

Minnesota Attorney General: Administrative Rules Proceedings

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Version 3
August 20, 2018

Our File # 559

called L. Tiegal 11/20 to obtain original order, affidavit re adopting resolution

rec'd 11/21

P.C.A.

Permanent Rule X

Temporary Rule _____

RULES REVIEW CHECKLIST

DATE RULES RECEIVED 11/14 DUE DATE 12/4

Jeannie 11/24?

Resubmitted and Received _____

a. Returned to Agency w/o Filing w/Secretary of State _____
b. Approved 12-4-79 Date Sent Back to Agency 12-4-79

- -

1. Rules as Adopted APC 4 ✓ APC 21 ✓
2. Rules as Proposed ✓
3. Certificate of Board's Authorizing Resolution, where applicable ✓
4. Order for Hearing ✓
5. Notice of Hearing ✓
   Sufficiency ✓
6. Secretary of State's List ✓ (one copy only)
7. Certificate of Acquisition of Secretary of State's List ✓
8. Secretary of State's Certification of Delivery of Secretary of State's List to Agency ✓
9. Affidavit of Mailing ✓
   At least 30 days prior to hearing ✓
10. Publication in State Register ✓
    At least 30 days prior to hearing ✓
11. Statement of Need and Evidence ✓ No. 4 ✓ No. 21
12. Hearing Examiner's Report ✓ note Ps 9+10
13. Agency's Findings of Fact ✓
14. Certificate of Board's Resolution Adopting Rules, where applicable ✓
15. Order Adopting ✓
16. Report of Chief Hearing Examiner ✓
17. Order Approving Incorporation by Reference, where applicable N/A
18. Certificate of Compliance with Rulemaking Procedures ✓
19. Copy of Notice of Intent to Solicit Outside Opinion, where applicable ✓
20. Petition by Public, where applicable N/A
21. Existing Rules ✓

Our File No: 559

ADMIN 1000 (Rev. 1/78)

STATE OF MINNESOTA

DEPARTMENT ATTORNEY GENERAL

Office Memorandum

TO : TERRY HOFFMAN
Executive Director
Pollution Control Agency

DATE: December 4, 1979

Attn: LISA R. TIEGEL

FROM : JOANNE E. HINDERAKER
Special Assistant
Attorney General

PHONE: 296-4692

SUBJECT: Rules as Approved In the Matter of the Proposed Adoption of Amendments to Minn. Rules APA 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR § 4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment.

Enclosed herewith are the rules you have submitted for approval. These rules have been approved by this office and filed with the Secretary of State. Note that they have NOT been filed with the State Register; this must be done promptly by your agency.

Upon receipt and before transmittal to your agency, however, it is important that you recheck these rules as to:

1. Affixation of the stamps of the Attorney General and Secretary of State to the last page of the rules;

2. Coverage by these stamps of all rules submitted; and

3. Inclusion of all pages of the rules in the approved set.

Directly following the approved rules is a complete set of required documents and transcript which must be retained with the rules by you or your agency.

If you have any questions in this regard, please contact me.

JEH/bw
Enclosure
cc: Duane Harves
Marshall Whitlock

STATE OF MINNESOTA

OFFICE OF THE ATTORNEY GENERAL

ADDRESS REPLY TO:
OFFICE OF THE ATTORNEY GENERAL
MINNESOTA POLLUTION CONTROL AGENCY
1935 W. COUNTY ROAD B2
ROSEVILLE, MINNESOTA 55113
(612) 296-7342

RECEIVED
NOV 21 1979
ATTORNEY GENERAL
ADMINISTRATIVE AGENCIES

November 20, 1979

Judith Wehrwein
Special Assistant Attorney General
Office of the Attorney General
G-25 State Administration Building
50 Sherburne Avenue
St. Paul, Minnesota

RE: In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

Dear Ms. Wehrwein:

As you requested, please find enclosed (1) an affidavit with accompanying Minutes of Board Resolution regarding the adoption of Amendments to Minn. Rules APC 4 and 21 and (2) the original of the Pollution Control Agency's Order adopting rules. These documents are submitted as part of the documents needed by the Attorney General in reviewing the form and legality of the Agency's Amendments to Minn. Rules APC 4 and 21.

If you need further documentation as to the form and legality of the proposed amendments, please contact me at 296-7708.

Sincerely,

Lisa R. Tiegel
Special Assistant
Attorney General

LRT:lt
Enclosures

STATE OF MINNESOTA

OFFICE OF THE ATTORNEY GENERAL

ADDRESS REPLY TO:
OFFICE OF THE ATTORNEY GENERAL
MINNESOTA POLLUTION CONTROL AGENCY
1935 W. COUNTY ROAD B2
ROSEVILLE, MINNESOTA 55113
(612) 296-7342

November 13, 1979

Joanne Hinderaker
Special Assistant Attorney General
Office of the Attorney General
G-25 State Administration Building
50 Sherburne Avenue
St. Paul, Minnesota

RE: In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

Dear Ms. Hinderaker:

Enclosed and hereby submitted for Attorney General review as to form and legality are the above-captioned Amendments to two existing air quality rules, Minn. Rules APC 4 and 21. As you may note, the above caption also refers to the adoption of a new rule, identified as 6 MCAR §4.0020. The proposal to adopt this new rule has presently been withdrawn. Accordingly, this new rule is not enclosed for Attorney General review at this time.

I have enclosed the entire original record in this matter as well as copies of other documents necessary for the adoption of these amendments. The documents submitted into the record are set out separately from the other documents. To assist you in locating the documents found in the original record, I am enclosing a copy of the PCA's Exhibit List.

The following is a partial list of the documents hereby transmitted to your office:

1. Rules as they Presently Exist [1 copy]

2. Rules as Adopted [3 copies]

3. Rules as Proposed [see item #11, below]

4. Certificate of Board's Authorizing Resolution [record copy and 2 copies]

5. Order for Hearing [record copy and 2 copies]

6. Notice of Hearing as it was mailed [record copy and 2 copies]

7. Secretary of State's List [record copy]

8. Certificate of Acquisition of Secretary of State's List [record copy and two copies]

9. Secretary of State's Certification of Delivery of Secretary of State's List to Agency [record copy and two copies]

10. Affidavit of Mailing [record copy and two copies]

11. Publication of Proposed Amendments in State Register, together with Notice of Hearing published in State Register [record copy and two copies]

12. Statement of Need and Reasonableness for APC 4 [record copy and 2 copies]

13. Statement of Need and Reasonableness for APC 21 [record copy and 2 copies]

14. Hearing Examiner's Report [record copy and 2 copies]

15. Agency's Findings of Fact [3 copies]

16. Certificate of Board's Resolution [3 copies]

17. Order Adopting Amendments [3 copies]

18. Report of Chief Hearing Examiner [3 copies]

19. Certificate of Compliance with Rulemaking Procedures [3 copies]

20. Notice of Intent to Solicit Outside Opinion [record copy and 2 copies]

If you need further documentation as to the form and legality of the proposed amendments, please contact me at 296-7708.

Sincerely,

Lisa R. Tiegel
Special Assistant
Attorney General

LRT:lt
Enclosures

Attachment 3

STATE OF MINNESOTA

COUNTY OF RAMSEY

MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

PCA 79-009-MG

ORDER ADOPTING RULES

The above-entitled matter came on for hearing before the Minnesota Pollution Control Agency on the 30th day of October, 1979, in the Board Room of the Agency offices, 1935 West County Road B-2, Roseville, Minnesota 55113, following receipt of the Report of the Hearing Examiner and after making such Report available to the public for more than five working days prior to the meeting of the Agency. The hearing upon which the Report of the Hearing Examiner is based was held after proper notice was served, in accordance with the requirements of Minn. Stat. §15.0412, subd. 4 (1978), upon all persons, associations and other interested groups registered with the Secretary of State for that purpose.

After affording all interested persons an opportunity to present written and oral data, statements and arguments, having heard all of the testimony and considered all of the evidence adduced, and upon the records, files and proceedings constituting the record herein, and applicable standards or criteria, and having confirmed the need for the above-captioned rules and the reasonableness thereof,

NOW THEREFORE, IT IS ORDERED that pursuant to the authority vested in this Agency by Minn. Stat. §116.07 subd. 4 (1978 and 1979 Supp.), amendments to Minn. Rule APC 4 (relating to power plants) and to Minn. Rule APC 21 (relating to opacity) are adopted this 30th day of October, 1979, in the form published in 3 S.R. 2240 - 2246 (June 18, 1979) (marked as Attachment 5 and hereby incorporated by reference) with the following changes:

1. In accordance with its Notice of Withdrawal, published at 4 S.R. 204 (August 20, 1979) (marked as Attachment 6 and hereby incorporated by reference), the Agency takes no action regarding its proposals relating to malfunctions and breakdowns of control equipment and process equipment. These proposals consisted of (1) the adoption of new rule 6 MCAR §4.0020 (published at 3 S.R. 2244 - 2246) and (2) the amendment of Minn. Rule APC 21 by the deletion of those sections which the proposed new rule would have addressed [i.e., APC 21(c) and (d)]. Thus, the Agency takes no action on its proposal to adopt 6 MCAR §4.0020 or on it proposal to amend existing APC 21(c) or (d);

2. For those sections of proposed amendments to Minn. Rules APC 4 and 21 on which the Agency is taking action, deletions from the text appearing at 3 S.R. 2240 - 2244 are indicated on Attachment 7 by strikeout; and,

3. For those sections of Minn. Rules APC 4 and 21 on which the Agency is taking action, additions to the text appearing at 3 S.R. 2240 - 2244 are indicated on Attachment 7 by underlining.

MINNESOTA POLLUTION CONTROL AGENCY

DATED: 10/30/79

Art Engelbrecht
Chairman

DATED: 10/30/79

Terry Hoffman
Executive Director

more than $250.00 per year for lobbying or any individual who is engaged for pay or authorized to spend money by another individual or association and who spends more than $250.00 per year or five hours per month lobbying. The statute in question provides certain exceptions. Questions should be directed to the Minnesota Ethical Practices Board, 41 State Office Building, St. Paul, Minnesota 55155, telephone (612) 296-5615.

June 1, 1979

Joseph F. Grinnell, Chairman
Terry Hoffman, Executive Director

Amendments as Proposed

APC 4 Standards of performance for fossil fuel burning indirect heating equipment.

A. Definitions. As used in this regulation, the following words shall have the meanings defined herein:

11. "Derating" means limitation of heat input and corresponding steam output capacity.

B. Determination of applicable standards of performance.

3. When different fossil fuels are burned simultaneously in any combination, the applicable sulfur dioxide standard shall be determined by proration using the following formula:

$$w = \frac{y(a) + z(b)}{x + y + z}$$

where:

w is the maximum allowable emissions of sulfur dioxide gases in lbs. per million BTU ~~(g-million cal)~~ (nanograms/joule), and

x is the percentage of total heat input derived from gaseous fossil fuel, and

y is the percentage of total heat input derived from liquid fossil fuel,

z is the percentage of total heat input derived from solid fossil fuel, and

a is the allowable SO_2 standard for liquid fossil fuels expressed in lbs per million BTU ~~(g/million cal)~~ (nanograms/joule), and

b is the allowable SO_2 standard for solid fossil fuels expressed in lbs per million BTU ~~(g-million cal)~~ (nanograms/joule).

4. When different fossil fuels are burned simultaneously in any combination, the ~~application~~ applicable nitrogen oxides standard shall be determined by proration using the following formula:

$$w = \frac{x(c) + y(a) + z(b)}{x + y + z}$$

where:

w, x, y and z mean the same as in the formula in paragraph 3. for determining the applicable sulfur dioxide standard; and

a is the allowable NO_x standard for liquid fossil fuels expressed in lbs per million BTU ~~(g-million cal)~~ (nanograms/joule); and

b is the allowable NO_x standard for solid fossil fuels expressed in lbs per million BTU ~~(g-million cal)~~ (nanograms/joule); and

c is the allowable NO_x standard for gaseous fossil fuels expressed in lbs per million BTU ~~(g-million cal)~~ (nanograms/joule).

H. Performance test procedures.

6. For each performance test, the emissions expressed in ~~g/million cal~~ nanograms/joule (lb/million BTU) shall be determined by the following procedure: ~~if the actual heat input is used:~~

$$E = CF\left(\frac{20.90}{20.9 - \%O_2}\right)$$

where:

a. E = pollutant emission, g/million cal nanograms/joule ~~(lb-million cal)~~ (lb/million BTU).

b. C = pollutant concentration, g/dscm (lb/dscf), determined by Methods 5, 6, or 7.

c. $\%O_2$ = oxygen content by volume (expressed as percent), dry basis. Percent oxygen shall be determined by using the integrated sampling procedures of Method 3 and by analyzing the sample with a continuous monitoring system, or with the Orsat analyzer. The sample shall be obtained as follows:

(1) For determination of sulfur dioxide and nitrogen oxides emissions, the oxygen sample shall be obtained at approximately the same point in the duct as used to

obtain the samples for Methods 6 and 7 determinations, respectively.

(2) For determination of particulate emissions, the oxygen sample shall be obtained simultaneously by traversing the duct at the same sampling location used for each run of Method 5, in accordance with Method 1, except that 12 sample points shall be used in all cases.

d. F = factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted. Values of F are given as follows:

(1) For anthracitic coal according to A.S.T.M. D388-66, F = ~~0.01139 dscm/10⁶ cal~~ 2.723 × 10^{-7} dscm/j ~~(101.4 dscf/10⁶ BTU)~~(10140 dscf/10^6 BTU).

(2) For subbituminous and bituminous coal according to A.S.T.M. D388-66, F = ~~0.01103 dscm/10⁶ cal~~ 2.637 × 10^{-7} dscm/j ~~(98.2 dscf/10⁶ BTU)~~(9820 dscf/10^6 BTU).

(3) For liquid fossil fuels including crude, residual, and distillate oils, F = ~~0.01036 dscm/10⁶ cal~~ 2.476 × 10^{-7} dscm/j ~~(92.2 dscf/10⁶ BTU)~~(9220 dscf/10^6 BTU).

(4) For gaseous fossil fuels including natural gas, propane, and butane, F = ~~0.00982 dscm/10⁶ cal~~ 2.347 × 10^{-7} dscm/j ~~(87.4 dscf/10⁶ BTU)~~(8740 dscf/10^6 BTU).

e. An owner or operator may use the following equation to determine an F factor (dscf/10^6 BTU) in lieu of the F factors specified by paragraph 6.d. of this section:

$$F = \frac{10^6\,[3.64(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O)]}{GHV}$$

where:

(1) H, C, S, N and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent), respectively, as determined by ultimate analysis of the fuel fired, dry basis, using A.S.T.M. methods D3168-74 or D3176 (solid fuels) or D240-64(73) (liquid fuels) or computed from results using A.S.T.M. method D1137-53(70), D1945-64(73) or D1946-67(72) (gaseous fuels) as applicable.

(2) GHV is the gross heating value (BTU/lb dry basis).

f. When combinations of fuels are fired, the F factors determined by paragraph 6.d. or e. of this section shall be prorated in accordance with the following formula:

$$F = \frac{xF_1 + yF_2 + zF_3}{100}$$

where:

x = the percentage of total heat input derived from gaseous fossil fuel.

y = the percentage of total heat input derived from liquid fossil fuel.

z = the percentage of total heat input derived from solid fossil fuel.

F_1 = the value of F for gaseous fossil fuels according to subsection 6.d. or e. of this regulation.

F_2 = the value of F for liquid fossil fuels according to subsection 6.d. or e. of this regulation.

F_3 = the value of F for solid fossil fuels according to subsection 6.d. or e. of this regulation.

g. When combinations of fossil fuels are fired, the actual heat input, expressed in cal/hr (BTU/hr), shall be determined during each testing period. The rate of fuels burned during each testing period shall be determined by suitable methods and shall be confirmed by a material balance over the indirect heating system.

~~7. For each performance test, the emissions expressed in g/million cal (lb/million BTU) shall be determined by the following procedure if the rated heat input is used:~~

$$E = \frac{E_h}{Z}$$

~~where:~~

~~E = pollutant emissions, g/million cal (lb/million BTU).~~

~~E_h = pollutant emission rate, g/hr (lb/hr), determined by Method 5.~~

~~Z = applicable heat input, million cal/hr (million BTU/hr).~~

7. When the emission factor cannot be calculated by means of the method outlined in section 11.6., the actual heat input shall be used in calculating emission factors for

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all pollutants for new and existing indirect heating equipment.

~~8. The rated heat input shall be used only in determining the amount of particulate matter emitted from existing indirect heating equipment. The actual heat input shall be used in determining the amount of sulfur dioxide emitted from existing indirect heating equipment. The actual heat input shall be used in conducting performance tests for all pollutants for new indirect heating equipment.~~

8. The indirect heating equipment shall be operated during the performance test at ninety (90) percent or more of the rated heat input, or at 100 percent of peak operating load if an owner or operator intends to achieve compliance by derating.

I. Derate. The owner or operator of indirect heating equipment who elects to achieve compliance with an applicable standard of performance by derating shall:

1. Advise the Director of the Agency in writing of the intent to achieve compliance by derating and the capacity level at which the owner or operator intends to operate this equipment; and

2. Agree to a permit condition in the required operating permit that prohibits operation of the equipment in excess of the derate level; and

3. Install a boiler steam flow meter to continuously record, indicate, and integrate boiler steam flow, and shall:

(a) Submit a written report to the Director of the Agency within ten (10) days of any excess steam flow occurrence above the specified derate load.

(b) Use a six (6) minute averaging period in determining an excess above derate with corrections for deviations in steam pressure or temperature if required.

(c) Submit written yearly reports to the Director of the Agency confirming that no excesses have occurred during normal operations.

(d) Retain and make available for inspection by the Agency or its authorized employees or agents steam flow charts for a minimum period of two (2) years following the date of measurement.

4. An effective method of physical limitation of boiler load shall be submitted for approval by the Director of the Agency prior to authorization of a boiler derate. Such limitation may include but is not limited to, a tie-back signal from the steam flow meter to the combustion control system cutting back fuel input at the derate load, a maximum limit stop on the fuel input control drive or valve, or such other equivalent physical means.

APC 21 Emission sources monitoring, performance tests, reports ~~shutdowns and breakdowns~~.

(a) Continuous monitoring.

(9) Monitoring data. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to one six (6) minute averages ~~and for systems other than opacity to one hour averages respectively~~ except that other averaging periods may be used as specified in other regulations or limitations. ~~One minute o~~Opacity averages shall be calculated from all equally spaced consecutive fifteen second (or shorter) data points in the applicable averaging four (4) or more equally spaced data points for each one minute period. For systems other than opacity, the data shall be reduced to one hour averages, which shall be computed from four or more data points equally spaced over each one hour period.

Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. An arithmetic or integrated average of all data may be used. The data output of all continuous monitoring systems may be recorded in reduced or non-reduced form (e.g. ppm pollutant and percent O_2 or lb of pollutant/million BTU). All excess emissions shall be converted into units of the standard using the conversion procedures specified in the applicable regulation. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the regulation to specify the applicable standard (e.g. rounded to the nearest one percent opacity).

(b) Performance tests.

(7) Opacity.

~~(aa) Compliance with opacity standards in this part shall be determined by conducting observations in accordance with Reference Method 9.~~ Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity standards. The results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the owner or operator shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1, has been properly maintained

and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way.

~~(bb) The opacity standards set forth in a regulation shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.~~

(bb) Paragraph 2.5 of Method 9 (Data Reduction) is amended to read as follows, and this language shall be used whenever Method 9 is referenced in the Rules:

2.5 Data Reduction. Opacity shall be determined as an average of 24 consecutive observations recorded at 15 second intervals. Divide the observations recorded on the record sheet into sets of 24 consecutive observations. A set is composed of any 24 consecutive observations. Sets need not be consecutive in time and in no case shall sets overlap. For each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24. Record the average opacities on a record sheet. In the event that an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period, determine the opacity as an average of 4 consecutive observations recorded at 15 second intervals. Determine the number of minutes in any one-hour period that the opacity exceeds a given opacity and record this information.

(c) Reports.

(1) Excess Emissions. Monitoring reports. Any owner or operator of an affected facility who is required to install a continuous monitoring system shall submit a written report of ~~excess emissions~~ to the Director for every calendar quarter in accordance with the following requirements:

~~(aa) The report shall be submitted to the Director of the Division of Air Quality of the Agency.~~

~~(bb) The report shall be submitted in accordance with the following requirements:~~

(aa) (i) The report shall be postmarked by the 30th day following the end of each calendar quarter; and

(bb) (ii) The report shall contain the following information:

~~1. The magnitude of excess emissions, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions.~~

~~2. Specific identification of each period of excess emissions that occurred during startups, shutdowns, and malfunctions of the affected facility, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.~~

~~3.~~ (i) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

~~4.~~ (ii) When ~~no excess emissions have occurred or~~ the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

~~(3) Breakdowns. The owner or operator of an affected facility shall maintain records of the occurrence and duration of any startup, shutdown, breakdown, or malfunction in operation of the facility or any air pollution control equipment. The owner or operator shall maintain records of any periods of time in which a continuous monitoring system or monitoring device is inoperative. These records shall be retained for at least two years following the date of such shutdown, startup, breakdown, malfunction, or inoperation. These records shall be submitted to the Agency at such times as the Director may require.~~

(3) (4) Emission inventory. All owners or operators of emission facilities which emit more than 25 tons per year of particulate matter, sulfur oxides, nitrogen oxides, carbon monoxide, hydrocarbons, or 5 tons or more per year of lead in any form and calculated as metallic lead, shall submit on or before April 1st of each year an emission inventory report covering the previous calendar year.

~~(d) Shutdowns and Breakdowns~~

~~(1) Shutdown. The owner or operator of an emission facility shall notify the Director 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 any process equipment. At the time of notification, the owner or operator shall also notify the Director of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Director when the shutdown is over.~~

~~(2) Breakdown. The owner or operator of an emis-~~

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sion facility shall notify the Director 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 owner or operator shall also notify the Director of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Director when the breakdown is over.

(3) Operation Changes. In any shutdown or breakdown covered by subparagraph (1) or (2) above, the owner or operator shall immediately take all practical steps to modify operations to reduce the emission of air contaminants. The Director 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 regulation shall permit the operation of an affected facility which may cause an immediate public health hazard.

(4) Monitoring Equipment. The owner or operator of a continuous monitoring system or monitoring device shall notify the Director of any breakdown or malfunction of such system or device.

6 MCAR § 4.0020 Malfunctions and breakdowns.

A. Definitions. As used in this rule the following words shall have the meanings defined herein.

1. "Breakdown" means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal and usual manner.

2. "Excess emissions" means an emission rate which exceeds any applicable standard of performance prescribed by Minnesota Pollution Control Agency Rules, or which violates any condition in a permit.

3. "Malfunction" means any failure of air pollution control equipment or process equipment to operate in a normal and usual manner which is caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable process equipment failure.

4. "Potential to emit" means the capability at maximum capacity to emit an air pollutant in the absence of air pollution control equipment. Air pollution control equipment includes control equipment which is not, aside from air pollution control laws and rules, vital to production of the source or to its normal operation. Annual potential shall be based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions which limit the hours of operation. Enforceable permit conditions on the type or amount of materials combusted or processed may be used in determining the potential emission rate of a source.

5. "Process equipment" means any equipment which is a part of an emission facility which may upon malfunction or breakdown cause excess emissions to occur.

B. Startup and shutdown. Excess emissions during periods of routine startup or shutdown of an emission facility shall not be considered to be the result of a malfunction.

C. Standard for control equipment availability. No person shall operate an emission facility unless the air pollution control equipment is also in proper operation and is not bypassed, unless the control equipment is bypassed only to prevent damage to the control equipment or unless a bypass is specifically allowed in a permit. No person shall operate an emission facility unless the applicable control measures or process equipment for abatement of the emissions therefrom as specified in the permit application, permit, or applicable rule are being followed, or are in operation.

D. Enforcement. Excess emissions during malfunction or breakdown are a violation of the applicable limitation, and the owner or operator of the emission facility that is causing the excess emissions is subject to appropriate enforcement action.

E. Maintenance and abatement plan.

1. Plan. An owner or operator of an emission facility with potential to emit more than 500 tons per year from the emission facility shall prepare, implement, and submit a maintenance and abatement plan to prevent, detect, and correct malfunctions and breakdowns of control equipment and process equipment. The owner or operator of an emission facility with potential to emit less than or equal to 500 tons per year shall prepare, have available, and implement a maintenance and abatement plan, and may be required to submit the plan to the Agency upon request by the Director. Criteria upon which the Director will rely in determination of the need to submit a maintenance and abatement plan are (1) Excessive malfunctions and breakdowns resulting in excess emissions, (2) Failure to prepare maintenance and abatement plan, (3) Failure to do adequate maintenance and abatement, (4) Failure to report malfunctions and breakdowns, (5) Ambient air violations in the vicinity of and to which the source is contributing.

2. Contents of plan. The maintenance and abatement plan shall be in writing and shall as a minimum specify the following:

a. A complete preventive maintenance program for avoidance of excess emissions including identification of the individual(s) responsible for inspecting, maintaining, and repairing the process equipment and control equipment.

a description of the equipment that will be inspected, the frequency of these inspections or repairs, and an identification and quantities of the replacement parts which will be maintained in inventory for quick replacement.

b. An identification of operating conditions and outlet variables (such as opacity, grain loading, pollutant concentration, and pressure drop across collector) for the process equipment and 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.

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

d. A description of the procedures that will be taken in the event of a malfunction or breakdown in order to limit excess emissions as much as possible, including but not limited to reducing production.

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

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

g. Any other reasonable and pertinent information that may be required by the Director.

3. Records. The owner or operator of an emission facility who is required to prepare a maintenance and abatement plan shall maintain records to show that the plan is implemented. The records shall include at least, the times and dates of inspections, the inspection results, any recommendations, and any action taken as response to recommendations. The records shall be subject to inspection by the Agency and shall be maintained for two years following the date of such recording.

4. Submission of plan. The owner or operator of an emission facility who is required to submit a maintenance and abatement plan shall submit the plan as part of the permit application for the emission facility. The owner or operator of an emission facility who has an operating permit for the emission facility on the effective date of this rule shall submit the maintenance and abatement plan when a request for reissuance of the permit is submitted or upon request of the Director, whichever comes first.

5. Permit. No permit shall be issued or reissued unless the owner or operator who is required by this rule to do so, has submitted a maintenance and abatement plan that meets the requirements of this rule.

F. Breakdown or malfunction of control equipment or process equipment. The owner or operator of an emission facility where excess emissions occur as a direct result of a malfunction or breakdown of process equipment or control equipment shall:

1. Promptly begin an investigation to determine the cause(s) of the excess emissions;

2. Immediately initiate corrective procedures to achieve compliance with the applicable emission limitations and permit conditions as expeditiously as possible;

3. Notify the Agency immediately of the malfunction or breakdown;

4. Submit to the Agency in writing, within ten days after the beginning of the excess emissions, a report containing the following information:

a. Identification of the process equipment, stacks, instrumentation, and control equipment involved in the malfunction or breakdown;

b. Time and duration of the excess emissions;

c. Estimate of the amount of excess emissions;

d. Nature and causes of the malfunction or breakdown;

e. All remedial action taken to bring the emission facility into compliance with the applicable emission limitations, and measures taken to limit excess emission as much as possible.

5. The owner or operator of an emission facility who used remedial measures outlined in E.4.e. shall incorporate such remedial measures into the maintenance and abatement plan required in this rule.

G. Cessation of operation during malfunction or break-

KEY: RULES SECTION — Underlining indicates additions to proposed rule language. ~~Strike outs~~ indicate deletions from proposed rule language. PROPOSED RULES SECTION — Underlining indicates additions to existing rule language. ~~Strike outs~~ indicate deletions from existing rule language. If a proposed rule is totally new, it is designated "all new material."

down. The Director may order cessation of operation of all or part of the entire emission facility if necessary to preserve public health and welfare. The Director shall consider quantity and quality of emission, what portion of the emission facility would have to be shut down, cause of breakdown or malfunction, length of time needed to correct, and other factors affecting the public and the owner or operator of the emission facility.

H. Revocation of operating permit. No person shall operate an emission facility which has an unreasonable malfunction or breakdown frequency of control equipment or process equipment. In addition to any other reason provided by law, the Director may modify or revoke the operating permit of the owner or operator of an emission facility upon, (1) failure to submit an acceptable maintenance and abatement plan, (2) failure to abide by the maintenance and abatement plan, (3) failure to notify the Agency of malfunctions or breakdowns, (4) excessive periods of excess emissions due to breakdowns or malfunctions.

STATE CONTRACTS

Pursuant to the provisions of Minn. Stat. § 16.098, subd. 3, an agency must make reasonable effort to publicize the availability of any consultant services contract or professional and technical services contract which has an estimated cost of over $2,000.

Department of Administration procedures require that notice of any consultant services contract or professional and technical services contract which has an estimated cost of over $10,000 be printed in the *State Register*. These procedures also require that the following information be included in the notice: name of contact person, agency name and address, description of project and tasks, cost estimate, and final submission date of completed contract proposal.



The American Fur Company became the most influential and the last large fur concern to operate in what was to become the Minnesota Territory. The company's warehouse at Mendota, shown in this 1850s photograph, was used to collect furs and store trade goods. Smaller posts were maintained at Big Stone, Cass, Gull, Leech, Mille Lacs, Red, and Sandy lakes and on the Crow Wing and Red rivers. (Courtesy of Minnesota Historical Society)

Department of Corrections Minnesota State Training School — Red Wing, MN

Notice of Availability of Contract for Psychological Evaluation Services

The program at the Minnesota State Training School requires the services of a licensed psychologist. This person will provide the written psychological evaluation — through testing, interviews, etc. — on up to a twice weekly basis for all new admissions to the institution, to retest selected youths based upon specific staff referral, plus limited staff training in the area of his/her expertise. Payment is $170.00 per 8 hour day. Annual cost is limited to $16,300.00.

Notice of Availability of Contract for Volunteer Services Coordinator

The program at the Minnesota State Training School requires the services of a volunteer coordinator. Position requires up to 50 hours per week for 10 months (September-June), and up to 15 hours per week for the two months of July and August. Responsibilities include the providing of professional volunteer services for both juvenile and adult clients at the institution through the recruiting and training of volunteers, plus the development of a coordinated scheduling of the volunteers to augment on-going programs.

Dutch Boy, Inc., E5454
Econdyne Corporation, E3781
FMC/Northern Ordinance Division, E5628, E5865
Federal Stampings, Inc., E5858
First National Bank of St. Paul, E4571
Furniture Barn, CR21
Girl Scout Council, PA360
Glencoe Municipal Hospital, E5558
Griffin Companies, H1079
Harriet Tubman Women's Shelter, Inc., E4568
Hermanson Dental Lab, E4564
Hibbing Taconite Company, E5969
Cargill, Incorporated, E5396
Honeywell Inc., E4062, E4897, E5070
Independent School District #281, E5380
Independent School Dist. #604, E5765
Insurance Company of North America, H1071
J. C. Penney Company, Inc. E4950
Jack Frost, Inc. E2477
Kentucky Fried Chicken, E3726
Lakewood Community College, E4660
Maico Hearing Instruments, E4414
Metropolitan Transit Commission, E5702
Minneapolis Police Department, PS329
Minnesota Power & Light, E5788
National Health Care Trust, A30
Nobles Industries, Inc., E5795
Northwest Airlines, Inc., E5933
Northwestern Bell Telephone Company, E5017
ONAN — A Division of Onan Corp., E3979
Pako Filmshops Camera Stores, E4366
Quality Machine, Inc., E5708
Sage Corporation, E5754
Schanno Transportation, E5633
Schwartz Manufacturing, E5316
Sears, Roebuck and Company, Lake Street Store, PA338
Singer Company, E3894
Southern Food Service, E5805
St. Cloud T & L Credit Union, E2480
St. John's Hospital, E4756, E4927
St. Peter Church, E5718
State Farm Insurance, E4711
Talon/Division of Textron, E5692
Williams Pipeline Company, E5777

Hearing Examiner's Orders

A case that is not settled through conciliation is scheduled for hearing before a state hearing examiner following a complaint issued by The Commissioner and a notice and order for hearing. Based upon evidence, testimony, and exhibits, a hearing examiner makes findings of fact, and conclusions of law and issues an order. The following cases were heard before a state hearing examiner:

Linda Lavender vs. The City of Bloomington, Minnesota, E3104
Department of Human Rights vs. Robert Denker, d/b/a/ Tonka Bottle Shop, E3685
Department of Human Rights vs. High View North Apartments, a partnership, and the named parties, Sanders M. Ackerberg and Sigert Co., H7052
Department of Human Rights vs. Independent School District No. 391, E1527
Department of Human Rights vs. Perkins Cake & Steak, Inc., E2721

Court Decisions

The following cases have been heard, decisions made, and orders issued:

Minnesota Mining and Manufacturing Company, Petitioner vs. Minnesota Department of Human Rights, E1660
Minnesota Department of Human Rights vs. Raymond Dougherty, PA283

Pollution Control Agency

Notice of Withdrawal and Notice of Intent to Solicit Outside Opinion in the Matter of the Proposed Amendment to Rule APC 21 and the Proposed Adoption of New Rule 6 MCAR § 4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

Notice is hereby given that the Minnesota Pollution Control Agency (Agency) has withdrawn its proposals relating to malfunctions and breakdowns of control equipment and process equipment. These proposals consisted of (1) the adoption of new rule 6 MCAR § 4.0020, and (2) the amendment of Rule APC 21 by the deletion of those sections of Rule APC 21 which the proposed new rule would have addressed. These proposals were published in the June 18, 1979, *State Register*, 3 S.R. 2239 *et seq.*

Please note that the Agency is *not* withdrawing the other amendments which were noticed in the June 18, 1979, *State Register*, 3 S.R. 2239 *et seq.* These amendments are to Rule APC 21, relating to opacity, and to Rule APC 4, relating to power plants.

