm)	Particulate Matter (PM)	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NO_x)	Hydro Carbons (HC)	Carbon Monox- (CO)	Lead Compounds (Pb)	Pollution Control Equipment**
7-01	33	0.16	68	11.24	none	none	none	10.40	none	none	none
7-02	33	0.16	68	11.24	none	none	none	10.40	none	none	none
7-03	33	0.16	68	11.24	none	none	none	10.40	none	none	none
7-04	33	0.33	68	11.24	none	none	none	10.40	none	none	none
7-05	33	0.33	68	11.24	none	none	none	10.40	none	none	none
7-06	33	0.16	68	0.023	none	none	none	0.59	none	none	none
7-07	33	0.16	68	11.24	none	none	none	10.40	none	none	none
7-08	33	0.16	68	11.24	none	none	none	10.40	none	none	none
7-09	33	0.16	68	11.24	none	none	none	10.40	none	none	none
7-10	33	0.16	68	11.24	none	none	none	10.40	none	none	none

* MCR - maximum continuous rating

** C - Cyclone; ESP - electrostatic precipitator; FF - fabric filter; S - Scrubber; AB - afterburner; I - incinerator

M B

Application for Air Emission Facility Permit Minnesota Pollution Control Agency

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DAQ File No. _____

1	2	3	4	5	6	7	8	9	10	11	12
					Pollutants Emitted lbs/hr MCR*						
ack Number	Stack Height (ft)	Stack Exit Diameter (ft)	Stack Gas Exit Temp. (°F)	Gas Exit Flow Rate (acfm)	Particulate Matter (PM)	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NO_x)	Hydro Carbons (HC)	Carbon Monox- (CO)	Lead Compounds (Pb)	Pollution Control Equipment**
7-11	33	0.16	68	11.24	none	none	none	10.40	none	none	none
7-12	33	0.16	68	11.24	none	none	none	10.40	none	none	none
7-14	33	0.16	68	11.24	none	none	none	10.40	none	none	none
7-15	33	0.16	68	11.24	none	none	none	10.40	none	none	none

* MCR - maximum continuous rating

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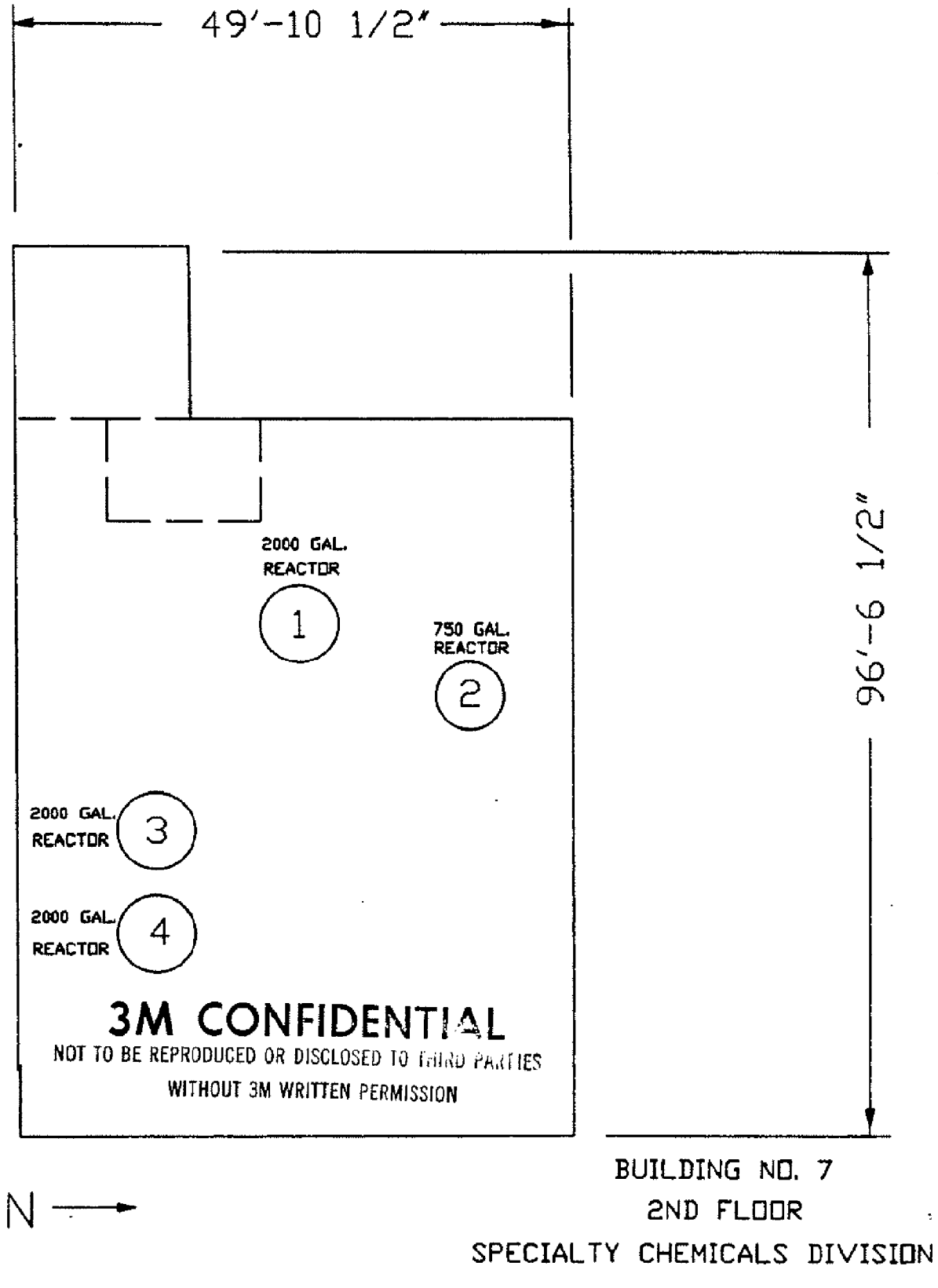
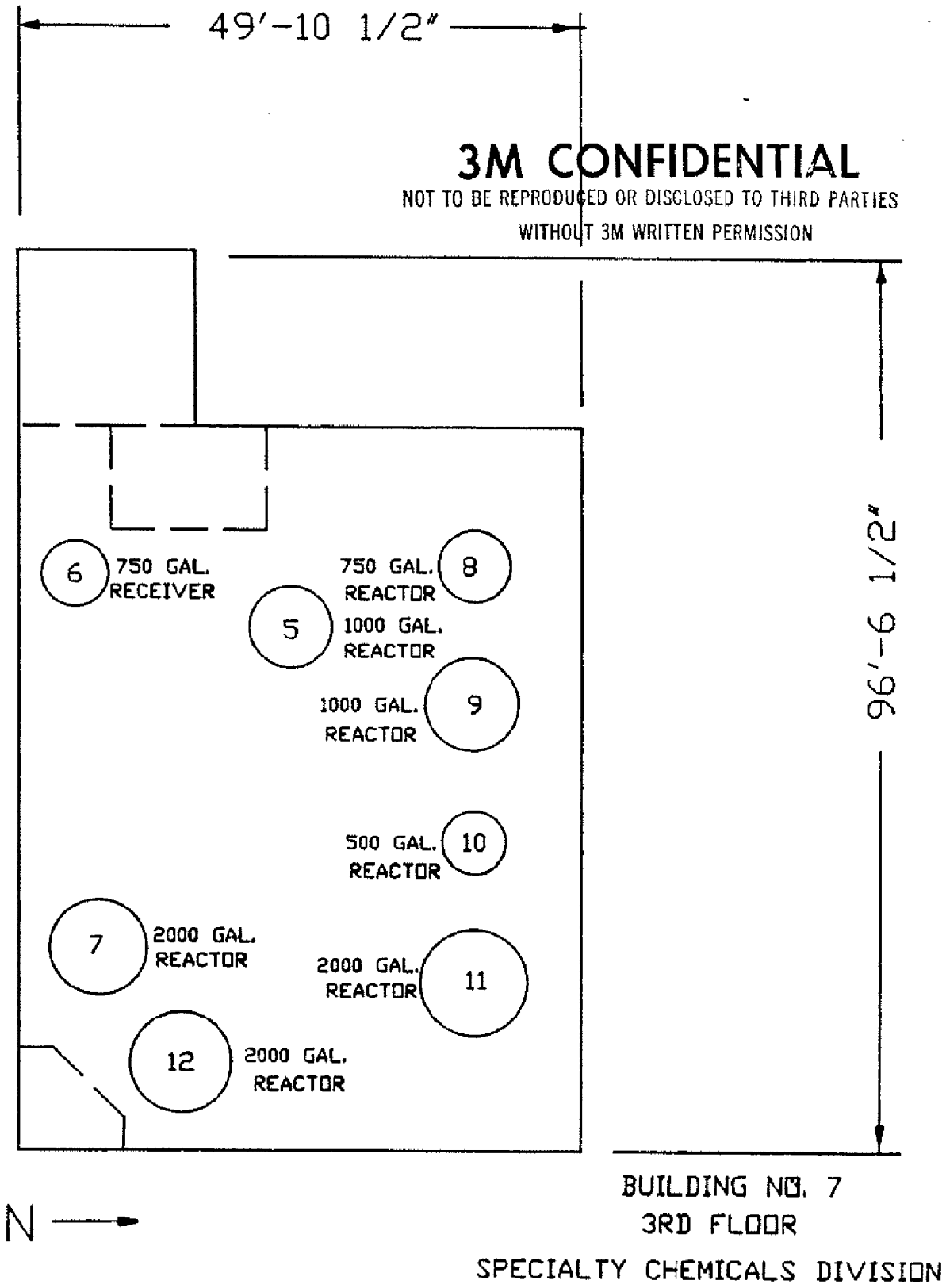
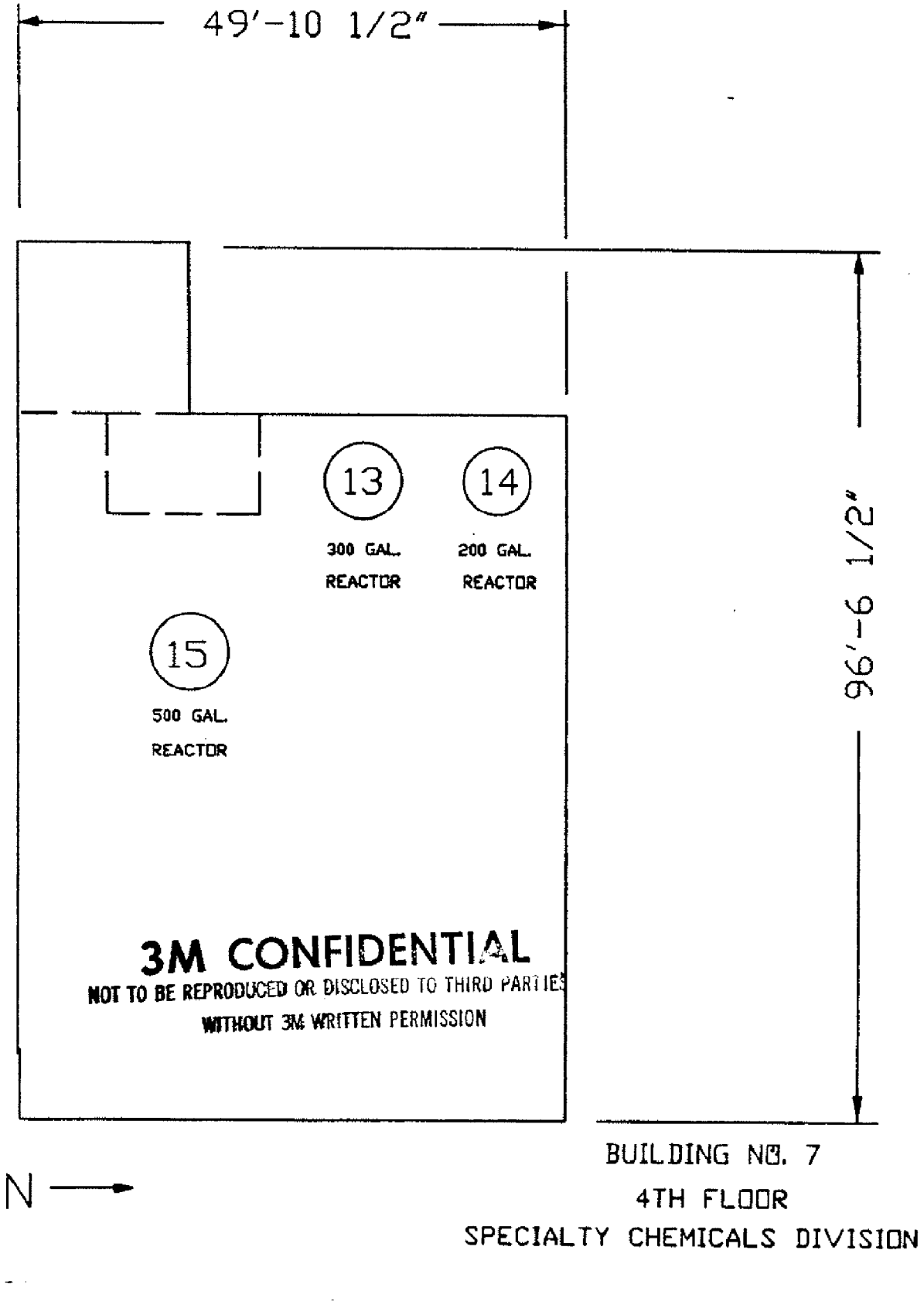