The Agency is withdrawing the two proposals noted above in order to further consider comments made by the public during the hearings on these proposals.

Accordingly, notice is hereby given that members of the Agency staff will be meeting with various members of the public to discuss possible amendments to the proposed rule 6 MCAR § 4.0020. Any interested or affected person or groups

are encouraged to participate in these discussions. Any person or group who wishes to receive notice of such meetings should contact:

Gary Pulford
Minnesota Pollution Control Agency
Division of Air Quality
1935 W. County Road B2
Roseville, Minnesota 55113
(612) 296-7371

A meeting has been tentatively scheduled for 1:00 p.m. August 29, 1979, in the Board Room at the Minnesota Pollution Control Agency at the address stated above. The purpose of this meeting is to discuss the conceptual framework of 6 MCAR § 4.0020 and possible amendments thereto. Persons interested in attending this meeting should contact Gary Pulford at the above phone number to confirm the date and time of the meeting. As stated above, notice of other meetings may also be obtained by contacting Gary Pulford, at the above stated phone number.

In addition, written or oral comments may be submitted to the Agency in regard to the proposed rule or possible amendments thereto. Written statements may be addressed to Gary Pulford at the above address. Oral statements will be received during regular business hours over the telephone at the above telephone number and in person at the above address. Any written material received by the Agency shall become part of the hearing record in the event the Agency proposes to adopt rules governing this subject.

If, in the future, the Agency proposes to adopt the rule, notice of the rule will be given, together with the date(s) of the hearing, in the manner specified in Minn. Stat. § 15.0412, subd. 4 (1978). Any person or group who wishes to be given notice of the rule as proposed or the dates of the hearing should contact Gary Pulford at the address or telephone number noted above.

August 13, 1979

Terry Hoffman
Executive Director

Department of Transportation

Notice of Application and Opportunity for Hearing Regarding Authority to Abandon and Remove Track No. 49 and the Prindle Main Track, Both Located at Virginia, Minnesota

Notice is hereby given that the Duluth, Missabe and Iron Range Company with offices at the Missabe Building, Duluth, Minnesota 55802 has filed a petition with the Commissioner of Transportation pursuant to Minn. Stat. § 219.741 and § 218.041, subd. 3 (10) to abandon and remove track No. 49 and the Prindle Main track, both located at Virginia, Minnesota.

The application recites among other matters that: "The Prindle Main, the longer of the two tracks, is the remainder of a long since removed track serving the Prindle Mine and was retained only to allow service to be provided over Track No. 49. Track No. 49 has not been used commercially for more than five years.

The above proposed abandonment is in the best of . . . (Duluth, Missabe and Iron Range Railway Company) and will not impair the ability of . . . (Duluth, Missabe and Iron Range Railway Company) to serve the public efficiently and satisfactorily and will not result in injury or be inconvenient to the shipping public or any members thereof."

Any person may file a written objection to the proposed action by means of a letter addressed to the Commissioner of Transportation, Transportation Building, Saint Paul, Minnesota 55155, not later than the date specified below. An objection must be received on or before September 17, 1979. The objection should state specifically how the objector's interest will be adversely affected by the proposed action.

Upon receipt of a written objection, the Commissioner will, with respect to the named petitioner, set the matter down for hearing. If no objections are received, the Commissioner may grant the relief sought by the petitioner.

If this matter is set for hearing, any person who desires to become a Party to this matter must submit a timely Petition to Intervene to the Hearing Examiner pursuant to 9 MCAR § 2.210, showing how the person's legal rights, duties and privileges may be determined or affected by the decision in this case. The petition must also set forth the grounds and purposes for which intervention is sought. All parties have the right to be represented by legal counsel or any other representative of their choice. In the event the objecting party does not do so, or otherwise does not participate in the hearing, the statements contained in the application filed may be taken as true.

August 10, 1979

Richard P. Braun
Commissioner

Notice of Application and Opportunity for Hearing Regarding Authority to Remove Trackage in Minneapolis, Minnesota, Serving Harmon Glass and Koch Industries

Notice is hereby given that Chicago, Milwaukee, St. Paul and Pacific Railroad Company has filed a petition with the Commissioner of Transportation pursuant to Minn. Stat. § 219.741 and § 218.041, subd. 3 (10) to remove trackage in

PROPOSED REVISIONS
TO PROPOSED AMENDMENTS TO MINN. RULE APC 21

Revisions to proposed amendments to APC 21(a)(9) and (b)(7) are noted below. Deletions from the language proposed in the June 18, 1979, State Register, are noted by ~~crossing out the deleted language~~; Additions to the proposed language are noted by underlining the newly added language. (NOTE THAT THE AGENCY HAD PROPOSED TO DELETE APC 21(b)(7)(bb) AND HAS WITHDRAWN ITS PROPOSAL TO DELETE THIS PROVISION AT THE PRESENT TIME.)

Proposed Amendments to APC 21(c) and (d) have been withdrawn. The Agency does not propose to take any action regarding the existing language of APC 21(c) or (d).

APc 21(a) Continuous monitoring.

(9) Monitoring data. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to six (6) minute averages except that ~~other averaging periods may be used as specified in other regulations or limitations~~ a one minute averaging period as described in (b)(7)(cc)(ii) shall be used in the event an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period. Opacity averages shall be calculated from all equally spaced consecutive fifteen second (or shorter) data points in the applicable averaging period. For systems other than opacity, the data shall be reduced to one hour averages, which shall be computed from four or more data points equally spaced over each one hour period.

Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. An arithmetic or integrated average of all data may be used. The data output of all continuous monitoring systems may be recorded in reduced or non-reduced form (e.g. ppm pollutant and percent

O_2 or lb of pollutant/million BTU). All excess emissions shall be converted into units of the standard using the conversion procedures specified in the applicable regulation. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the regulation to specify the applicable standard (e.g. rounded to the nearest one percent opacity).

APC 21(b) Performance tests.

(7) Opacity

(bb) The opacity standards set forth in a regulation shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.

~~(bb)~~ (cc) Paragraph 2.5 of Method 9 (Data Reduction) is amended to read as follows, and this language shall be used whenever Method 9 is referenced in the Rules:

(i) 2.5. Data Reduction. Except as provided in paragraph (cc)(ii), ~~Opacity~~ opacity shall be determined as an average of 24 consecutive observations recorded at 15 second intervals. Divide the observations recorded on the record sheet into sets of 24 consecutive observations. A set is composed of any 24 consecutive observations. Sets need not be consecutive in time and in no case shall sets overlap. For each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24. Record the average opacities on a record sheet.

(ii) In the event that an applicable standard of performance

for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period, determine the opacity as an average of 4 consecutive observations recorded at 15 second intervals. Determine the number of minutes in any one-hour period that the opacity exceeds a given opacity and record this information.

PROPOSED REVISIONS
TO PROPOSED AMENDMENTS TO MINN. RULE APC 4

In the proposed amendments published in the June 18, 1979, State Register, the Agency proposed to delete APC 4.H.7. in its entirety and to replace it with a new APC 4.H.7. The revisions noted below reinstate much of the original language of APC 4.H.7. in order to make it clear that, by the amendments to APC 4, the Agency is retaining the equation used in APC 4 and is changing only term Z in that equation from applicable heat input to actual heat input.

As in the proposed revisions to APC 21 (Attachment 7, pages 1 - 2), revisions to proposed amendments to APC 4 are noted below. Deletions from the language proposed in the June 18, 1979, State Register, are noted by ~~crossing out the deleted language~~; Additions to the proposed language are noted by underlining the newly added language.

H.7. When the emission factor cannot be calculated by means of the method outlined in section H.6., ~~the actual heat input shall be used in calculating emission factors for all pollutants for new and existing indirect heating equipment~~. the emission factors for all pollutants for all new and existing indirect heating equipment expressed in nanograms/joule (lb./million BTU) shall be determined by the following procedure:

$$E = \frac{E_t}{Z}$$

where:

E = pollutant emissions, in nanograms/joule (lb./million BTU).

E_t = pollutant emission rate, in nanograms/hr. (lb. hr), determined by Method 5.

Z = actual heat input, in joules/hr., (million BTU/hr).

I.3.(b) Use a ~~six (6) minute~~ <u>one (1) hour</u> averaging period in determining an excess above derate with corrections for deviations in steam pressure or temperature if required.

Adopted Working Copy

CHAPTER FOUR: APC 4

APC 4 Standards of Performance for Fossil Fuel Burning Indirect Heating Equipment.

A. Definitions. As used in this regulation, the following words shall have the meanings defined herein:

1. "Actual heat input" means the number of BTU per hour (cal/hr) determined by multiplying the gross heating value of the fuel by the rate of fuel burned.

2. "Coal refuse" means waste-products of coal mining, cleaning, and coal preparation operations (e.g. culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material.

3. "Direct heating equipment" means a furnace, kiln, dryer, or other combustion equipment used in the burning of a fossil fuel for the purpose of processing a material where the products of combustion have direct contact with the heated material.

4. "Distillate oil" means grades of oils known as No. 1 & No. 2, as defined in the A.S.T.M. D 396 (1973).

5. "Fossil fuel" means natural gas, petroleum, coal, wood, peat, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat.

6. "Gross heating value" means the gross calorific value (cal/g or BTU/lb) of the fuel combusted as determined by A.S.T.M. test methods D 2015-66(72) for solid fuels; D 1826-64(70) for gaseous fuels, and D 240-64(73) for liquid fuels.

7. "Indirect heating equipment" means a furnace, a boiler or other unit of combustion equipment used in the process of

burning fossil fuel for the purpose of producing steam, hot water, hot air, or other hot liquid, gas, or solid, where the products of combustion do not have direct contact with the heated medium.

8. "Rated heat input" means the number of BTU per hour (cal/hr) which the manufacturer has determined to be the continuous rated capability of the indirect heating equipment, or, where the rated heat input is not specified by the manufacturer, the number of BTU per hour (cal/hr) determined by dividing the rated heat output by the overall thermal efficiency.

9. "Residual oil" means grades of oils known as No. 4, No. 5 (Light), No. 5 (Heavy), and No. 6, as listed in A.S.T.M. D 396 (1973).

10. "Steam generating unit" means indirect heating equipment used to produce steam.

11. "Derating" means limitation of heat input and corresponding steam output capacity.

B. Determination of Applicable Standards of Performance.

1. This regulation shall apply to indirect heating equipment for which a standard of performance has not been promulgated in a specific regulation.

2. The applicable standards of performance in Table I or Table II shall be determined by using the rated heat input of the specific indirect heating equipment and the total rated heat inputs of all indirect heating euqipment and all direct heating equipment of one owner or operator at that particular location.

3. When different fossil fuels are burned simultaneously in any combination, the applicable sulfur dioxide standard shall be determined by proration using the following formula:

$$w = \frac{y(a) + z(b)}{x + y + z}$$

where:

w is the maximum allowable emissions of sulfur dioxide gases in lbs. per million BTU (nanograms/joule), and

x is the percentage of total heat input derived from gaseous fossil fuel, and

y is the percentage of total heat input derived from liquid fossil fuel,

z is the percentage of total heat input derived from solid fossil fuel, and

a is the allowable SO_2 standard for liquid fossil fuels expressed in lbs per million BTU (nanograms/joule), and

b is the allowable SO_2 standard for solid fossil fuels expressed in lbs per million BTU (nanograms/joule).

4. When different fossil fuels are burned simultaneously in any combination, the applicable nitrogen oxides standard shall be determined by proration using the following formula:

$$w = \frac{x(c) + y(a) + z(b)}{x + y + z}$$

where:

w, x, y and z mean the same as in the formula in paragraph 3, for determining the applicable sulfur dioxide standard; and

a is the allowable NO_x standard for liquid fossil fuels expressed in lbs per million BTU (nanograms/joule); and

b is the allowable NO_x standard for solid fossil fuels expressed in lbs per million BTU (nanograms/joule); and

c is the allowable NOx standard for gaseous fossil fuels expressed in lbs per million BTU (nanograms/joule).

5. When lignite or a solid fossil fuel containing 25 percent by weight, or more, of coal refuse is burned in combination with gaseous, liquid, or other solid fossil fuel, the standard of performance for nitrogen oxides shall not apply.

C. Standards of Performance for Existing Indirect Heating Equipment.

1. No owner or operator of indirect heating equipment shall cause to be discharged into the atmosphere from said equipment any gases which contain particulate matter or sulfur dioxide in excess of the standards of performance shown in Table I.

2. No owner or operator of indirect heating equipment shall cause to be discharged into the atmosphere from said equipment any gases which exhibit greater than 20 percent opacity; except that a maximum of 60 percent opacity shall be permissible for four (4) minutes in any 60 minute period and that a maximum of 40 percent opacity shall be permissible for four (4) additional minutes in any 60 minute period.

D. Standards of Performance for New Indirect Heating Equipment.

1. No owner or operator of new indirect heating equipment shall cause to be discharged into the atmosphere from said equipment any gases which contain particulate matter, sulfur dioxide or nitrogen oxides in excess of the standards of performance shown in Table II.

2. No owner or operator of new indirect heating equipment or greater than 250 million BTU per hour rated heat input shall cause to be discharged into the atmosphere from said equipment any gases which exhibit greater than 20% opacity; except that a maximum of 40% opacity shall be permissible for not more than two (2) minutes in any 60 minute period.

3. No owner or operator of new indirect heating equipment of 250 million BTU per hour or less rated heat input shall cause to be discharged into the atmosphere from said equipment any gases which exhibit greater than 20% opacity; except that a maximum of 60% opacity shall be permissible for four (4) minutes in any 60 minute period and that a maximum of 40% opacity shall be permissible for four (4) additional minutes in any 60 minute period.

E. Allowance for Stack Height for Indirect Heating Equipment.

1. The owner or operator of any indirect heating equipment shall determine and install a stack of such height that will not cause pollutant concentrations at ground levels to exceed any applicable ambient air quality standard or regulation.

2. The determination of the ground level concentrations shall be based upon applicable dispersion calculations approved by the Agency.

F. High Heating Value. The High Heating Value of a fossil fuel shall mean the same as the Gross Heating Value.

G. Performance Test Methods. Unless another method is approved by the Director, any person required to submit performance tests for indirect heating equipment shall utilize the following test methods:

1. Method 1 for selection of sampling site and sample traverses.

2. Method 3 for gas analysis.

3. Method 5 for concentration of particulate matter and the associated moisture content.

4. Method 6 for concentration of SO_2.

5. Method 7 for concentration of NO_x.

6. Method 9 for visual determination of opacity.

H. Performance Test Procedures.

1. The sampling site, as selected by Method 1, shall be the same for each pollutant during a performance test.

2. For Method 5, the sampling time for each run shall be at least 60 minutes and the minimum sampling volume shall be 0.85 dscm (30 dscf) except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be

approved by the Agency. The probe and filter holder heating systems in the sampling train shall be set to provide a gas temperature between 120°C and 160°C (250°F and 320°F).

3. For Methods 6 and 7, the sampling point in the duct shall be at the center of the cross section or at a point no closer to the walls than 1 m (3.28 ft.). For Method 6 the sample shall be extracted at a rate proportional to the gas velocity at the sampling point.

4. For Method 6, the miminum sampling time shall be 20 minutes and the minimum sampling volume 0.02 dscm (0.71 dscf) for each sample. The arithmetic mean of two samples shall constitute one run. Samples shall be taken at approximately 30-minute intervals.

5. For Method 7, each run shall consist of at least four grab samples taken at approximately 15-minute intervals. The arithmetic mean of the samples shall constitute the run value.

6. For each performance test, the emissions expressed in nanograms/joule (lb/million BTU) shall be determined by the following procedure:

$$E = CF\left(\frac{20.90}{20.9 - \%O_2}\right)$$

where:

a. E = pollutant emission, g/million cal nanograms/joule (lb/million BTU).

b. C = pollutant concentration g/dscm (lb/dscf), determined by Methods 5, 6 or 7.

c. $\%O_2$ = oxygen content by volume (expressed as percent), dry basis. Percent oxygen shall be determined by using the integrated sampling procedures of Method 3 and by analyzing the sample with a continuous monitoring system, or with the Orsat analyzer. The sample shall be obtained as follows:

(1) For determination of sulfur dioxide and nitrogen oxides emissions, the oxygen sample shall be obtained at approximately the same point in the duct as used to obtain the samples for Methods 6 and 7 determinations, respectively.

(2) For determination of particulate emissions, the oxygen sample shall be obtained simultaneously by traversing the duct at the same sampling location used for each run of Method 5 in accordance with Method 1, except that 12 sample points shall be used in all cases.

d. F = factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted. Values of F are given as follows:

(1) For anthracitic coal according to A.S.T.M. D388-66, F = 2.723×10^{-7} dscm/j (10140 dscf/10^6 BTU).

(2) For subbituminous and bituminous coal according to A.S.T.M. D388-66, F = 2.637×10^{-7} dscm/j (9820 dscf/10^6 BTU).

(3) For liquid fossil fuels including crude, residual, and distillate oils, F = 2.476×10^{-7} dscm/j (9220 dscf/10^6 BTU).

(4) For gaseous fossil fuels including natural gas, propane, and butane, F = 2.347×10^{-7} dscm/j (8740 dscf/10^6 BTU).

e. An owner or operator may use the following equation to determine an F factor (dscf/10^6 BTU) in lieu of the F factors specified by paragraph 6.d. of this section:

$$F = \frac{10^6 \left[3.64(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O)\right]}{GHV}$$

where:

(1) H, C, S, N and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent), respectively, as determined by ultimate analysis of the fuel fired, dry basis, using A.S.T.M. methods D3168-74 or D3176 (solid fuels) or D240-64(73) (liquid fuels) or computed from results using A.S.T.M. method D1137-53(70), D1945-64(73) or D1946-67(72) (gaseous fuels) as applicable.

(2) GHV is the gross heating value (BTU/lb dry basis).

f. When combinations of fuels are fired, the F factors determined by paragraph 6.d. or e. of this section shall be prorated in accordance with the following formula:

$$F = \frac{xF_1 + yF_2 + zF_3}{100}$$

where:

x = the percentage of total heat input derived from gaseous fossil fuel.

y = the percentage of total heat input derived from liquid fossil fuel.

z = the percentage of total heat input derived from solid fossil fuel.

F_1 = the value of F for gaseous fossil fuels according to subsection 6.d. or e. of this regulation.

F_2 = the value of F for liquid fossil fuels according to subsection 6.d. or e. of this regulation.

F_3 = the value of F for solid fossil fuels according to subsection 6.d. or e. of this regulation.

g. When combinations of fossil fuels are fired, the actual heat input, expressed in cal/hr (BTU/hr), shall be determined during each testing period. The rate of fuels burned during each testing period shall be determined by suitable methods and shall be confirmed by a material balance over the indirect heating system.

7. When the emission factor cannot be calculated by means of the method outlined in section H.6., the emission factors for all pollutants for all new and existing indirect heating equipment expressed in nanograms/joule (lb./million BTU) shall be determined by the following procedure:

$$E = \frac{E_t}{Z}$$

---

where:

E = pollutant emissions, in nanograms/joule (lb./million BTU).

E_t = pollutant emission rate, in nanograms/hr. (lb./hr), determined by Method 5.

Z = actual heat input, in joules/hr., (million BTU/hr).

8. The indirect heating equipment shall be operated during the performance test at ninety (90) percent or more of the rated heat input, or at 100 percent of peak operating load if an owner or operator intends to achieve compliance by derating.

I. Derate. The owner or operator of indirect heating equipment who elects to achieve compliance with an applicable standard of performance by derating shall:

1. Advise the Director of the Agency in writing of the intent to achieve compliance by derating and the capacity level at which the owner or operator intends to operate this equipment; and

2. Agree to a permit condition in the required operating permit that prohibits operation of the equipment in excess of the derate level; and

3. Install a boiler steam flow meter to continuously record, indicate, and integrate boiler steam flow, and shall:

(a) Submit a written report to the Director of the Agency within ten (10) days of any excess steam flow occurrence above the specified derate load.

(b) Use a one (1) hour averaging period in determining an excess above derate with corrections for deviations in steam pressure or temperature if required.

(c) Submit written yearly reports to the Director of the Agency confirming that no excesses have occurred during normal operations.

(d) Retain and make available for inspection by the Agency or its authorized employees or agents steam flow charts for a minimum period of two (2) years following the date of measurement.

4. An effective method of physical limitation of boiler load shall be submitted for approval by the Director of the Agency prior to authorization of a boiler derate. Such limitation may include but is not limited to, a tie-back signal from the steam flow meter to the combustion control system cutting back fuel input at the derate load, a maximum limit stop on the fuel input control drive or valve, or such other equivalent physical means.

TABLE I — EXISTING SOURCES

RATED HEAT INPUT OF THE INDIRECT HEATING EQUIPMENT Million BTU/Hr.	RATED HEAT INPUT OF ALL DIRECT AND INDIRECT HEATING EQUIPMENT AT THE PARTICULAR LOCATION Million BTU/Hr.	EMISSION LIMITATIONS LBS. PER MILLION BTU Particulate Matter All Fuels	SO_2 Solid Fuels	SO_2 Liquid Fuels
A. Within Minneapolis-St. Paul Air Quality Control Region				
Greater than 250	Greater than 250	0.4	3.0	1.6
Less than or equal to 250	Greater than 250	0.4	3.0	1.6
Less than or equal to 250	Less than or equal to 250	0.4	4.0	2.0
B. Within the City of Duluth				
Greater than 250	Greater than 250	0.4	4.0	2.0
Less than or equal to 250	Greater than 250	0.4	4.0	2.0
Less than or equal to 250	Less than or equal to 250	0.4	N.A.	N.A.
C. Outside Minneapolis-St. Paul Air Quality Control Region and Outside the City of Duluth				
Greater than 250	Greater than 250	0.6	4.0	2.0
Less than or equal to 250	Greater than 250	0.6	4.0	2.0
Less than or equal to 250	Less than or equal to 250	0.6	N.A.	N.A.

* N.A. — Not applicable

TABLE II — NEW SOURCES

RATED HEAT INPUT OF THE INDIRECT HEATING EQUIPMENT Million BTU/Hr.	RATED HEAT INPUT OF ALL DIRECT AND INDIRECT HEATING EQUIPMENT AT THE PARTICULAR LOCATION Million BTU/Hr.	EMISSION LIMITATIONS LBS. PER MILLION BTU					
		Particulate Matter All Fuels	SO_2 Solid Fuels	SO_2 Liquid Fuels	NO_x* Solid Fuels	NO_x* Gaseous Fuels	NO_x* Liquid Fuels
A. Within Minneapolis-St. Paul Air Quality Control Region							
Greater than 250	Greater than 250	0.1	1.2	0.8	0.7	0.2	0.3
Greater than 100 but less than or equal to 250	Greater than 250	0.1	3.0	1.6	N.A.**	N.A.	N.A.
Less than or equal to 100	Greater than 250	0.4	3.0	1.6	N.A.	N.A.	N.A.
Less than or equal to 250	Less than or equal to 250	0.4	4.0	2.0	N.A.	N.A.	N.A.
B. Within the City of Duluth							
Greater than 250	Greater than 250	0.1	1.2	0.8	0.7	0.2	0.3
Greater than 100 but less less than or equal to 250	Greater than 250	0.1	4.0	2.0	N.A.	N.A.	N.A.
Less than or equal to 100	Greater than 250	0.4	4.0	2.0	N.A.	N.A.	N.A.
Less than or equal to 250	Less than or equal to 250	0.4	N.A.	N.A.	N.A.	N.A.	N.A.
C. Outside Minneapolis-St. Paul Air Quality Control Region and Outside the City of Duluth							
Greater than 250	Greater than 250	0.1	1.2	0.8	0.7	0.2	0.3
Less than or equal to 250	Greater than 250	0.4	4.0	2.0	N.A.	N.A.	N.A.
Less than or equal to 250	Less than or equal to 250	0.4	N.A.	N.A.	N.A.	N.A.	N.A.

* NO_x expressed as NO_2
**N.A. — Not applicable

APPROVED AS TO FORM AND LEGALITY

DEC 0 4 1979

_____, 19____

WARREN SPANNAUS, ATTORNEY GENERAL

BY Joanne Hinderaker

SPECIAL ASSISTANT ATTORNEY GENERAL

Adopted Working Copy

See ME Report, Attachment p. 26

CHAPTER TWENTY-ONE: APC 21

APC 21 Emission Source Monitoring, Performance Tests, Reports, Shutdowns and Breakdowns

(a) Continuous Monitoring

(1) Monitoring Requirement. The owner or operator of any emission facility, whether or not continuous monitoring is required by another regulation, may be required to establish a continuous monitoring system, upon order of the Director, when in his judgment other methods of measurement or calculation do not provide adequate information on the level or variation of emissions to assure compliance with applicable regulations.

(2) Monitoring System Qualifications. Any owner or operator of an emission facility who is required by applicable regulation or by order of the Director to install a continuous monitoring system shall install a system which meets the following performance evaluations:

(aa) Continuous monitoring systems for measuring opacity of emissions shall comply with Performance Specification 1.

(bb) Continuous monitoring systems for measuring nitrogen oxides emissions shall comply with Performance Specification 2.

(cc) Continuous monitoring systems for measuring sulfur dioxide emissions shall comply with Performance Specification 2.

(dd) Continuous monitoring systems for measuring the oxygen content or carbon dioxide content of effluent gases shall comply with Performance Specification 3.

(3) Performance Evaluation. The Agency or the Director may order any owner or operator who has installed a continuous monitoring system to conduct performance evaluations of the system. The performance evaluations shall be conducted under such conditions as the Agency or the Director may impose.

(4) Old Monitoring Systems. Any owner or operator of an emission facility who installed or entered into a binding contract to purchase a specific continuous monitoring system prior to September 11, 1974, may be exempt from meeting the performance evaluations set forth in paragraph (2) provided the following requirements are met:

(aa) Continuous monitoring systems for measuring opacity of emissions shall be capable of measuring emission levels within ±20 percent of the correct value with a confidence level of 95 percent. The Calibration Error Test and associated calculation procedures set forth in Performance Specification 1 shall be used for demonstrating compliance with this specification.

(bb) Continuous monitoring systems for measurement of nitrogen oxides or sulfur dioxide shall be capable of measuring emission levels within ±20 percent of the correct value with a confidence level of 95 percent. The Calibration Error Test, the Field Test for Accuracy (Relative), and associated operating and calculation procedures set forth in Performance Specification 2 shall be used for demonstrating compliance with this specification.

All continuous monitoring systems installed under this paragraph shall be upgraded or replaced with new continuous monitoring systems which comply with the performance evaluations set forth in paragraph (2) by September 11, 1979.

(5) Zero and Span Drift. Owners or operators who are required to install continuous monitoring systems shall check the zero and span drift at least once daily in accordance with the method prescribed by the manufacturer of such systems unless the manufacturer recommends adjustments at shorter intervals, in which case such recommendations shall be followed. The zero and span shall, as a minimum, be adjusted whenever the 24-hour zero drift or 24-hour calibration drift limits of the performance specifications in Performance Specification 1, 2 or 3, whichever is applicable, are exceeded. For continuous monitoring systems measuring opacity of emissions, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero or span drift adjustments except that for systems using automatic zero adjustments, the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds four percent opacity. Unless otherwise approved by the Agency, the following procedures, as applicable, shall be followed:

(aa) For extractive continuous monitoring systems measuring gases, minimum procedures shall include introducing applicable zero and span gas mixtures into the measurement system as near the probe as is practical. Span and zero gases certified

by their manufacturer to be traceable to National Bureau of Standards reference gases shall be used whenever these reference gases are available. The span and zero gas mixtures shall be the same composition as specified in Performance Specification 1, 2, or 3, whichever is applicable. Every six months from date of manufacture, span and zero gases shall be reanalyzed by conducting triplicate analyses with Reference Method 6 for SO_2, Reference Method 7 for NO_x, and Reference Method 3 for O_2 and CO_2, respectively. The gases may be analyzed at less frequent intervals if longer shelf lives are guaranteed by the manufacturer.

(bb) For non-extractive continuous monitoring systems measuring gases, minimum procedures shall include upscale check(s) using a certified calibration gas cell or test cell which is functionally equivalent to a known gas concentration. The zero check may be performed by computing the zero value from upscale measurements or by mechanically producing a zero condition.

(cc) For continuous monitoring systems measuring opacity of emissions, mimimum procedures shall include a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photodetector assembly.

(6) Operation Requirements. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(aa) Opacity. All continuous monitoring systems for measuring opacity of emissions shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 10-second period.

(bb) Other pollutants.

(i) All continuous monitoring systems, except those old systems installed under paragraph (4), for measuring oxides of nitrogen, sulfur dioxide, carbon dioxide, or oxygen shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(ii) All old continuous monitoring systems installed under paragraph (4) for measuring oxides of nitrogen, sulfur dioxide, carbon dioxide, or oxygen shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive one-hour period.

(7) Location of System. All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications shall be used.

(8) Number of Sources of Emissions. When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install applicable continuous monitoring systems on each separate effluent unless the installation of fewer systems is approved by the Agency.

(9) Monitoring data. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to six (6) minute averages except that a one minute averaging period as described in (b)(7)(cc)(ii) shall be used in the event an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period. Opacity averages shall be calculated from all equally spaced consecutive fifteen second (or shorter) data points in the applicable averaging period. For systems other than opacity, the data shall be reduced to one hour averages, which shall be computed from four or more data points equally spaced over each one hour period.

See AE Report Attached

Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. An arithmetic or integrated average of all data may be used. The data output of all continuous monitoring systems may be recorded in reduced or non-reduced form (e.g. ppm pollutant and percent O_2 or lb of pollutant/million BTU). All excess emissions shall be converted into units of the standard using the conversion procedures specified in the applicable regulation. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the regulation to specify the applicable standard (e.g. rounded to the nearest one percent opacity).

(10) Exceptions. Upon written application by an owner or operator, the Director may approve alternatives to any monitoring procedures or requirements including, but not limited to, the following:

(aa) Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this part would not provide accurate measurements due to liquid water or other interferences caused by substances with the effluent gases.

(bb) Alternative monitoring requirements when the affected facility is infrequently operated.

(cc) Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct for stack moisture conditions.

(dd) Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements.

(ee) Alternative methods of converting pollutant concentration measurements to units of the standards.

(ff) Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells.

(gg) Alternatives to the A.S.T.M. test methods or sampling procedures specified by any regulation.

(hh) Alternative continuous monitoring systems that do not meet the design or performance requirements in Performance Specification 1 but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in Performance Specification 1. The Director may require that such demonstration be performed for each affected facility.

(ii) Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two or more affected facilities are released to the atmosphere through more than one point.

(b) Performance Tests

(1) Testing Requirements. The Agency or the Director may order the owner or operator of an emission facility to conduct or have conducted performance tests to determine the characteristics and amount of emissions of air contaminants from any affected facility.

(2) Test Method. Unless another method is specified in an applicable regulation, any owner or operator required to conduct performance tests shall utilize the following methods:

(aa) Method 1 for sample and velocity traverses.

(bb) Method 2 for stack gas velocity and volumetric flow rate.

(cc) Method 3 for gas analysis for carbon dioxide, excess air, and dry molecular weight.

(dd) Method 4 for moisture in stack gases.

(ee) Method 5 for concentration of particulate matter and associated moisture content.

(ff) Method 6 for concentration of sulfur dioxide.

(gg) Method 7 for concentration of nitrogen oxides.

(hh) Method 8 for concentration of sulfuric acid mist and sulfur dioxide.

(ii) Method 9 for opacity.

(jj) Method 10 for concentration of carbon monoxide.

(kk) Method 11 for concentration of hydrogen sulfide.

(11) Method 101-Reference Method for Determination of Particulate and Gaseous Mercury Emissions from Stationary Sources (Air Streams), Method 102-Reference Method for Determination of Particulate and Gaseous Mercury Emissions from Stationary Sources (Hydrogen Streams), or Reference Method 105-Method for Determination of Mercury in Wastewater Treatment Sewage Sludges, set forth in 40 C.F.R. Part 61, Appendix B, whichever is applicable, for mercury emissions.

(mm) Method 103-Beryllium Screening Method or Method 104-Reference Method for Determination of Beryllium Emissions from Stationary Sources, set forth in 40 C.F.R. Part 61, Appendix B, whichever is applicable.

(3) Alternative Test Methods. In lieu of the test method described in paragraph (2), the Director may:

(aa) Specify or approve minor changes in the Reference Method set forth in paragraph (2) or the applicable regulation; or

(bb) Approve the use of an equivalent method; or

(cc) Approve the use of an alternative method the results of which he has determined to be adequate for indicating whether an affected facility is in compliance.

(4) Testing Conditions. Performance tests shall be conducted under such conditions as the Director shall specify. The owner or operator shall make available to the Director such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative con-

ditions of performance tests unless otherwise specified in an applicable regulation.

(5) Test Runs. Each performance test shall consist of three separate runs using the applicable test method. However, the Director reserves the right to require more than three runs under unusual circumstances. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the Director's approval, be determined using the arithmetic mean of the results of the two other runs.

(6) Notification. The owner or operator shall notify the Director not less than 30 days prior to conducting any performance tests, unless a shorter time is accepted by the Director.

(7) Opacity.

(aa) Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity standards. The results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence

of the actual opacity of an emission, provided that the owner or operator shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1, has been properly maintained and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way.

(bb) The opacity standards set forth in a regulation shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.

(cc) Paragraph 2.5 of Method 9 (Data Reduction) is amended to read as follows, and this language shall be used whenever Method 9 is referenced in the Rules:

(i) 2.5 Data Reduction. Except as provided in paragraph (cc) (ii), opacity shall be determined as an average of 24 consecutive observations recorded at 15 second intervals. Divide the observations recorded on the record sheet into sets of 24 consecutive observations. A set is composed of any 24 consecutive observations. Sets need not be consecutive in time and in no case shall sets overlap. For each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24. Record the average opacities on a record sheet.

(ii) In the event that an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period, determine the

opacity as an average of 4 consecutive observations recorded at 15 second intervals. Determine the number of minutes in any one-hour period that the opacity exceeds a given opacity and record this information.

(8) Agency Tests. Upon order of the Agency or the Director, the owner or operator of an emission facility shall allow the Agency, or any authorized employee or agent of the Agency, to enter upon the premises of the owner or operator for purposes of conducting performance tests. The owner or operator shall provide performance testing facilities which will enable the Agency or its agents or employees to conduct performance tests. Such performance testing facilities shall include:

(aa) Sampling ports adequate for test methods applicable to such facility.

(bb) Safe sampling platform(s).

(cc) Safe access to sampling platform(s).

(dd) Utilities for sampling and testing equipment.

(9) Additional Requirements. The owner or operator shall meet any other requirements imposed by the Agency or the Director in ordering the running of the performance tests.

(c) Reports

See IPE Report Attachment

(1) Excess Emissions. Any owner or operator of an affected facility who is required to install a continuous monitoring system shall submit a written report of excess emissions for every calendar quarter.

(aa) The report shall be submitted to the Director of the Division of Air Quality of the Agency.

(bb) The report shall be submitted in accordance with the following requirements:

(i) The report shall be postmarked by the 30th day following the end of each calendar quarter; and

(ii) The report shall contain the following information:

1. The magnitude of excess emissions, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions.

2. Specific identification of each period of excess emissions that occurred during startups, shutdowns, and malfunctions of the affected facility, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

4. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

(2) Other Data. The owner or operator of any affected facility shall maintain a file of all measurements, including con-

tinuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by any regulation and shall keep that file in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records.

(3) Breakdowns. The owner or operator of an affected facility shall maintain records of the occurrence and duration of any startup, shutdown, breakdown, or malfunction in operation of the facility or any air pollution control equipment. The owner or operator shall maintain records of any periods of time in which a continuous monitoring system or monitoring device is inoperative. These records shall be retained for at least two years following the date of such shutdown, startup, breakdown, malfunction, or inoperation. These records shall be submitted to the Agency at such times as the Director may require.

(4) Emission Inventory. All owners or operators of emission facilities which emit more than 25 tons per year of particulate matter, sulfur oxides, nitrogen oxides, carbon monoxide, or hydrocarbons shall submit on or before April 1st of each year an emission inventory report covering the previous calendar year.

(d) Shutdowns and Breakdowns

(1) Shutdown. The owner or operator of an emission facility shall notify the Director 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 owner or operator shall also notify the Director of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Director when the shutdown is over.

(2) Breakdown. The owner or operator of an emission facility shall notify the Director 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 owner or operator shall also notify the Director of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Director when the breakdown is over.

(3) Operation Changes. In any shutdown or breakdown covered by subparagraph (1) or (2) above, the owner or operator shall immediately take all practical steps to modify operations to reduce the emission of air contaminants. The Director 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 regulation shall permit the

operation of an affected facility which may cause an immediate public health hazard.

(4) Monitoring Equipment. The owner or operator of a continuous monitoring system or monitoring device shall notify the Director of any breakdown or malfunction of such system or device.

APPROVED AS TO FORM AND LEGALITY
DEC 04 1979 19
WARREN SPANNAUS, ATTORNEY GENERAL
BY Joanne Anderson
SPECIAL ASSISTANT ATTORNEY GENERAL

STATE OF MINNESOTA
DEPARTMENT OF STATE
FILED
DEC - 4 1979
Joan Anderson Growe
Secretary of State

1:30 P.M.

Attachment 2

STATE OF MINNESOTA

COUNTY OF RAMSEY

MINNESOTA POLLUTION

CONTROL AGENCY

In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

PCA 79-009-MG

FINDINGS OF FACT AND CONCLUSIONS

The above-entitled matter came on for decision before the Minnesota Pollution Control Agency on the 30th day of October, 1979. After affording interested persons an opportunity to present written and oral data, statements and arguments to Hearing Examiner Myron Greenberg, after considering the Report of the Hearing Examiner, and after considering all of the evidence adduced upon the records, files and proceedings herein, the Agency, being fully advised in the premises, hereby makes the following Findings of Fact and Conclusions.

FINDINGS OF FACT

The Agency hereby accepts and adopts the Findings of Fact and Conclusions of the Hearing Examiner as contained in his Report, marked Attachment 8 and attached hereto, and incorporates such Findings and Conclusions herein by reference, with the following Exceptions:

1. Finding 9 of the Hearing Examiner shall be amended as follows: The first paragraph of Finding 9 shall be retained and the rest of the Finding shall be deleted. Accordingly, Finding 9

shall read:

9. The only portion of the amendments to APC 4 which stirred any real controversy is proposed APC 4.I.3.(b) which would require an emission source with a derated boiler to use a six-minute averaging period to determine excessive loads above the derated capacity.

During the hearing and in post-hearing comments, the Agency explained the rationale for the six (6) minute averaging period provision of APC 4: (1) The Agency supported the six minute averaging period by stating that such an averaging period is compatible with the opacity averaging period. Further, the Agency explained, that a fundamental relationship between derating and opacity exists, and, therefore, such compatibility between the derate and opacity averaging periods is desirable. Tr. at 173; Post Hearing Comments of the Agency Staff at 11 - 12. (2) The Agency supported the six minute averaging period by explaining that, despite industry's statements that it is difficult to maintain steam flows for such an averaging period, the Agency believes that industry does presently maintain such steam flows when boilers are operated at maximum capacity. Post Hearing Comments of the Agency Staff at 11 - 12.

During the hearing and in post-hearing comments, industry representatives objected to the six-minute averaging period on the ground that it would be difficult for industry to comply with the requirements of such a "short" averaging period. Instead, industry claimed that "a one hour averaging period is the shortest attainable" (Brief of Minnesota-Wisconsin Power Supply Group at 1) and "would be more consistent with existing steam flow monitoring equipment." Tr. at 375.

The Agency finds that a reasonable averaging period extends from six (6) minutes to one (1) hour. The Agency also finds that a one hour averaging period could satisfy the Agency's need to establish a reasonable period of time over which to average exceedances of the derate level in determining whether a derate facility is in compliance with its established derate. In light of the fact that the Agency finds that the one-hour averaging period accomplishes the Agency's goals and also alleviates the concerns raised by industry, the Agency finds that APC 4.I.3.(b) shall require the use of a one-hour averaging period to determine excess above derate.

2. Finding 10 of the Hearing Examiner shall be deleted and

shall, instead, read as follows:

> 10. During the hearing, comments were made regarding Minn. Rule APC 4.I.3.(c). This section of the proposed amendments to APC 4 requires owners and operators who elect to achieve compliance with emissions standards by derating their boiler to submit to the Agency a written yearly report "confirming that no [steam flow] excesses" over the specified derate load have occurred during normal boiler operations. Proposed Amendments to Minn. Rule APC 4.I.3.(c) and Tr. at 427.
>
> This provision is a reasonable counterpart to the requirement stated in proposed Minn. Rule APC 4.I.3.(a) which requires owners and operators to submit to the Agency within ten days of a steam flow excess a report indicating such excess. The requirements of subpart (c) ensure that companies are attentive to the excess reporting requirements specified in proposed APC 4.I.3.(c) in that it requires companies who never submit reports of excesses to the Agency under subpart (a) to confirm that the reason no report was submitted is that no excess was in fact experienced. Such confirmation is both needed and reasonable in that it allows the Agency to maintain effective enforcement of and compliance with the requirements of its rules.

3. Conclusion 4 of the Hearing Examiner shall be deleted and shall, instead, read as follows:

> 4. The Agency has affirmatively demonstrated that the proposed rules, as adopted by the Agency, are both needed and reasonable.

MINNESOTA POLLUTION CONTROL AGENCY

DATED: 10/30/79

Art Engelbrecht
Chairman

DATED: 10/30/79

Terry Hoffman
Executive Director

STATE OF MINNESOTA
OFFICE OF HEARING EXAMINERS

FOR THE MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR Sec. 4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment.

REPORT OF THE HEARING EXAMINER

The above-entitled matter came on for hearing on July 23, 1979, in the Board Room of the Minnesota Pollution Control Agency, 1935 West County Road B2, Roseville, Minnesota, before Myron S. Greenberg, Hearing Examiner assigned by the Chief Hearing Examiner.

This is a rules hearing pursuant to Minn. Stat. Ch. 15 to determine whether proposed rules and rule amendments governing derating of boilers, methods for measuring opacity for intermittent sources and abatement plans to avoid malfunctions and breakdowns of certain control equipment and process equipment should be adopted.

The following persons appeared for the Minnesota Pollution Control Agency ("Agency" or "PCA"): Edgar Crowley, Senior Engineer, Engineering Section, Division of Air Quality; Gary Pulford, Chief, Enforcement Section, Division of Air Quality; Dr. David Rimberg, President, North American Pemco; Henry Onsgard, Physical Scientist, Technical Analysis Section, Air Programs Branch, Air and Hazardous Materials Division, United States Environmental Protection Agency ("USEPA" or "EPA"), Region V; and Alan R. Mitchell and Lisa R. Tiegel, Special Assistant Attorneys General. G. Robert Johnson, Esquire, and Robert S. Burk, Esquire, with the firm of Popham, Haik, Schnobrich, Kaufman & Doty, represented a consortium of industries including the Minnesota Association of Commerce and Industry ("MACI"), petroleum refineries, independent service stations and others; James T. Shields, Vice President Energy and Environmental Affairs, also appeared for MACI. Gilbert W. Harries, Esquire, of the firm of Hanft, Fride, O'Brien & Harries, Duluth, Minnesota, represented the Minnesota-Wisconsin Power Suppliers Group ("MWPSG").

Eleven persons signed the hearing register although more than 11 people attended the hearing. The hearing continued until all interested persons and all interested groups had had an opportunity to be heard.

Pursuant to Minn. Stat. Sec. 15.0412, subd. 4, this Report shall be available for review to all affected individuals upon request for at least five days. Thereafter, the Agency Board shall, if it proposes to adopt the rules as originally proposed or amended, submit a copy of the Order Adopting Rules, a copy of any additional agency findings, a copy of the rules as originally proposed, and a copy of the rules as adopted to the Chief Hearing

Examiner for review pursuant to Minn. Stat. Sec. 15.052, subd. 4. The submission to the Chief Hearing Examiner shall precede review by the Attorney General. The Chief Hearing Examiner shall complete his review and submit his report to the Agency on the issues of substantial changes in the rule and compliance with Minn. Stat. Sec. 15.0412 within ten calendar days. The Agency will be responsible for filing the rules with the Attorney General and for notifying persons who have indicated that they wish to be notified of such filing.

Based upon all the records and proceedings herein, the Examiner makes the following:

FINDINGS OF FACT

Procedural Requirements

1. On June 1, 1979, the Agency filed the following documents with the Hearing Examiner:

(a) A copy of the proposed rules.
(b) The Order for Hearing proposed to be issued.
(c) The Notice of Hearing proposed to be issued.
(d) A Statement of the number of persons expected to attend the hearing and estimated length of the Agency's presentation.

2. On June 14, 1979, the Agency mailed the Notice of Hearing and proposed rules to all persons and associations who had registered their names with the Secretary of State for the purpose of receiving such notice and to all state agencies, political subdivisions, and other interested entities.

3. On June 18, 1979, a Notice of Hearing and a copy of the proposed rules were published at 3 State Register 2239, et seq.

4. On June 27, 1979, the Agency filed the following documents:

(a) The Order for Hearing and authorizing resolution.
(b) The Notice of Hearing as mailed.
(c) The Affidavit of Receipt of the Secretary of State's list.
(d) The Affidavit of Mailing the Notice to all persons on the Secretary of State's list.
(e) The Secretary of State's Certificate and list.
(f) The Statement of Need and Reasonableness.
(g) The names of Agency personnel who will represent the Agency at the hearing together with the names of any other witnesses solicited by the Agency to appear on its behalf.

The documents were available for inspection at the Office of Hearing Examiners from the date of filing to the date of the hearing.

5. The hearing adjourned on July 31, 1979, and the record remained open through August 20, 1979, for the receipt of written comments and statements.

6. By letter dated August 9, 1979, the PCA withdrew proposed rule 6 MCAR Sec. 4.0020 from consideration. By the same letter, the Agency withdrew its proposal to delete those portions of APC 21 which had been covered by 6 MCAR Sec. 4.0020. (See, Attachment A, note 9, pp. 15-16 for full explanation of which rules are withdrawn.) Because of such action by the Agency, this Report does not address written or oral material relating to either 6 MCAR Sec. 4.0020 or the "re-instated" portions of APC 21.

7. The Agency's authority to promulgate the proposed rules is contained in Minn. Stat. Sec. 116.07, subds. 2 and 4 and Sec. 119.081, subd. 1.

Need For and Reasonableness Of APC 4

8. Except as otherwise noted in Findings 8 and 9, infra, the Examiner finds that the amendments to APC 4 are reasonable and necessary for the reasons set forth at pages 3-15, the PCA's post-hearing comments, attached in relevant part hereto and made part hereof as Attachment A. References to revisions to proposed amendments may be found on Attachment B.

9. The only portion of the amendments to APC 4 which stirred any real controversy is proposed APC 4 I.3.(b) which would require an emission source with a derated boiler to use a six-minute averaging period to determine excessive loads above the derated capacity.

No facts are found in the record to support a six-minute averaging period. To the contrary, PCA Engineer Bernard Gallagher asserted "the six minute averaging period was arrived at arbitrarily, so . . . it would be compatible with the opacity averaging period . . . ." (T. 173) There is no evidence to indicate any relationship between measurements of opacity and measurements of boiler emissions. There is also no evidence to indicate that the equipment or procedures used to measure opacity are similar or related. Testimony does indicate, however, that a six-minute averaging period is unrealistic because of the difficuluty (or impossibility) of monitoring the steam flow in such a way to get the data required by the proposed rule. (T. 375; Ford Motor Company Comments, July 25, 1979, Part I)

Whether the averaging period should be one, two or 24 hours (as suggested by Ford Motor Company) is a matter for determination by the Agency. The record indicates that a one-hour period "would be more consistent with existing steam flow monitoring equipment" (T. 375) and is "the shortest attainable . . . period." (Brief of MWPSG, p. 1) As such, the one-hour period appears to be reasonable.

The Agency argues that the decision to establish the averaging period at six minutes is a legislative fact. (See, Attachment A, p. 11, footnote 5) The Examiner agrees. Such facts, however, should not be arbitrary or without some reasonable rationale. No such rationale is found in the record. Here is not a question of whether the averaging period should be five minutes, six minutes, seven minutes or ten minutes; there is a quantum difference between six minutes and sixty minutes. When the question of reasonableness involves such variant orders of magnitude, some basis in fact must exist in the record to support the Agency's position. Its absence indicates a lack of rationale for the choice of the number.

10. Criticism of proposed APC 4 I.3.(c) is based on the position that it is necessary because APC 4 I.4. requires the derated boiler to have an effective method of physical limitation to output. (Ford Motor Company Comments) The Examiner notes also that APC 4 I.3.(a) requires the reporting of any excess steam flow occurrences, so it may be assumed that if no reports

are submitted under 3(a) then there were no such occurrences. The Examiner is unable to understand the rationale for having those who comply with a rule report such compliance annually--or ever--especially when those who do not comply are required to report that fact. The only useful purpose apparently served by such requirement is contained in APC 4. J.3.(c) is to give purpose to the existence of some additional filing cabinets at the PCA office.

Need For and Reasonableness Of APC 21

11. The amendments to APC 21 as revised (see, Attachment B) are found to be reasonable and necessary for the reasons set forth in the PCA's post-hearing comments. (See, Attachment A, pp. 15-30)

The primary objection to the proposed amendments is that they lack the consistency which the Agency claims will be enhanced by their adoption. (See, Brief of MVPSG, pp. 2-3) Whether consistent or not, i.e., whether the measurement periods are uniformly one minute, six minutes or 60 minutes, the Agency has provided good justification for using the various measurement periods. (See, e.g. Attachment A, pp. 17-22, 26-28) Possible difficulties or inconvenience which may be encountered in complying with the proposed rules does not negate the reasonable basis for such rules.

Based on the foregoing, the Hearing Examiner makes the following:

CONCLUSIONS

1. The Minnesota Pollution Control Agency and the Office of Hearing Examiners duly acquired and have jurisdiction in the instant matter.

2. Due, timely and adequate legal notice of the hearing was served and published by the Agency. All the procedural requirements of statute and rule have been fulfilled.

3. The Agency has demonstrated its statutory authority to adopt the proposed rules.

4. Except as noted herein, the Agency has demonstrated that the proposed rules are necessary and reasonable.

Based on the foregoing, the Examiner makes the following:

RECOMMENDATION

The Hearing Examiner recommends that the proposed rules be modified as suggested in the Findings, and that so modified, they be adopted.

Dated: September 17, 1979.

MYRON S. GREENBERG
Hearing Examiner

MEMORANDUM

Most of the record in this proceeding deals with 6 MCAR Sec. 4.0020. The withdrawal of that rule left remaining for consideration proposed rules which were not nearly as controversial. In light of limited comments during and after the hearing regarding APC 4 and 6 MCAR Sec. 4.0021, and considering the full exposition in Ms. Tiegel's brief of matters raised concerning those rules, the Examiner deemed it appropriate to incorporate the main substance of that brief rather than waste time and effort re-writing or paraphrasing. It should be noted that the Examiner reviewed the record and, except as noted otherwise in specific Findings, agreed with the positions stated in the PCA brief.

M.S.G.

III. THE AGENCY HAS MADE AN AFFIRMATIVE PRESENTATION OF FACTS ESTABLISHING THE NEED FOR AND REASONABLENESS OF THE PROPOSED AMENDMENTS TO MINN. RULE APC 4.

A. Need for the Amendments to Minn. Rule APC 4

As it presently exists, Minn. Rule APC 4 does the following: (1) The rule establishes the emission standards which fossil fuel burning indirect heating equipment must meet; and (2) The rule describes the methodologies to be used in determining whether the emissions from any such unit comply with the standards established by the rule. Tr. at 12. The proposed amendments to Minn. Rule

APC 4 relate only to the methodologies used to determine compliance with the rule. Tr. at 12.

Specifically, the Agency is proposing to amend Minn. Rule APC 4 in order to rectify the following problem: As it presently exists, Minn. Rule APC 4 provides that, in determining whether the emissions from a boiler comply with the standards established in APC 4, the emissions from that boiler must be calculated in the manner established in the rule. At present, the calculation provided in APC 4.H.7. requires the use of a term known as "the rated heat input" of the boiler.[2] The rated heat input is the maximum continuous "heat input" which the boiler can receive for sustained periods of time without suffering damage. MPCA Ex. 8 at 4.[3] The required use of the rated heat input is problematic

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[2]Existing APC 4.H.7 specifies the calculation to be done to determine the emissions from a boiler when the rated heat input is used. In that calculation, the term % equals the rated heat input (see existing APC 4.H.7.) In its proposed amendments to APC 4, the Agency proposes to delete the entire equation specified in existing APC 4.H.7. As is discussed, infra at Part III.B.4. of this memorandum, the substantive changes to APC 4 were only intended to change the definition of term % in APC 4.H.7., and were not intended to alter the mathematical calculation found in existing APC 4.H.7. In order to make this fact clear, the Agency Staff now proposes to revise the proposed amendments to APC 4 as follows: The Staff proposes to retain the equation used to determine emissions, but to specify that rather than rated heat input, the actual heat input shall be used in that equation. (See Part III.B.4., infra. See also attached amendments to APC 4).

[3]The "heat input" is the product of the heat content and the fuel firing rate, i.e., heat input = heat content x fuel firing rate. Id. All these terms and other technical terms are discussed in detail in MPCA Ex. 8 at 3 - 5 and are, therefore, not redefined in this memorandum. However, the following illustration

continued on page 5 . . .

for the following reason:

Existing Minn. Rule APC 4 expresses the allowable emission of particulate in terms of pounds per million BTU input. For example, for Minneapolis-St. Paul, a boiler is allowed to emit 0.4 pounds of particulates per million BTU heat input. Minn. Rule APC 4.C.1. Thus, it is clear that, by providing for the use of a base of "per million BTU heat input" in establishing emissions limitations, the Agency's rules relate the allowable emissions from a boiler to the actual work load of that boiler.

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[3] . . . continued from page 4

may provide a framework within which to consider the relationship among some of these technical terms. (1) Heat content is the measure of the energy content of the coal. This is described in BTU's per pound of coal. (2) Fuel firing rate is the number of pounds of coal fed into a boiler within an hour. This is described in pounds per hour. (3) The heat input is the product of the number of BTU's per pound of coal times the number of pounds of coal consumed per hour and describes the rate at which heat is generated by the burning of fuel. Heat input is described in BTU's per hour.

In the following example, the coal being burned in BOILER #1 has 10,000 BTU's per pound of coal. The rate at which coal is fed into BOILER #1 is at 12,000 pounds of coal per hour. The calculation to determine the heat input of BOILER #1 is as follows:

Heat input = heat content x fuel firing rate.

= 10,000 BTU's per pound of coal x 12,000 pounds of coal per hour.

= 120,000,000 BTU's per hour

From this calculation, it should be clear that if the fuel firing rate is decreased, the heat input is decreased. As such a reduction is accomplished, emissions from a boiler may also be reduced. See text at 5 - 6.

Use of the rated heat input (as is presently required in APC 4.H.7.) rather than the actual heat input (as is proposed) to determine allowable emissions distorts the determination of the allowable emission limitations. This is because the emissions limitations established in the Agency rules relate the allowable emissions to the actual work accomplished by a boiler. For boilers being operated at sub-capacity, the rated heat input is a fictitious heat input, unrelated to the actual work the boiler accomplishes at the time of an emission test. Thus, the rated heat input is an incorrect term to use in determining allowable emissions.

Furthermore, boilers, for various reasons, can perform better, i.e., emit less particulates on a pounds per million basis, at heat inputs of 50 percent maximum. This situation is analogous to automobile operations wherein a 50 m.p.h. highway speed results in both good fuel economy and decreased emissions on a miles travelled basis. Thus, it has been demonstrated that a boiler which exceeds the allowable emissions standards when operated at rated (or full) capacity comes into compliance with emissions standards when the fuel firing rate is reduced to a sub-capacity level. In other words, reducing the capacity of a boiler by reducing its fuel firing rate may result in sufficient reductions in emissions to bring into compliance a boiler which otherwise does not comply with allowable emissions standards.

Agreement by a source owner or operator to always operate a boiler at or below a specified sub-capacity heat input is known as derating the boiler. When an owner agrees to operate a boiler at

an "artificially low," (i.e., "derated" capacity), the heat input level for that boiler is lower than the design (i.e, "rated") boiler capacity. Because of the relationship between heat input and emissions, running a boiler at a lower capacity does result in a reduction in emissions from that boiler. Thus, derating may be an economical means for an owner of a boiler to comply with emissions standards. (See Part III.B.5., infra, for a discussion of the economic considerations regarding derating).

Because existing rule APC 4.H.7. requires the rated heat input to be used in the calculation to determine pollutant emissions, existing APC 4 does not establsh a procedure for demonstrating compliance with emissions standards by derating a boiler. The proposed amendments to Minn. Rule APC 4 do establish such a procedure by substituting the required use of rated heat input with the use of actual heat input. Thus, the amendments to Minn. Rule APC 4 are needed in order to establish a method through which owners and operators may demonstrate compliance with emissions standards by derating their boilers.

B. Reasonableness of the Amendments to Minn. Rule APC 4

MPCA Ex. 8 at 11 - 16 provides a discussion of the reasonableness of the proposed amendments to the rule. During the hearings, comments from the public were addressed to the reasonableness of specific language in the proposed amendments. This section of this memorandum includes a discussion of the major public comments regarding Minn. Rule APC 4 and also includes a discussion of further clarifying amendments to the rule proposed by the Agency Staff at this time.

1. Comments made by the Public Regarding Minn. Rule APC 4.I.3.(c) and Agency Staff Response

During the hearings, comments were made regarding Minn. Rule APC 4.I.3.(c). This section of the proposed amendments to APC 4 requires owners and operators who elect to achieve compliance with emissions standards by derating their boilers to submit to the Agency a written yearly report "confirming that no [steam flow] excesses" over the specified derate load have occurred during normal boiler operations. Proposed Amendments to Minn. Rule APC 4.I.3.(c) and Tr. at 427.

During the hearing, it was pointed out that this section does not indicate what would happen in the event there had, in fact, been an excess steam flow over the specified derate load. Thus, a suggestion was made that the proposed language of APC 4.I.3.(c) be revised to also specify the reporting requirements for those situations in which an excess has occurred.

The Agency Staff believes that the proposed amendment to APC 4.I.3.(c) accurately states the intended requirement of the Agency. This requirement is that, in those instances in which no excess steam flow has been experienced, the owner or operator of the facility shall submit to the Agency a yearly report confirming that no excesses have in fact been experienced. In the event an excess of the allowable steam flow has been experienced, the owner or operator is required to comply with proposed amendment APC 4.I.3.(a) rather than 3.(c). Proposed amendment APC 4.I.3.(a) requires the owner or operator to submit to the Agency within ten days of a steam flow excess a report indicating such excess.

Those companies which never submit a report under APC 4.I.3.(a) are expected to submit a report under APC 4.I.3.(c) confirming that the reason no report was submitted under (a) is that no excess was experienced. Thus, the Agency Staff does not propose to revise the amendment to APC 4.I.3.(c) because it believes that that provision accurately establishes the intended requirement of the Agency.

2. Comments made by the Public Regarding Minn. Rule APC 4.I.1 and Agency Staff Response

During the hearings, comments were made regarding the proposed amendments to APC 4.I.1. This section requires owners and operators intending to achieve compliance by derating the boiler to advise the Agency of their intent. During the hearings, it was pointed out that the proposed amendment does not contain a time limitation specifying when the owners and operators must so inform the Agency. Tr. at 426.

The Staff does not propose to include a time limitation within proposed APC 4.I.1. because the Staff believes that such limitation is both inappropriate and unnecessary. As the record indicates, owners and operators of emissions facilities are already required to be in compliance with the emissions standards established in existing Agency air quality rules. The amendments to APC 4 merely establish an alternative means of being in compliance with these rules. The establishing of derating as an alternative means of complying with air quality rules does not allow owners and operators to disregard the general requirement that emissions standards be maintained. Thus, no time limit by

which derating must be reported to the Agency is included within the proposed amendments to APC 4.

Furthermore, the proposed amendments to APC 4.I.1 do specify the procedures[4] through which an owner or operator may choose to comply with emissions standards by derating a boiler. Implicit in this procedure is the understanding that derating shall not be considered acceptable unless the procedures specified in the amendments to APC 4 are followed. Thus, the Staff believes that no time limitation should be specified in APC 4.I.1.

3. Comments made by the Public Regarding Minn. Rule APC 4.I.3.b. and Agency Staff Response

During the hearings, comments were made regarding the Agency's proposal to require the use of a six-minute averaging period in determining excess steam flows above derate. Proposed Amendment to Minn. Rule APC 4.I.3.b. and Tr. at 172 - 173. Specifically, it was implied that it is not feasible to maintain a derated steam flow level on a six minute averaging basis.

The Agency Staff has considered industry's comments, but does not support a change in the averaging time specified in the amendments to APC 4. As stated above, an owner or operator who chooses to comply with emissions standards by derating a boiler is required to comply with the terms of a permit. This permit will

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[4]The procedures established in APC 4.I.1. are the following: First, an owner or operator intending to comply with emissions limitations by derating a boiler must so advise the Agency. Second, the Agency, after confirming the capability of the industry to comply with the derate level, shall draft a permit prohibiting the operation of the equipment above the derate level. Third, certain information regarding the derate of the boiler must be recorded, reported and maintained by the industry. See APC.4.I.

include a provision which specifies the derate level of the boiler, i.e., the level above which the boiler may not be run. In order to ensure that the provisions of the permit are not being violated (i.e., that the boiler is being run within the derate level), the Agency must establish a procedure through which to determine whether a violation of the permit provision has occurred. For instance, if the capacity of a boiler is limited to a specified level, it is necessary to know whether a single exceedance over that level is a violation of the permit term.

Proposed amendment APC 4.1.3.(b) establishes that in determining whether an excess over derate has occurred for the purposes of establishing permit violations, a six minute averaging period shall be used. The six minute averaging period is a reasonable averaging time in that it is sufficiently long to allow unusually high readings to be offset by regular compliance and is sufficiently short to reduce the chance that usual excesses will not merely be offset by too long an averaging period. The reasonableness of a six minute averaging period is substantiated by the fact that this is the averaging period generally used for other monitoring readings (e.g., opacity) in both State and Federal rules. (See Proposed Amendments to APC 21(a)(9) and (b)(7)(bb).[5]

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[5]The Staff also points out that the determination of the allowable averaging time is a legislative fact. Thus, in determining whether six minutes is reasonable, the Hearing Examiner should, in accordance with the requirements of the United States Supreme Court, "do no more than determine whether [six is] arbitrary, capricious, an abuse of discretion or otherwise not in accordance with law." See legal memorandum, discussion of standard to apply re: reasonableness at 8.