BUILDING #15
EQUIPMENT LISTING

FLOOR #2 Rm. A

15-01: 1250 GAL. RECEIVER
15-02: 1000 GAL. WASH TANK
15-03: 600 GAL. REACTOR
15-04: 600 GAL. RECEIVER
15-05: 1250 GAL. REACTOR
15-06: 100 GAL. RECEIVER
15-07: 100 GAL. REACTOR
15-08: 1000 GAL. REACTOR
15-09: 1000 GAL. RECEIVER
15-39: DISCOTHERM

FLOOR #2 Rm. B

15-12: 300 GAL. REACTOR
15-13: 750 GAL. REACTOR
15-14: 750 GAL. REACTOR

FLOOR #3 Rm. A

15-02: 1000 GAL. TANK

ELECTRO-CHEMICAL CELLS

EFC CELLS: 15-20 thru 15-38

M B

Application for Air Emission Facility Permit Minnesota Pollution Control Agency

For Agency Use
DAQ File No.

1	2	3	4	5	6	7	8	9	10	11	12
					Pollutants Emitted lbs/hr MCR*						
ck ber	Stack Height (ft)	Stack Exit Diameter (ft)	Stack Gas Exit Temp. (°F)	Gas Exit Flow Rate (acfm)	Particulate Matter (PM)	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NO_x)	Hydro Carbons (HC)	Carbon Monox- (CO)	Lead Compounds (Pb)	Pollution Control Equipment**
15-01	26.5	0.16	68	0.164	none	none	none	0.59	none	none	S
15-02	26.5	0.16	68	0.0313	none	none	none	1.0	none	none	
15-03	26.5	0.33	68	11.24	none	none	none	10.40	none	none	
15-04	26.5	0.33	68	0.079	none	none	none	0.59	none	none	
15-05	26.5	0.16	68	11.24	none	none	none	10.40	none	none	
15-06	26.5	0.16	68	0.131	none	none	none	0.59	none	none	
15-07	26.5	0.33	68	11.24	none	none	none	10.40	none	none	
15-08	26.5	0.33	68	0.131	none	none	none	0.0313	none	none	
15-09	26.5	0.33	68	0.131	noe	none	none	0.59	none	none	
15-12	26.5	0.33	68	11.24	none	none	none	10.40	none	none	

MCR - maximum continuous rating

C - Cyclone; ESP - electrostatic precipitator; FF - fabric filter; S - Scrubber; AB - afterburner; I - Incinerator
N
S
I

M B

Application for Air Emission Facility Permit Minnesota Pollution Control Agency

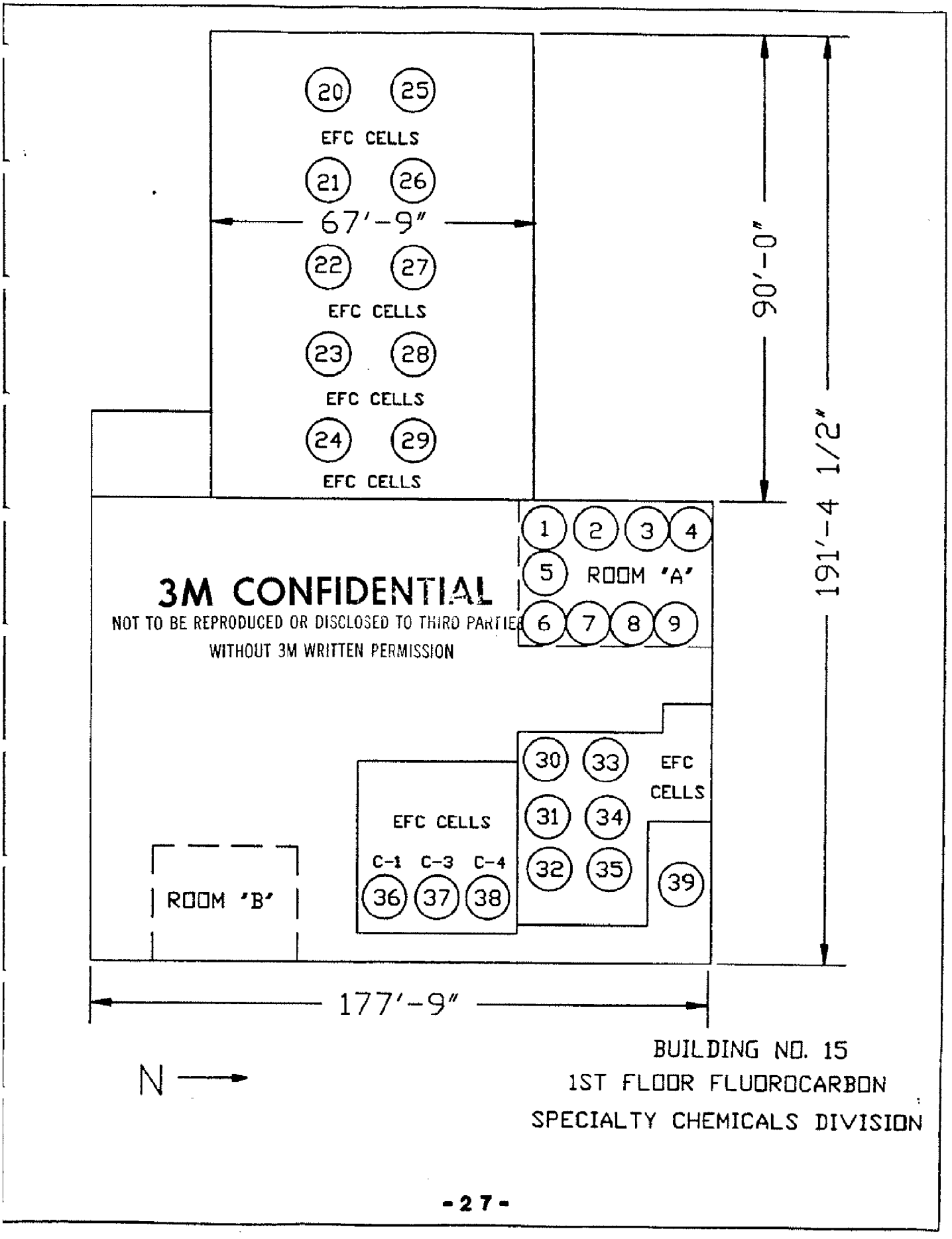
For Agency Use Only
DAQ File No. _____

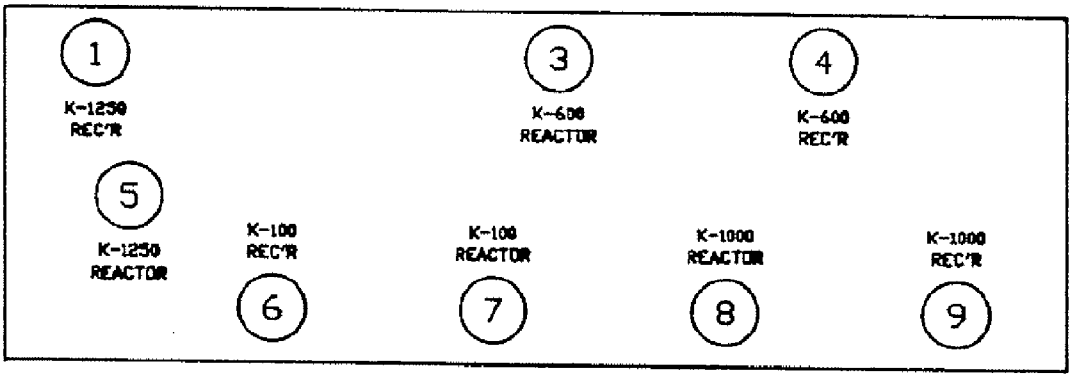
2	3	4	5	6	7	8	9	10	11	12
*				Pollutants Emitted lbs/hr MCR*						
Number	Stack Height (ft)	Stack Exit Diameter (ft)	Stack Gas Exit Temp. (°F)	Gas Exit Flow Rate (acfm)	Particulate Matter (PM)	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NO_x)	Hydro Carbons (HC)	Carbon Monox- (CO)	Lead Compounds (Pb)	Pollution Control Equipment**
15-13	26.5	0.33	68	11.24	none	none	none	10.40	none	none	none
15-14	26.5	0.33	68	11.24	none	none	none	10.40	none	none	none
EFC	20-38 26.5	0.16	75	3040	none	none	none	lbs/hr** 76.0	none	none	S
15-39	26.5	0.33	100	0.164	none	none	none	1.0	none	none	

MCR - maximum continuous rating

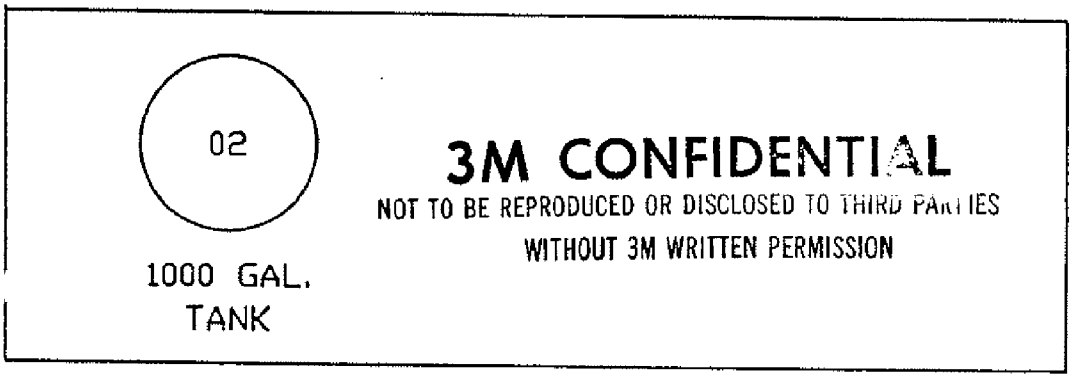
** Fluorocarbons emission rate. These FC are not hydrocarbons.

C - Cyclone; ESP - electrostatic precipitator; FF - fabric filter; S - Scrubber; AB - afterburner; I - incinerator

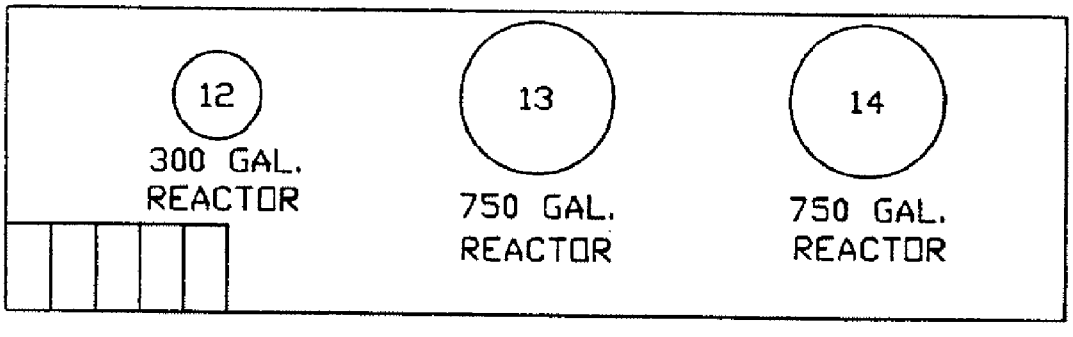




2ND FLOOR
ROOM "A"



3RD FLOOR
ROOM "A"



2ND FLOOR
ROOM "B"

BUILDING NO. 15
2ND & 3RD FLOORS
FLUOROCARBON
SPECIALTY CHEMICALS DIVISION

BUILDING #25
EQUIPMENT LISTING

FLOOR #1

25-01: 300 GAL. RECEIVER

FLOOR #2

25-02: 2000 GAL. RECEIVER
25-03: 3000 GAL. REACTOR
25-04: 3000 GAL. REACTOR
25-05: 3500 GAL. RECEIVER
25-06: 6000 GAL. REACTOR

FLOOR #3

25-07: 6000 GAL. REACTOR
25-08: 2000 GAL. REACTOR
25-09: 3750 GAL. REACTOR
25-10: 2000 GAL. REACTOR
25-11: 4000 GAL. REACTOR
25-12: 2000 GAL. REACTOR
25-13: 2000 GAL. REACTOR
25-14: 4000 GAL. REACTOR

Air Emission Facility Permit
Minnesota Pollution Control Agency

For Agency Use Only
DAQ File No.

1	2	3	4	5	6	7	8	9	10	11	12
Stack Exhaust	Stack Height (ft)	Stack Exit Diameter (ft)	Stack Gas Exit Temp. (°F)	Gas Exit Flow Rate (acfm)	Pollutants Emitted lbs/hr MCR*						
					Particulate Matter (PM)	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NO_x)	Hydro Carbons (HC)	Carbon Monox- (CO)	Lead Compounds (Pb)	Pollution Control Equipment**
25-01	51.5	0.16	68	0.039	none	none	none	0.59	none	none	none
25-02	51.5	0.16	68	0.131	none	none	none	0.59	none	none	none
25-03	51.5	0.16	68	11.24	none	none	none	10.40	none	none	none
25-04	51.5	0.16	68	11.24	none	none	none	10.40	none	none	none
25-05	51.5	0.16	68	0.393	none	none	none	0.59	none	none	none
25-06	51.5	0.33	68	11.24	none	none	none	10.40	none	none	none
25-07	51.5	0.33	68	11.24	none	none	none	10.40	none	none	none
25-08	51.5	0.33	68	11.24	none	none	none	10.40	none	none	none
25-09	51.5	0.33	68	11.24	none	none	none	10.40	none	none	none
25-10	51.5	0.33	68	11.24	none	none	none	10.40	none	none	none

* MCR - maximum continuous rating

** C - Cyclone; ESP - electrostatic precipitator; FF - fabric filter; S - Scrubber; AB - afterburner; I - incinerator

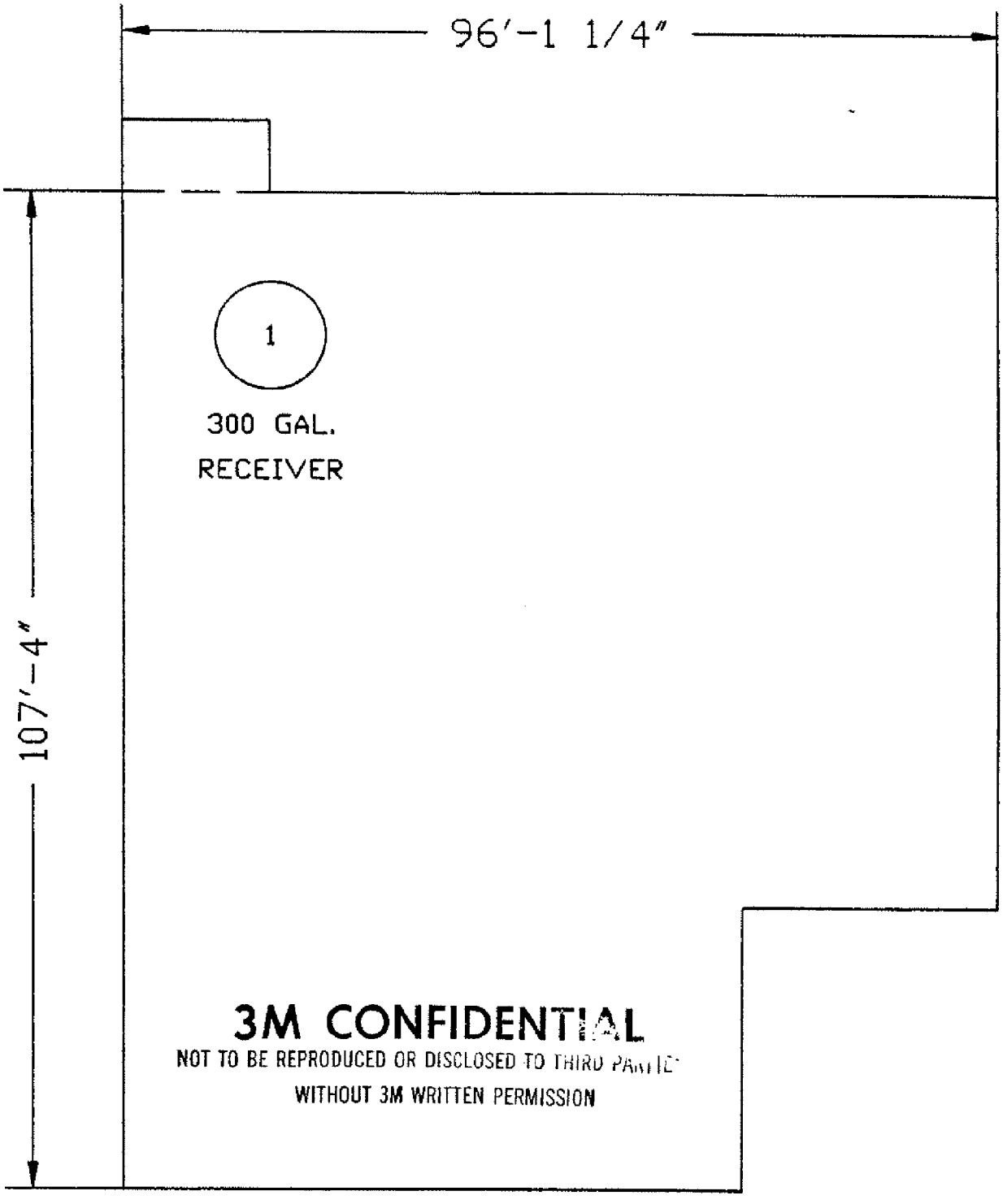
Air Emission Facility Permit
Minnesota Pollution Control Agency

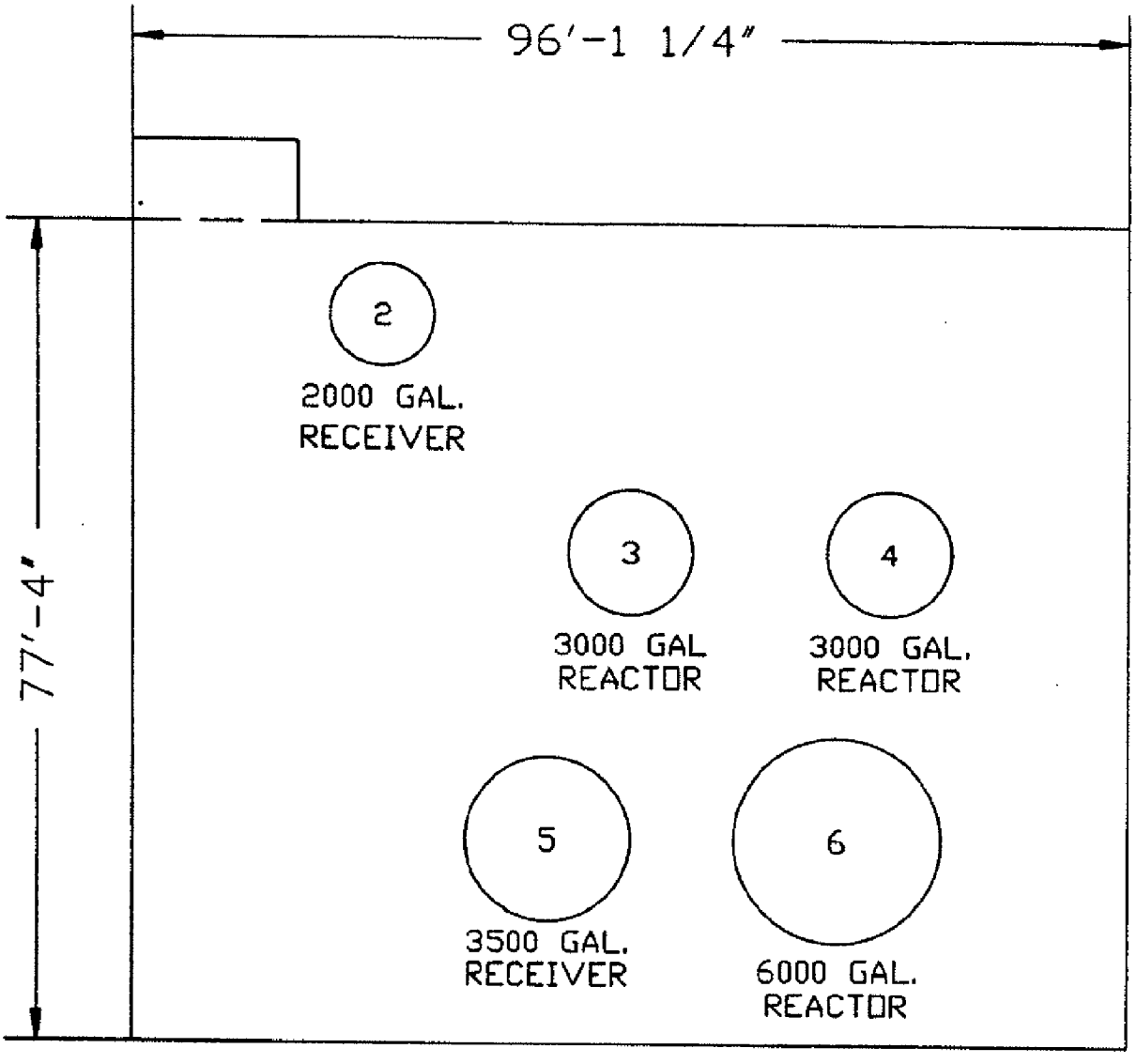
(For Agency Use Only)
DAQ File No.