Further, boiler capacity exceedances of derate will, in most cases, be accompanied by exceedances of the opacity standard. Since these two parameters are directly related, it is logical to use the same averaging period for both.

The Staff believes that the six minute averaging period is reasonable in light of the purpose of averaging and the existence of other rules using the same averaging period. Futhermore, the Staff points out that increasing the averaging period merely permits excursions over a derate level to occur without sanction for a longer period of time. Although industry implied during the hearings that it is difficult to maintain a steam flow level, it is important to note that industry does maintain such levels when a boiler is operated at its rated (i.e., maximum) capacity. That is, industry does maintain its steam flow levels when boilers are operated at maximum capacity because exceedances over such levels may result in damage to the boiler.[6] The Staff believes that industry should operate boilers restricted to derate levels with the same care and attention that it operates its equipment at a rated level. Allowance of longer than a six minute average would merely result in a relaxation of the attention that must be paid to careful operation of the boiler at or below a derated level.

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[6]By definition, the rated heat input of the boiler is the maximum continuous heat input which the boiler can receive for sustained periods of time without suffering damage. MPCA Ex. 8 at 4. See also supra at 4. Thus, the amendments to the rule merely require owners and operators to maintain the derated level in the same way they maintain a rated level. See also discussion at 27 - 28, supra. That discussion illustrates that fact that specifying a longer averaging period merely relaxes the requirements of the rule. The Staff does not believe that such a relaxation is justified or appropriate.

Since such care is provided when boilers are run at rated capacity, the Staff rejects the suggestion that less attention be provided when boilers are operated at derated capacity. Thus, the Staff rejects the suggestion that it increase the length of the averaging time specified in the amendments to APC 4.I.3.(b).

4. Revision to Amendments to APC 4.H.7.

As is evident from the discussion in MPCA Ex. 8 at 11, the Agency proposed to amend APC 4 simply to allow derating to be used as a method of complying with emissions standards. As is also evident from that discussion, the means through which the Agency intends to allow the use of derating is by amending APC 4 to provide that, rather than the rated heat input of the boiler (the maximum heat input value), the actual input of the boiler shall be used in the equation to determine the emissions factor from a boiler. See Amendments to Minn. Rule APC 4.H.7. Besides the substitution of the term actual heat input for rated heat input, the Agency did not intend to change the equation used to determine compliance with emissions standards.

Although the Agency did not intend to change the equation through which the emissions factor is determined, in its proposed amendments to Minn. Rule APC 4.H.7., the Agency did propose to delete the entire equation according to which emissions from a boiler are to be calculated. No substituted equation was proposed in place of the deleted equation since the equation was assumed to be fundamental to the determination of pollutant emissions. The fact that the Agency did not intend to change the equation itself

is also made clear by the fact that, in illustrating the way in which derating works, the Agency uses the calculation in existing APC 4.H.7. See the calculation in MPCA Ex. 8 at 12.

Thus, the Agency did not intend to delete the entire equation in APC 4.H.7.; but, rather, intended to provide only that actual and not "applicable" (i.e., rated) heat input should be used in the emissions calculation.[7] Accordingly, the Agency Staff proposes to revise the proposed amendments to APC 4 to clarify the intended change. This revision merely returns the existing equation to the language of the rule, and clearly indicates the use of actual rather than rated heat input in the equation. (See Amendments to APC 4, attached to this memorandum).

5. Economic Reasonableness of the Amendments to APC 4

The amendments to APC 4 establish an alternative means through which owners and operators of boilers may bring their boiler into compliance with existing emissions limitations. Thus, no industry is required to use derating as a means of meeting existing emissions limitations. In those instances in which derating is a feasible alternative for an owner or operator, the option to derate to meet emissions limitations creates an economic alternative to purchasing expensive pollution control equipment. Thus, there can be no doubt that the amendments to APC 4 are eco-

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7In the calculation at MPCA Ex. 8 at 12, the terms relate to the equation in existing Minn. Rule APC 4.E.7. as follows: 0.50 lbs./10^6 BTU equals E (pollutant emissions); 100 lbs./hr. equals E_t (pollutant emission rate); and 200 x 10^6 equals Z (actual heat input).

nomically reasonable.[8]

IV. THE AGENCY HAS MADE AN AFFIRMATIVE PRESENTATION OF FACTS ESTABLISHING THE NEED FOR AND REASONABLENESS OF THE PROPOSED AMENDMENTS TO MINN. RULE APC 21.

A. Need for the Amendments to Minn. Rule APC 21

1. General Discussion of the Difference Between the Existing Requirements and the Proposed Requirements of APC 21.

As it presently exists, Minn. Rule APC 21 does the following: (1) The rule establishes the requirements for continuous monitoring systems; (2) The rule establishes the procedures and test methods for conducting stack tests; (3) The rule establishes reporting requirements; and, (4) The rule establishes procedures to be followed in the event of a shutdown or breakdown of a facility.

The proposed amendments to APC 21 all relate to the method used to determine the opacity of a plume emitted from a source.[9]

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[8]Indeed, it is useful to note that during the hearings, no challenge was voiced by industry as to the economic reasonableness of the rules.

[9]In addition to withdrawing its proposal to adopt 6 MCAR §4.0020, the Agency has also withdrawn its proposal to delete those sections of APC 21 which would have been addressed in the new rule. Thus, the Agency's proposal to amend APC 21(c) and (d) have also been withdrawn. The proposed amendments to APC 21 which continue to be considered for adoption relate only to APC 21(a) and APC 21(b). The attached revisions to the proposed amendments provide a clear statement as to which sections of APC 21 continue to be proposed for adoption. The sections which continue to be proposed for adoption all relate to the methods according to which the opacity of an emission is determined.

For the sake of clarity, it should be noted that, in addition to withdrawing its proposal to amend APC 21(c) and (d), the Agency has, at this time, withdrawn its proposals to delete

continued on page 16 . . .

Specifically, the proposed amendments to APC 21 revise the methods used to reduce opacity data[10] taken from continuous monitoring systems [APC 21(a)] and gathered during performance tests [APC 21(b)].

Existing APC 21 establishes a one minute averaging method for reducing opacity data taken from continuous monitoring systems [APC 21(a)(9)] and a six minute averaging method (i.e., Method 9) for reducing opacity data taken from visual observations [APC 21(b)(7)]. The amendments to APC 21 make two changes to the existing rule: First, the amendments establish consistent methods for reducing opacity data, regardless of whether that data is taken from continuous monitoring systems or from visual observations. Second, the amendments establish two distinct methods of reducing opacity data. The first method (six minute averaging)

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[9] . . . continued from page 15

APC 21(b)(7)(bb). The Agency plans to reconsider amending and/or deleting these sections during the time it is analyzing comments regarding proposed new rule 6 NCAR §4.0020. Since this memorandum only includes a discussion of those sections of APC 21 which continue to be proposed for adoption at this time, this memorandum does not include a discussion of APC 21(c) or APC 21(d) nor does it include a discussion of the now withdrawn proposal to delete APC 21(b)(7(bb).

[10] Reducing opacity data means analyzing the data taken from continuous monitoring systems or during performance tests in order to establish a value which represents the opacity of the emissions from an identified source. This opacity value may then be compared with emissions limitations established in Agency rules to determine whether that source is in compliance with applicable opacity limitations. As discussed in this memorandum, one of the problems with the current methods of reducing opacity data is that the method is not well suited to establish compliance with a particular type of opacity emissions standard (i.e., those emissions standards which provide for excursions over a specified opacity limit for a specified period of time).

is to be used in those instances in which an Agency rule establishes a single maximum opacity emissions limitation for an emissions source. The second method (one minute averaging) is to be used in those instances in which an Agency rule establishes an opacity excursion allowance for the emissions from a source.[11]

The need to revise APC 21 to make these two changes arises from two distinct problems with using the current methods of reducing opacity data. These two problems are discussed in IV.A.2. and 3., below.

2. The method of reducing opacity data from continuous monitoring equipment should be consistent with the method of reducing such data from visual observations.

The existing language of APC 21(a)(9) specifies a data reduction method which is inconsistent with the data reduction method specified in existing APC 21(b)(7). The amendments to the rule are needed in order to make the method of reducing opacity data taken from continuous monitoring equipment consistent with the method of reducing data taken from visual monitoring observations.[12] Such consistency is desirable because, regardless of whether the reduction is of opacity data taken by continuous

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[11]During the hearings, comments were made suggesting that the the Staff might consider revising the proposed language to APC 21 to be more clear. In light of these comments, the Staff proposes to make some changes to the proposed amendements. These changes are not substantive and are simply intended to clarify the proposed requirements of the rule. These clarifications are discussed, infra in Part IV.B. See also revisions to proposed amendments to APC 21, attached.

[12]See MPCA Ex. 10 at 3 for a discussion of this inconsistency.

monitoring systems or of opacity data taken by visual obserser-vations, the purpose of reducing the data is the same. That purpose is to establish a single, meaningful opacity value against which to determine the compliance status of sources which must meet opacity standards. Thus, there is a need to make the method of reducing opacity data taken in these two manners consistent with each other.

The proposed amendments to APC 21 establish Method 9 as the method of reducing opacity values in those instances in which the standard that the source must meet does not establish an excursion allowance. As indicated supra at 15, existing APC 21 establishes Method 9 as the applicable standard when visual observation data is being reduced and a one minute average when continuous monitoring data is being reduced. This existing distinction between the applicability of the one minute average method and Method 9 is based on an artificial and not useful distinction between data gathered from continuous monitoring systems and data gathered through visual observations. The amendments to the rule propose to eliminate this artificial distinction by establishing the six minute average method as the appropriate standard to use in reducing both types of data in certain instances.[13] In other instances, both types of data are to be reduced according to the

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[13]These instances are when the source from which the opacity data is taken is required to meet an opacity limitation which does not allow an excursion over a specified standard. See discussion, infra at IV.A.3.a. See also proposed amendments APC 21(a)(9) and APC 21 (b)(7) and the proposed revisions to these amendments, attached to this memorandum. As noted in footnote 11, these revisions are intended to clarify the requirements of the proposed amendments.

one minute average method.[14] Thus, the amendments to the rule are needed to establish consistent methods of reducing opacity data regardless of the means through which that data is obtained.

> 3. Two different methods for reducing opacity data are needed: The six minute average method is appropriate to determine the compliance status of a source for which the applicable opacity standard does not provide an excursion allowance; but, is not appropriate to determine the compliance status of a source for which the applicable opacity standard does provide an excursion allowance.

As discussed in Part IV.A.2. of this memorandum, there is a need to make the current inconsistent methods of reducing opacity data consistent with each other. The proposed amendments to the rule make these methods consistent by establishing that, in those instances in which the standard that the source must meet does not not provide an excursion allowance, the six minute average method is the appropriate method to use to reduce the data gathered from either continuous monitoring systems or from visual observations. The proposed amendments also make these methods consistent by estabishing that, in those instances in which the standard that the source must meet does establish an excursion allowance, the one minute average method is the appropriate method to use to reduce the data.

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[14] These instances are when the source from which the opacity data is taken is required to meet an opacity limitations which does allow an excursion over a specified standard. See discussion, infra in Part IV.A.3.b. See also proposed amendments APC 21(a)(9) and APC 21(b)(7) and the proposed revisions to these amendments, attached to this memorandum.

a. The Six Minute Average Method is well suited to provide a means of determining compliance with standards which do not establish an excursion allowance.

The six minute average method, also known as Method 9, establishes a method to determine an average opacity reading. The procedures that this Method establishes as a means of determining the opacity reading for a source are as follows:

The six minute average method (Method 9) provides that the determination of compliance with opacity standards is to be based on an average of 24 consecutive readings taken at 15-second intervals (i.e., six minutes worth of data).[15] Thus, Method 9 requires that six minutes worth of data be reduced to a single opacity value in the following manner: (a) Take 24 consecutive readings of the opacity of a plume. These 24 consecutive readings shall be taken at 15 second intervals. (b) Add the 24 readings together and divide by 24. This quotient is the average of the

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[15] With respect to the data set out in MPCA Ex. 32, there are 25 different sets of 24 consecutive readings which could be used to determine the six minute average. The first set includes all the readings in Minutes 1, 2, 3, 4, 5 and 6. The second set includes all the readings in Minutes 2, 3, 4, 5 and 6 plus reading 2, 3 and 4 in Minute 1 and reading 1 in Minute 7. The third set includes all the readings in Minutes 2, 3, 4, 5 and 6 plus readings 3 and 4 in Minute 1 and readings 1 and 2 in Minute 7. The other 22 sets of six minute readings are determined in the same fashion.

During the hearings, in demonstrating the way in which the six minute average method is used, the Agency Staff Witness referred to only two of the 25 sets of data set out in MPCA Ex. 32. This is because the Staff Witness was only illustrating the method in which the six minute average worked. To determine a violation of the standard, any of the 25 sets of six minutes could be used.

six minutes worth of data. Emissions limitations are then compared with this average to determine the compliance status of a source.[16]

The six minute average method is proposed as the method of determining compliance with standards which do not establish an excursion allowance because this method is well suited to establish a single opacity value against which to measure the compliance status of the source.[17] That is, in those instances in which the standards do not establish an excursion allowance, sources are required to meet a specified opacity limitation. In determining whether the source is continuously meeting that limitation, a method must be devised through which the opacity data taken from that source may be accurately reduced to a single opacity average which can then be compared with the allowable opacity limitation. The average of six minutes worth of data is appropriate because six minutes provides a sufficiently lengthy period of time to average unusual high and low opacity readings

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[16]Using the data set out in MPCA Ex. 32 to illustrate the way in which Method 9 works, during the hearings the Agency Staff Witness added up the 24 opacity readings in Set 1 and Set 2 (described in footnote 14, supra) and divided the total by 24. Thus, using Method 9, the average opacity reading for Set 1 equals 20.21 (485 divided by 24) and for Set 2 equals 19.37 (465 divided by 24).

[17]As noted earlier, the six minute average method is commonly called Method 9 and is the current method of reducing opacity data taken from visual observations under existing APC 21(b)(7). It is useful to note that Method 9 was adopted by the EPA in 1974 and continues to be the acceptable method of reducing data in those instances in which standards do not provide excursions over allowable limitations.

and a sufficiently short period of time to reduce the chances that usual high readings will be overlooked. Thus, in those instances in which the applicable opacity standard does not allow an excursion, the six minute method is required to be used.[18]

b. The Six Minute Average Method is not well suited to provide a means of determining compliance with opacity standards which do establish an excursion allowance.

While use of the six minute average will result in an acceptable opacity reading for facilities which are required to meet a single opacity standard, a six minute average provides a less acceptable reading for facilities which are allowed one or more excursions for specified periods of time over the applicable emissions standard. This is because the six minute average method (Method 9) does not provide a means of calculating the amount of time during which an emission from a source exceeds the allowable opacity limitation. That is, Method 9 does provide a means of averaging the readings over a period of time to determine whether the average reading exceeds the allowable limitation; but, Method 9 does not provide a means to actually count the number of minutes an exceedance has occurred. Since emissions standards

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[18] As described in footnote 16, the average opacity values for Sets 1 and 2 in MPCA Ex. 32 are 20.21 and 19.37, respectively. If the standard established a 20% opacity standard for the source to which these values relate, a violation of the standard is found in Set 1 but not in Set 2. As is described, supra, the average opacity standard estabished under Method 9 does not provide any explanation of the time period during which an exceedance over the standard has occurred. It is precisely for this reason that Method 9 is inadequate to determine the compliance status of a source to which a standard allowing an excursion applies.

which allow excursions actually allow exceedances for a specified period of time, it is critical to know the actual time during which an exceedance has occurred.

The proposed amendments to APC 21 establish a method of calculating the time during which an exceedance over the allowable limit has occurred. This method is called the "one minute average method," although the name is somewhat of a misnomer. The name is a misnomer in that the one minute average method not only provides for an averaging method similar to that provided in the six minute method; but, the method also provides a method for counting the time during which an exceedance has occurred.[19] The "one minute

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[19]This counting method is similar to the counting method established in yet another method of calculating opacity. This "other method" is called the stopwatch method. Unlike the six minute averaging method, the stopwatch method provides a means of calculating the actual amount of time that an emission exceeds the allowable opacity limitation. Thus, under the stopwatch method, no average opacity is determined; but, rather, the number of seconds that emissions exceed opacity limitations are tabulated.

In using the stopwatch method, a full hour's worth of data (i.e., 240 readings) is generally needed to determine whether there has been compliance with the emissions standards. This is because the standard to which the stopwatch method relates usually allows an excursion over a specified opacity limit for a specified length of time in any one hour period. Thus, in determining whether the standard allowing the excursion has been violated, the seconds of exceedance over the standard are added together to determine the total number of seconds of exceedance. This total number is then compared with the total number of allowable seconds of exceedance established in the applicable rule. For instance, if the standard allows as excursion over a 20% emissions limit for four minutes in any 60 minute period, a violation of the standard has occurred when the total number of seconds of exceedance equals 240 seconds (or four minutes).

continued on page 24 . . .

average" method works as follows: (a) For each minute of data, the opacity levels noted for the four readings are added and divided by four. (This is similar to Method 9 except that, under Method 9, 24 consecutive opacity readings are added and averaged, while under the one minute average method, only four such readings are totalled and averaged). (b) The average opacity level for each minute of data is then compared with the opacity standard established for the source. If the opacity average for that minute is greater than the 20% opacity limitation, then the entire minute is counted as an exceedance over the standard. (This is similar to the stopwatch method except that, under that Method, the fifteen seconds during which the exceedance occurs is

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19 . . . continued from page 23

Using the data set out in MPCA Ex. 32 to illustrate the way in which the stopwatch method works, during the hearings the Agency Staff Witness added up the number of readings of data in excess of 20% opacity. This number is 15 readings. Since each reading accounts for 15 seconds of time, the amount of time in excess of 20% is calculated by multiplying the number of readings over the emissions limitation (15) times the number of seconds accounted for by each reading (15). Thus, the total number of seconds during which the emissions limitation is exceeded is 15 x 15, i.e., 225. Two hundred twenty five seconds equals 3.75 minutes. Thus, in the twelve minutes of readings taken, there are 3.75 minutes during which the emissions from the source exceed the opacity limitation.

It may be useful to note that there is a second stopwatch technique which is somewhat more complicated than the one described above. The technique described above is the MPCA Stopwatch Technique; the other technique is the EPA technique. The EPA technique is considerably more complicated than the Agency's and was briefly discussed during the hearings. Since the Agency has never used this technique and is not, now, proposing to use it, no further discussion of the technique is provided in this memorandum. However, a discussion of the technique may be found in MPCA Ex. 23 at 1785.

counted and no averaging of the exceedances is done, while under the one minute average method, the four opacity readings are averaged before a determination to count the time is made).

(c) Finally, the number of minutes during which the average opacity level exceeds the applicable standard are tabulated to determine the total number of minutes of exceedance. This number is then compared with the allowable number of minutes provided in the rule. If the number is greater than the rule allows, a violation has occurred.

Using the one minute average method, the opacity in MPCA Ex. 32 is reduced in the following manner: For each minute of data, the four readings are added and divided by four. If the quotient for that minute is greater than the 20% opacity limitation, then the entire minute is counted as an exceedance over the standard. If a standard allows an excursion over a 20% emission limit for four minutes in any 60 minute period, a violation of the standard occurs under the one minute averaging method when more than four minutes worth of exceedances are tabulated. Thus, under this standard, a full hour's worth of data is needed before it can be determined that the standard has not been violated. With the twelve minutes worth of data set out in MPCA Ex. 32, seven minutes of opacity data exceed the limitations (Minutes 2, 3, 4, 5, 7, 11 and 12).

Thus, it should be clear that the one minute average method combines both the advantages of Method 9 and the stopwatch technique. Like Method 9, the one minute averaging method provides a means of averaging high and low opacity readings. Like the stop-

watch technique, the one minute average relates exceedances to time. Because rules establishing excursion standards allow exceedances over specified standards for a particular period of time, the one minute average is far better suited than Method 9 to determine compliance with excursion standards. Accordingly, the amendments to APC 21 are needed.

B. Reasonableness of the Amendments to Minn. Rule APC 21

MPCA Ex. 10 at 5 - 11 provides a discussion of the reasonableness of the proposed amendments to Minn. Rule APC 21. During the hearings, comments from the public were addressed to the two concerns regarding the proposed rule. This section of this memorandum includes a discussion of those comments and also includes a discussion of the further clarifying amendments to the rule proposed by the Agency Staff at this time.

1. Comments made by the Public Regarding the Use of One Minute as an Averaging Period and Agency Staff Response

During the hearings, a comment was made that the Staff should consider using some other length of time for averaging opacity data as required in APC 21. Tr. at 168 et seq. Specifically, it was suggested that, for excursions, the Agency use an averaging period equivalent to the length of time of the excursion. Thus, if the applicable rule estabished a two minute excursion, a two minute averaging period would be allowed. Tr. at 169.

The Agency Staff has considered this suggestion but rejects it in favor of the language now proposed by the Staff. The language presently proposed by the Staff is substantively the same

as that language proposed in the June 18, 1979, State Register. The Staff rejects the proposal made during the hearing for the following reason.

As an Agency Staff Witness testified, Tr. at 15, there are occasional brief periods of time during which it is difficult for a source to control opacity at a stated ceiling. Thus, in addition to establishing ceilings on acceptable opacity levels, many Agency rules also establish an excursion allowance during which predictable excursions over the standard are permitted. In considering the appopriate method to use in determining whether an exceedance of the standard amounts to a violation of the standard, it is important to note that, conceptually, excursions are nothing more than acceptable relaxations of the emissions standards.

The method the Agency Staff proposes to use in determining whether an excursion allowance has been violated is called the one-minute average method. This method is reasonable in that it combines the time counting method of the stopwatch approach and still provides an averaging allowance (similar to Method 9). While it is true that the Agency could establish any number of seconds or minutes as the appropriate averaging time, the Staff believes that one minute provides a sufficiently lengthy period of time to minimize the impact of one high 15 second reading, and a sufficiently short period of time to accurately illustrate the opacity levels at a particular source.

The Staff also points out that the longer an averaging time permitted, the more lenient the method used to determine

compliance with the Agency rules. For instance, assume the following two minutes worth of opacity data:

	Reading 1	Reading 2	Reading 3	Reading 4
Minute 1	30	30	25	25
Minute 2	10	15	10	15

Using the proposed one minute averaging method, it is clear that Minute 1 counts as a minute of excursion over a 20% opacity limit and Minute 2 does not count as an excursion. Using a two minute averaging period, the entire two minutes does not count as an excursion over the standard. In light of the purpose of the excursion allowance (tr. at 15) and the fact that the excursion allowance is in itself a relaxation of the rule, the Staff rejects the proposal to adopt a more lenient method of determining compliance with excursion allowances.[20]

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[20] In addition, it should be noted that the one minute averaging period is a more lenient method of reducing opacity data to determine compliance with Agency rules. This is best illustrated by example. APC 4.C.2., for example, establishes the following opacity emissions limitation: "No owner or operator of indirect heating equipment shall cause to be discharged into the atmosphere from said equipment any gases which exhibit greater than 20% opacity; except that a maximum of 60% opacity shall be permissible for four (4) minutes in any 60 minute period and that a maximum of 40% opacity shall be permissible for four (4) additional minutes in any 60 minute period." Under the stopwatch method of reducing data, one exceedance over the 60% maximum would be a violation of the allowable emissions limitation. This is because the existing rule does not provide any means of averaging the readings taken. The one minute average method do provide a means of discounting one high reading: However, the Staff rejects the proposal to make the allowance even more lenient by extending the length of time over which averaging shall be done.

2. Comments made by the Public Regarding the Consistency of the Provisions in the Proposed Amendments to Minn. Rule APC 21(a) and (b)

During the hearing, a comment was made that the requirements for reducing continuous monitoring opacity data and performance test opacity data were not quite consistent. Tr. at 171 - 172. As the transcript indicates, the discussion between industry representatives and the Agency Staff Witness is somewhat unclear. What is clear is that the amendments to Minn. Rule APC 21 are proposed to make the methods of reducing data under APC 21(a) consistent with the methods of reducing data under APC 21(b). Because there appeared to be some confusion during the hearings as to the consistency of those requirments, the Staff is recommending revising the language in the proposed amendments to the rule to more clearly state the consistency. (See proposed revisions to the rule attached to this memorandum and discussion of those revisions in IV.B.3., infra).

3. Revision to Amendments to APC 21

As is discussed supra, there was some confusion during the hearings regarding the consistency of the requirements of proposed APC 21(a) and proposed APC 21(b). As is made clear in the Statement of Need and Reasonableness, MPCA Ex. 10, these requirements are intended to be completely consistent with each other. In order to make this clear, the Staff is proposing to amend the language of APC 21 to clarify the consistency. The Staff is not proposing to change the substance of any of the proposed amend-

ments to the rule.[21]

4. Economic Reasonableness of the Amendments to Minn. Rule APC 21

The amendments to Minn. Rule APC 21 do not impose any new emission limitation on industry. The amendments are needed, in light of the recent Donner case, MPCA Ex. 23, to explicitly establish a method to determine a source's compliance with excursion allowance. As with the amendments to APC 4, industry offered no challenge to the economic reasonableness of the proposed amendments: The amendments merely establish a procedure for interpreting an existing standard and are economically reasonable.

PROPOSED REVISIONS
TO MINN. RULE APC 4

MINNESOTA POLLUTION
CONTROL AGENCY STAFF

August 20, 1979

In the proposed amendments published in the June 18, 1979, State Register, the Agency Staff proposed to delete APC 4.H.7. in its entirety and to replace it with a new APC 4.H.7. The Agency Staff now proposes to include much of the original language of APC 4.H.7. in order to make it clear that, by the amendments to APC 4, the Agency is retaining the equation used in APC 4 and is changing only term Z in that equation from applicable heat input to actual heat input. (See attached post hearing comments at). Thus, the Staff proposes to consolidate the deleted language of existing APC 4.H.7. and the proposed new language of proposed APC 4.H.7. to read as follows:

H.7. When the emission factor cannot be calculated by means of the method outlined in section H.6., the emission factors for all pollutants for all new and existing indirect heating equipment expressed in nanograms/joule (lb./million BTU) shall be determined by the following procedure:

$$E = \frac{E_t}{Z}$$

where:

E = pollutant emissions, in nanograms/joule (lb./million BTU).

E_t = pollutant emission rate, in nanograms/hr. (lb. hr), determined by Method 5.

Z = actual heat input, in joules/hr., (million BTU/hr).

PROPOSED REVISIONS
TO MINN. RULE APC 21

MINNESOTA POLLUTION
CONTROL AGENCY STAFF

August 20, 1979

Revisions to proposed amendments to APC 21(a)(9)
(Deletions from the language proposed in the June 18, 1979, State Register, are noted by ~~crossing out the deleted language~~;
Additions to the proposed language are noted by underlining the newly added language).

NOTE THAT THE AGENCY HAD PROPOSED TO DELETE APC 21(b)(7)(bb) AND HAS WITHDRAWN ITS PROPOSAL TO DELETE THIS PROVISION AT THE PRESENT TIME.

NOTE ALSO THAT THE AGENCY HAD PROPOSED TO DELETE AND/OR AMEND SECTIONS OF APC 21(c) and APC 21(d) AND HAS ALSO WITHDRAWN ITS PROPOSAL TO DELETE AND/OR AMEND THIS SECTION AT THE PRESENT TIME.

THUS, APC 21(b)(7)(bb) and (c) are not being amended.
Because no change in the language in existing APC 21(b)(7)(bb) and (c) is proposed, the Staff has not restated the existing language in this statement of the newly proposed revisions to APC 21.

APc 21(a) Continuous monitoring.

(9) Monitoring data. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to six (6) minute averages except that ~~other averaging periods may be used as specified in other regulations or limitations~~ a one minute averaging period as described in (b)(7)(cc)(ii) shall be used in the event an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period.

APC 21(b) Performance tests.

~~(bb)~~ (cc) Paragraph 2.5 of Method 9 (Data Reduction) is amended to read as follows, and this language shall be used whenever Method 9 is referenced in the Rules:

(i) 2.5. Data Reduction. Except as provided in paragraph (cc)(ii), ~~Opacity~~ opacity shall be determined as an average of 24 consecutive observations recorded at 15 second intervals. Divide the observations recorded on the record sheet into sets of 24 consecutive observations. A set is composed of any 24 consecutive observations. Sets need not be consecutive in time and in no case shall sets overlap. For each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24. Record the average opacities on a record sheet.

(ii) In the event that an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period, determine the opacity as an average of 4 consecutive observations recorded at 15 second intervals. Determine the number of minutes in any one-hour period that the opacity exceeds a given opacity and record this information.

STATE OF MINNESOTA
OFFICE OF HEARING EXAMINERS

FOR THE MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR Sec. 4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment.

REPORT OF THE HEARING EXAMINER

The above-entitled matter came on for hearing on July 23, 1979, in the Board Room of the Minnesota Pollution Control Agency, 1935 West County Road B2, Roseville, Minnesota, before Myron S. Greenberg, Hearing Examiner assigned by the Chief Hearing Examiner.

This is a rules hearing pursuant to Minn. Stat. Ch. 15 to determine whether proposed rules and rule amendments governing derating of boilers, methods for measuring opacity for intermittent sources and abatement plans to avoid malfunctions and breakdowns of certain control equipment and process equipment should be adopted.

The following persons appeared for the Minnesota Pollution Control Agency ("Agency" or "PCA"): Edgar Crowley, Senior Engineer, Engineering Section, Division of Air Quality; Gary Pulford, Chief, Enforcement Section, Division of Air Quality; Dr. David Rimberg, President, North American Pemco; Henry Onsgard, Physical Scientist, Technical Analysis Section, Air Programs Branch, Air and Hazardous Materials Division, United States Environmental Protection Agency ("USEPA" or "EPA"), Region V; and Alan R. Mitchell and Lisa R. Tiegel, Special Assistant Attorneys General. G. Robert Johnson, Esquire, and Robert S. Burk, Esquire, with the firm of Popham, Haik, Schnobrich, Kaufman & Doty, represented a consortium of industries including the Minnesota Association of Commerce and Industry ("MACI"), petroleum refineries, independent service stations and others; James T. Shields, Vice President Energy and Environmental Affairs, also appeared for MACI. Gilbert W. Harries, Esquire, of the firm of Hanft, Fride, O'Brien & Harries, Duluth, Minnesota, represented the Minnesota-Wisconsin Power Suppliers Group ("MWPSG").

Eleven persons signed the hearing register although more than 11 people attended the hearing. The hearing continued until all interested persons and all interested groups had had an opportunity to be heard.

Pursuant to Minn. Stat. Sec. 15.0412, subd. 4, this Report shall be available for review to all affected individuals upon request for at least five days. Thereafter, the Agency Board shall, if it proposes to adopt the rules as originally proposed or amended, submit a copy of the Order Adopting Rules, a copy of any additional agency findings, a copy of the rules as originally proposed, and a copy of the rules as adopted to the Chief Hearing

Examiner for review pursuant to Minn. Stat. Sec. 15.052, subd. 4. The submission to the Chief Hearing Examiner shall precede review by the Attorney General. The Chief Hearing Examiner shall complete his review and submit his report to the Agency on the issues of substantial changes in the rule and compliance with Minn. Stat. Sec. 15.0412 within ten calendar days. The Agency will be responsible for filing the rules with the Attorney General and for notifying persons who have indicated that they wish to be notified of such filing.

Based upon all the records and proceedings herein, the Examiner makes the following:

FINDINGS OF FACT

Procedural Requirements

1. On June 1, 1979, the Agency filed the following documents with the Hearing Examiner:

(a) A copy of the proposed rules.
(b) The Order for Hearing proposed to be issued.
(c) The Notice of Hearing proposed to be issued.
(d) A Statement of the number of persons expected to attend the hearing and estimated length of the Agency's presentation.

2. On June 14, 1979, the Agency mailed the Notice of Hearing and proposed rules to all persons and associations who had registered their names with the Secretary of State for the purpose of receiving such notice and to all state agencies, political subdivisions, and other interested entities.

3. On June 18, 1979, a Notice of Hearing and a copy of the proposed rules were published at 3 State Register 2239, et seq.