1	2	3	4	5	6	7	8	9	10	11	12
					Pollutants Emitted lbs/hr MCR*						
Stack Number	Stack Height (ft)	Stack Exit Diameter (ft)	Stack Gas Exit Temp. (°F)	Gas Exit Flow Rate (acfm)	Particulate Matter (PM)	Sulfur Dioxide (SO_2)	Nitrogen Oxides (NO_x)	Hydro Carbons (HC)	Carbon Monox- (CO)	Lead Compounds (Pb)	Pollution Control Equipment**
25-11	51.5	0.16	68	11.24	none	none	none	10.40	none	none	none
25-12	51.5	0.33	68	11.24	none	none	none	10.40	none	none	none
25-13	51.5	0.16	68	11.24	none	none	none	10.40	none	none	none
25-14	51.5	0.16	68	11.24	none	none	none	10.40	none	none	none

* MCR - maximum continuous rating

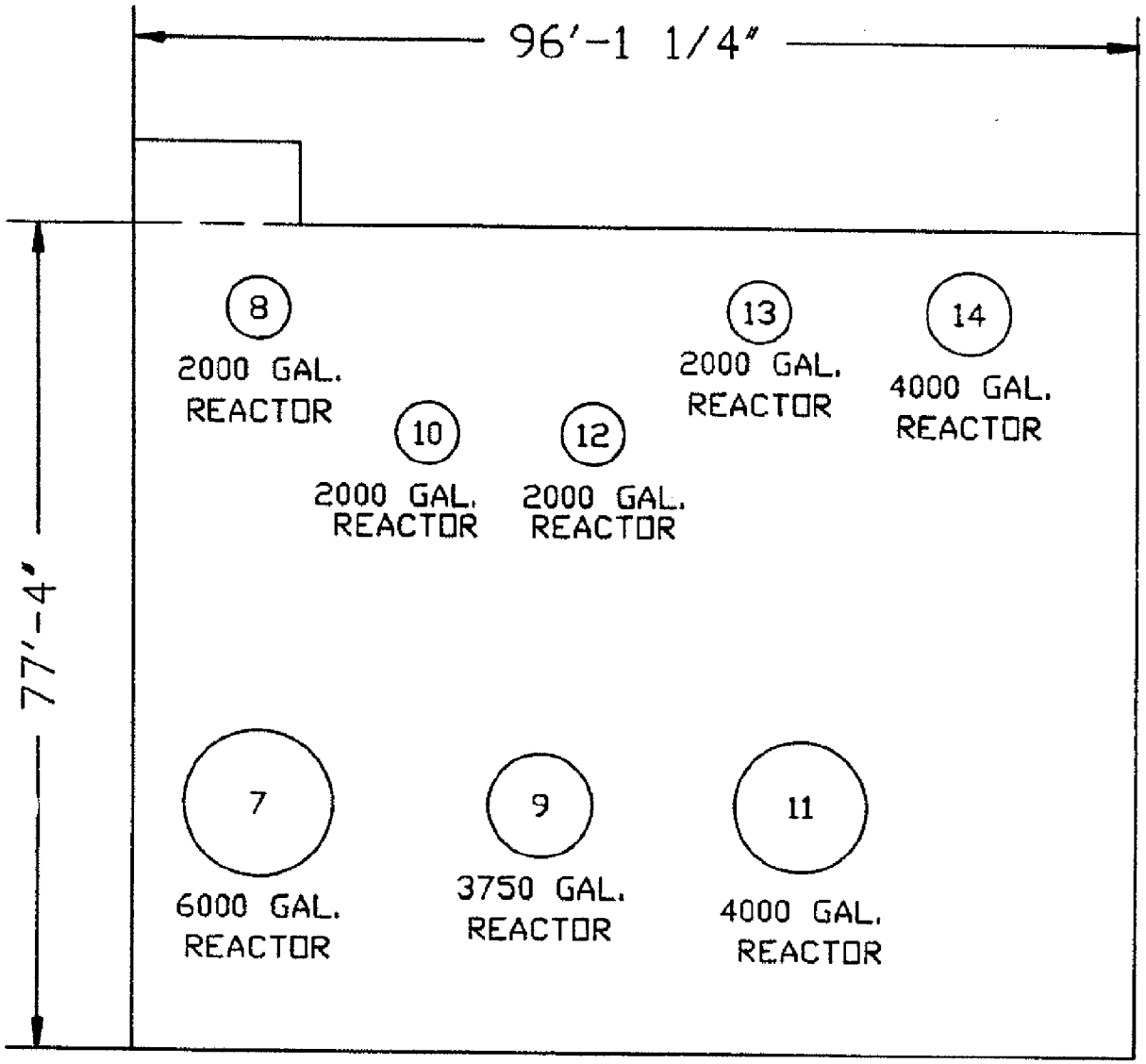
** C - Cyclone; ESP - electrostatic precipitator; FF - fabric filter; S - Scrubber; AB - afterburner; I - incinerator





BUILDING NO. 25 2ND FLOOR

N → SPECIALTY CHEMICALS DIVISION



BUILDING NO. 25 3RD FLOOR

N → SPECIALTY CHEMICALS DIVISION

CHEMOLITE SPECIALTY CHEMICAL DIVISION
TANK LISTING

ANK NO.	SIZE (GAL.)	CONTENTS
TANK FARM		
TF-2	50,000	ACETONE
TF-3A	50,000	XYLENE
TF-3B	50,000	EMPTY
TF-4A	12,000	EMPTY
TF-5	20,000	DENAT ALCOHOL
TF-6	50,000	TOLUENE
TF-7	20,000	CELLOSOLVE
TF-8	12,000	EMPTY
TF-9A	12,000	ACETONE
TF-9B	12,000	ACETONE
TF-10	50,000	ISOPROPANOL
TF-11	20,000	FLUOROCARBONS
TF-12	20,000	MEK
TF-13A	20,000	METHANOL
TF-14	20,000	METHYL METHACRYLATE
TF-15	20,000	MEK & XYLENE
TF-16	50,000	ETHYL ACETATE
TF-17	20,000	ETHYL ACRYLATE
TF-18	[illegible]	HEPTANE
BUILDING 5		
TK-1	12,000	TOLUENE DIISOCYANATE
TK-2	12,000	PHTHALIC ANHYDRIDE
TK-3	12,000	SIPEX OIL
TK-4	12,000	LIGHTWATER
TK-5	20,000	LIGHTWATER
TK-6	6,000	EMPTY
TK-7	6,000	VARNISH
TK-8	6,000	VARNISH
TK-9	6,000	VARNISH
TK-10	6,000	VARNISH
TK-11	6,000	MEK & XYLENE
TK-13	16,000	LIGHTWATER
TK-14	20,000	CASTOR OIL
TK-17	20,000	EMPTY
TK-18	20,000	PROPANOL
TK-19	20,000	CELLOSOLVE
TK-20	20,000	MIXED SOLVENTS (HAZARDOUS WASTE)
BUILDING 7		
TK-799	50,000	ISOOCTYL ACRYLATE
TK-800	20,000	ISOOCTYL ACRYLATE
75W	25,000	FORMALDEHYDE
74E	25,000	FORMALDEHYDE
71	30,000	PHENOL
BUILDING 25		
83	50,000	SOLUTION POLYYMER

Minnesota Pollution Control Agency
Division of Air Quality

Scrubber Data Sheet (DS-9)

For Agency Use Only
DAQ No. _____

1. Source Name, Division of Plant Specialty Chemicals Division
2. City Cottage Grove State MN Zip 55016
3. Emission Point of Scrubber: 15-01, 15-02, 15-08, 15-17
4. Manufacturer: 3M
5. Model name and Number: 3M design
6. Type of Scrubber

   _____ Venturi

   _____ Packed: Packing Type _____, Size _____, Packed Ht. _____

   X Spray: 1 number of nozzles, 40-60 PSI Nozzle Pressure
7. Scrubber Geometry:

   Length in direction of gas flow 4 ft.

   Cross Sectional area 0.79 sq. ft.
8. Chemical composition of scrubbing liquid water
9. Scrubbing Liquid Flow Rate 15-20 gpm
10. Gas flow rate ND scfm
11. Inlet temperature Variable °F
12. Efficiency of scrubber 99+ %

-1- 3.77

Minnesota Pollution Control Agency
Division of Air Quality

Scrubber Data Sheet (DS-9)

For Agency Use Only
DAQ No. _____

1. Source Name, Division of Plant Specialty Chemicals Division
2. City Cottage Grove State MN Zip 550016
3. Emission Point of Scrubber: Cells 15-20 thru 15-30
4. Manufacturer: 3M
5. Model name and Number: 3M Design
6. Type of Scrubber

_____ Venturi

_____ Packed: Packing Type _____, Size _____, Packed Ht. _____

__X__ Spray: __1__ number of nozzles, 40-60 PSI Nozzle Pressure

Scrubber Geometry:

Length in direction of gas flow 4 ft.

Cross Sectional area 1.77 sq. ft.

8. Chemical composition of scrubbing liquid water

9. Scrubbing Liquid Flow Rate 15-20 gpm
10. Gas flow rate 200 cfm scfm
11. Inlet temperature variable °F
12. Efficiency of scrubber 99+ %

Minnesota Pollution Control Agency
Division of Air Quality

Scrubber Data Sheet (DS-9)

For Agency Use Only
DAQ No. _____

1. Source Name, Division of Plant Specialty Chemicals Division
2. City Cottage Grove State MN Zip 55016
3. Emission Point of Scrubber: Cells 15-31 thru 15-38
4. Manufacturer: 3M
5. Model name and Number: 3M Design
6. Type of Scrubber

   _____ Venturi

   _____ Packed: Packing Type _____, Size _____, Packed Ht. _____

   X Spray: 1 number of nozzles, 40-60 PSI Nozzle Pressure

7. Scrubber Geometry:

   Length in direction of gas flow 5 ft.

   Cross Sectional area 0.79 sq. ft.

8. Chemical composition of scrubbing liquid water

9. Scrubbing Liquid Flow Rate 15-20 gpm
10. Gas flow rate <200 scfm
11. Inlet temperature Variable °F
12. Efficiency of scrubber 99+ %

Minnesota Pollution Control Agency
Division of Air Quality

Fabric Filter (Baghouse) Application
(DS-7)

For Agency Use Only
DAQ No. _____

1. Name of Division or Plant: Specialty Chemicals Division
2. Address: Chemolite Center
3. City: Cottage Grove State MN Zip 55106?
4. Manfacturer: DCE, Inc.
5. Model: DEC Unimaster, MOD UMA454 Type: _____
6. Emission Equipment Served: X Primary _____ Secondary _____
7. Gas Stream Cooling: ____ Yes X No: Liquid Spray N/A
   Excess Air N/A Other _____
8. Bag Cleaning Method: X Shaker, ____ Reverse Air, ____ Pulse Air
9. Cleaning Cycle: Average Filtration Time: _____ Minutes
   Average Bag Cleaning Time: _____ Minutes
10. Cleaning Pulse Pressure: N/A psig
11. No. of Bags: 2 Total Cloth Area: 450 sq. ft.
12. No. of Bags Cleaned at One Time: 2
13. Filter (Gas/Cloth) Ratio: 7.3-1 Normal Operation: 7.3-1acfm/sq. ft.
    Cleaning Cycle ___ acfm/sq. ft.
14. Reverse Air Fan: N/A H.P.: _____ acfm
15. Media Material (cloth): 7.5 oz. cotton Sateen Coating: none
16. Media Weight: 7.5 oz. oz/sq. ft. yd. Media Thickness: _____ inches
17. Filter Drag 6 inches of H_2O/ACFM/ft^2
18. Media Maximum Operating Temperature: 100 °F
19. Rated or Design Gas Capacity: 5100 acfm Inlet Gas Temp.: 100 °F
20. Baseline (Rated-Maximum-Nominal) Pressure Differential
    Drop _____ inches of H_2O
21. Exhaust Gas Dew Point: AMB °F
22. Exhaust Emissions: _____ gr/dscf
23. Guaranteed (or Design) Collection Efficiency: 99% to 1 Micron
24. Estimated Bag Life: 3-5 years
25. By-Pass ___Yes X No Purpose: _____ Length of time ____Min.

mlp 3:75

Minnesota Pollution Control Agency
Division of Air Quality

Cyclone Data Sheet (DS-6)

For Agency Use Only
DAQ No. _____

1. Manfacturer: NA
2. Model Number: NA
3. Type: Simple X Multiclone _____
4. Pressure Drop: NA inches of water
5. Collection Efficiency: Volume NA % Weight _____ %
6. Number of cloneS: 1
7. Cone Height: 2 ½ ft
8. Inlet Width: 10"
9. Body Height: 2 ½ ft
10. Body Diameter: 5 ft
11. Outlet Diameter: 2 ½ ft
12. Inlet Velocity: 0.72 ft/sec
13. Exit Velocity: 0.58 ft/sec
14. Inlet Grain Loading: NA
15. Geometric Mean Diameter of Particulate: 100 m cst
16. Inlet Gas Rate 172 acfm
17. Inlet Gas Rate _____ scfm
18. Inlet Temperature Ambient °F
19. Exhaust Gas Rate 172 scfm
20. Exhaust Gas Temperature Ambient °F
21 Exhaust Gas Grain Loading NA
22. Average Operating Time of Control Equipment

4 Hours/Day 1 Day/Week 25 Week/Year

mlp 3:74

CONFIDENTIALITY CLAIM REQUEST

SPECIALTY CHEMICALS DIVISION AIR PERMIT APPLICATION

This certification of confidentiality is being submitted by 3M under Minnesota Statutes, Section 116.075, justifying its claim of said portions as confidential. Accompanying this claim is a list of the articles, the list consisting of a description of the articles, and identification of the pages or portions of pages which have been claimed confidential.

All of the information in the articles claimed as confidential relate to the Specialty Chemicals Division air permit application for 3M's Chemolite Center, located in Cottage Grove, Minnesota. At the Chemolite site, 3M Specialty Chemicals Division manufactures a host of chemicals or materials which are used in manufacturing at that site and/or other 3M sites for finished goods and products. The Chemolite Center is an active and growing site, employing approximately one thousand people, with a payroll of several million dollars. 3M's annual investment at the plant has averaged millions of dollars, and its operations contribute over many thousands of dollars in local taxes each year.

In those operations at the plant, a host of manufacturing processes are used to make chemicals and products, many of which are unique and represent or embody various trade secrets. In order to maintain its proprietary rights in those trade secrets, 3M takes various reasonable measures to prevent such trade secrets from wrongful disclosure or use, such safeguards including various security procedures such as security guards, employee identification passes, admonitions to employees about security, escort of visitors on premises, and use of various codes or nondescriptive legends on containers, etc. The trade secret information has been disclosed to 3M employees on a need-to-know basis and under secrecy agreements and to requisite government agencies.

The confidential information is technical information such as process descriptions, process diagrams, and location drawings. That information is based on extensive research and development by 3M at its private expense. If the MPCA did not hold such information in confidence and such information were made available to 3M's competitors, those competitors could combine that information with what they already know or can obtain from publicly available sources about 3M's products, such as the performance of the products, and they would thereby be able, for example, to duplicate the manufacturing processes and calculate such highly sensitive, confidential information as production rates, product costs, overhead, etc. They could thereby use such processes in competing with 3M and reduce their prices on a more knowledgeable basis and only to the extent necessary to compete more effectively, so as to cause 3M to lose sales and perhaps even go out of some or all of the businesses carried on at the plant, which may well mean laying off by 3M of some of the employees at the plant, or their termination, and perhaps even cause 3M to incur losses arising from the consequent inactivity at the plant.

3M hereby certifies that the confidential information identified on the various above-referred to articles and associated with the plant has not ever been published, disseminated, or otherwise become a matter of general public knowledge.

Accordingly, 3M respectfully requests that the Agency not make the confidential information available for public inspection or copying and otherwise protect the information under applicable law and the Agency's procedures.

Confidentiality Claim List

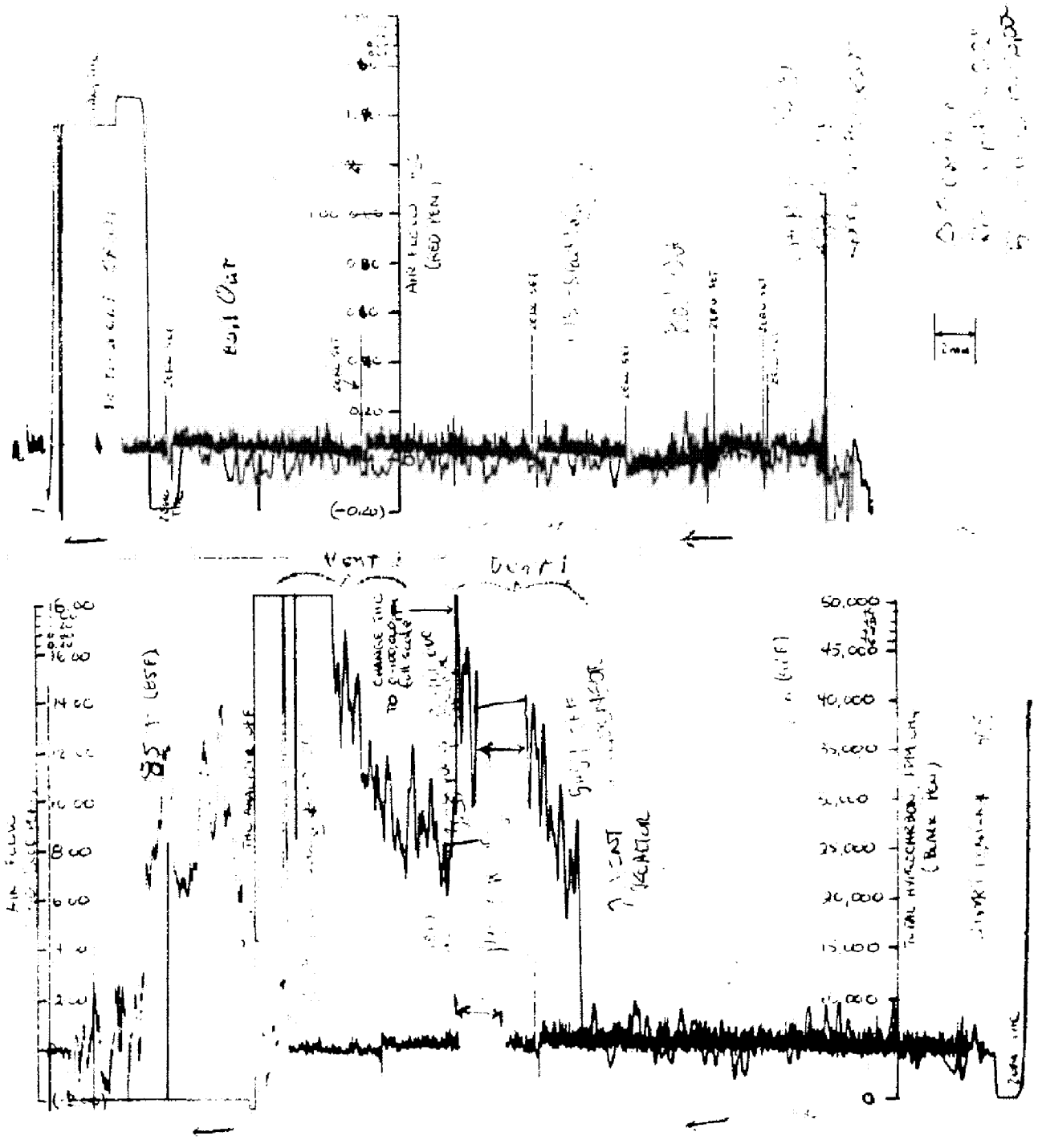
Page	Portion	Description
3	Paragraph 2	Process Size and Description
3	Paragraph 3	Process Description
6	All	Process Flow Diagram
7	All	Process Flow Diagram
8	All	EFC Emission Calculation
9	All	Reactor Emission Calculation
10	All	Receiver Emission Calculation
11	All	Bldg. 4 Equipment Listing
13-14	All	Bldg. 4 Equipmant Location
15	All	Bldg. 6 Equipmant Listing
17	All	Bldg. 6 Equipment Location
18	All	Bldg. 7 Equipment Listing
21-23	All	Bldg. 7 Equipment Location
24	All	Bldg. 15 Equipment Listing
27-28	All	Bldg. 15 Equipment Location
29	All	Bldg. 25 Equipment Listing
32-34	All	Bldg. 25 Equipment Location
35	Column 3	Storage Tank Contents

Appendix A

Total Hydrocarbon Conc.

Solution Polymer Reactor

Chemolite 7-23-87



Minnesota Pollution Control Agency
520 Lafayette Road, Saint Paul, Minnesota 55155-3898
Telephone (612) 296-6300

June 27 , 1991

Dr. C. S. Chow
3M Environmental Engineering
and Pollution Control
21-2W-05
P.O. Box 33331
St. Paul, Minnesota 55133-3331

Dear Dr. Chow:

Enclosed is Air Emission Permit #23AC-91-I/O-1 for the installation and operation of your three new hydrogen fluoride scrubbers for the Specialty Chemical Division at the 3M Chemolite Center in Cottage Grove, Washington County, Minnesota. The permit is effective for a term of 5 years starting on the date of issuance.

Please review the permit and familiarize yourself with the conditions and requirements included. The permit should be distributed to appropriate staff and posted at the facility where appropriate.

In accordance with Minn. Rules pts. 7002.0010-.0100, fees for permit processing and annual activities are being charged by the Agency. The appropriate fees in this case for a major emitter are:

	TOTAL FEE	MN RULES 7002.0100 SUBPART
Basic Permit Processing Fees and Surcharges:		
Modify/Add PC Major Emitter - Basic (≥100 tpy)	$350	3.D.
1,000-4,999 tpy	395	3a.
TOTAL Basic Permit Processing Fee	$745	

Please do not pay these fees until you receive a bill. Permitting fees will be billed within a month of permit issuance. The calculation of these fees was made in accordance with Minn. Rules pt. 7002.0100. These fees reflect changes in the fee rule effective in January 1990.

If you have any questions, please contact me at (612)296-7554.

Sincerely,

Carole Cenci

Carole J. Cenci
Permits Unit
Regulatory Compliance Section
Air Quality Division

CJC:lmb897

Enclosure

cc: AQD File #23AC
Annette Elliott, Enforcement Unit

AIR EMISSION

PERMIT NO. 23AC-91-I/O-1

FOR

HYDROGEN FLUORIDE REACTORS

AND

AIR POLLUTION CONTROL EQUIPMENT

According to Minnesota Statutes Chapters 115 and 116 and Minnesota Rules Chapters 7001, 7005 and 7010

3M COMPANY
P.O. Box 33331
St. Paul, Minnesota 55133-3331

(hereinafter Permittee) is issued an Air Emission Permit by the Minnesota Pollution Control Agency (hereinafter Agency) for its facility located:

3M CHEMOLITE CENTER
Chemical Specialties Division
Highway 61 and Chemolite Road
Cottage Grove, Washington County, Minnesota

The permit authorizes modification and operation of the emission facility and air pollution control equipment under the conditions set forth herein.

This permit is effective for a term of five years starting on the date issued by the Commissioner.

DATED: June 27, 1991

Lisa J. Thorvig
Division Chief
Air Quality Division

for Charles W. Williams
Commissioner
Minnesota Pollution Control Agency

Table of Contents for Air Emission Permit No. 23AC-91-I/O-1

1.0 FACILITY DESCRIPTION

1.1 Overview

1.1.1 Description of the source

The Specialty Chemicals Division at 3M Chemolite manufactures fluorine containing compounds for other 3M Divisions.

1.1.2 Description of the modification

This permit authorizes 3M to build three packed tower water scrubbers which will serve three existing hydrogen fluoride reactor/receiver systems. The scrubbers are being installed voluntarily by 3M.

1.1.3 Applicability of Federal Rules

There is no New Source Performance Standard or National Emission Standard for Hazardous Air Pollutants for this type of facility. The source is not being modified except to add the pollution control equipment and there will be a decrease in both actual and potential emissions so PSD does not apply.