4. On June 27, 1979, the Agency filed the following documents:

(a) The Order for Hearing and authorizing resolution.
(b) The Notice of Hearing as mailed.
(c) The Affidavit of Receipt of the Secretary of State's list.
(d) The Affidavit of Mailing the Notice to all persons on the Secretary of State's list.
(e) The Secretary of State's Certificate and list.
(f) The Statement of Need and Reasonableness.
(g) The names of Agency personnel who will represent the Agency at the hearing together with the names of any other witnesses solicited by the Agency to appear on its behalf.

The documents were available for inspection at the Office of Hearing Examiners from the date of filing to the date of the hearing.

5. The hearing adjourned on July 31, 1979, and the record remained open through August 20, 1979, for the receipt of written comments and statements.

6. By letter dated August 9, 1979, the PCA withdrew proposed rule 6 MCAR Sec. 4.0020 from consideration. By the same letter, the Agency withdrew its proposal to delete those portions of APC 21 which had been covered by 6 MCAR Sec. 4.0020. (See, Attachment A, note 9, pp. 15-16 for full explanation of which rules are withdrawn.) Because of such action by the Agency, this Report does not address written or oral material relating to either 6 MCAR Sec. 4.0020 or the "re-instated" portions of APC 21.

7. The Agency's authority to promulgate the proposed rules is contained in Minn. Stat. Sec. 116.07, subds. 2 and 4 and Sec. 119.091, subd. 1.

Need For and Reasonableness Of APC 4

8. Except as otherwise noted in Findings 8 and 9, infra, the Examiner finds that the amendments to APC 4 are reasonable and necessary for the reasons set forth at pages 3-15, the PCA's post-hearing comments, attached in relevant part hereto and made part hereof as Attachment A. References to revisions to proposed amendments may be found on Attachment B.

9. The only portion of the amendments to APC 4 which stirred any real controversy is proposed APC 4 I.3.(b) which would require an emission source with a derated boiler to use a six-minute averaging period to determine excessive loads above the derated capacity.

No facts are found in the record to support a six-minute averaging period. To the contrary, PCA Engineer Bernard Gallagher asserted "the six minute averaging period was arrived at arbitrarily, so . . . it would be compatible with the opacity averaging period . . . ." (T. 173) There is no evidence to indicate any relationship between measurements of opacity and measurements of boiler emissions. There is also no evidence to indicate that the equipment or procedures used to measure opacity are similar or related. Testimony does indicate, however, that a six-minute averaging period is unrealistic because of the difficuluty (or impossibility) of monitoring the steam flow in such a way to get the data required by the proposed rule. (T. 375; Ford Motor Company Comments, July 25, 1979, Part I)

Whether the averaging period should be one, two or 24 hours (as suggested by Ford Motor Company) is a matter for determination by the Agency. The record indicates that a one-hour period "would be more consistent with existing steam flow monitoring equipment" (T. 375) and is "the shortest attainable . . . period." (Brief of MWPSG, p. 1) As such, the one-hour period appears to be reasonable.

The Agency argues that the decision to establish the averaging period at six minutes is a legislative fact. (See, Attachment A, p. 11, footnote 5) The Examiner agrees. Such facts, however, should not be arbitrary or without some reasonable rationale. No such rationale is found in the record. Here is not a question of whether the averaging period should be five minutes, six minutes, seven minutes or ten minutes; there is a quantum difference between six minutes and sixty minutes. When the question of reasonableness involves such variant orders of magnitude, some basis in fact must exist in the record to support the Agency's position. Its absence indicates a lack of rationale for the choice of the number.

see p. 11 Adopted Rule

10. Criticism of proposed APC 4 I.3.(c) is based on the position that it is necessary because APC 4 I.4. requires the derated boiler to have an effective method of physical limitation to output. (Ford Motor Company Comments) The Examiner notes also that APC 4 I.3.(a) requires the reporting of any excess steam flow occurrences, so it may be assumed that if no reports

are submitted under 3(a) then there were no such occurrences. The Examiner is unable to understand the rationale for having those who comply with a rule report such compliance annually--or ever--especially when those who do not comply are required to report that fact. The only useful purpose apparently served by such requirement is contained in APC 4. I.3.(c) is to give purpose to the existence of some additional filing cabinets at the PCA office.

see p. 12 adopted rules.

Need For and Reasonableness Of APC 21

11. The amendments to APC 21 as revised (see, Attachment B) are found to be reasonable and necessary for the reasons set forth in the PCA's post-hearing comments. (See, Attachment A, pp. 15-30)

The primary objection to the proposed amendments is that they lack the consistency which the Agency claims will be enhanced by their adoption. (See, Brief of MWPSG, pp. 2-3) Whether consistent or not, i.e., whether the measurement periods are uniformly one minute, six minutes or 60 minutes, the Agency has provided good justification for using the various measurement periods. (See, e.g. Attachment A, pp. 17-22, 26-28) Possible difficulties or inconvenience which may be encountered in complying with the proposed rules does not negate the reasonable basis for such rules.

Based on the foregoing, the Hearing Examiner makes the following:

CONCLUSIONS

1. The Minnesota Pollution Control Agency and the Office of Hearing Examiners duly acquired and have jurisdiction in the instant matter.

2. Due, timely and adequate legal notice of the hearing was served and published by the Agency. All the procedural requirements of statute and rule have been fulfilled.

3. The Agency has demonstrated its statutory authority to adopt the proposed rules.

4. Except as noted herein, the Agency has demonstrated that the proposed rules are necessary and reasonable.

Based on the foregoing, the Examiner makes the following:

RECOMMENDATION

The Hearing Examiner recommends that the proposed rules be modified as suggested in the Findings, and that so modified, they be adopted.

Dated: September 17, 1979.

Myron S. Greenberg

MYRON S. GREENBERG
Hearing Examiner

M E M O R A N D U M

Most of the record in this proceeding deals with 6 MCAR Sec. 4.0020. The withdrawal of that rule left remaining for consideration proposed rules which were not nearly as controversial. In light of limited comments during and after the hearing regarding APC 4 and 6 MCAR Sec. 4.0021, and considering the full exposition in Ms. Tiegel's brief of matters raised concerning those rules, the Examiner deemed it appropriate to incorporate the main substance of that brief rather than waste time and effort re-writing or paraphrasing. It should be noted that the Examiner reviewed the record and, except as noted otherwise in specific Findings, agreed with the positions stated in the PCA brief.

M.S.G.

A

Attachment to H.E. Report

(A)

III. THE AGENCY HAS MADE AN AFFIRMATIVE PRESENTATION OF FACTS ESTABLISHING THE NEED FOR AND REASONABLENESS OF THE PROPOSED AMENDMENTS TO MINN. RULE APC 4.

A. Need for the Amendments to Minn. Rule APC 4

As it presently exists, Minn. Rule APC 4 does the following: (1) The rule establishes the emission standards which fossil fuel burning indirect heating equipment must meet; and (2) The rule describes the methodologies to be used in determining whether the emissions from any such unit comply with the standards established by the rule. Tr. at 12. The proposed amendments to Minn. Rule

APC 4 relate only to the methodologies used to determine compliance with the rule. Tr. at 12.

Specifically, the Agency is proposing to amend Minn. Rule APC 4 in order to rectify the following problem: As it presently exists, Minn. Rule APC 4 provides that, in determining whether the emissions from a boiler comply with the standards established in APC 4, the emissions from that boiler must be calculated in the manner established in the rule. At present, the calculation provided in APC 4.H.7. requires the use of a term known as "the rated heat input" of the boiler.[2] The rated heat input is the maximum continuous "heat input" which the boiler can receive for sustained periods of time without suffering damage. MPCA Ex. 8 at 4.[3] The required use of the rated heat input is problematic

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[2]Existing APC 4.H.7 specifies the calculation to be done to determine the emissions from a boiler when the rated heat input is used. In that calculation, the term Z equals the rated heat input (see existing APC 4.H.7.) In its proposed amendments to APC 4, the Agency proposes to delete the entire equation specified in existing APC 4.H.7. As is discussed, infra at Part III.B.4. of this memorandum, the substantive changes to APC 4 were only intended to change the definition of term Z in APC 4.H.7., and were not intended to alter the mathematical calculation found in existing APC 4.H.7. In order to make this fact clear, the Agency Staff now proposes to revise the proposed amendments to APC 4 as follows: The Staff proposes to retain the equation used to determine emissions, but to specify that rather than rated heat input, the actual heat input shall be used in that equation. (See Part III.B.4., infra. See also attached amendments to APC 4).

[3]The "heat input" is the product of the heat content and the fuel firing rate, i.e., heat input = heat content x fuel firing rate. Id. All these terms and other technical terms are discussed in detail in MPCA Ex. 8 at 3 - 5 and are, therefore, not redefined in this memorandum. However, the following illustration

continued on page 5 . . .

for the following reason:

Existing Minn. Rule APC 4 expresses the allowable emission of particulate in terms of pounds per million BTU input. For example, for Minneapolis-St. Paul, a boiler is allowed to emit 0.4 pounds of particulates per million BTU heat input. Minn. Rule APC 4.C.1. Thus, it is clear that, by providing for the use of a base of "per million BTU heat input" in establishing emissions limitations, the Agency's rules relate the allowable emissions from a boiler to the actual work load of that boiler.

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3 . . . continued from page 4

may provide a framework within which to consider the relationship among some of these technical terms. (1) Heat content is the measure of the energy content of the coal. This is described in BTU's per pound of coal. (2) Fuel firing rate is the number of pounds of coal fed into a boiler within an hour. This is described in pounds per hour. (3) The heat input is the product of the number of BTU's per pound of coal times the number of pounds of coal consumed per hour and describes the rate at which heat is generated by the burning of fuel. Heat input is described in BTU's per hour.

In the following example, the coal being burned in BOILER #1 has 10,000 BTU's per pound of coal. The rate at which coal is fed into BOILER #1 is at 12,000 pounds of coal per hour. The calculation to determine the heat input of BOILER #1 is as follows:

Heat input = heat content x fuel firing rate.

= 10,000 BTU's per pound of coal x 12,000 pounds of coal per hour.

= 120,000,000 BTU's per hour

From this calculation, it should be clear that if the fuel firing rate is decreased, the heat input is decreased. As such a reduction is accomplished, emissions from a boiler may also be reduced. See text at 5 - 6.

Use of the rated heat input (as is presently required in APC 4.H.7.) rather than the actual heat input (as is proposed) to determine allowable emissions distorts the determination of the allowable emission limitations. This is because the emissions limitations established in the Agency rules relate the allowable emissions to the actual work accomplished by a boiler. For boilers being operated at sub-capacity, the rated heat input is a fictitious heat input, unrelated to the actual work the boiler accomplishes at the time of an emission test. Thus, the rated heat input is an incorrect term to use in determining allowable emissions.

Furthermore, boilers, for various reasons, can perform better, i.e., emit less particulates on a pounds per million basis, at heat inputs of 50 percent maximum. This situation is analogous to automobile operations wherein a 50 m.p.h. highway speed results in both good fuel economy and decreased emissions on a miles travelled basis. Thus, it has been demonstrated that a boiler which exceeds the allowable emissions standards when operated at rated (or full) capacity comes into compliance with emissions standards when the fuel firing rate is reduced to a sub-capacity level. In other words, reducing the capacity of a boiler by reducing its fuel firing rate may result in sufficient reductions in emissions to bring into compliance a boiler which otherwise does not comply with allowable emissions standards.

Agreement by a source owner or operator to always operate a boiler at or below a specified sub-capacity heat input is known as derating the boiler. When an owner agrees to operate a boiler at

an "artificially low," (i.e., "derated" capacity), the heat input level for that boiler is lower than the design (i.e, "rated") boiler capacity. Because of the relationship between heat input and emissions, running a boiler at a lower capacity does result in a reduction in emissions from that boiler. Thus, derating may be an economical means for an owner of a boiler to comply with emissions standards. (See Part III.B.5., infra, for a discussion of the economic considerations regarding derating).

Because existing rule APC 4.H.7. requires the rated heat input to be used in the calculation to determine pollutant emissions, existing APC 4 does not establsh a procedure for demonstrating compliance with emissions standards by derating a boiler. The proposed amendments to Minn. Rule APC 4 do establish such a procedure by substituting the required use of rated heat input with the use of actual heat input. Thus, the amendments to Minn. Rule APC 4 are needed in order to establish a method through which owners and operators may demonstrate compliance with emissions standards by derating their boilers.

B. Reasonableness of the Amendments to Minn. Rule APC 4

MPCA Ex. 8 at 11 - 16 provides a discussion of the reasonableness of the proposed amendments to the rule. During the hearings, comments from the public were addressed to the reasonableness of specific language in the proposed amendments. This section of this memorandum includes a discussion of the major public comments regarding Minn. Rule APC 4 and also includes a discussion of further clarifying amendments to the rule proposed by the Agency Staff at this time.

1. Comments made by the Public Regarding Minn. Rule APC 4.I.3.(c) and Agency Staff Response

During the hearings, comments were made regarding Minn. Rule APC 4.I.3.(c). This section of the proposed amendments to APC 4 requires owners and operators who elect to achieve compliance with emissions standards by derating their boilers to submit to the Agency a written yearly report "confirming that no [steam flow] excesses" over the specified derate load have occurred during normal boiler operations. Proposed Amendments to Minn. Rule APC 4.I.3.(c) and Tr. at 427.

During the hearing, it was pointed out that this section does not indicate what would happen in the event there had, in fact, been an excess steam flow over the specified derate load. Thus, a suggestion was made that the proposed language of APC 4.I.3.(c) be revised to also specify the reporting requirements for those situations in which an excess has occurred.

The Agency Staff believes that the proposed amendment to APC 4.I.3.(c) accurately states the intended requirement of the Agency. This requirement is that, in those instances in which no excess steam flow has been experienced, the owner or operator of the facility shall submit to the Agency a yearly report confirming that no excesses have in fact been experienced. In the event an excess of the allowable steam flow has been experienced, the owner or operator is required to comply with proposed amendment APC 4.I.3.(a) rather than 3.(c). Proposed amendment APC 4.I.3.(a) requires the owner or operator to submit to the Agency within ten days of a steam flow excess a report indicating such excess.

Those companies which never submit a report under APC 4.I.3.(a) are expected to submit a report under APC 4.I.3.(c) confirming that the reason no report was submitted under (a) is that no excess was experienced. Thus, the Agency Staff does not propose to revise the amendment to APC 4.I.3.(c) because it believes that that provision accurately establishes the intended requirement of the Agency.

2. Comments made by the Public Regarding Minn. Rule APC 4.I.1 and Agency Staff Response

During the hearings, comments were made regarding the proposed amendments to APC 4.I.1. This section requires owners and operators intending to achieve compliance by derating the boiler to advise the Agency of their intent. During the hearings, it was pointed out that the proposed amendment does not contain a time limitation specifying when the owners and operators must so inform the Agency. Tr. at 426.

The Staff does not propose to include a time limitation within proposed APC 4.I.1. because the Staff believes that such limitation is both inappropriate and unnecessary. As the record indicates, owners and operators of emissions facilities are already required to be in compliance with the emissions standards established in existing Agency air quality rules. The amendments to APC 4 merely establish an alternative means of being in compliance with these rules. The establishing of derating as an alternative means of complying with air quality rules does not allow owners and operators to disregard the general requirement that emissions standards be maintained. Thus, no time limit by

which derating must be reported to the Agency is included within the proposed amendments to APC 4.

Furthermore, the proposed amendments to APC 4.I.1 do specify the procedures[4] through which an owner or operator may choose to comply with emissions standards by derating a boiler. Implicit in this procedure is the understanding that derating shall not be considered acceptable unless the procedures specified in the amendments to APC 4 are followed. Thus, the Staff believes that no time limitation should be specified in APC 4.I.1.

3. Comments made by the Public Regarding Minn. Rule APC 4.I.3.b. and Agency Staff Response

During the hearings, comments were made regarding the Agency's proposal to require the use of a six-minute averaging period in determining excess steam flows above derate. Proposed Amendment to Minn. Rule APC 4.I.3.b. and Tr. at 172 - 173. Specifically, it was implied that it is not feasible to maintain a derated steam flow level on a six minute averaging basis.

The Agency Staff has considered industry's comments, but does not support a change in the averaging time specified in the amendments to APC 4. As stated above, an owner or operator who chooses to comply with emissions standards by derating a boiler is required to comply with the terms of a permit. This permit will

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[4]The procedures established in APC 4.I.1. are the following: First, an owner or operator intending to comply with emissions limitations by derating a boiler must so advise the Agency. Second, the Agency, after confirming the capability of the industry to comply with the derate level, shall draft a permit prohibiting the operation of the equipment above the derate level. Third, certain information regarding the derate of the boiler must be recorded, reported and maintained by the industry. See APC.4.I.

include a provision which specifies the derate level of the boiler, i.e., the level above which the boiler may not be run. In order to ensure that the provisions of the permit are not being violated (i.e., that the boiler is being run within the derate level), the Agency must establish a procedure through which to determine whether a violation of the permit provision has occurred. For instance, if the capacity of a boiler is limited to a specified level, it is necessary to know whether a single exceedance over that level is a violation of the permit term.

Proposed amendment APC 4.I.3.(b) establishes that in determining whether an excess over derate has occurred for the purposes of establishing permit violations, a six minute averaging period shall be used. The six minute averaging period is a reasonable averaging time in that it is sufficiently long to allow unusually high readings to be offset by regular compliance and is sufficiently short to reduce the chance that usual excesses will not merely be offset by too long an averaging period. The reasonableness of a six minute averaging period is substantiated by the fact that this is the averaging period generally used for other monitoring readings (e.g., opacity) in both State and Federal rules. (See Proposed Amendments to APC 21(a)(9) and (b)(7)(bb).[5]

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[5]The Staff also points out that the determination of the allowable averaging time is a legislative fact. Thus, in determining whether six minutes is reasonable, the Hearing Examiner should, in accordance with the requirements of the United States Supreme Court, "do no more than determine whether [six is] arbitrary, capricious, an abuse of discretion or otherwise not in accordance with law." See legal memorandum, discussion of standard to apply re: reasonableness at 8.

Further, boiler capacity exceedances of derate will, in most cases, be accompanied by exceedances of the opacity standard. Since these two parameters are directly related, it is logical to use the same averaging period for both.

The Staff believes that the six minute averaging period is reasonable in light of the purpose of averaging and the existence of other rules using the same averaging period. Futhermore, the Staff points out that increasing the averaging period merely permits excursions over a derate level to occur without sanction for a longer period of time. Although industry implied during the hearings that it is difficult to maintain a steam flow level, it is important to note that industry does maintain such levels when a boiler is operated at its rated (i.e., maximum) capacity. That is, industry does maintain its steam flow levels when boilers are operated at maximum capacity because exceedances over such levels may result in damage to the boiler.[6] The Staff believes that industry should operate boilers restricted to derate levels with the same care and attention that it operates its equipment at a rated level. Allowance of longer than a six minute average would merely result in a relaxation of the attention that must be paid to careful operation of the boiler at or below a derated level.

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[6]By definition, the rated heat input of the boiler is the maximum continuous heat input which the boiler can receive for sustained periods of time without suffering damage. MPCA Ex. 8 at 4. See also supra at 4. Thus, the amendments to the rule merely require owners and operators to maintain the derated level in the same way they maintain a rated level. See also discussion at 27 - 28, supra. That discussion illustrates that fact that specifying a longer averaging period merely relaxes the requirements of the rule. The Staff does not believe that such a relaxation is justified or appropriate.

Since such care is provided when boilers are run at rated capacity, the Staff rejects the suggestion that less attention be provided when boilers are operated at derated capacity. Thus, the Staff rejects the suggestion that it increase the length of the averaging time specified in the amendments to APC 4.I.3.(b).

4. Revision to Amendments to APC 4.H.7.

As is evident from the discussion in MPCA Ex. 8 at 11, the Agency proposed to amend APC 4 simply to allow derating to be used as a method of complying with emissions standards. As is also evident from that discussion, the means through which the Agency intends to allow the use of derating is by amending APC 4 to provide that, rather than the rated heat input of the boiler (the maximum heat input value), the actual input of the boiler shall be used in the equation to determine the emissions factor from a boiler. See Amendments to Minn. Rule APC 4.H.7. Besides the substitution of the term actual heat input for rated heat input, the Agency did not intend to change the equation used to determine compliance with emissions standards.

Although the Agency did not intend to change the equation through which the emissions factor is determined, in its proposed amendments to Minn. Rule APC 4.H.7., the Agency did propose to delete the entire equation according to which emissions from a boiler are to be calculated. No substituted equation was proposed in place of the deleted equation since the equation was assumed to be fundamental to the determination of pollutant emissions. The fact that the Agency did not intend to change the equation itself

is also made clear by the fact that, in illustrating the way in which derating works, the Agency uses the calculation in existing APC 4.H.7. See the calculation in MPCA Ex. 8 at 12.

Thus, the Agency did not intend to delete the entire equation in APC 4.H.7.; but, rather, intended to provide only that actual and not "applicable" (i.e., rated) heat input should be used in the emissions calculation.[7] Accordingly, the Agency Staff proposes to revise the proposed amendments to APC 4 to clarify the intended change. This revision merely returns the existing equation to the language of the rule, and clearly indicates the use of actual rather than rated heat input in the equation. (See Amendments to APC 4, attached to this memorandum).

5. Economic Reasonableness of the Amendments to APC 4

The amendments to APC 4 establish an alternative means through which owners and operators of boilers may bring their boiler into compliance with existing emissions limitations. Thus, no industry is required to use derating as a means of meeting existing emissions limitations. In those instances in which derating is a feasible alternative for an owner or operator, the option to derate to meet emissions limitations creates an economic alternative to purchasing expensive pollution control equipment. Thus, there can be no doubt that the amendments to APC 4 are eco-

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7In the calculation at MPCA Ex. 8 at 12, the terms relate to the equation in existing Minn. Rule APC 4.H.7. as follows: 0.50 lbs./10^6 BTU equals E (pollutant emissions); 100 lbs./hr. equals E_t (pollutant emission rate); and 200 x 10^6 equals Z (actual heat input).

nomically reasonable.[8]

IV. THE AGENCY HAS MADE AN AFFIRMATIVE PRESENTATION OF FACTS ESTABLISHING THE NEED FOR AND REASONABLENESS OF THE PROPOSED AMENDMENTS TO MINN. RULE APC 21.

A. Need for the Amendments to Minn. Rule APC 21

1. General Discussion of the Difference Between the Existing Requirements and the Proposed Requirements of APC 21.

As it presently exists, Minn. Rule APC 21 does the following: (1) The rule establishes the requirements for continuous monitoring systems; (2) The rule establishes the procedures and test methods for conducting stack tests; (3) The rule establishes reporting requirements; and, (4) The rule establishes procedures to be followed in the event of a shutdown or breakdown of a facility.

The proposed amendments to APC 21 all relate to the method used to determine the opacity of a plume emitted from a source.[9]

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[8]Indeed, it is useful to note that during the hearings, no challenge was voiced by industry as to the economic reasonableness of the rules.

[9]In addition to withdrawing its proposal to adopt 6 MCAR §4.0020, the Agency has also withdrawn its proposal to delete those sections of APC 21 which would have been addressed in the new rule. Thus, the Agency's proposal to amend APC 21(c) and (d) have also been withdrawn. The proposed amendments to APC 21 which continue to be considered for adoption relate only to APC 21(a) and APC 21(b). The attached revisions to the proposed amendments provide a clear statement as to which sections of APC 21 continue to be proposed for adoption. The sections which continue to be proposed for adoption all relate to the methods according to which the opacity of an emission is determined.

For the sake of clarity, it should be noted that, in addition to withdrawing its proposal to amend APC 21(c) and (d), the Agency has, at this time, withdrawn its proposals to delete

continued on page 16 . . .

Specifically, the proposed amendments to APC 21 revise the methods used to reduce opacity data[10] taken from continuous monitoring systems [APC 21(a)] and gathered during performance tests [APC 21(b)].

Existing APC 21 establishes a one minute averaging method for reducing opacity data taken from continuous monitoring systems [APC 21(a)(9)] and a six minute averaging method (i.e., Method 9) for reducing opacity data taken from visual observations [APC 21(b)(7)]. The amendments to APC 21 make two changes to the existing rule: First, the amendments establish consistent methods for reducing opacity data, regardless of whether that data is taken from continuous monitoring systems or from visual observations. Second, the amendments establish two distinct methods of reducing opacity data. The first method (six minute averaging)

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[9] . . . continued from page 15

APC 21(b)(7)(bb). The Agency plans to reconsider amending and/or deleting these sections during the time it is analyzing comments regarding proposed new rule 6 MCAR §4.0020. Since this memorandum only includes a discussion of those sections of APC 21 which continue to be proposed for adoption at this time, this memorandum does not include a discussion of APC 21(c) or APC 21(d) nor does it include a discussion of the now withdrawn proposal to delete APC 21(b)(7(bb).

[10] Reducing opacity data means analyzing the data taken from continuous monitoring systems or during performance tests in order to establish a value which represents the opacity of the emissions from an identified source. This opacity value may then be compared with emissions limitations established in Agency rules to determine whether that source is in compliance with applicable opacity limitations. As discussed in this memorandum, one of the problems with the current methods of reducing opacity data is that the method is not well suited to establish compliance with a particular type of opacity emissions standard (i.e., those emissions standards which provide for excursions over a specified opacity limit for a specified period of time).

is to be used in those instances in which an Agency rule establishes a single maximum opacity emissions limitation for an emissions source. The second method (one minute averaging) is to be used in those instances in which an Agency rule establishes an opacity excursion allowance for the emissions from a source.[11]

The need to revise APC 21 to make these two changes arises from two distinct problems with using the current methods of reducing opacity data. These two problems are discussed in IV.A.2. and 3., below.

2. The method of reducing opacity data from continuous monitoring equipment should be consistent with the method of reducing such data from visual observations.

The existing language of APC 21(a)(9) specifies a data reduction method which is inconsistent with the data reduction method specified in existing APC 21(b)(7). The amendments to the rule are needed in order to make the method of reducing opacity data taken from continuous monitoring equipment consistent with the method of reducing data taken from visual monitoring observations.[12] Such consistency is desirable because, regardless of whether the reduction is of opacity data taken by continuous

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[11]During the hearings, comments were made suggesting that the the Staff might consider revising the proposed language to APC 21 to be more clear. In light of these comments, the Staff proposes to make some changes to the proposed amendements. These changes are not substantive and are simply intended to clarify the proposed requirements of the rule. These clarifications are discussed, infra in Part IV.B. See also revisions to proposed amendments to APC 21, attached.

[12]See MPCA Ex. 10 at 3 for a discussion of this inconsistency.

monitoring systems or of opacity data taken by visual obserser-vations, the purpose of reducing the data is the same. That purpose is to establish a single, meaningful opacity value against which to determine the compliance status of sources which must meet opacity standards. Thus, there is a need to make the method of reducing opacity data taken in these two manners consistent with each other.

The proposed amendments to APC 21 establish Method 9 as the method of reducing opacity values in those instances in which the standard that the source must meet does not establish an excursion allowance. As indicated supra at 15, existing APC 21 establishes Method 9 as the applicable standard when visual observation data is being reduced and a one minute average when continuous monitoring data is being reduced. This existing distinction between the applicability of the one minute average method and Method 9 is based on an artificial and not useful distinction between data gathered from continuous monitoring systems and data gathered through visual observations. The amendments to the rule propose to eliminate this artificial distinction by establishing the six minute average method as the appropriate standard to use in reducing both types of data in certain instances.[13] In other instances, both types of data are to be reduced according to the

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[13]These instances are when the source from which the opacity data is taken is reguired to meet an opacity limitation which does not allow an excursion over a specified standard. See discussion, infra at IV.A.3.a. See also proposed amendments APC 21(a)(9) and APC 21 (b)(7) and the proposed revisions to these amendments, attached to this memorandum. As noted in footnote 11, these revisions are intended to clarify the reguirements of the proposed amendments.

one minute average method.[14] Thus, the amendments to the rule are needed to establish consistent methods of reducing opacity data regardless of the means through which that data is obtained.

> 3. Two different methods for reducing opacity data are needed: The six minute average method is appropriate to determine the compliance status of a source for which the applicable opacity standard does not provide an excursion allowance; but, is not appropriate to determine the compliance status of a source for which the applicable opacity standard does provide an excursion allowance.

As discussed in Part IV.A.2. of this memorandum, there is a need to make the current inconsistent methods of reducing opacity data consistent with each other. The proposed amendments to the rule make these methods consistent by establishing that, in those instances in which the standard that the source must meet does not not provide an excursion allowance, the six minute average method is the appropriate method to use to reduce the data gathered from either continuous monitoring systems or from visual observations. The proposed amendments also make these methods consistent by estabishing that, in those instances in which the standard that the source must meet does establish an excursion allowance, the one minute average method is the appropriate method to use to reduce the data.

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[14] These instances are when the source from which the opacity data is taken is required to meet an opacity limitations which does allow an excursion over a specified standard. See discussion, infra in Part IV.A.3.b. See also proposed amendments APC 21(a)(9) and APC 21(b)(7) and the proposed revisions to these amendments, attached to this memorandum.

a. The Six Minute Average Method is well suited to provide a means of determining compliance with standards which do not establish an excursion allowance.

The six minute average method, also known as Method 9, establishes a method to determine an average opacity reading. The procedures that this Method establishes as a means of determining the opacity reading for a source are as follows:

The six minute average method (Method 9) provides that the determination of compliance with opacity standards is to be based on an average of 24 consecutive readings taken at 15-second intervals (i.e., six minutes worth of data).[15] Thus, Method 9 requires that six minutes worth of data be reduced to a single opacity value in the following manner: (a) Take 24 consecutive readings of the opacity of a plume. These 24 consecutive readings shall be taken at 15 second intervals. (b) Add the 24 readings together and divide by 24. This quotient is the average of the

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[15] With respect to the data set out in MPCA Ex. 32, there are 25 different sets of 24 consecutive readings which could be used to determine the six minute average. The first set includes all the readings in Minutes 1, 2, 3, 4, 5 and 6. The second set includes all the readings in Minutes 2, 3, 4, 5 and 6 plus reading 2, 3 and 4 in Minute 1 and reading 1 in Minute 7. The third set includes all the readings in Minutes 2, 3, 4, 5 and 6 plus readings 3 and 4 in Minute 1 and readings 1 and 2 in Minute 7. The other 22 sets of six minute readings are determined in the same fashion.

During the hearings, in demonstrating the way in which the six minute average method is used, the Agency Staff Witness referred to only two of the 25 sets of data set out in MPCA Ex. 32. This is because the Staff Witness was only illustrating the method in which the six minute average worked. To determine a violation of the standard, any of the 25 sets of six minutes could be used.

six minutes worth of data. Emissions limitations are then compared with this average to determine the compliance status of a source.[16]

The six minute average method is proposed as the method of determining compliance with standards which do not establish an excursion allowance because this method is well suited to establish a single opacity value against which to measure the compliance status of the source.[17] That is, in those instances in which the standards do not establish an excursion allowance, sources are required to meet a specified opacity limitation. In determining whether the source is continuously meeting that limitation, a method must be devised through which the opacity data taken from that source may be accurately reduced to a single opacity average which can then be compared with the allowable opacity limitation. The average of six minutes worth of data is appropriate because six minutes provides a sufficiently lengthy period of time to average unusual high and low opacity readings

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[16]Using the data set out in MPCA Ex. 32 to illustrate the way in which Method 9 works, during the hearings the Agency Staff Witness added up the 24 opacity readings in Set 1 and Set 2 (described in footnote 14, supra) and divided the total by 24. Thus, using Method 9, the average opacity reading for Set 1 equals 20.21 (485 divided by 24) and for Set 2 equals 19.37 (465 divided by 24).

[17]As noted earlier, the six minute average method is commonly called Method 9 and is the current method of reducing opacity data taken from visual observations under existing APC 21(b)(7). It is useful to note that Method 9 was adopted by the EPA in 1974 and continues to be the acceptable method of reducing data in those instances in which standards do not provide excursions over allowable limitations.

and a sufficiently short period of time to reduce the chances that usual high readings will be overlooked. Thus, in those instances in which the applicable opacity standard does not allow an excursion, the six minute method is required to be used.[18]

b. The Six Minute Average Method is not well suited to provide a means of determining compliance with opacity standards which do establish an excursion allowance.