1.2 Emission Units and Pollution Control Equipment

The emission units, air pollution control equipment and monitoring equipment at the emission facility described above include the following:

1.2.1 Emission Point No. 1 Facility I.D. 15-33

Emission Unit -	Type:	Fluorocarbon workup reactor
	Date of Installation:	Prior to 1968
Control Equipment -	Type:	Packed tower water scrubber, countercurrent
	Mfr.:	Ceilcote or 3M custom made equivalent
	Model:	SPT-06-84
	Date of Installation:	1991
	Design Control Efficiency:	> 95%
	Design Water Flow:	1 gpm
	Maximum Pressure Drop:	1.5 inches of water
Monitoring Equipment -	Type:	Scrubber supply water flow rate meter and gas stream pressure differential gage
	Mfr.:	Hydril turbine flowmeter or equivalent
Stack Parameters -	Height:	48 feet
	Inside Exit Diameter:	0.25 feet
	Maximum Flow Rate, acfm:	80 at 70°F, intermittent

1.2.2 Emission Point No. 2 Facility I.D. 15-34

Emission Unit -	Type:	Fluorocarbon workup reactor
	Date of Installation:	Prior to 1968
Control Equipment -	Type:	Packed tower water scrubber, countercurrent
	Mfr.:	Ceilcote or 3M custom made equivalent
	Model:	SPT-06-84
	Date of Installation:	1991
	Design Control Efficiency:	> 95%
	Design Water Flow:	1 gpm
	Maximum Pressure Drop:	1.5 inches of water
Monitoring Equipment -	Type:	Scrubber supply water flow rate meter and gas stream pressure differential gage
	Mfr.:	Hydril turbine flowmeter or equivalent
Stack Parameters -	Height:	48 feet
	Inside Exit Diameter:	0.25 feet
	Maximum Flow Rate, acfm:	80 at 70°F, intermittent

1.2.3 Emission Point No. 3 Facility I.D. 15-45

Emission Unit -	Type:	Fluorocarbon workup reactor
	Date of Installation:	Prior to 1968
Control Equipment -	Type:	Packed tower water scrubber, countercurrent
	Mfr.:	Ceilcote or 3M custom made equivalent
	Model:	SPT-06-84
	Date of Installation:	1991
	Design Control Efficiency:	> 95%
	Design Water Flow:	1 gpm
	Maximum Pressure Drop:	1.5 inches of water
Monitoring Equipment -	Type:	Scrubber supply water flow rate meter and gas stream pressure differential gage
	Mfr.:	Hydril turbine flowmeter or equivalent
Stack Parameters -	Height:	48 feet
	Inside Exit Diameter:	0.25 feet
	Maximum Flow Rate, acfm:	80 at 70°F, intermittent

1.3 Definitions & Abbreviations

Definition of terms and abbreviations used in this permit may be found in Minn. Rules pts. 7005.0100 and 7005.0110 respectively and as defined below:

Division Chief:	The Division Chief of the Air Quality Division
Emission Point:	The stack, chimney, vent or other functionally equivalent opening whereby emissions are exhausted to the atmosphere.
gpm	gallons per minute
S.C.	Special Condition
VOC	Volatile organic compounds - all hydrocarbons except the following: methane, ethane, 1,1,1-trichloroethane, methylene chloride, trichlorofluoromethane (CFC 11), dichlorodifluoromethane (CFC 12), chlorodifluoromethane (CFC 22), trifluoromethane (R 23), 1,1,2-trichloro-1,2,2-trifluoroethane (freon 113), 1,2-dichloro-1,1,2,2-tetrafluoroethane (CFC 114), chloropentafluoroethane (CFC 115) dichlorotrifluoroethane (HCFC 123) tetrafluoroethane (HFC 134A) dichlorofluoroethane (HCFC 141B) chlorodifluoroethane (HCFC 142B)

2.0 SPECIAL CONDITIONS

The Permittee shall comply with the following special conditions in order to attain, maintain and demonstrate compliance with applicable Minnesota and federal statutes, federal regulations and Minnesota rules.

2.1 Ambient Standards

The Permittee shall comply with Minn. Rules pts. 7005.0010-7005.0080, State Ambient Air Quality Standards, and with National Primary and Secondary Ambient Air Quality Standards, 40 CFR Part 50.

2.2 Emission Limits

The Permittee shall not discharge into the atmosphere pollutants in excess of the limits listed below:

2.2.1 Hydrogen Fluoride

Emission Point Nos.	Emission Limit	Limitation Basis
1, 2, & 3	1.8 lb/hr each	Minn. Stat. § 116.07, subp. 4a and Minn. Rules pt. 7001.0150. subp. 2

2.2.2 Noise

The Permittee shall comply with the noise standards set forth in Minn. Rules pts. 7010.0010 to 7010.0080 at all times during the operation of all emissions units.

2.2.3 Odor

The Permittee shall not discharge into the atmosphere from any emission unit or combination of emission units within the stationary source any gases which contain odors in excess of the amount allowed by Minn. Rules pt. 7005.0920.

2.3 Operational Requirements

The Permittee shall meet the following operational requirements. Records of any operational parameters that are recorded as directed below shall be retained for at least three years, after which time this period may be extended as advised in writing by the Division Chief, Air Quality Division.

2.3.1 Shutdowns and Breakdowns

2.3.1.1 Shutdown

In accordance with Minn. Rules pt. 7005.1880, subp. 1, the Permittee shall notify the Commissioner at least 24 hours in advance of shutdown of any control equipment and, if the shutdown would cause an increase in the emission of air contaminants, of a shutdown of any process equipment. At the time of notification, the Permittee shall also notify the Commissioner of the cause of the shutdown and the estimated duration. The Permittee shall notify the Commissioner when the shutdown is over.

2.3.1.2 Breakdown

In accordance with Minn. Rules pt. 7005.1880, subp. 2, the permittee shall notify the Commissioner immediately of a breakdown of more than one hour duration of any control equipment and, if the breakdown causes an increase in the emission of air contaminants, of a breakdown of any process equipment. At the time of notification or as soon thereafter as possible, the Permittee shall also notify the Commissioner of the cause of the breakdown and the estimated duration. The Permittee shall notify the Commissioner when the breakdown is over.

2.3.1.3 Operation changes

In accordance with Minn. Rules pt. 7005.1880, subp. 3, in any shutdown or breakdown covered by Sections 2.3.1.1 or 2.3.1.2, the Permittee shall immediately take all practical steps to modify operations to reduce the emission of air contaminants. The Commissioner may require feasible and practical modifications in the operation to reduce emissions of air contaminants. No affected facility which has an unreasonable breakdown frequency of control equipment shall be permitted to operate. Nothing in this section shall permit the operation of an affected facility which may cause an immediate public health hazard.

2.3.1.4 Monitoring equipment

In accordance with Minn. Rules pt. 7005.1880, subp. 4, the Permittee shall notify the Commissioner of any breakdown or malfunction of any continuous monitoring system or monitoring device.

2.3.2 Operation and Monitoring of Air Pollution Control Equipment

2.3.2.1 Operation of Air Pollution Control Equipment

The Permittee shall maintain all air pollution control equipment in proper operating condition. The emission facility described in this permit shall not be operated unless the associated air pollution control equipment described in this permit is also operated at all times.

2.3.2.2 Operational Requirements for Air Pollution Control Equipment

During operation of the emission facility and air pollution control equipment, the Permittee shall:

1. Maintain scrubber water flow rate at a minimum of 1 gallon per minute for each scrubber.

2. Operate the scrubber in such a manner as to achieve and maintain compliance with the emission limits stated in Para. 2.2.1 and with water quality, solid waste and hazardous waste rules as described in Para. 2.6. The scrubber, including the scrubber water supply and treatment/ recycle system, shall be operated in the same manner as during the most recent stack emissions test demonstrating compliance with the emission limits in Para. 2.2.1.

2.3.2.3 Monitoring Requirements

The Permittee shall provide and install instrumentation to measure the supply water flow rate to each scrubber in gallons per minute. This instrumentation shall be installed at the time of installation of the scrubbers. The Permittee shall maintain this instrumentation and operate it at all times that the subject process is operating.

The Permittee shall observe and record the scrubber water flow rate in gallons per minute for each scrubber once each operating day.

2.3.3 Operation and Maintenance Plan

The Permittee shall prepare and submit to the Division Chief, Air Quality Division within 60 days of the date of issuance of this permit an Operation and Maintenance Plan to satisfy the requirements of Paragraph 6 of the General Conditions (Exhibit A) of this permit. The plan shall include as a minimum, the following information.

1. A preventative maintenance program for avoidance of excess emissions, including identification of the individual(s) responsible for inspecting, maintaining and repairing the control equipment that will be inspected, the frequency of these inspections or repairs and identification and quantities of the replacement parts which will be maintained in inventory for quick replacement.

2. An identification of operating conditions and outlet variables for the control equipment that will be monitored in order to detect a malfunction or breakdown and the normal operating range of these variables and a description of the method of detecting and of informing operating personnel of any malfunction or breakdown, including alarm systems, lights and other indicators.

3. A description of the corrective procedures that will be taken in the event of a malfunction or breakdown in order to restore compliance with the applicable emission limitations and permit conditions as expeditiously as possible, including but not limited to reducing the production rate.

4. A statement(s) of the time period(s) that could be required to safely shut down the emission facility or portion thereof causing excess emissions.

5. A description of the records that will be kept to show that the plan is implemented.

Upon approval by the Division Chief, Air Quality Division, the plan will be an enforceable part of this permit and compliance with all provisions of the plan will be required as a permit condition.

2.4 Compliance Demonstration

2.4.1 Schedule and Methods

The Permittee shall demonstrate compliance with applicable permit conditions, Minnesota and federal statutes, federal regulations and Minnesota rules by the following methods, and in accordance with the applicable Exhibits:

Emission Point Nos.	Pollutant	Compliance Determination Method	Frequency	Testing Procedures and/or Exhibit
1, 2, or 3	Hydrogen Fluoride	Performance Test	Twice - once within 90 days of initial operation of the last of the three scrubbers and once not more than 1 year nor less than 180 days prior to permit expiration	C

and as requested by the Division Chief.

2.4.2 Compliance Testing Requirements

The Permittee shall fulfill the compliance requirements according to the established schedules.

2.5 Construction Schedule

Authorization to install the air pollution control equipment shall expire 12 months after the date of this permit if construction has not begun.

2.6 Residual Materials

The Permittee shall dispose of particulates, sludges, or other wastes generated by the operation of any emission unit(s) and/or air pollution control equipment according to solid waste rules (Minn. Rules ch. 7035) and hazardous waste rules (Minn. Rules ch. 7045). The Permittee shall contain and dispose of scrubber water according to water quality rules (Minn. Rules pts. 7050, 7056, 7060 and 7065).

2.7 Air Toxics Study

Toxic emissions from this facility shall be included in the air toxics study being performed for the 3M Chemolite Center.

2.8 Reissuance of Permit

Pursuant to Minn. Rules pt. 7001.0040 subp. 3, if the Permittee desires to continue the activities permitted herein beyond the expiration date of this permit, the Permittee is required to submit a permit application for permit reissuance at least 180 days prior to the expiration of this permit. The Permittee must obtain the required permit application from the Division Chief. Permit applications can be sent to the Chief, Regulatory Compliance Section, Air Quality Division.

3.0 SUBMITTALS SUMMARY

The Permittee is required by previous parts or Special Conditions of this permit to submit to the Agency the following reports and/or other documents according to the schedules identified below.

The Agency may grant extension of time schedules stated herein if requests for extensions are submitted in a timely fashion and good cause exists for granting the extension. All extensions must be requested by the Permittee in writing. The request shall specify the reason(s) why the extension is needed. Extensions shall only be granted for such period of time as the Division Chief, Air Quality Division or MPCA Board determines is reasonable under the circumstances. A requested extension shall not be effective until approved by the Division Chief, Air Quality Division or MPCA Board.

Reports	Schedule	Required By:
Performance Test Report	Within 45 days of performance tests	S.C. 2.4
Operation and Maintenance Plan	Within 60 days of permit issuance	S.C. 2.3.3

4.0 GENERAL CONDITIONS

The Permittee shall comply with the attached general conditions, attached as Exhibit A, in order to attain, maintain and demonstrate compliance with applicable Minnesota and federal statutes, federal regulations and Minnesota rules.

CJC:lmb851

EXHIBIT A

GENERAL CONDITIONS

1. The Agency's issuance of a permit does not release the Permittee from any liability, penalty, or duty imposed by Minnesota or federal statutes or rules or local ordinances, except the obligation to obtain the permit.

2. The Agency's issuance of a permit does not prevent the future adoption by the Agency of pollution control rules, standards, or orders more stringent than those now in existence and does not prevent the enforcement of these rules, standards, or orders against the Permittee.

3. The permit does not convey a property right or an exclusive privilege.

4. The Agency's issuance of a permit does not obligate the Agency to enforce local laws, rules, or plans beyond that authorized by Minnesota statutes.

5. The Permittee shall perform the actions or conduct the activity authorized by the permit in accordance with the plans and specifications approved by the Agency and in compliance with the conditions of the permit.

6. The Permittee shall at all times properly operate and maintain the facilities and systems of treatment and control and the appurtenances related to them which are installed or used by the Permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. The Permittee shall install and maintain appropriate back-up or auxiliary facilities if they are necessary to achieve compliance with the conditions of the permit and, for all permits other than hazardous waste facility permits, if these back-up or auxiliary facilities are technically and economically feasible.

7. The Permittee may not knowingly make a false or misleading statement, representation, or certification in a record, report, plan, or other document required to be submitted to the Agency or to the Director by the permit. The Permittee shall immediately upon discovery report to the Director an error or omission in these records, reports, plans, or other documents.

8. The Permittee shall, when requested by the Director, submit within a reasonable time the information and reports that are relevant to the control of pollution regarding the construction, modification, or operation of the facility covered by the permit or regarding the conduct of the activity covered by the permit.

9. When authorized by Minnesota Statutes, sections 115.04; 115B.17, subdivision 4; and 116.091, and upon presentation of proper credentials, the Agency, or an authorized employee or agent of the Agency, shall be allowed by the Permittee to enter at reasonable times upon the property of the Permittee to examine and copy books, papers, records, or memoranda pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit; and to conduct surveys and investigations, including sampling or monitoring, pertaining to the construction, modification, or operation of the facility covered by the permit or pertaining to the activity covered by the permit.

10. If the Permittee discovers, through any means, including notification by the Agency, that noncompliance with a condition of the permit has occurred, the Permittee shall take all reasonable steps to minimize the adverse impacts on human health, public drinking water supplies, or the environment resulting from the noncompliance.

11. If the Permittee discovers that noncompliance with a condition of the permit has occurred which could endanger human health, public drinking water supplies, or the environment, the Permittee shall, within 24 hours of the discovery of the noncompliance, orally notify the Director. Within five days of the discovery of the noncompliance, the Permittee shall submit to the Director a written description of the noncompliance; the cause of the noncompliance; the exact dates of the period of the noncompliance; if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

12. The Permittee shall report noncompliance with the permit not reported under 11. as a part of the next report which the Permittee is required to submit under this permit. If no reports are required within 30 days of the discovery of the noncompliance, the Permittee shall submit the information listed in 11. within 30 days of the discovery of the noncompliance.

13. The Permittee shall give advance notice to the Director as soon as possible of planned physical alterations or additions to the permitted facility or activity that may result in noncompliance with a Minnesota or federal pollution control statute or rule or a condition of the permit.

14. The permit is not transferable to any person without the express written approval of the Agency after compliance with the requirements of Minn. Rules part 7001.0190 subp. 2. A person to whom the permit has been transferred shall comply with the conditions of the permit.

15. The permit authorizes the Permittee to perform the activities described in the permit under the conditions of the permit. In issuing the permit, the State and Agency assume no responsibility for damage to persons, property, or the environment caused by the activities of the Permittee in the conduct of its actions, including those activities authorized, directed, or undertaken under the permit. To the extent the State and Agency may be liable for the activities of its employees, that liability is explicitly limited to that provided in the Tort Claims Act, Minnesota Statutes, section 3.736.

16. The Permittee shall submit an emission inventory report as requested by the Agency. The Permittee shall include in the report the number of tons of pollutants emitted during the requested year, stack gas flow rates (acfm) and velocities (fpm) or any other information required by tne Agency to verify the emissions.

FORMS 13

EXHIBIT C

PERFORMANCE TEST PROCEDURES

A. Independent Testing Company

The Permittee shall engage an independent testing company to conduct performance tests. However, interim performance tests may be conducted by the Permittee at the discretion of the Director. The Permittee may furnish electrical service, laboratory facilities and other such facilities to an independent testing company in any case.

B. Test Location Approval

The location, number of test ports, and the need for straightening vanes must be approved by the Director before any test.

C. Pretest Meeting

For the purpose of establishing conditions and requirements of a performance test, a pre-test meeting with the Agency staff, Permittee, and testing company personnel must be held at least seven (7) days prior to the performance test. The test date must be approved by the Director at least 15 days before the planned testing date.

D. Test Methods

1. General

   Performance tests shall be conducted in accordance with the following requirements:

   a. U.S. Environmental Protection Agency (EPA) Reference Methods (40 C.F.R. 60.344, Appendix A);
   b. Minnesota Rules;
   c. Procedures specified below;
   d. Special conditions of the permit or requirements specified by the Director, Division of Air Quality.

2. Particulate Matter - Particulate matter emissions shall be determined by EPA Methods 1-5. <Condensible matter shall be determined by the Method 5 modification specified in Minn. Rules part 7005.0500.>

3. Opacity - Opacity shall be determined by EPA Method 9.

4. Sulfur Dioxide - Sulfur dioxide emissions shall be determined by EPA Methods 6, 6A, or 6B. For determination of sulfur dioxide removal efficiency, EPA Method 19 or 20 must be used.

The testing company shall analyze audit samples supplied by the EPA or the MPCA.

5. Nitrogen Oxides - Nitrogen oxides emissions shall be determined by EPA Methods 7 or 7A. For determination of removal efficiency, EPA Methods 19 or 20 shall be used. The testing company shall analyze audit samples supplied by the EPA or the MPCA.

6. Odor - Odor shall be determined by ASTM Method D1391-78 and that described by D.M. Benforado et al. in J.A.P.C.A. Vol. 19 No. 2 pgs. 101-105, February 1969. Other methods may be used upon approval by the Director.

7. Noise - Noise shall be determined by methods contained in Minn. Rules parts 7010.0100 to 7010.0700.

8. Other Pollutants - These determinations shall be conducted by EPA Reference Methods. Other Reference Methods (ASTM, NIOSH, ASME) and non-reference test methods or alternative methods may be used upon approval by the Director.

E. Test Conditions

1. Combustion Sources

a. Existing Sources and Sources Subject only to State Rules.

1) Combustion emission sources such as furnaces, kilns, boilers, etc. shall be operated during the test at 100% of the manufacturer's rated capacity.

2) Existing boilers that had been derated shall be operated during the test at a minimum of 100% of the derated capacity allowed by the permit.

3) For unit sizes below 50 x 10^6 Btu/hr some of the test conditions and requirements listed in Part E.1.c. of this Exhibit, may be waived by the Director to meet simplified equipment and operating modes of smaller installations.

b. Sources subject to New Source Performance Standards (NSPS).

1) Combustion emission sources such as furnaces, kilns, boilers, etc. shall be operated during the test at 100% of the manufacturer's rated capacity.

2) The only exceptions to this are where the Permittee has documented the fact that the source is physically incapable of operation at design capacity and/or there is a State/Federal enforceable order or permit limiting

operation to a reduced capacity. In case the source is derated, the test shall be conducted at 100% of the allowed derated capacity.

3) The amendments to NSPS Subpart A - General Provisions published in the Federal Register of December 27, 1985, require a minimum total time of opacity observations of three (3) hours for the purpose of demonstrating initial compliance. Opacity observations shall be conducted concurrently with the initial performance test for particulates.

4) Where compliance with opacity regulations is to be demonstrated nonconcurrently with stack testing on a subject boiler or stack, three 1-hour sets of visible emission observations shall be conducted under the following conditions:

   a) Observation shall be performed by a certified visible emissions evaluator in accordance with Method 9, 40 CFR Part 60, appendix A.

   b) Two visible emission observation sets shall be performed while the unit is operated at the conditions required by Part E.1.b and E.1.c. of this Exhibit.

   c) One visible emission observation set shall be performed while the unit is operated at maximum attainable load during a normal soot blowing cycle which is consistent with maximum frequency and duration normally experienced for the total testing period. Boilers operating in a peaking or cycling mode are required to operate the unit during this run at a changing load representative of normal operation.

5) The source must meet all the conditions found at 40 CFR Part 60 Subpart A - General Provisions; as well as the specific NSPS requirements according to source type.

c. The following requirements apply to all combustion sources:

1) At least one of the three test runs shall be conducted during a normal soot blowing cycle which is consistent with maximum frequency and duration normally experienced for the total testing period. The arithmetic average of the three runs will form the basis for a compliance determination.

2) Stoker-fired boilers and other sources as determined by the Director, are required to pull ashes during one or more test runs. The arithmetic average of the three

runs will form the basis for a compliance determination. This must coincide with the run when soot is being blown.

3) Boilers operating in a peaking or cycling mode are required to operate the unit at a load change representative of normal operation during one of the test runs. This run may coincide with the run when ashes are being pulled and soot blown. The arithmetic average of the three runs will form the basis for a compliance determination.

4) Sources equipped with only mechanical collector, venturi scrubbers without variable throat and hot-side electrostatic precipitators are required to conduct an additional test for particulate matter, while the combustion source is operating at 50% of the design capacity. Soot blowing and pulling of ashes shall be included during one of the runs as specified in paragraphs E.1.c.1) and E.1.c.2) of this Exhibit.

5) Unless the Permittee is engaged in a compliance schedule that involves rehabilitation before testing, the Permittee shall not conduct any major rehabilitation or cleaning before the test other than normal maintenance operations done on a routine basis. The Permittee shall describe in the test report any maintenance work done before the test and indicate how often this is done.

6) The Permittee shall burn "the worst quality fuel" allowed by permit conditions. Fuel sampling and analysis shall be performed according to ASTM Reference Methods, or as approved by U.S. EPA and the State of Minnesota.

7) Each unit shall be operated under "normal operating procedures" which shall be defined as maintenance of operational parameters at levels consistent with levels maintained during daily usage of the boiler(s) at maximum load. Operating parameters include:

   a) MW gross loading
   b) heat input
   c) steam flow
   d) steam temperature
   e) steam pressure
   f) combustion air flow (lb/hr)
   g) soot blowing cycle
   h) coal feed rate to boiler (T/hr)
   i) oxygen levels at economizer inlet

8) Operation of electrostatic precipitators (ESPs) shall comply with "normal operating conditions". "Normal operating conditions" for an ESP include:

a) FGC injection rates, where applicable
b) primary and secondary volts
c) primary and secondary amps
d) inlet flue gas temperature
e) ash removal
f) spark rate
g) rapping cycle

9) Operation of other control devices such as baghouses, multiclones or scrubbers shall comply with "normal operating conditions". "Normal operating conditions" include:

a) pressure drop across control device
b) inlet flue gas temperature
c) cleaning cycle
d) ash removal
e) liquid to gas ratio

10) All the operating loads and parameters must be documented in the test report showing chart recordings and calculations.

11) All the continuous monitor strip charts for the day(s) of testing shall be submitted. These shall be dated, signed, and all the chart factors must be sufficiently explained to avoid any kind of ambiguity in reading the charts.

12) Visible emission observations shall be performed by a certified observer in accordance with U.S. EPA Method 9, 40 CFR Part 60, Appendix A, throughout the test period. Visible emissions shall be observed during the period of the test for sixty consecutive minutes; i.e. one series of readings for each condition tested. The test will comprise 240 consecutive readings and shall be obtained concurrently with the run of the particulate sampling test when soot is being blown and ashes pulled. The appended visible emission data form should be used and copies included in the report. EPA Method 9 as amended in Minn. Rules part 7005.1860 Subp. 7 shall be followed.