While use of the six minute average will result in an acceptable opacity reading for facilities which are required to meet a single opacity standard, a six minute average provides a less acceptable reading for facilities which are allowed one or more excursions for specified periods of time over the applicable emissions standard. This is because the six minute average method (Method 9) does not provide a means of calculating the amount of time during which an emission from a source exceeds the allowable opacity limitation. That is, Method 9 does provide a means of averaging the readings over a period of time to determine whether the average reading exceeds the allowable limitation; but, Method 9 does not provide a means to actually count the number of minutes an exceedance has occurred. Since emissions standards

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[18] As described in footnote 16, the average opacity values for Sets 1 and 2 in MPCA Ex. 32 are 20.21 and 19.37, respectively. If the standard established a 20% opacity standard for the source to which these values relate, a violation of the standard is found in Set 1 but not in Set 2. As is described, supra, the average opacity standard estabished under Method 9 does not provide any explanation of the time period during which an exceedance over the standard has occurred. It is precisely for this reason that Method 9 is inadequate to determine the compliance status of a source to which a standard allowing an excursion applies.

which allow excursions actually allow exceedances for a specified period of time, it is critical to know the actual time during which an exceedance has occurred.

The proposed amendments to APC 21 establish a method of calculating the time during which an exceedance over the allowable limit has occurred. This method is called the "one minute average method," although the name is somewhat of a misnomer. The name is a misnomer in that the one minute average method not only provides for an averaging method similar to that provided in the six minute method; but, the method also provides a method for counting the time during which an exceedance has occurred.[19] The "one minute

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[19]This counting method is similar to the counting method established in yet another method of calculating opacity. This "other method" is called the stopwatch method. Unlike the six minute averaging method, the stopwatch method provides a means of calculating the actual amount of time that an emission exceeds the allowable opacity limitation. Thus, under the stopwatch method, no average opacity is determined; but, rather, the number of seconds that emissions exceed opacity limitations are tabulated.

In using the stopwatch method, a full hour's worth of data (i.e., 240 readings) is generally needed to determine whether there has been compliance with the emissions standards. This is because the standard to which the stopwatch method relates usually allows an excursion over a specified opacity limit for a specified length of time in any one hour period. Thus, in determining whether the standard allowing the excursion has been violated, the seconds of exceedance over the standard are added together to determine the total number of seconds of exceedance. This total number is then compared with the total number of allowable seconds of exceedance established in the applicable rule. For instance, if the standard allows as excursion over a 20% emissions limit for four minutes in any 60 minute period, a violation of the standard has occurred when the total number of seconds of exceedance equals 240 seconds (or four minutes).

continued on page 24 . . .

average" method works as follows: (a) For each minute of data, the opacity levels noted for the four readings are added and divided by four. (This is similar to Method 9 except that, under Method 9, 24 consecutive opacity readings are added and averaged, while under the one minute average method, only four such readings are totalled and averaged). (b) The average opacity level for each minute of data is then compared with the opacity standard established for the source. If the opacity average for that minute is greater than the 20% opacity limitation, then the entire minute is counted as an exceedance over the standard. (This is similar to the stopwatch method except that, under that Method, the fifteen seconds during which the exceedance occurs is

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19 . . . continued from page 23

Using the data set out in MPCA Ex. 32 to illustrate the way in which the stopwatch method works, during the hearings the Agency Staff Witness added up the number of readings of data in excess of 20% opacity. This number is 15 readings. Since each reading accounts for 15 seconds of time, the amount of time in excess of 20% is calculated by multiplying the number of readings over the emissions limitation (15) times the number of seconds accounted for by each reading (15). Thus, the total number of seconds during which the emissions limitation is exceeded is 15 x 15, i.e., 225. Two hundred twenty five seconds equals 3.75 minutes. Thus, in the twelve minutes of readings taken, there are 3.75 minutes during which the emissions from the source exceed the opacity limitation.

It may be useful to note that there is a second stopwatch technique which is somewhat more complicated than the one described above. The technique described above is the MPCA Stopwatch Technique; the other technique is the EPA technique. The EPA technique is considerably more complicated than the Agency's and was briefly discussed during the hearings. Since the Agency has never used this technique and is not, now, proposing to use it, no further discussion of the technique is provided in this memorandum. However, a discussion of the technique may be found in MPCA Ex. 23 at 1785.

counted and no averaging of the exceedances is done, while under the one minute average method, the four opacity readings are averaged before a determination to count the time is made).

(c) Finally, the number of minutes during which the average opacity level exceeds the applicable standard are tabulated to determine the total number of minutes of exceedance. This number is then compared with the allowable number of minutes provided in the rule. If the number is greater than the rule allows, a violation has occurred.

Using the one minute average method, the opacity in MPCA Ex. 32 is reduced in the following manner: For each minute of data, the four readings are added and divided by four. If the quotient for that minute is greater than the 20% opacity limitation, then the entire minute is counted as an exceedance over the standard. If a standard allows an excursion over a 20% emission limit for four minutes in any 60 minute period, a violation of the standard occurs under the one minute averaging method when more than four minutes worth of exceedances are tabulated. Thus, under this standard, a full hour's worth of data is needed before it can be determined that the standard has not been violated. With the twelve minutes worth of data set out in MPCA Ex. 32, seven minutes of opacity data exceed the limitations (Minutes 2, 3, 4, 5, 7, 11 and 12).

Thus, it should be clear that the one minute average method combines both the advantages of Method 9 and the stopwatch technique. Like Method 9, the one minute averaging method provides a means of averaging high and low opacity readings. Like the stop-

watch technique, the one minute average relates exceedances to time. Because rules establishing excursion standards allow exceedances over specified standards for a particular period of time, the one minute average is far better suited than Method 9 to determine compliance with excursion standards. Accordingly, the amendments to APC 21 are needed.

B. Reasonableness of the Amendments to Minn. Rule APC 21

MPCA Ex. 10 at 5 - 11 provides a discussion of the reasonableness of the proposed amendments to Minn. Rule APC 21. During the hearings, comments from the public were addressed to the two concerns regarding the proposed rule. This section of this memorandum includes a discussion of those comments and also includes a discussion of the further clarifying amendments to the rule proposed by the Agency Staff at this time.

1. Comments made by the Public Regarding the Use of One Minute as an Averaging Period and Agency Staff Response

During the hearings, a comment was made that the Staff should consider using some other length of time for averaging opacity data as required in APC 21. Tr. at 168 et seq. Specifically, it was suggested that, for excursions, the Agency use an averaging period equivalent to the length of time of the excursion. Thus, if the applicable rule estabished a two minute excursion, a two minute averaging period would be allowed. Tr. at 169.

The Agency Staff has considered this suggestion but rejects it in favor of the language now proposed by the Staff. The language presently proposed by the Staff is substantively the same

as that language proposed in the June 18, 1979, State Register. The Staff rejects the proposal made during the hearing for the following reason.

As an Agency Staff Witness testified, Tr. at 15, there are occasional brief periods of time during which it is difficult for a source to control opacity at a stated ceiling. Thus, in addition to establishing ceilings on acceptable opacity levels, many Agency rules also establish an excursion allowance during which predictable excursions over the standard are permitted. In considering the appopriate method to use in determining whether an exceedance of the standard amounts to a violation of the standard, it is important to note that, conceptually, excursions are nothing more than acceptable relaxations of the emissions standards.

The method the Agency Staff proposes to use in determining whether an excursion allowance has been violated is called the one-minute average method. This method is reasonable in that it combines the time counting method of the stopwatch approach and still provides an averaging allowance (similar to Method 9). While it is true that the Agency could establish any number of seconds or minutes as the appropriate averaging time, the Staff believes that one minute provides a sufficiently lengthy period of time to minimize the impact of one high 15 second reading, and a sufficiently short period of time to accurately illustrate the opacity levels at a particular source.

The Staff also points out that the longer an averaging time permitted, the more lenient the method used to determine

compliance with the Agency rules. For instance, assume the following two minutes worth of opacity data:

	Reading 1	Reading 2	Reading 3	Reading 4
Minute 1	30	30	25	25
Minute 2	10	15	10	15

Using the proposed one minute averaging method, it is clear that Minute 1 counts as a minute of excursion over a 20% opacity limit and Minute 2 does not count as an excursion. Using a two minute averaging period, the entire two minutes does not count as an excursion over the standard. In light of the purpose of the excursion allowance (tr. at 15) and the fact that the excursion allowance is in itself a relaxation of the rule, the Staff rejects the proposal to adopt a more lenient method of determining compliance with excursion allowances.[20]

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[20] In addition, it should be noted that the one minute averaging period is a more lenient method of reducing opacity data to determine compliance with Agency rules. This is best illustrated by example. APC 4.C.2., for example, establishes the following opacity emissions limitation: "No owner or operator of indirect heating equipment shall cause to be discharged into the atmosphere from said equipment any gases which exhibit greater than 20% opacity; except that a maximum of 60% opacity shall be permissible for four (4) minutes in any 60 minute period and that a maximum of 40% opacity shall be permissible for four (4) additional minutes in any 60 minute period." Under the stopwatch method of reducing data, one exceedance over the 60% maximum would be a violation of the allowable emissions limitation. This is because the existing rule does not provide any means of averaging the readings taken. The one minute average method do provide a means of discounting one high reading: However, the Staff rejects the proposal to make the allowance even more lenient by extending the length of time over which averaging shall be done.

2. Comments made by the Public Regarding the Consistency of the Provisions in the Proposed Amendments to Minn. Rule APC 21(a) and (b)

During the hearing, a comment was made that the requirements for reducing continuous monitoring opacity data and performance test opacity data were not quite consistent. Tr. at 171 - 172. As the transcript indicates, the discussion between industry representatives and the Agency Staff Witness is somewhat unclear. What is clear is that the amendments to Minn. Rule APC 21 are proposed to make the methods of reducing data under APC 21(a) consistent with the methods of reducing data under APC 21(b). Because there appeared to be some confusion during the hearings as to the consistency of those requirments, the Staff is recommending revising the language in the proposed amendments to the rule to more clearly state the consistency. (See proposed revisions to the rule attached to this memorandum and discussion of those revisions in IV.B.3., infra).

3. Revision to Amendments to APC 21

As is discussed supra, there was some confusion during the hearings regarding the consistency of the requirements of proposed APC 21(a) and proposed APC 21(b). As is made clear in the Statement of Need and Reasonableness, MPCA Ex. 10, these requirements are intended to be completely consistent with each other. In order to make this clear, the Staff is proposing to amend the language of APC 21 to clarify the consistency. The Staff is not proposing to change the substance of any of the proposed amend-

ments to the rule.[21]

4. Economic Reasonableness of the Amendments to Minn. Rule APC 21

The amendments to Minn. Rule APC 21 do not impose any new emission limitation on industry. The amendments are needed, in light of the recent Donner case, MPCA Ex. 23, to explicitly establish a method to determine a source's compliance with excursion allowance. As with the amendments to APC 4, industry offered no challenge to the economic reasonableness of the proposed amendments: The amendments merely establish a procedure for interpreting an existing standard and are economically reasonable.

Attachment to H-E. Report (B)

B

PROPOSED REVISIONS
TO MINN. RULE APC 4

MINNESOTA POLLUTION
CONTROL AGENCY STAFF

August 20, 1979

In the proposed amendments published in the June 18, 1979, State Register, the Agency Staff proposed to delete APC 4.H.7. in its entirety and to replace it with a new APC 4.H.7. The Agency Staff now proposes to include much of the original language of APC 4.H.7. in order to make it clear that, by the amendments to APC 4, the Agency is retaining the equation used in APC 4 and is changing only term Z in that equation from applicable heat input to actual heat input. (See attached post hearing comments at). Thus, the Staff proposes to consolidate the deleted language of existing APC 4.H.7. and the proposed new language of proposed APC 4.H.7. to read as follows:

H.7. When the emission factor cannot be calculated by means of the method outlined in section H.6., the emission factors for all pollutants for all new and existing indirect heating equipment expressed in nanograms/joule (lb./million BTU) shall be determined by the following procedure:

$$E = \frac{E_t}{Z}$$

where:

E = pollutant emissions, in nanograms/joule (lb./million BTU).

E_t = pollutant emission rate, in nanograms/hr. (lb. hr), determined by Method 5.

Z = actual heat input, in joules/hr., (million BTU/hr).

PROPOSED REVISIONS
TO MINN. RULE APC 21

MINNESOTA POLLUTION
CONTROL AGENCY STAFF

August 20, 1979

Revisions to proposed amendments to APC 21(a)(9)
(Deletions from the language proposed in the June 18, 1979, State Register, are noted by ~~crossing out the deleted language~~; Additions to the proposed language are noted by underlining the newly added language).

NOTE THAT THE AGENCY HAD PROPOSED TO DELETE APC 21(b)(7)(bb) AND HAS WITHDRAWN ITS PROPOSAL TO DELETE THIS PROVISION AT THE PRESENT TIME.

NOTE ALSO THAT THE AGENCY HAD PROPOSED TO DELETE AND/OR AMEND SECTIONS OF APC 21(c) and APC 21(d) AND HAS ALSO WITHDRAWN ITS PROPOSAL TO DELETE AND/OR AMEND THIS SECTION AT THE PRESENT TIME.

THUS, APC 21(b)(7)(bb) and (c) are not being amended. Because no change in the language in existing APC 21(b)(7)(bb) and (c) is proposed, the Staff has not restated the existing language in this statement of the newly proposed revisions to APC 21.

APc 21(a) Continuous monitoring.

(9) Monitoring data. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to six (6) minute averages except that ~~other averaging periods may be used as specified in other regulations or limitations~~ a one minute averaging period as described in (b)(7)(cc)(ii) shall be used in the event an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period.

APC 21(b) Performance tests.

~~(bb)~~ (cc) Paragraph 2.5 of Method 9 (Data Reduction) is amended to read as follows, and this language shall be used whenever Method 9 is referenced in the Rules:

(i) 2.5. Data Reduction. Except as provided in paragraph (cc)(ii), ~~Opacity~~ opacity shall be determined as an average of 24 consecutive observations recorded at 15 second intervals. Divide the observations recorded on the record sheet into sets of 24 consecutive observations. A set is composed of any 24 consecutive observations. Sets need not be consecutive in time and in no case shall sets overlap. For each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24. Record the average opacities on a record sheet.

(ii) In the event that an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period, determine the opacity as an average of 4 consecutive observations recorded at 15 second intervals. Determine the number of minutes in any one-hour period that the opacity exceeds a given opacity and record this information.

In the Matter of the Proposed
Adoption of Amendments to Minn. Rules
APC 4 Relating to Power Plants and
APC 21 Relating to Opacity and Proposed
Adoption of New Rule 6 MCAR §4.0020
Relating to Malfunctions and Breakdowns
of Control Equipment and Process Equipment

NO. PCA-79-009-MG

A. Minnesota Pollution Control Agency Staff Exhibits

1. Order for Hearing (June 1, 1979).

2. Certificate of Board's Authorizing Resolution (May 29, 1979).

3. Notice of Hearing as Mailed.

4. June 18, 1979, State Register containing the Notice of Hearing and the Proposed Rules at pages 2239-2246.

5. Certificate of Delivery of Secretary of State's List (June 11, 1979).

6. Affidavit of Receipt of Secretary of State's List (June 11, 1979).

7. Affidavit of Mailing (June 14, 1979).

8. Statement of Need and Reasonableness for Amendments to Minn. Rule APC 4.

9. Statement of Need and Reasonableness for 6 MCAR §4.0020.

10. Statement of Need and Reasonableness for Amendments to Minn. Rule APC 21.

11. Copy of Notice of Intent to solicit outside opinions regarding proposed changes to the existing state air quality implementation plan published in 2 S.R. 2238 (June 12, 1978).

12. All written materials received in response to the Notice of Intent published in 2 S.R. 2238 (June 12, 1978).

13. 40 C.F.R. §§60.40 - 60.46 (1978) "Standards of Performance for Fossil-Fuel Fired Steam Generators."

14. Cleveland Controls, Inc., "An Introduction to Our Complete Line of Quality Engineered Controls and Instruments." A pamphlet showing pictures of a steam flow meter ("Series 6000

Electronic Recorder") and two control systems including such meters ("Relay Logic Burner Management," and "Local Boiler Control Panel)."

15. Rule 105 of the Illinois Pollution Control Board.

16. (a) Proposed amendments to Rules 101, 103, and 105 of the Illinois Pollution Control Board.
(b) Amended proposed amendments to Rules 101, 103, and 105 of the Illinois Pollution Control Board.

17. Rimberg, David B., "Tips and Techniques on Air Pollution Control Equipment O & M," 11 Pollution Engineering 32 (March, 1979).

18. Cross, Frank L., Jr., "ESP Operation and Maintenance," 11 Pollution Engineering 37 (March, 1979).

19. "Technical Support Document for Maintenance and Malfunction," U.S. Environmental Protection Agency, Region V, Air and Hazardous Materials Division, Air Programs Branch, undated.

20. Operating Instructions for Electrostatic Precipitator, Universal Atlas Cement, Duluth, Minnesota, Joy Manufacturing Company, Western Precipitator Division (February, 1971).

21. 40 C.F.R. Part 60, Appendix A - Reference Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources (1978).

22. 43 Fed. Reg. 46246-46271 (Oct. 5, 1978).

23. A copy of the court's opinion in Donner Hanna Coke Corporation v. Costle, 12 ERC 1780 (W.D.N.Y. 1979).

24. Minnesota Rule APC 4.

25. Minnesota Rule APC 21.

26. Minnesota Rule APC 22.

27. Minnesota Rule APC 23.

28. Minnesota Rule APC 24.

29. Operation & Maintenance Manual, Seneca Wastewater Treatment Plant, Metropolitan Waste Control Commission.

30. Revised Table entitled "Breakdowns/Malfunctions of Pollution Control Equipment in the Twin Cities Metropolitan Area Reported by Telephone to MPCA Division of Air Quality.

31. MPCA Division of Air Quality Breakdown Log.

32. Chart: Determining Opacity of Emissions Using (1) Six Minute Average; (2) Stopwatch; and, (3) One Minute Average.

33. Document from Consultant (North American Pemco, Inc.) identifying causes of minimum maintenance programs; benefits of O & M program; and vendors' contribution to poor equipment performance.

34. EPA's document: Visible Emission Regulations.

35. Water Quality's cost of preparation for operation and maintenance manuals.

B. Minnesota Power Supply Exhibits

1. George E. McVehil Professional Resume.

2. Regulations for the Control and Abatement of Air Pollution, Commonwealth of Virginia.

3. Northern States Power Company, Black Dog Generating Plant, Directive Entitled "Plant Regulatory Compliance."

Pollution Control Agency

Proposed Amendments to APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of 6 MCAR § 4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

Notice of Hearing

Notice is hereby given that a rule hearing in the above-entitled matter will be held in the Board Room of the Minnesota Pollution Control Agency, 1935 W. County Road B2, Roseville, Minnesota, on Monday, July 23, 1979, commencing at 9:30 a.m., and continuing on subsequent days if necessary until all persons have had an opportunity to be heard.

All interested or affected persons will have an opportunity to participate at the rule hearing. Statements may be made orally and written materials may be submitted at the hearing. In addition, written materials may be submitted by mail to Mr. Myron Greenberg, Hearing Examiner, Office of Hearing Examiners, 1745 University Avenue, St. Paul, Minnesota 55104, (612) 296-8109, either before or after the hearings until the record is closed. The record will remain open for five working days after the hearing ends, or for a longer period not to exceed twenty calendar days if ordered by the Hearing Examiner.

The proposed amendments to APC 4 would clarify that derating of boilers is a permissible means of achieving compliance with emission standards but that the actual heat input must be used in conducting performance tests. The proposed amendments to APC 21 would clarify how to calculate opacity and require annual reports from persons who emit more than 5 tons per year of lead. New rule 6 MCAR § 4.0020 requires owners or operators of certain facilities to prepare and implement abatement plans to avoid malfunctions and breakdowns of control equipment and process equipment and to follow certain procedures to reduce excess emission to the lowest practicable amount during malfunctions and breakdowns. Because malfunctions and breakdowns will be covered in 6 MCAR § 4.0020, the provisions in APC 21 relating to malfunctions and breakdowns are proposed to be deleted.

Notice: The proposed rules are subject to change as a result of the rule hearing process. The Agency therefore strongly urges those who are potentially affected in any manner by the substance of the proposed rules to participate in the rule hearing process.

The Agency's authority to promulgate the proposed rules is contained in Minn. Stat. §§ 116.07, subds. 2 and 4; 116.091, subd. 1; and 116.11 (1978).

Copies of the proposed rules are now available and one free copy may be obtained by writing to Mr. Edgar Crowley, P.E., Division of Air Quality, Minnesota Pollution Control Agency, 1935 West County Road B2, Roseville, Minnesota 55113. Additional copies will be available at the hearing at each location.

Notice: Any person may request notification of the date on which the Hearing Examiner's Report will be available, after which date the Agency may not take any final action on the rules for a period of five working days. Any person may request notification of the date on which the hearing record has been submitted (or resubmitted) to the Attorney General by the Agency. If you desire to be so notified, you may so indicate at the hearing. After the hearing, you may request notification by sending a written request to the Hearing Examiner (in the case of the Hearing Examiner's Report), or to the Agency (in the case of the Agency's submission or resubmission to the Attorney General).

Notice is hereby given that 25 days prior to the hearing, a Statement of Need and Reasonableness will be available for review at the Agency and at the Office of Hearing Examiners. This Statement of Need and Reasonableness will include a summary of all of the evidence which will be presented by the Agency at the Hearing justifying both the need for and the reasonableness of the proposed rules. Copies of the Statement of Need and Reasonableness may be obtained from the Office of Hearing Examiners at a minimal charge. Copies of the Statement of Need and Reasonableness are also available from Mr. Crowley.

Please be advised that Minn. Stat. ch. 10A (1978) requires each lobbyist to register with the Ethical Practices Board within five days after he commences lobbying. Lobbying includes attempting to influence rulemaking by communicating or urging others to communicate with public officials. A lobbyist is generally any individual who spends

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more than $250.00 per year for lobbying or any individual who is engaged for pay or authorized to spend money by another individual or association and who spends more than $250.00 per year or five hours per month lobbying. The statute in question provides certain exceptions. Questions should be directed to the Minnesota Ethical Practices Board, 41 State Office Building, St. Paul, Minnesota 55155, telephone (612) 296-5615.

June 1, 1979

Joseph F. Grinnell, Chairman
Terry Hoffman, Executive Director

Amendments as Proposed

APC 4 Standards of performance for fossil fuel burning indirect heating equipment.

A. Definitions. As used in this regulation, the following words shall have the meanings defined herein:

11. "Derating" means limitation of heat input and corresponding steam output capacity.

B. Determination of applicable standards of performance.

3. When different fossil fuels are burned simultaneously in any combination, the applicable sulfur dioxide standard shall be determined by proration using the following formula:

$$w = \frac{y(a) + z(b)}{x + y + z}$$

where:

w is the maximum allowable emissions of sulfur dioxide gases in lbs. per million BTU ~~(g/million cal)~~ (nanograms/joule), and

x is the percentage of total heat input derived from gaseous fossil fuel, and

y is the percentage of total heat input derived from liquid fossil fuel,

z is the percentage of total heat input derived from solid fossil fuel, and

a is the allowable SO_2 standard for liquid fossil fuels expressed in lbs per million BTU ~~(g/million cal)~~ (nanograms/joule), and

b is the allowable SO_2 standard for solid fossil fuels expressed in lbs per million BTU ~~(g/million cal)~~ (nanograms/joule).

4. When different fossil fuels are burned simultaneously in any combination, the ~~application~~ applicable nitrogen oxides standard shall be determined by proration using the following formula:

$$w = \frac{x(c) + y(a) + z(b)}{x + y + z}$$

where:

w, x, y and z mean the same as in the formula in paragraph 3. for determining the applicable sulfur dioxide standard; and

a is the allowable NO_x standard for liquid fossil fuels expressed in lbs per million BTU ~~(g/million cal)~~ (nanograms/joule); and

b is the allowable NO_x standard for solid fossil fuels expressed in lbs per million BTU ~~(g/million cal)~~ (nanograms/joule); and

c is the allowable NO_x standard for gaseous fossil fuels expressed in lbs per million BTU ~~(g/million cal)~~ (nanograms/joule).

H. Performance test procedures.

6. For each performance test, the emissions expressed in ~~g/million cal~~ nanograms/joule (lb/million BTU) shall be determined by the following procedure: ~~if the actual heat input is used:~~

$$E = CF\left(\frac{20.90}{20.9 - \%O_2}\right)$$

where:

a. E = pollutant emission, g/million cal nanograms/joule ~~(lb/million cal)~~ (lb/million BTU).

b. C = pollutant concentration, g/dscm (lb/dscf), determined by Methods 5, 6, or 7.

c. $\%O_2$ = oxygen content by volume (expressed as percent), dry basis. Percent oxygen shall be determined by using the integrated sampling procedures of Method 3 and by analyzing the sample with a continuous monitoring system, or with the Orsat analyzer. The sample shall be obtained as follows:

(1) For determination of sulfur dioxide and nitrogen oxides emissions, the oxygen sample shall be obtained at approximately the same point in the duct as used to

obtain the samples for Methods 6 and 7 determinations, respectively.

(2) For determination of particulate emissions, the oxygen sample shall be obtained simultaneously by traversing the duct at the same sampling location used for each run of Method 5, in accordance with Method 1, except that 12 sample points shall be used in all cases.

d. F = factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted. Values of F are given as follows:

(1) For anthracitic coal according to A.S.T.M. D388-66, F = ~~0.01139 dscm/10^1 cal~~ 2.723×10^{-7} dscm/j ~~(101.4 dscf/10^1 BTU)~~(10140 dscf/10^6 BTU).

(2) For subbituminous and bituminous coal according to A.S.T.M. D388-66, F = ~~0.01103 dscm/10^1 cal~~ 2.637×10^{-7} dscm/j ~~(98.2 dscf/10^1 BTU)~~(9820 dscf/10^6 BTU).

(3) For liquid fossil fuels including crude, residual, and distillate oils, F = ~~0.01036 dscm/10^1 cal~~ 2.476×10^{-7} dscm/j ~~(92.2 dscf/10^1 BTU)~~(9220 dscf/10^6 BTU).

(4) For gaseous fossil fuels including natural gas, propane, and butane, F = ~~0.00982 dscm/10^1 cal~~ 2.347×10^{-7} dscm/j ~~(87.4 dscf/10^1 BTU)~~(8740 dscf/10^6 BTU).

e. An owner or operator may use the following equation to determine an F factor (dscf/10^6 BTU) in lieu of the F factors specified by paragraph 6.d. of this section:

$$F = \frac{10^6\ [3.64(\%H) + 1.53(\%C) + 0.57(\%S) + 0.14(\%N) - 0.46(\%O)]}{GHV}$$

where:

(1) H, C, S, N and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent), respectively, as determined by ultimate analysis of the fuel fired, dry basis, using A.S.T.M. methods D3168-74 or D3176 (solid fuels) or D240-64(73) (liquid fuels) or computed from results using A.S.T.M. method D1137-53(70), D1945-64(73) or D1946-67(72) (gaseous fuels) as applicable.

(2) GHV is the gross heating value (BTU/lb dry basis).

f. When combinations of fuels are fired, the F factors determined by paragraph 6.d. or e. of this section shall be prorated in accordance with the following formula:

$$F = \frac{xF_1 + yF_2 + zF_3}{100}$$

where:

x = the percentage of total heat input derived from gaseous fossil fuel.

y = the percentage of total heat input derived from liquid fossil fuel.

z = the percentage of total heat input derived from solid fossil fuel.

F_1 = the value of F for gaseous fossil fuels according to subsection 6.d. or e. of this regulation.

F_2 = the value of F for liquid fossil fuels according to subsection 6.d. or e. of this regulation.

F_3 = the value of F for solid fossil fuels according to subsection 6.d. or e. of this regulation.

g. When combinations of fossil fuels are fired, the actual heat input, expressed in cal/hr (BTU/hr), shall be determined during each testing period. The rate of fuels burned during each testing period shall be determined by suitable methods and shall be confirmed by a material balance over the indirect heating system.

~~7. For each performance test, the emissions expressed in g/million cal (lb/million BTU) shall be determined by the following procedure if the rated heat input is used:~~

~~$E = \frac{Et}{Z}$~~

~~where:~~

~~E = pollutant emissions, g/million cal (lb/million BTU).~~

~~E_t = pollutant emission rate, g/hr (lb/hr), determined by Method 5.~~

~~Z = applicable heat input, million cal/hr (million BTU/hr).~~

7. When the emission factor cannot be calculated by means of the method outlined in section H.6., the actual heat input shall be used in calculating emission factors for

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all pollutants for new and existing indirect heating equipment.

~~8. The rated heat input shall be used only in determining the amount of particulate matter emitted from existing indirect heating equipment. The actual heat input shall be used in determining the amount of sulfur dioxide emitted from existing indirect heating equipment. The actual heat input shall be used in conducting performance tests for all pollutants for new indirect heating equipment.~~

8. The indirect heating equipment shall be operated during the performance test at ninety (90) percent or more of the rated heat input, or at 100 percent of peak operating load if an owner or operator intends to achieve compliance by derating.

I. Derate. The owner or operator of indirect heating equipment who elects to achieve compliance with an applicable standard of performance by derating shall:

1. Advise the Director of the Agency in writing of the intent to achieve compliance by derating and the capacity level at which the owner or operator intends to operate this equipment; and

2. Agree to a permit condition in the required operating permit that prohibits operation of the equipment in excess of the derate level; and

3. Install a boiler steam flow meter to continuously record, indicate, and integrate boiler steam flow, and shall:

(a) Submit a written report to the Director of the Agency within ten (10) days of any excess steam flow occurrence above the specified derate load.

(b) Use a six (6) minute averaging period in determining an excess above derate with corrections for deviations in steam pressure or temperature if required.

(c) Submit written yearly reports to the Director of the Agency confirming that no excesses have occurred during normal operations.

(d) Retain and make available for inspection by the Agency or its authorized employees or agents steam flow charts for a minimum period of two (2) years following the date of measurement.

4. An effective method of physical limitation of boiler load shall be submitted for approval by the Director of the Agency prior to authorization of a boiler derate. Such limitation may include but is not limited to, a tie-back signal from the steam flow meter to the combustion control system cutting back fuel input at the derate load, a maximum limit stop on the fuel input control drive or valve, or such other equivalent physical means.

APC 21 Emission sources monitoring, performance tests, reports ~~shutdowns and breakdowns.~~

(a) Continuous monitoring.

(9) Monitoring data. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to ~~one~~ six (6) minute averages ~~and for systems other than opacity to one hour averages respectively~~ except that other averaging periods may be used as specified in other regulations or limitations. ~~One minute o~~Opacity averages shall be calculated from all equally spaced consecutive fifteen second (or shorter) data points in the applicable averaging ~~four (4) or more equally spaced data points for each one minute~~ period. For systems other than opacity, the data shall be reduced to one hour averages, which shall be computed from four or more data points equally spaced over each one hour period.

Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. An arithmetic or integrated average of all data may be used. The data output of all continuous monitoring systems may be recorded in reduced or non-reduced form (e.g. ppm pollutant and percent O_2 or lb of pollutant/million BTU). All excess emissions shall be converted into units of the standard using the conversion procedures specified in the applicable regulation. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the regulation to specify the applicable standard (e.g. rounded to the nearest one percent opacity).

(b) Performance tests.

(7) Opacity.

~~(aa) Compliance with opacity standards in this part shall be determined by conducting observations in accordance with Reference Method 9.~~ Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity standards. The results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the owner or operator shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1, has been properly maintained

and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way.

~~(bb) The opacity standards set forth in a regulation shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.~~

(bb) Paragraph 2.5 of Method 9 (Data Reduction) is amended to read as follows, and this language shall be used whenever Method 9 is referenced in the Rules:

2.5 Data Reduction. Opacity shall be determined as an average of 24 consecutive observations recorded at 15 second intervals. Divide the observations recorded on the record sheet into sets of 24 consecutive observations. A set is composed of any 24 consecutive observations. Sets need not be consecutive in time and in no case shall sets overlap. For each set of 24 observations, calculate the average by summing the opacity of the 24 observations and dividing this sum by 24. Record the average opacities on a record sheet. In the event that an applicable standard of performance for opacity allows an excursion above the standard for a specified number of minutes in a one-hour period, determine the opacity as an average of 4 consecutive observations recorded at 15 second intervals. Determine the number of minutes in any one-hour period that the opacity exceeds a given opacity and record this information.