2. Process Sources

a. Non-combustion emission sources not subject to New Source Performance Standards (NSPS) shall be operated during the test at 100% design capacity or maximum capacity allowed by the permit and the owner/operator of the facility shall furnish adequate demonstration of the production at the time of the test.

b. Sources subject to NSPS shall be operated using the test at 100% of the design capacity. The only exceptions to this

are where the Permittee has documented that the source is physically incapable of operation at design capacity and/or there is a State/Federal enforceable order or permit limiting operation to a reduced capacity. The source must meet all the requirements found at 40 CFR Part 60 Subpart A - NSPS General Provisions; as well as the specific requirements according to the source type.

c. Sources may be required to conduct additional tests at reduced capacities if the Director defines it as a necessary condition to represent "the worst case operation".

d. NSPS sources, initial test: Pursuant to the amendments to the opacity provisions published in Federal Register of December 27, 1985, sources subject to New Source Performance Standards are required a minimum total time of opacity observations of three (3) hours for the purpose of demonstrating initial compliance. Opacity observations shall be conducted concurrently with the initial performance test for particulates.

e. Visible emissions shall be observed during the period of the test for sixty consecutive minutes i.e. one series of readings for each condition tested. The test will comprise 240 consecutive readings and shall be obtained concurrently with a run of the particulate sampling test. EPA Method 9 as amended in Minn. Rules part 7005.1860 subpart 7 shall be followed.

f. In case opacity measurements are conducted at a different time than during the particulated test, the observation of visible emiissions shall be conducted at all the conditions required by paragraphs E.2.a., E.2.b. and E.2.c. of this Exhibit.

g. All operating loads and parameters must be documented in the test report showing all chart recordings and calculations. All charts must be dated, signed and all the chart factors must be sufficiently explained to avoid any kind of ambiguity in reading the charts.

3. Runs

A test shall comprise three runs of at least one hour each. The time of sampling at each point shall be a minimum of two (2) minutes, and the minimum sample volume shall be 30 SCF (dry). Under special circumstances, e.g., process problems, inclement weather, etc., the Director of the Air Quality Division may deem that two runs will be accepted as sufficient for determination of compliance.

4. Pitot Tube Calibration

Pitot tube inspections and necessary calibrations shall be done at least once per year or after any incident which may affect calibration. Gas meter calibrations shall be done at a frequency such that no more than 1000 CFM shall be measured between calibrations. These calibration sheets must be included in the test report.

5. Orsat Analysis

Two gas samples for Orsat analysis must be taken at 1/2 hour intervals, or one continuous sample may be collected for each run.

6. Multiple Particulate Samples

If multiple samples are to be taken using the same nozzle, probe, and cyclone, the particulate collected in these must be removed after each run. Cleaning of this front half of the apparatus should be with distilled water followed by acetone. The probe should be scrubbed with a stiff brush while irrigating with water followed by acetone, as prescribed in EPA Method 5.

7. Filters

Filters shall be numbered and filter number reported with the initial and final filter weights. Weights should be recorded in a weights book which must be available for inspection. Front half washings shall be reported independently of filter catch.

8. Gas Velocities

The gas velocities used in calculating stack gas flow rates and pollutant mass emission rate shall be those obtained while collecting the sample.

9. Condensible Particulate Matter

In the event that emissions from any industrial process equipment contain condensible organic vapors which condense at standard conditions of temperature and pressure, the following changes in EPA Method 5 for determining particulate emissions shall be made:

a. Paragraph 4.2 (Sample Recovery) in EPA Method 5 is amended to read as follows:

4.2 Sample Recovery. Exercise care in moving the collection train from the test site to the sample recovery area so as to minimize the loss of collected sample or the

gain of extraneous particulate matter. Set aside a portion of the acetone and water used in the sample recovery as a blank for analysis. Place the samples in containers as follows:

Container #1. Remove the filter from its holder, place in this container, and seal.

Container #2. Place loose particulate matter and water and acetone washings from all sample-exposed surfaces preceding the filter paper in this container and seal. The probe and nozzle should be scrubbed with a stiff brush and distilled water, followed by an acetone rinse. If these solvents do not do a good cleaning job, an adequate solvent must be found and used. Use a razor blade or rubber policeman to loosen adhering particles if necessary.

Container #3. Measure the volume of water from the first three impingers and place the water in this container. Place water rinsings of all sample-exposed surfaces between the filter and fourth impinger in this container prior to sealing.

Container #4. Transfer the silica gel from the fourth impinger to the original container and seal. Use a rubber policeman as an aid in removing silica gel from the impinger.

Container #5. Thoroughly rinse all sample-exposed surfaces between the filter paper and fourth impinger with acetone, place the washings in this container and seal.

b. Paragraph 4.3 (Analysis) in EPA Method 5 is amended to read as follows:

4.3 Analysis. Record the data required on the example sheet shown in Figure 5-3. Handle each sample container as follows:

Container #1. Transfer the filter and any loose particulate matter from the sample container to a tared glass weighing dish, desiccate, and dry to a constant weight. Report results to the nearest 0.5 mg.

Container #2. Transfer the washings to a tared beaker and evaporate to dryness at ambient temperature and pressure. Desiccate and dry to a constant weight. Weigh to the nearest 0.5 mg.

Container #3. Extract organic particulate from the impinger solution with three 25 ml portions of chloroform. Complete the extraction with three 25 ml portions of ethyl ether. Combine the ether and chloroform extracts, transfer

to a tared beaker and evaporate at 70°F until no solvent remains. Desiccate, dry to a constant weight, and report the results to the nearest 0.5 mg.

Container #4. Weigh the spent silica gel and report to the nearest gram.

Container #5. Transfer the acetone washings to a tared beaker and evaporate to dryness at ambient temperature and pressure. Desiccate, dry to a constant weight and report the results to the nearest 0.5 mg.

Sampling for condensible particulate will be required whenever the Director determines that this type of particulate matter may represent a significant portion of the particulate emissions. Examples of processes where this modification will be required are (1) Burning of paper, wood, organic sludges, black liquor, rubbish, paint, organic solvents, plastics, rubber, bark, etc., (2) Chemical or processing operations employing or producing solvents or oils, (3) Operations likely to produce organic vapors such as bakeries, curing operations, asphalt blowing, etc.

For inorganic condensibles, and other operations where the above procedure is either not applicable or not adequate, other procedures such as EPA Reference Method 8 for sulfuric acid, EPA Reference Method 25 for Total Organic Non-Methane Organic Emission as Carbon may be specified by the Director.

10. Safety and Access

A safe working platform and access thereto shall be provided at the sampling site.

11. Good Testing Practices

Failure to follow good testing practices will jeopardize the validity of the test and may lead to rejection of one or more runs.

Failure to submit the required information on plant operating conditions, fuel analysis, visible emissions, etc. shall be cause for the Director not to approve the performance test.

F. Witnessing

A compliance test may be witnessed by either Division of Air Quality or EPA staff.

G. Reporting

1. Responsibility to Submit Test Results

Exhibit C shall be signed by the responsible supervisor of the facility and shall be submitted to the Director, Division of Air Quality with (2) copies of the performance test results.

It shall be the responsibility of the owners/operators of the source to furnish the information required in Exhibit C.

All performance test reports shall be submitted to the Director whether of not the test data indicates compliance with applicable emission limitations; and whether or not the test was conducted for the purpose of demonstrating compliance with an applicable emission limit.

The report should clearly state members of the testing team and a responsible party should sign the report, as well as the principal author(s).

2. Report Format

a. Summary Tables

The report shall include a summary table(s) showing the most relevant information, data, and results. This should include the applicable emission rate: pounds per million BTU, grains per dry standard cubic foot or pounds per hour calculated by all of the following methods:

1) The dry standard volumetric method
2) The ratio of areas method
3) The F factor method (for pounds per million Btu only)

b. Schematic Drawing

The report shall include a schematic drawing of the entire flue gas exhaust system from the boiler to the top of the stack. Show location of the sampling points and include all pertinent dimensions. Include all flow disturbances, i.e., elbows, dampers, fans, constrictions, collection equipment, etc.

c. Identification of Sources

The report shall clearly state what is being tested; for example, "Babcock & Wilcox Boiler, Model 169, Designated Unit #3 by XYZ Municipal Power Plant, firing pulverized Eastern Kentucky coal at an average rate of 10,000 pounds per hour, and producing an average of 110,000 pounds of steam per hour. This unit exhausts through a Western Multiclone. Flyash reinjection is permanently disconnected."

d. Use of Exhibit C

Exhibit C shall be completed at the time of the test run and a separate Exhibit shall be completed for each source.

3. Report Submittal

The performance test report and an additional copy of the report shall be submitted to:

Unit Supervisor, Permits Unit
Regulatory Compliance Section
Division of Air Quality
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, Minnesota 55155

4. Submittal Schedule

Performance test reports shall be submitted no later than 45 days following completion of the performance test.

REQUIRED DATA
for
COMBUSTION SOURCES

Company Name_____

C. Fuel Input

1. Itemize all fuels and materials that are added to the combustion process during the test period. Attach ultimate analysis of the fuel.

FUEL DESCRIPTION Coal:State, City; Mine Oil: Specify Grade	INPUT (LBS/HR) (GAL/HR)	& MOISTURE As Rec'd	As Rec'd (BTU/LB) (BTU/GAL)	HEAT INPUT (BTU/HR)
No. 1				
No. 2				
No. 3				
			TOTAL	

2. Are the above fuels substantially the same as those normally burned_____. If not, explain_____

_____.

3. Are the above fuels normally burned in the proportions shown above_____. If not, explain_____

_____.

4. Describe any changes anticipated for procurement of fuels within the next twelve (12) months._____

_____.

D. Equipment & Operating Data

1. Furnace No._____.

2. Furnace Mfg._____.

3. Type of Firing_____.

4. Furnace operating under normal operating conditions No___;

Yes___.

5. Specify normal soot blowing frequency:

   a) source operating time blowing soot: _____minutes/shift

   b) number of shifts per day _____

6. Specify soot blowing time during the test: start _____ end _____When was the last time before the test that you blew soot: (date & time)_____

7. Specify normal ash pulling frequency:

   a) source operating time pulling ashes: _____minutes/shift

   b) number of shifts per day _____

8. Specify ash pulling time during the test: start _____ end _____ When was the last time before the test that you pulled ashes: (date & time)_____

9. Date and procedures of last maintenance/cleaning of the boiler (please attach)

E. Instrument Data

1. Include a copy of chart records during test for the combustion efficiency indices (CO, O_2, CO_2, combustibles, steam flow, air flow, etc.)

F. Air Pollution Control Equipment

1. Type/model control equipment_____.

2. Air pressure drop across the control equipment_____.

3. Air flow through the control equipment_____.

4. Was the control equipment operating normally?_____.

5. Date and procedures of last maintenance/cleaning of control equipment.

_____

_____.

Plant Operator's Certification

I certify that the information submitted herein is accurate and correct and that no information requested was withheld from MPCA, Division of Air Quality.

By_____, Position_____

REQUIRED DATA
for
PROCESS EMISSIONS

Company Name_____

C. Equipment & Operating Data

1. Process Equip. No./Ident._____.

2. Process Equip. Description_____

_____.

3. Process equipment operating under normal operating conditions:

No_____. Yes_____. Process rate during the test_____.
(raw materials or finished product)

D. Instrument Data on Process Equipment

1. Include copy of production records or instrumentation which indicates rate of production or operation of the equipment, i.e. units per hour, lbs. per hour, pressure, air flow, etc.

E. Air Pollution Control Equipment

1. Type/model control equipment_____.

2. Air pressure drop across the control equipment_____.

3. Air flow through the control equipment_____.

4. Was the control equipment operating normally?_____.

5. Data of last major maintenance/cleaning of control equipment_____

_____

F. Plant Manager's Certification

I certify that the information submitted herein is accurate and correct and that no information requessted was withheld from MPCA, Division of Air Quality.

By_____, Position_____

mlp47:21
Revised May 1987