(c) Reports.

(1) ~~Excess Emissions.~~ Monitoring reports. Any owner or operator of an affected facility who is required to install a continuous monitoring system shall submit a written report ~~of excess emissions~~ to the Director for every calendar quarter in accordance with the following requirements:

~~(aa) The report shall be submitted to the Director of the Division of Air Quality of the Agency.~~

~~(bb) The report shall be submitted in accordance with the following requirements:~~

(aa) ~~(i)~~ The report shall be postmarked by the 30th day following the end of each calendar quarter; and

(bb) ~~(ii)~~ The report shall contain the following information:

~~1. The magnitude of excess emissions, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions.~~

~~2. Specific identification of each period of excess emissions that occurred during startups, shutdowns, and malfunctions of the affected facility, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.~~

~~3.~~ (i) The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

~~4.~~ (ii) When ~~no excess emissions have occurred or~~ the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

~~(3) Breakdowns. The owner or operator of an affected facility shall maintain records of the occurrence and duration of any startup, shutdown, breakdown, or malfunction in operation of the facility or any air pollution control equipment. The owner or operator shall maintain records of any periods of time in which a continuous monitoring system or monitoring device is inoperative. These records shall be retained for at least two years following the date of such shutdown, startup, breakdown, malfunction, or inoperation. These records shall be submitted to the Agency at such times as the Director may require.~~

(3) ~~(4)~~ Emission inventory. All owners or operators of emission facilities which emit more than 25 tons per year of particulate matter, sulfur oxides, nitrogen oxides, carbon monoxide, hydrocarbons, or 5 tons or more per year of lead in any form and calculated as metallic lead, shall submit on or before April 1st of each year an emission inventory report covering the previous calendar year.

~~(d) Shutdowns and Breakdowns~~

~~(1) Shutdown. The owner or operator of an emission facility shall notify the Director 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 any process equipment. At the time of notification, the owner or operator shall also notify the Director of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Director when the shutdown is over.~~

~~(2) Breakdown. The owner or operator of an emis-~~

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~~sion facility shall notify the Director 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 owner or operator shall also notify the Director of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Director when the breakdown is over.~~

~~(3) Operation Changes. In any shutdown or breakdown covered by subparagraph (1) or (2) above, the owner or operator shall immediately take all practical steps to modify operations to reduce the emission of air contaminants. The Director 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 regulation shall permit the operation of an affected facility which may cause an immediate public health hazard.~~

~~(4) Monitoring Equipment. The owner or operator of a continuous monitoring system or monitoring device shall notify the Director of any breakdown or malfunction of such system or device.~~

6 MCAR § 4.0020 Malfunctions and breakdowns.

A. Definitions. As used in this rule the following words shall have the meanings defined herein.

1. "Breakdown" means any sudden and unavoidable failure of air pollution control equipment or process equipment to operate in a normal and usual manner.

2. "Excess emissions" means an emission rate which exceeds any applicable standard of performance prescribed by Minnesota Pollution Control Agency Rules, or which violates any condition in a permit.

3. "Malfunction" means any failure of air pollution control equipment or process equipment to operate in a normal and usual manner which is caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable process equipment failure.

4. "Potential to emit" means the capability at maximum capacity to emit an air pollutant in the absence of air pollution control equipment. Air pollution control equipment includes control equipment which is not, aside from air pollution control laws and rules, vital to production of the source or to its normal operation. Annual potential shall be based on the maximum annual rated capacity of the source, unless the source is subject to enforceable permit conditions which limit the hours of operation. Enforceable permit conditions on the type or amount of materials combusted or processed may be used in determining the potential emission rate of a source.

5. "Process equipment" means any equipment which is a part of an emission facility which may upon malfunction or breakdown cause excess emissions to occur.

B. Startup and shutdown. Excess emissions during periods of routine startup or shutdown of an emission facility shall not be considered to be the result of a malfunction.

C. Standard for control equipment availability. No person shall operate an emission facility unless the air pollution control equipment is also in proper operation and is not bypassed, unless the control equipment is bypassed only to prevent damage to the control equipment or unless a bypass is specifically allowed in a permit. No person shall operate an emission facility unless the applicable control measures or process equipment for abatement of the emissions therefrom as specified in the permit application, permit, or applicable rule are being followed, or are in operation.

D. Enforcement. Excess emissions during malfunction or breakdown are a violation of the applicable limitation, and the owner or operator of the emission facility that is causing the excess emissions is subject to appropriate enforcement action.

E. Maintenance and abatement plan.

1. Plan. An owner or operator of an emission facility with potential to emit more than 500 tons per year from the emission facility shall prepare, implement, and submit a maintenance and abatement plan to prevent, detect, and correct malfunctions and breakdowns of control equipment and process equipment. The owner or operator of an emission facility with potential to emit less than or equal to 500 tons per year shall prepare, have available, and implement a maintenance and abatement plan, and may be required to submit the plan to the Agency upon request by the Director. Criteria upon which the Director will rely in determination of the need to submit a maintenance and abatement plan are (1) Excessive malfunctions and breakdowns resulting in excess emissions, (2) Failure to prepare maintenance and abatement plan, (3) Failure to do adequate maintenance and abatement, (4) Failure to report malfunctions and breakdowns, (5) Ambient air violations in the vicinity of and to which the source is contributing.

2. Contents of plan. The maintenance and abatement plan shall be in writing and shall as a minimum specify the following:

a. A complete preventive maintenance program for avoidance of excess emissions including identification of the individual(s) responsible for inspecting, maintaining, and repairing the process equipment and control equipment,

a description of the equipment that will be inspected, the frequency of these inspections or repairs, and an identification and quantities of the replacement parts which will be maintained in inventory for quick replacement.

b. An identification of operating conditions and outlet variables (such as opacity, grain loading, pollutant concentration, and pressure drop across collector) for the process equipment and 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.

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

d. A description of the procedures that will be taken in the event of a malfunction or breakdown in order to limit excess emissions as much as possible, including but not limited to reducing production.

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

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

g. Any other reasonable and pertinent information that may be required by the Director.

3. Records. The owner or operator of an emission facility who is required to prepare a maintenance and abatement plan shall maintain records to show that the plan is implemented. The records shall include at least, the times and dates of inspections, the inspection results, any recommendations, and any action taken as response to recommendations. The records shall be subject to inspection by the Agency and shall be maintained for two years following the date of such recording.

4. Submission of plan. The owner or operator of an emission facility who is required to submit a maintenance and abatement plan shall submit the plan as part of the permit application for the emission facility. The owner or operator of an emission facility who has an operating permit for the emission facility on the effective date of this rule shall submit the maintenance and abatement plan when a request for reissuance of the permit is submitted or upon request of the Director, whichever comes first.

5. Permit. No permit shall be issued or reissued unless the owner or operator who is required by this rule to do so, has submitted a maintenance and abatement plan that meets the requirements of this rule.

F. Breakdown or malfunction of control equipment or process equipment. The owner or operator of an emission facility where excess emissions occur as a direct result of a malfunction or breakdown of process equipment or control equipment shall:

1. Promptly begin an investigation to determine the cause(s) of the excess emissions;

2. Immediately initiate corrective procedures to achieve compliance with the applicable emission limitations and permit conditions as expeditiously as possible;

3. Notify the Agency immediately of the malfunction or breakdown;

4. Submit to the Agency in writing, within ten days after the beginning of the excess emissions, a report containing the following information:

a. Identification of the process equipment, stacks, instrumentation, and control equipment involved in the malfunction or breakdown;

b. Time and duration of the excess emissions;

c. Estimate of the amount of excess emissions;

d. Nature and causes of the malfunction or breakdown;

e. All remedial action taken to bring the emission facility into compliance with the applicable emission limitations, and measures taken to limit excess emission as much as possible.

5. The owner or operator of an emission facility who used remedial measures outlined in E.4.e. shall incorporate such remedial measures into the maintenance and abatement plan required in this rule.

G. Cessation of operation during malfunction or break-

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down. The Director may order cessation of operation of all or part of the entire emission facility if necessary to preserve public health and welfare. The Director shall consider quantity and quality of emission, what portion of the emission facility would have to be shut down, cause of breakdown or malfunction, length of time needed to correct, and other factors affecting the public and the owner or operator of the emission facility.

H. Revocation of operating permit. No person shall operate an emission facility which has an unreasonable malfunction or breakdown frequency of control equipment or process equipment. In addition to any other reason provided by law, the Director may modify or revoke the operating permit of the owner or operator of an emission facility upon, (1) failure to submit an acceptable maintenance and abatement plan, (2) failure to abide by the maintenance and abatement plan, (3) failure to notify the Agency of malfunctions or breakdowns, (4) excessive periods of excess emissions due to breakdowns or malfunctions.

STATE CONTRACTS

Pursuant to the provisions of Minn. Stat. § 16.098, subd. 3, an agency must make reasonable effort to publicize the availability of any consultant services contract or professional and technical services contract which has an estimated cost of over $2,000.

Department of Administration procedures require that notice of any consultant services contract or professional and technical services contract which has an estimated cost of over $10,000 be printed in the *State Register*. These procedures also require that the following information be included in the notice: name of contact person, agency name and address, description of project and tasks, cost estimate, and final submission date of completed contract proposal.



The American Fur Company became the most influential and the last large fur concern to operate in what was to become the Minnesota Territory. The company's warehouse at Mendota, shown in this 1860s photograph, was used to collect furs and store trade goods. Smaller posts were maintained at Big Stone, Cass, Gull, Leech, Mille Lacs, Red, and Sandy lakes and on the Crow Wing and Red rivers. (Courtesy of Minnesota Historical Society)

Department of Corrections Minnesota State Training School — Red Wing, MN

Notice of Availability of Contract for Psychological Evaluation Services

The program at the Minnesota State Training School requires the services of a licensed psychologist. This person will provide the written psychological evaluation — through testing, interviews, etc. — on up to a twice weekly basis for all new admissions to the institution, to retest selected youths based upon specific staff referral, plus limited staff training in the area of his/her expertise. Payment is $170.00 per 8 hour day. Annual cost is limited to $16,300.00.

Notice of Availability of Contract for Volunteer Services Coordinator

The program at the Minnesota State Training School requires the services of a volunteer coordinator. Position requires up to 50 hours per week for 10 months (September-June), and up to 15 hours per week for the two months of July and August. Responsibilities include the providing of professional volunteer services for both juvenile and adult clients at the institution through the recruiting and training of volunteers, plus the development of a coordinated scheduling of the volunteers to augment on-going programs.

STATE OF MINNESOTA

COUNTY OF RAMSEY

MINNESOTA POLLUTION CONTROL AGENCY

In the matter of Proposed Adoption of Amendments to Minn Rules APC 4, Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

NO. PCA-79-009-MG

STATEMENT OF NEED AND REASONABLENESS FOR AMENDMENTS TO MINN. RULE APC 4

I. INTRODUCTION

One of the subjects of this hearing is revisions to a rule of the Minnesota Pollution Control Agency (hereinafter "Agency"), Minnesota Rule APC 4, which will be codified as 6 MCAR §4.004, entitled "Standards of Performance for Fossil Fuel Burning Indirect Heating Equipment." The purpose of this hearing is to provide public input and comment on the revisions prior to their adoption. Proposed revisions to Minnesota Rule APC 4 define and provide a procedure for derating (i.e. reducing the capacity of) fossil fuel burning equipment used for indirect heating. Derating of this equipment will allow it to be operated in compliance with air pollution standards. These amendments are being promulgated pursuant to the Agency's authority specified in Minn. Stat. §116.07 subd. 4 (1978)

This document constitutes the Statement of Need and Reasonableness prepared by the Agency in support of the proposed revisions to Minn. Rule APC 4. This statement is divided into three main sections: Exhibits and Witnesses, Need for Proposed Revisions to Minn. Rule APC 4, and Reasonableness of Proposed

Revisions to Minn. Rule APC 4.

II. EXHIBITS AND WITNESSES

In support of the need for and reasonableness of proposed revisions to Minn. Rule APC 4, the Agency intends to introduce the following documents into evidence:

1. Proposed revisions to Minn. Rule APC 4.
2. 40 C.F.R. §§60.40 - 60.46 (1973) "Standards of Performance for Fossil-Fuel Fired Steam Generators."
3. Cleveland Controls, Inc., "An Introduction to our Complete Line of Quality Engineered Controls and Instruments." A pamphlet showing pictures of a steam flow meter ("Series 6000 Electronic Recorder") and two control systems including such meters ("Relay Logic Burner Management," and "Local Boiler Control Panel").

The Agency may call one or more of the following witnesses to testify on proposed revisions to APC 4:

1. Bernard E. Gallagher, P.E., Senior Engineer, Engineering Section, Division of Air Quality, Minnesota Pollution Control Agency, who will testify as to the need for and reasonableness of the proposed revisions to Minn. Rule APC 4 as presented in this statement.

2. E.I. Crowley, P.E., Senior Engineer, Engineering Section Division of Air Quality, Minnesota Pollution Control Agency, who will address the need for and reasonableness of the proposed revisions, including compliance testing and emission rate calculations.

3. Steven Rosenthal, Environmental Engineer, Air Programs Branch, U.S. Environmental Protection Agency, or his designee, who will address the U.S. Environmental Protection Agency's requirement that derates be implemented through a physical limitation of boiler capacity and the general need for and reasonableness of the proposed revisions to Minn. Rule APC 4.

III. NEED FOR PROPOSED REVISIONS TO MINNESOTA RULE APC 4

A. Technical Explanation of Need for Revisions

This section introduces technical terms to be used in this statement and in testimony to be given at the hearing. It also provides a technical explanation of the factors contributing to the need for the proposed revisions to Minn. Rule APC 4.

Indirect heating equipment means a furnace, a boiler, or other unit of combustion equipment used to produce steam, hot air, hot water, or other hot liquid, gas, or solid, where the products of combustion do not have direct contact with the heated medium. See Minn. Rule APC 4.A.7. Fossil fuel means natural gas, petroleum, coal, wood, peat, or any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat. See Minn. Rule APC 4.A.5.

The heat input of a fuel combustion device, such as a boiler, is the rate at which heat is generated by the burning of fuel. Heat input, often measured in BTUs per hour, is the product of the heat content of the fuel (e.g. BTUs per pound of coal) times the fuel firing rate (e.g. pounds per hour). The heat input can also be calculated from the heat output and thermal efficiency of the device.

The rated heat input of a boiler or other indirect heating device is the maximum continuous heat input which the boiler can receive for sustained periods of time without suffering damage. The rated heat input, or rated capacity, is determined by the equipment manufacturer.

Most combustion devices can be operated over a range of heat inputs which are below the rated capacity of the device. This capability allows the firing rate of these devices to be determined in response to the demands for usable heat placed on them by the source operator. These demands, often highly cyclic in nature, include heat for space heating, electricity generation, and industrial processes.

Boiler particulate emission regulations are expressed in terms of pounds of particulate matter per million BTU of heat input. For many boilers, the actual particulate emission factor expressed in pounds per million BTU, increases as the firing rate increases. These variations in emission factors are dependent upon the operating efficiency and characteristics of each boiler. This relationship between emission factors and operating rates can lead to situations where a boiler exceeds the allowable

emission standards when operated at its rated capacity but comes into compliance when the fuel firing rate is reduced to a sub-capacity level. Obviously, this compliance option is only feasible where the full rated capacity of the boiler is not required by the source owner.

Some boilers are not currently operated at full rated capacity. Excess capacity may have been needed when the boiler was installed or may have been purchased in expectation of growth that didn't occur. Therefore, the owner or operator may wish to guarantee to the Agency that the excess capacity will not be used in order to avoid the installation of emission control equipment which would be necessary only at higher heat inputs than will be used. Agreeing to this guarantee to curtail heat input is called derating the boiler.

B. Factors Contributing to Need

The need for the proposed revisions arises from the following factors:

1. Derating is an acceptable, economical method of achieving compliance with emission standards.

2. The use of rated heat input to calculate emission rates gives erroneous results when a boiler is operating at a derated capacity.

3. The positive air quality impacts of adequately controlled derates.

Each of these factors will be addressed in turn.

1. Derating is an acceptable, economical method of achieving

compliance with emission standards.

There is a need to define and provide a procedure for derating indirect heating equipment in order to equitably and efficiently deal with requests from those who wish to derate boilers.

A few sources have requested permits to operate at derated loads, and in certain cases such permits have been granted. However, because existing Minnesota Air Pollution Control rules do not define derating, all sources which could benefit from derating may not be aware that it is an option. Moreover, because the rules do not specify procedures for using this option, the Agency must develop permit terms for each source individually.

The proposed revisions to Minn. Rule APC 4 are needed in order to ensure that the option of derating is available to all and that the definitions and requirements are clear and consistent.

In general, derating can enable some boilers to be operated in compliance with emission control regulations without the installation of expensive high efficiency emission control equipment such as baghouse collecters and electrostatic precipitators. This equipment, depending on boiler size, generally costs between one and three million dollars.

Derating may be particularly advantageous to owners of older boilers. Rather than purchasing expensive pollution control equipment or a new boiler, the owner may wish to operate the old

equipment at a reduced capacity. Thus, the useful life of the equipment would be extended while emission standards are met in relatively inexpensive manner.

Based on various preliminary contacts, the Agency estimates that about 10 to 15 boiler installations in Minnesota could benefit from derating to achieve compliance with particulate emission standards. The Agency estimates that the total potential savings to these industries and utilities could be around 25 million dollars. Because pollution control equipment requires energy to operate, the option of derating will also reduce energy costs.

Therefore, economic considerations indicate a need to amend existing Agency rules to provide for achieving compliance with particulate emission standards through derating.

2. The use of rated heat input to calculate emission rates gives erroneous results when a boiler is operating at a derated capacity.

As written, Minn. Rule APC 4 may allow sources to make erroneous calculations indicating that their emissions comply with standards when in fact they exceed standards. This problem will be explained further in the reasonableness part of this statement, but a brief description will be presented here to indicate the need for the proposed revisions.

Section H of the present Minn. Rule APC 4 specifies procedures for computing emission rates using the results of

performance tests, i.e., tests measuring the amount of particulate emitted in measured amounts of exhaust gas. Section H.6 specifies a technically sound procedure for calculating emissions using the actual heat input at the time the test was made. Existing Sections H.7 and H.8 specify a procedure wherein the rated heat input is used to calculate particulate emission rates for existing indirect heating equipment without regard to the actual heat input during the performance test. This procedure is only technically sound when the performance tests are conducted at rated capacity, such that the actual heat input is also the rated heat input. When the procedure in Section H.7 and H.8 is applied to performance tests conducted below the rated heat input, the resulting emission factors are understated. This situation was tolerable in the past because all performance tests were conducted at or near rated heat input. However, problems, and the need for the proposed revisions to Minn. Rule APC 4, arose recently when performance tests for derated boilers were conducted at heat input levels significantly below the rated heat input of the device. The proposed revisions to Minn. Rule APC 4 are needed to correct the technical errors in the present rule to ensure that emission rates are correctly calculated for all indirect heating equipment, especially equipment that has been derated.

3. The Positive Air Quality Impacts of Adequately Controlled Derates

The proposed revisions to Minn. Rule APC 4 will help ensure that the emission rate limits contained in Minn. Rule APC 4 are met, thus having a positive impact on air quality.

The proposed monitoring, reporting, and limiting requirements are needed to prevent derated boilers from being operated in excess of the derated heat input limits. Operating above the actual, tested heat input would cause higher emission rates, in pounds per hour, increasing the ambient particulate levels. Such increases in ambient particulate concentrations would generally occur for short term (24-hour) averaging periods if the heat input excess was related to short term high load and heat demands, such as might occur on cold winter days. Thus, the proposed revisions are needed to prevent the increases in ambient particulate concentrations that would occur if a boiler were operated above the tested heat input.

As further discussed in Section IV below, computing an emission factor (in pounds per million BTU) using particulate emissions measured while operating below rated capacity, divided by rated heat input, gives a false low emission rate. The proposed revisions to Minn. Rule APC 4 are needed to clarify the intent of the rule to prevent misleading computations to demonstrate compliance with emission standards. Preventing the use of such computations will ensure that the intended air quality benefits of Minn. Rule APC 4 are realized.

IV. REASONABLENESS OF PROPOSED REVISION TO MINNESOTA RULE APC 4

A. Introduction

The proposed revisions relate to achieving particulate compliance by means of derating. The proposed revisions define derating, specify compliance testing loads to establish the extent of derating, specify acceptable means of load monitoring, and require the physical limitation of subsequent boiler operation to the derated load. The proposed revisions also replace non-standard metric (SI) units in existing formulas with officially recognized metric units, making the formulas compatible with those contained in federal regulations and simplifying the calculations. See e.g. 40 C.F.R. §60.44 (1978).

The proposed revisions are reasonable because they define and establish requirements and procedures which enable some sources to achieve particulate emission standards without making expenditures for emission control equipment, and because they prevent incorrect calculations of emission rates. The proposed revisions are further reasonable because the monitoring requirement employs a steam flow recorder which most plants already have, and the requirement for physical limitation in most cases requires only minor modifications to existing metering and/or control equipment.

B. Definition of Derating Is Reasonable

Derating is defined as the limitation of heat input and corresponding steam output capacity. Derating is defined in order to specify and clarify the meaning and usage of the term.

The definition of derating is reasonable because it is an accepted use of the term, and is consistent with the definition of "rated heat input" currently used in Minn. Rule APC 4.

C. Performance Testing and Calculation of Emission Rates ~~Is~~ Are Reasonable

The proposed revisions replace existing Sections H.7. and 8. with proposed Section H.7. Existing Section H.7 contains a formula for calculating emissions using rated heat input. Existing Section H.8 restricts the use of rated heat input (as specified in section H.7) to computations of particulate emissions from existing indirect heating equipment. The proposed section H.7 requires that emissions be calculated using the actual heat input maintained during a performance test. Thus, the use of rated heat input in emission calculations would be explicitly limited to those cases where performance tests are conducted at rated heat input. The proposed section H.8 requires that performance tests be conducted at 90 percent or more of rated heat input or, if a derate is proposed, at the proposed maximum derated heat input.

It is reasonable to replace existing sections H.7 and H.8 with the proposed section H.7 because as written the existing rule allows erroneous demonstrations of compliance. In order to reasonably and fairly implement a permitting program recognizing derates, the methods specified for calculating resulting emission factors must be specific so that accurate emission factors are

calculated. Accordingly, the proposed revisions eliminate the possibility of using rated heat input when calculating particulate emissions from data obtained at loads less than rated capacity. Using rated rather than actual heat input in such cases is mathematically incorrect and results in a specious emission factor.

For example, if a boiler with a rated heat input of 400 million BTUs per hour is derated by 50 percent to 200 million BTU per hour, and the performance test at the derated heat input shows particulate emission rate of 100 pounds per hour, then the correct emission factor is:

$$\frac{100 \text{ lbs./hr.}}{200 \times 10^6 \text{ BTU/hr.}} = 0.50 \text{ lbs./}10^6 \text{ BTU}$$

If, however, the rated heat input is used in the calculations as permitted by the current wording of APC 4, then the emission factor is:

$$\frac{100 \text{ lbs./hr.}}{400 \times 10^6 \text{ BTU/hr.}} = 0.25 \text{ lbs./}10^6 \text{ BTU}$$

Thus the existing rule allows the calculation of an emission factor in this example which is only 50 percent of the correct value.

It is particularly reasonable to require correct calculations when derating is officially recognized as an emission control option and compliance tests will be run well below rated

capacity. In the past when derates were not officially recognized in the regulation and compliance testing was conducted at loads of 90 to 100 percent of rated value, the resulting error was relatively minor. However, if the test is conducted below 90 percent, the resulting error becomes significant. With the recognition of derating by the regulation, it becomes not only reasonable, but imperative to require calculation of true actual emission rates. Derates can often restrict usable boiler capacity to 50 percent of rating or maximum steam generating capacity, as shown in the previous example. In such cases allowing non-complying sources to calculate emission rates using rated heat input rather than actual, would result in erroneously low emission rates.

It is reasonable to require performance tests for installations which are not derated to be conducted at 90 percent or more of rated heat input because it has been the established Agency practice for over three years and has met with general acceptance. Also, this procedure allows the Agency to determine the extent of the emissions when the boiler is at or near its peak operating load. These data are important for evaluating impacts on ambient air. Theoretically, 100 percent of rated load would represent the ideal test condition, but it is difficult to obtain and sustain over test periods of up to three hours for many industrial and heating plants.

Requiring performance tests at 100 percent of proposed peak heat input is reasonable for derates because sustained operation at this level is feasible during the test period, and can be

expected during routine operations. In addition, this level, which represents the largest actual emission rate, in pounds per hour, (and probably also in pounds per million BTU), for the derated installation, is most appropriate for determining compliance with allowable emission standards.

D. Revision of Metric Units Is Reasonable

In Section B-3, B-4, and H-6 metric units are revised in order to standardize them with those used in 40 C.F.R. Part 60 (1978). Specifically, grams per million calories are changed to equivalent nanograms per joule. These changes are reasonable because they do not change the emission rates or standards obtained from the specified calculations. These changes are also reasonable because they result in the same units and constants being employed in Minn. Rule APC 4 as are being used in federal regulations. This is reasonable because it makes the rule easier to interpret, with one set of calculations meeting the requirements of both state and federal regulations.

E. Requiring Assurances of Compliance Is Reasonable

Means of monitoring, reporting, and limiting subsequent boiler operation to the designated derated load value are specified in a new Section I.1. - I.4. This includes the installation of a steam flow recorder to document the operating rate of the boiler, notification of the Agency when excess steam

flows occur, annual verification that the derating limitations have been complied with, and 2-year retention of the steam flow data.

The proposed monitoring and physical limitation of fuel input requirements are reasonable because the basic equipment required to implement these requirements generally exists in most plants prior to derate considerations. Monitoring for load derate compliance requires a steam flow recording meter. This is a reasonable requirement as most boilers of the size and fuel burning types interested in derating already have steam flow recorders for other reasons such as efficiency and safety in normal operation.

The Cleveland Controls Inc. bulletin to be submitted as evidence shows pictures of typical steam flow meters found on boilers. Pictures in this bulletin illustrate circular chart telemeter type steam flow meters seperately and panel mounted.

The proposed reporting requirements are reasonable because the information is needed to verify compliance with the rule as proposed, and because a minimum amount of information is required to be submitted if the steam flow recorder chart records are available to the Agency on request. The reporting provisions require written notification of the Agency within ten days of any steam flow rate which indicates an exceedance of the maximum allowable derate heat input, and an annual report to the Agency confirming that no excesses have occurred during normal operations. The proposed regulation does not require submittal of the actual steam flow charts, only their retention for two

years.

Requiring that the boiler load be physically limited from exceeding the derated value is reasonable because it prevents substantial and sustained operation above permitted levels which encourages plant management to prepare plans for handling load peaks on their boilers. In the absence of physical load limits, source operators might accidentally or deliberately exceed the derated level of the boiler during a load peak. The physical limitations also discourage plant management from applying for a derated operating permit when they expect that the resulting derated capacity will frequently be inadequate.

In addition, the requirement of a physical boiler load limitation is reasonable because the methods suggested in the proposed revisions to Minnesota Rule APC 4 require only minor additions or modifications to existing combustion control equipment such as fuel input control valves and drives, steam flow meters, and control relays. The proposed physical limitation requirement is also reasonable in that it allows source owners to propose other methods of complying with the physical boiler load limitation requirements.

DATE: June 25, 1979

Terry Hoffman
Executive Director

CHAPTER FOUR: APC 4

APC 4 Standards of Performance for Fossil Fuel Burning Indirect Heating Equipment.

A. Definitions. As used in this regulation, the following words shall have the meanings defined herein:

1. "Actual heat input" means the number of BTU per hour (cal/hr) determined by multiplying the gross heating value of the fuel by the rate of fuel burned.

2. "Coal refuse" means waste-products of coal mining, cleaning, and coal preparation operations (e.g. culm, gob, etc.) containing coal, matrix material, clay, and other organic and inorganic material.

3. "Direct heating equipment" means a furnace, kiln, dryer, or other combustion equipment used in the burning of a fossil fuel for the purpose of processing a material where the products of combustion have direct contact with the heated material.

4. "Distillate oil" means grades of oils known as No. 1 & No. 2, as defined in the A.S.T.M. D 396 (1973).

5. "Fossil fuel" means natural gas, petroleum, coal, wood, peat, and any form of solid, liquid, or gaseous fuel derived from such materials for the purpose of creating useful heat.

6. "Gross heating value" means the gross calorific value (cal/g or BTU/lb) of the fuel combusted as determined by A.S.T.M. test methods D 2015-66(72) for solid fuels; D 1826-64(70) for gaseous fuels, and D 240-64 (73) for liquid fuels.

7. "Indirect heating equipment" means a furnace, a boiler or other unit of combustion equipment used in the process of burning fossil fuel for the purpose of producing steam, hot water, hot air, or other hot liquid, gas, or solid, where the products of combustion do not have direct contact with the heated medium.

8. "Rated heat input" means the number of BTU per hour (cal/hr) which the manufacturer has determined to be the continuous rated capability of the indirect heating equipment, or, where the rated heat input is not specified by the manufacturer, the number of BTU per hour (cal/hr) determined by dividing the rated heat output by the overall thermal efficiency.

9. "Residual oil" means grades of oils known as No. 4, No. 5 (Light), No. 5 (Heavy), and No. 6, as listed in A.S.T.M. D 396 (1973).

10. "Steam generating unit" means indirect heating equipment used to produce steam.

B. Determination of Applicable Standards of Performance.

1. This regulation shall apply to indirect heating equipment for which a standard of performance has not been promulgated in a specific regulation.

2. The applicable standards of performance in Table I or Table II shall be determined by using the rated heat input of the specific indirect heating equipment and the total rated heat inputs of all indirect heating equipment and all direct heating equipment of one owner or operator at that particular location.

3. When different fossil fuels are burned simultaneously in any combination, the applicable sulfur dioxide standard shall be determined by proration using the following formula:

$$w = \frac{y(a) + z(b)}{x + y + z}$$

where:

w is the maximum allowable emissions of sulfur dioxide gases in lbs. per million BTU (g/million cal), and

x is the percentage of total heat input derived from gaseous fossil fuel, and

y is the percentage of total heat input derived from liquid fossil fuel,

z is the percentage of total heat input derived from solid fossil fuel, and

a is the allowable SO_2 standard for liquid fossil fuels expressed in lbs per million BTU (g/million cal), and

b is the allowable SO_2 standard for solid fossil fuels expressed in lbs per million BTU (g/million cal).

4. When different fossil fuels are burned simultaneously in any combination, the application nitrogen oxides standard shall be determined by proration using the following formula:

$$w = \frac{x(c) + y(a) + z(b)}{x + y + z}$$

where:

w, x, y and z mean the same as in the formula in paragraph 3. for determining the applicable sulfur dioxide standard; and

a is the allowable NO_X standard for liquid fossil fuels expressed in lbs per million BTU (g/million cal); and

b is the allowable NO_X standard for solid fossil fuels expressed in lbs per million BTU (g/million cal); and

c is the allowable NO_X standard for gaseous fossil fuels expressed in lbs per million BTU (g/million cal).

5. When lignite or a solid fossil fuel containing 25 percent by weight, or more, of coal refuse is burned in combination with gaseous, liquid, or other solid fossil fuel, the standard of performance for nitrogen oxides shall not apply.

C. Standards of Performance for Existing Indirect Heating Equipment.

1. No owner or operator of indirect heating equipment shall cause to be discharged into the atmosphere from said equipment any gases which contain particulate matter or sulfur dioxide in excess of the standards of performance shown in Table I.

2. No owner or operator of indirect heating equipment shall cause to be discharged into the atmosphere from said equipment any gases which exhibit greater than 20% opacity; except that a maximum of 60% opacity shall

be permissible for four (4) minutes in any 60 minute period and that a maximum of 40% opacity shall be permissible for four (4) additional minutes in any 60 minute period.

D. Standards of Performance for New Indirect Heating Equipment.

1. No owner or operator of new indirect heating equipment shall cause to be discharged into the atmosphere from said equipment any gases which contain particulate matter, sulfur dioxide or nitrogen oxides in excess of the standards of performance shown in Table II.

2. No owner or operator of new indirect heating equipment or greater than 250 million BTU per hour rated heat input shall cause to be discharged into the atmosphere from said equipment any gases which exhibit greater than 20% opacity; except that a maximum of 40% opacity shall be permissible for not more than two (2) minutes in any 60 minute period.

3. No owner or operator of new indirect heating equipment of 250 million BTU per hour or less rated heat input shall cause to be discharged into the atmosphere from said equipment any gases which exhibit greater than 20% opacity; except that a maximum of 60% opacity shall be permissible for four (4) minutes in any 60 minute period and that a maximum of 40% opacity shall be permissible for four (4) additional minutes in any 60 minute period.

E. Allowance for Stack Height for Indirect Heating Equipment.

1. The owner or operator of any indirect heating equipment shall determine and install a stack of such height that will not cause pollutant concentrations at ground levels to exceed any applicable ambient air quality standard or regulation.

2. The determination of the ground level concentrations shall be based upon applicable dispersion calculations approved by the Agency.

F. High Heating Value. The High Heating Value of a fossil fuel shall mean the same as the Gross Heating Value.

G. Performance Test Methods. Unless another method is approved by the Director, any person required to submit performance tests for indirect heating equipment shall utilize the following test methods:

1. Method 1 for selection of sampling site and sample traverses.

2. Method 3 for gas analysis.

3. Method 5 for concentration of particulate matter and the associated moisture content.

4. Method 6 for concentration of SO_2.

5. Method 7 for concentration of NO_X.

6. Method 9 for visual determination of opacity.

H. Performance Test Procedures.

1. The sampling site, as selected by Method 1, shall be the same for each pollutant during a performance test.

2. For Method 5, the sampling time for each run shall be at least 60 minutes and the minimum sampling volume shall be 0.85 dscm (30 dscf) except that smaller sampling times or volumes, when necessitated by process variables or other factors, may be approved by the Agency. The probe and filter holder heating systems in the sampling train shall be set to provide a gas temperature between 120°C and 160°C (250°F and 320°F).

3. For Methods 6 and 7, the sampling point in the duct shall be at the center of the cross section or at a point no closer to the walls than 1 m (3.28 ft.). For Method 6 the sample shall be extracted at a rate proportional to the gas velocity at the sampling point.

4. For Method 6, the minimum sampling time shall be 20 minutes and the minimum sampling volume 0.02 dscm (0.71 dscf) for each sample. The arithmetic mean of two samples shall constitute one run. Samples shall be taken at approximately 30-minute intervals.

5. For Method 7, each run shall consist of at least four grab samples taken at approximately 15-minute intervals. The arithmetic mean of the samples shall constitute the run value.

6. For each performance test, the emissions expressed in g/million cal (lb/million BTU) shall be determined by the following procedure if the actual heat input is used:

$$E = CF\left(\frac{20.90}{20.9-\%O_2}\right)$$

where:

a. E = pollutant emission, g/million cal (lb/million BTU).

b. C = pollutant concentration, g/dscm (lb/dscf), determined by Methods 5, 6 or 7.

c. $\%O_2$ = oxygen content by volume (expressed as percent), dry basis. Percent oxygen shall be determined by using the integrated sampling procedures of Method 3 and by analyzing the sample with a continuous monitoring system, or with the Orsat analyzer. The sample shall be obtained as follows:

(1) For determination of sulfur dioxide and nitrogen oxides emissions, the oxygen sample shall be obtained at approximately the same point in the duct as used to obtain the samples for Methods 6 and 7 determinations, respectively.

(2) For determination of particulate emissions, the oxygen sample shall be obtained simultaneously by traversing the duct at the same sampling location used for each run of Method 5, in accordance with Method 1, except that 12 sample points shall be used in all cases.

d. F = factor representing a ratio of the volume of dry flue gases generated to the calorific value of the fuel combusted. Values of F are given as follows:

(1) For anthracitic coal according to A.S.T.M. D388-66, F = 0.01139 dscm/10^4 cal (101.4 dscf/10^4 BTU).

(2) For subbituminous and bituminous coal according to A.S.T.M. D388-66, F = 0.01103 dscm/10^4 cal (98.2 dscf/10^4 BTU).

(3) For liquid fossil fuels including crude, residual, and distillate oils, F = 0.01036 dscm/10^4 cal (92.2 dscf/10^4 BTU).

(4) For gaseous fossil fuels including natural gas, propane, and butane, F = 0.00982 dscm/10^4 cal (87.4 dscf/10^4 BTU).

e. An owner or operator may use the following equation to determine an F factor (dscf/10^4 BTU) in lieu of the F factors specified by paragraph 6.d. of this section:

$$F = \frac{10^6\ 3.64(\%H) + 1.53(\%C) + 0.57(\%S) + .14(\%N) - .46(\%O)}{GHV}$$

where:

(1) H, C, S, N and O are content by weight of hydrogen, carbon, sulfur, nitrogen, and oxygen (expressed as percent), respectively, as determined by ultimate analysis of the fuel fired, dry basis, using A.S.T.M. methods D3178-74 or D3176 (solid fuels) or D240-64(73) (liquid fuels) or computed from results using A.S.T.M. method D1137-53(70), D1945-64(73) or D1946-67(72) (gaseous fuels) as applicable.

(2) GHV is the gross heating value.

f. When combinations of fuels are fired, the F factors determined by paragraph 6.d. or e. of this section shall be prorated in accordance with the following formula:

$$F = \frac{xF_1 + yF_2 + zF_3}{100}$$

where:

x = the percentage of total heat input derived from gaseous fossil fuel.

y = the percentage of total heat input derived from liquid fossil fuel.

z = the percentage of total heat input derived from solid fossil fuel.

F_1 = the value of F for gaseous fossil fuels according to subsection 6.d. or e. of this regulation.

F_2 = the value of F for liquid fossil fuels according to subsection 6.d. or e. of this regulation.

F_3 = the value of F for solid fossil fuels according to subsection 6.d. or e. of this regulation.

g. When combinations of fossil fuels are fired, the actual heat input, expressed in cal/hr (BTU/hr), shall be determined during each testing period. The rate of fuels burned during each testing period shall be determined by suitable methods and shall be confirmed by a material balance over the indirect heating system.

7. For each performance test, the emissions expressed in g/million cal (lb/million BTU) shall be determined by the following procedure if the rated heat input is used:

$$E = \frac{E_t}{Z}$$

where:

E = pollutant emissions, g/million cal (lb/million BTU).

E_t = pollutant emission rate, g/hr (lb/hr), determined by Method 5.

Z = applicable heat input, million cal/hr (million BTU/hr).

8. The rated heat input shall be used only in determining the amount of particulate matter emitted from existing indirect heating equipment. The actual heat input shall be used in determining the amount of sulfur dioxide emitted from existing indirect heating equipment. The actual heat input shall be used in conducting performance tests for all pollutants for new indirect heating equipment.

TABLE I — EXISTING SOURCES

RATED HEAT INPUT OF THE INDIRECT HEATING EQUIPMENT Million BTU/Hr.	RATED HEAT INPUT OF ALL DIRECT AND INDIRECT HEATING EQUIPMENT AT THE PARTICULAR LOCATION Million BTU/Hr.	EMISSION LIMITATIONS LBS. PER MILLION BTU		
		Particulate Matter All Fuels	SO_2 Solid Fuels	SO_2 Liquid Fuels
A. Within Minneapolis-St. Paul Air Quality Control Region				
Greater than 250	Greater than 250	0.4	3.0	1.6
Less than or equal to 250	Greater than 250	0.4	3.0	1.6
Less than or equal to 250	Less than or equal to 250	0.4	4.0	2.0
B. Within the City of Duluth				
Greater than 250	Greater than 250	0.4	4.0	2.0
Less than or equal to 250	Greater than 250	0.4	4.0	2.0
Less than or equal to 250	Less than or equal to 250	0.4	N.A.	N.A.
C. Outside Minneapolis-St. Paul Air Quality Control Region and Outside the City of Duluth				
Greater than 250	Greater than 250	0.6	4.0	2.0
Less than or equal to 250	Greater than 250	0.6	4.0	2.0
Less than or equal to 250	Less than or equal to 250	0.6	N.A.	N.A.

* N.A. — Not applicable

TABLE II — NEW SOURCES

RATED HEAT INPUT OF THE INDIRECT HEATING EQUIPMENT Million BTU/Hr.	RATED HEAT INPUT OF ALL DIRECT AND INDIRECT HEATING EQUIPMENT AT THE PARTICULAR LOCATION Million BTU/Hr.	EMISSION LIMITATIONS LBS. PER MILLION BTU					
		Particulate Matter All Fuels	SO_2 Solid Fuels	SO_2 Liquid Fuels	NO_x* Solid Fuels	NO_x* Gaseous Fuels	NO_x* Liquid Fuels
A. Within Minneapolis-St. Paul Air Quality Control Region							
Greater than 250	Greater than 250	0.1	1.2	0.8	0.7	0.2	0.3
Greater than 100 but less than or equal to 250	Greater than 250	0.1	3.0	1.6	N.A.**	N.A.	N.A.
Less than or equal to 100	Greater than 250	0.4	3.0	1.6	N.A.	N.A.	N.A.
Less than or equal to 250	Less than or equal to 250	0.4	4.0	2.0	N.A.	N.A.	N.A.
B. Within the City of Duluth							
Greater than 250	Greater than 250	0.1	1.2	0.8	0.7	0.2	0.3
Greater than 100 but less less than or equal to 250	Greater than 250	0.1	4.0	2.0	N.A.	N.A.	N.A.
Less than or equal to 100	Greater than 250	0.4	4.0	2.0	N.A.	N.A.	N.A.
Less than or equal to 250	Less than or equal to 250	0.4	N.A.	N.A.	N.A.	N.A.	N.A.
C. Outside Minneapolis-St. Paul Air Quality Control Region and Outside the City of Duluth							
Greater than 250	Greater than 250	0.1	1.2	0.8	0.7	0.2	0.3
Less than or equal to 250	Greater than 250	0.4	4.0	2.0	N.A.	N.A.	N.A.
Less than or equal to 250	Less than or equal to 250	0.4	N.A.	N.A.	N.A.	N.A.	N.A.

* NO_x expressed as NO_2
**N.A. — Not applicable

STATE OF MINNESOTA

COUNTY OF RAMSEY

MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

No. PCA-79-009-MG

STATEMENT OF NEED AND REASONABLENESS FOR AMENDMENTS TO MINN. RULE APC 21

I. INTRODUCTION

One of the subjects of this hearing is proposed amendments to a rule of the Minnesota Pollution Control Agency (hereinafter "Agency"), Minn. Rule APC 21, entitled Emission Source Monitoring, Performance Tests, Reports, Shutdowns and Breakdowns. These proposed amendments clarify how to calculate opacity and require annual reports from persons who emit more than five tons per year of lead. The provisions in APC 21 relating to shutdowns and breakdowns are proposed to be deleted. These amendments are being promulgated pursuant to the Agency's authority specified in Minn. Stat. §116.07 subd. 4 (1978).

This document constitutes the Statement of Need and Reasonableness prepared by the Agency in support of the proposed amendments to APC 21. This statement is divided into three main sections: exhibits and witnesses, the need for amendments regarding opacity determinations and reports on lead emissions, and the reasonableness of these particular amendments.

II. EXHIBITS AND WITNESSES

In support of the need and reasonableness of the proposed amendments to APC 21, the Agency intends to introduce the

following documents into evidence at the hearing:

1. Proposed Amendments to APC 21.
2. Proposed Rule 6 MCAR §4.0020 (Malfunctions and Breakdowns).
3. Minnesota Statutes §116.07 subd. 4 (1978).
4. Various opacity standards of the Agency including Minn. Rules APC 4, 22, 23, and 24.
5. 40 C.F.R. Part 60, Appendix A - Reference Method 9 - Visual Determination of the Opacity of Emissions from Stationary Sources (1978).
6. 43 Fed. Reg. 46245 - 46271 (Oct. 5, 1978).
7. A copy of the court's opinion in Donner Hanna Coke Corporation v. Costle, 12 ERC 1780 (W.D.N.Y. 1979).

The Agency intends to have Mr. Edgar Crowley, P.E., Engineering Section, Division of Air Quality, Minnesota Pollution Control Agency, testify about the need and reasonableness of the proposed amendments to APC 21. Mr. Crowley will focus on the changes in the opacity reduction methods and on the requirement to submit an annual emission inventory report on lead emissions. The Agency does not intend to present evidence on the elimination of the malfunction and breakdown requirements in APC 21 but will discuss and support provisons relating to these occurrences in its presentation regarding the adoption of 6 MCAR §4.0020.

III. NEED FOR AMENDMENTS TO APC 21

The amendments to APC 21 proposed here are needed for the following reasons:

1. The method of reducing opacity data from continuous monitoring equipment should be consistent with the method for reducing such data from visual observations.

2. The usual method of reducing opacity data is not appropriate for certain facilities that are permitted to have excursions in plume opacity.

3. The United States Environmental Protection Agency (EPA) has promulgated an ambient air quality standard for lead, and the states must develop implementation plans to attain and maintain that standard.

4. Continuation of provisions relating to shutdowns, malfunctions, and breakdowns in APC 21 would cause duplication and confusion with other rules.

These reasons will be discussed seriatim.

1. The present rule, APC 21(a)(9), requires opacity data from monitoring systems to be reduced to one-minute averages. The usual data reduction method, however, is to reduce the data to six-minute averages. See APC 21(b)(7), which incorporates the federal procedure, Reference Method 9 entitled "Visual Determination of the Opacity of Emissions from Stationary Sources." 40 C.F.R. Part 60, Appendix A - Reference Methods (1978). EPA also specifically states that monitoring data is to be reduced to six-minute averages. See 40 C.F.R. §60.13(h) (1978). There is a need to make the method for reducing opacity data consistent regardless of whether the data are from continuous monitoring equipment or from visual observations.

2. Paragraph 2.5 of Method 9 describes how to determine the opacity of a plume from visual observation data. It provides that readings are to be taken every 15 seconds and a six-minute average

is to be calculated from each set of 24 consecutive readings. While this method is appropriate when the applicable rule establishes one standard that cannot be exceeded, it is not appropriate when the rule allows excursions in opacity for a specified number of minutes. For example, owners or operators of certain power plants cannot discharge any gases which exhibit greater than 20 percent opacity except that a maximum of 60 percent opacity is permissible for four minutes in any 60-minute period and a maximum of 40 percent opacity is permissible for four additional minutes in any 60-minute period. Minn. Rule APC 4.C.2. and D.3. See also, Minn. Rules APC 22(b)(c)(bb), 23(b)(2) and 24(b)(3)(bb). A six-minute average is not appropriate when the standard establishes a four-minute or a two-minute time or some other time period for a certain plume opacity. The rule should be changed to accommodate these excursions allowed by certain rules.

3. On October 5, 1978, the U.S. Environmental Protection Agency promulgated a national ambient air quality standard for lead, 43 Fed. Reg. 46245 - 46263 (1978). Once EPA promulgates an ambient air quality standard for a criteria pollutant, the states are required to adopt implementation plans to attain and maintain that standard. Section 110(a)(1) of the Clean Air Act, 42 U.S.C. 7410(a)(1).

Included with the October 5 promulgation were requirements for states to follow in developing implementation plans for lead. 43 Fed. Reg. 46264 - 46271 (1978). The EPA regulations require that the plan must contain a point source inventory of lead emissions. 43 Fed. Reg. 46270, 40 C.F.R §51.81 (1978).

4. The Agency has proposed the adoption of a new rule designed specifically to cover malfunctions and breakdowns of control equipment and process equipment. That new rule, 6 MCAR §4.0020, is also a subject of this hearing. In order to avoid duplication and any possible inconsistency, the provisions that apply to malfunctions and breakdowns should appear in only one rule.

IV. REASONABLENESS OF AMENDMENTS TO APC 21

A. Paragraph (a)(9) - Monitoring Data

This amendment to the rule would change the averaging time from one minute to six minutes when calculating the opacity of a plume from data collected by a continuous monitoring system. This is reasonable because it is the same length of time provided in Method 9 for reducing data from visual observations. See 40 C.F.R. Part 60, Appendix A - Reference Method 9, Paragraph 2.5 (1978).

The amendment also provides that the monitor shall record data points at least every 15 seconds. Again, this is consistent with the procedure for visual observations. See 40 C.F.R. Part 60, Appendix A, Reference Method 9, Paragraphs 2.3 and 2.5 (1978). Of course, a monitor may record the opacity more often than every 15 seconds, and it is permissible to use these additional data points if they are available.

As was explained in Part III of this Statement, many rules allow excursions to occur in the opacity of the plume. In such cases a six-minute averaging time is not appropriate. The intent

of this rule is to use this other averaging time in such cases. This alternative method is explained below in the proposed changes to Method 9.

B. Paragraph (b)(7) - Opacity

The first proposed change in this paragraph is to eliminate the language that requires visual observations in accordance with Method 9 to determine compliance with opacity standards. The Agency is suggesting to strike this language because Method 9, at least as it is set forth in the federal regulations, is not always the method to be used. Also, elimination of this sentence clarifies that continuous monitoring data, in addition to visual observations, can be probative evidence of compliance and noncompliance with opacity standards.

Paragraph (b)(7)(bb) is proposed to be deleted in its entirety because the question of the applicability of standards during periods of startup, breakdown, and malfunction is covered in 6 MCAR §4.0020. It is reasonable to cover this subject in only one rule.

New (b)(7)(bb) is the real substance of this amendment. The new language provides an alternative method for reducing opacity data when the underlying standard allows an excursion in opacity.

A few years ago the Agency determined compliance with opacity standards by adding up all 15-second opacity readings that exceeded the standard, determining the total time the opacity exceeded the standard, and comparing the total time with the time

allowed in the applicable standard. This method can be referred to as the stopwatch technique.

In 1974 when EPA adopted the present Method 9, 39 Fed. Reg. 39873 (Nov. 12, 1974), the method did not provide for the stopwatch technique, although EPA recognized that certain types of facilities that are intermittent in operation require a different approach to data handling. In 1976 this Agency adopted Method 9 in total as the only method of handling opacity data. Therefore, the adoption of Method 9 had the effect of eliminating the stopwatch technique of measuring opacity and adopting a straight averaging approach.

Recently this problem came to the forefront in a lawsuit involving a coke oven battery. Donner Hanna Coke Corporation v. Costle, 12 ERC 1780 (W.D. N.Y. 1979). In that case the federal district court held that the stopwatch technique, which EPA wanted to use, could not be applied under Method 9. The court told EPA to go back to hearing to devise a system for measuring opacity for such facilities as coke oven batteries and for facilities that have to meet an opacity standard that allows excursions.

The proposed language in APC 21(b)(7) is this Agency's attempt to resolve the problem. In the Agency's view the approach suggested here is a reasonable one because it combines the averaging technique and the stopwatch technique. The Agency is proposing a method that allows the owner or operator to average his emissions out over a one-minute period, which allows the impact of one high 15 second reading to be smoothed out, and yet allows the Agency to fit the data to a standard that does not

accommodate a six-minute averaging period. For example, a source which is permitted to discharge emissions with an opacity between 40 percent and 60 percent for four minutes can average out the occasional 15-second excursion to 80 percent without violating the applicable standard, yet a full six minutes is not required to find a violation. Most of the sources in this state will have their opacities determined by this alternative technique because most sources have to meet an opacity standard that allows excursions for a two, three, four, or eight-minute period in any one hour. See e.g. APC 4.C.2.

It should be emphasized that the only part of Method 9 suggested to be changed is the data reduction part. The Agency is proposing no changes in any other parts of Method 9 and the requirements for taking the visual readings and being certified and for doing the other things specified in the Method will not change.

C. Paragraph (c) - Reports

The changes proposed for paragraph (c)(1) would eliminate references to reporting excess emissions. The reason for doing this is because requirements for reporting excess emissions are proposed to be included in a separate rule, 6 MCAR §4.0020, entitled Malfunctions and Breakdowns. A quarterly report still is required, however, from those owners or operators who maintain continuous monitoring systems. These reporting requirements come from the federal law. See 40 C.F.R. §60.7(c) (1978) and 40 C.F.R. Part 51, Appendix P (1978).

Paragraph (c)(3) is proposed to be deleted in its entirety because any provisions relating to startups, shutdowns, and breakdowns will be included in 6 MCAR §4.0020. It seems reasonable to put all requirements regarding these occurrences into one rule.

The change to paragraph (c)(3) will require owners or operators of facilities which emit 5 tons or more of lead per year to submit an annual emission inventory report. As was explained earlier, EPA recently promulgated a national ambient air quality standard for lead. 43 Fed. Reg. 46245 - 46263 (Oct. 5, 1978). Consequently, all the states, including Minnesota, are now required to develop plans to attain and maintain this national standard.

EPA requires that each state plan must contain a summary of the baseline lead emission inventory. This summary "must contain all sources that emit 5 or more tons of lead per year." 43 Fed. Reg. 46270, 40 C.F.R. §51.81(a) (1978). It seems reasonable to require all sources that emit 5 tons or more of lead per year to advise the Agency of that when the Agency is required to report such information to EPA. In addition, the Agency must project future emissions and must continually evaluate the success of the plan. Therefore, it is reasonable to require an annual report of emissions.

Lead may be emitted to the atmosphere in combination with other elements, in a form such as lead oxide or lead sulfide. However, what is important is the actual quantity of lead discharged. Therefore, the amount of lead discharged is to be calculated as metallic lead, or as EPA calls it, elemental lead.

See 43 Fed. Reg. 46258, 40 C.F.R. §50.12 (Oct. 5, 1978). The Agency intends that metallic lead and elemental lead are the same thing.

EPA has promulgated a test method for determining the amount of lead in an exhaust gas. 43 Fed. Reg. 46258, 40 C.F.R. Part 50, Appendix G - Reference Method for the Determination of Lead in Suspended Particulate Matter Collected from Ambient Air (Oct. 5, 1978). While the Agency has not proposed a test method with this rule, the EPA method would certainly be an acceptable method of calculating the amount of lead discharged. It seems reasonable to not promulgate a test method with a requirement that a report be submitted. Instead, the Agency anticipates that this issue will be resolved when the Agency develops its implementation plan to attain and maintain the ambient standard. In the meantime, the EPA method is acceptable and other methods that accurately reflect the amount of lead discharged can be used.

The Agency believes that there are only seven facilities in the State that emit more than five tons of lead per year. These facilities are all located in the Twin Cities. Four of these facilities are owned by Gould Inc., a manufacturer of lead storage batteries at three plants in St. Paul and one in Eagan. Two other companies that emit more than five tons per year are Gopher Smelting and NL Industries, who both operate secondary lead smelters. Gopher operates a plant in Eagan while NL Industries is in St. Louis Park. The final source is the Pig's Eye Treatment Plant operated by the Metropolitan Waste Control Commission. The sludge incinerators at that plant probably discharge more than

five tons of lead per year. The Agency believes that requiring these companies and agency to file an annual report informing this Agency of the quantity of lead discharged in the previous year will impose very little burden, inconvenience, and expense.

D. Paragraph (d) - Shutdowns and Breakdowns

The entire paragraph (d) is proposed to be deleted. Paragraph (d) is no longer necessary because all the requirements pertaining to shutdowns, startups, breakdowns, and malfunctions are now included in 6 MCAR §4.0020. It should be noted, however, that paragraph (d)(4) relating to the reporting of the breakdown of monitoring equipment will have no replacement provision in 6 MCAR §4.0020. The Agency no longer deems it necessary to require the reporting of the breakdown or malfunction of monitoring equipment. Monitoring equipment does not affect the quantity of emissions discharged, and if excess emissions did occur then that would have to be reported under the requirements of 6 MCAR §4.0020. Also, the Agency will be advised of the breakdown or malfunction of the monitoring equipment under paragraph (c)(1)(bb)(i) when the quarterly report is submitted.

Terry Hoffman
Executive Director
Minnesota Pollution Control Agency

Dated: June 25, 1979

CHAPTER TWENTY-ONE: APC 21

APC 21 Emission Source Monitoring, Performance Tests, Reports, Shutdowns and Breakdowns

(a) Continuous Monitoring

(1) Monitoring Requirement. The owner or operator of any emission facility, whether or not continuous monitoring is required by another regulation, may be required to establish a continuous monitoring system, upon order of the Director, when in his judgment other methods of measurement or calculation do not provide adequate information on the level or variation of emissions to assure compliance with applicable regulations.

(2) Monitoring System Qualifications. Any owner or operator of an emission facility who is required by applicable regulation or by order of the Director to install a continuous monitoring system shall install a system which meets the following performance evaluations:

(aa) Continuous monitoring systems for measuring opacity of emissions shall comply with Performance Specification 1.

(bb) Continuous monitoring systems for measuring nitrogen oxides emissions shall comply with Performance Specification 2.

(cc) Continuous monitoring systems for measuring sulfur dioxide emissions shall comply with Performance Specification 2.

(dd) Continuous monitoring systems for measuring the oxygen content or carbon dioxide content of effluent gases shall comply with Performance Specification 3.

(3) Performance Evaluation. The Agency or the Director may order any owner or operator who has installed a continuous monitoring system to conduct performance evaluations of the system. The performance evaluations shall be conducted under such conditions as the Agency or the Director may impose.

(4) Old Monitoring Systems. Any owner or operator of an emission facility who installed or entered into a binding contract to purchase a specific continuous monitoring system prior to September 11, 1974, may be exempt from meeting the performance evaluations set forth in paragraph (2) provided the following requirements are met:

(aa) Continuous monitoring systems for measuring opacity of emissions shall be capable of measuring emission levels within ±20 percent of the correct value with a confidence level of 95 percent. The Calibration Error Test and associated calculation procedures set forth in Performance Specification 1 shall be used for demonstrating compliance with this specification.

(bb) Continuous monitoring systems for measurement of nitrogen oxides or sulfur dioxide shall be capable of measuring emission levels within ±20 percent of the correct value with a confidence level of 95 percent. The Calibration Error Test, the Field Test for Accuracy (Relative), and associated operating and calculation procedures set forth in Performance Specification 2 shall be used for demonstrating compliance with this specification.

All continuous monitoring systems installed under this paragraph shall be upgraded or replaced with new continuous monitoring systems which comply

with the performance evaluations set forth in paragraph (2) by September 11, 1979.

(5) Zero and Span Drift. Owners or operators who are required to install continuous monitoring systems shall check the zero and span drift at least once daily in accordance with the method prescribed by the manufacturer of such systems unless the manufacturer recommends adjustments at shorter intervals, in which case such recommendations shall be followed. The zero and span shall, as a minimum, be adjusted whenever the 24-hour zero drift or 24-hour calibration drift limits of the performance specifications in Performance Specification 1, 2, or 3, whichever is applicable, are exceeded. For continuous monitoring systems measuring opacity of emissions, the optical surfaces exposed to the effluent gases shall be cleaned prior to performing the zero or span drift adjustments except that for systems using automatic zero adjustments, the optical surfaces shall be cleaned when the cumulative automatic zero compensation exceeds four percent opacity. Unless otherwise approved by the Agency, the following procedures, as applicable, shall be followed:

(aa) For extractive continuous monitoring systems measuring gases, minimum procedures shall include introducing applicable zero and span gas mixtures into the measurement system as near the probe as is practical. Span and zero gases certified by their manufacturer to be traceable to National Bureau of Standards reference gases shall be used whenever these reference gases are available. The span and zero gas mixtures shall be the same composition as specified in Performance Specification 1, 2, or 3, whichever is applicable. Every six months from date of manufacture, span and zero gases shall be reanalyzed by conducting triplicate analyses with Reference Method 6 for SO_2, Reference Method 7 for NO_x, and Reference Method 3 for O_2 and CO_2, respectively. The gases may be analyzed at less frequent intervals if longer shelf lives are guaranteed by the manufacturer.

(bb) For non-extractive continuous monitoring systems measuring gases, minimum procedures shall include upscale check(s) using a certified calibration gas cell or test cell which is functionally equivalent to a known gas concentration. The zero check may be performed by computing the zero value from upscale measurements or by mechanically producing a zero condition.

(cc) For continuous monitoring systems measuring opacity of emissions, minimum procedures shall include a method for producing a simulated zero opacity condition and an upscale (span) opacity condition using a certified neutral density filter or other related technique to produce a known obscuration of the light beam. Such procedures shall provide a system check of the analyzer internal optical surfaces and all electronic circuitry including the lamp and photodetector assembly.

(6) Operation Requirements. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements as follows:

(aa) Opacity. All continuous monitoring systems for measuring opacity of emissions shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 10-second period.

(bb) Other pollutants.

(i) All continuous monitoring systems, except those old systems installed under paragraph (4), for measuring oxides of nitrogen, sulfur dioxide, carbon dioxide, or oxygen shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period.

(ii) All old continuous monitoring systems installed under paragraph (4) for measuring oxides of nitrogen, sulfur dioxide, carbon dioxide, or oxygen shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive one-hour period.

(7) Location of System. All continuous monitoring systems or monitoring devices shall be installed such that representative measurements of emissions or process parameters from the affected facility are obtained. Additional procedures for location of continuous monitoring systems contained in the applicable Performance Specifications shall be used.

(8) Number of Sources of Emissions. When the effluents from a single affected facility or two or more affected facilities subject to the same emission standards are combined before being released to the atmosphere, the owner or operator may install applicable continuous monitoring systems on each effluent or on the combined effluent. When the affected facilities are not subject to the same emission standards, separate continuous monitoring systems shall be installed on each effluent. When the effluent from one affected facility is released to the atmosphere through more than one point, the owner or operator shall install applicable continuous monitoring systems on each separate effluent unless the installation of fewer systems is approved by the Agency.

(9) Monitoring Data. Owners or operators of all continuous monitoring systems for measurement of opacity shall reduce all data to one-minute averages and for systems other than opacity to one-hour averages respectively. One-minute opacity averages shall be calculated from 4 or more data points equally spaced over each one-minute period. For systems other than opacity, one-hour averages shall be computed from four or more data points equally spaced over each one-hour period. Data recorded during periods of system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this paragraph. An arithmetic or integrated average of all data may be used. The data output of all continuous monitoring systems may be recorded in reduced or non-reduced form (e.g. ppm pollutant and percent O_2 or lb/million Btu of pollutant). All excess emissions shall be converted into units of the standard using the conversion procedures specified in the applicable regulation. After conversion into units of the standard, the data may be rounded to the same number of significant digits used in the regulation to specify the applicable standard (e.g. rounded to the nearest one percent opacity).

(10) Exceptions. Upon written application by an owner or operator, the Director may approve alternatives to any monitoring procedures or requirements including, but not limited to, the following:

(aa) Alternative monitoring requirements when installation of a continuous monitoring system or monitoring device specified by this part would not provide accurate measurements due to liquid water or other interferences caused by substances with the effluent gases.

(bb) Alternative monitoring requirements when the affected facility is infrequently operated.

(cc) Alternative monitoring requirements to accommodate continuous monitoring systems that require additional measurements to correct for stack moisture conditions.

(dd) Alternative locations for installing continuous monitoring systems or monitoring devices when the owner or operator can demonstrate that installation at alternate locations will enable accurate and representative measurements.

(ee) Alternative methods of converting pollutant concentration measurements to units of the standards.

(ff) Alternative procedures for performing daily checks of zero and span drift that do not involve use of span gases or test cells.

(gg) Alternatives to the A.S.T.M. test methods or sampling procedures specified by any regulation.

(hh) Alternative continuous monitoring systems that do not meet the design or performance requirements in Performance Specification 1 but adequately demonstrate a definite and consistent relationship between its measurements and the measurements of opacity by a system complying with the requirements in Performance Specification 1. The Director may require that such demonstration be performed for each affected facility.

(ii) Alternative monitoring requirements when the effluent from a single affected facility or the combined effluent from two or more affected facilities are released to the atmosphere through more than one point.

(b) Performance Tests

(1) Testing Requirements. The Agency or the Director may order the owner or operator of an emission facility to conduct or have conducted performance tests to determine the characteristics and amount of emissions of air contaminants from any affected facility.

(2) Test Method. Unless another method is specified in an applicable regulation, any owner or operator required to conduct performance tests shall utilize the following methods:

(aa) Method 1 for sample and velocity traverses.

(bb) Method 2 for stack gas velocity and volumetric flow rate.

(cc) Method 3 for gas analysis for carbon dioxide, excess air, and dry molecular weight.

(dd) Method 4 for moisture in stack gases.

(ee) Method 5 for concentration of particulate matter and associated moisture content.

(ff) Method 6 for concentration of sulfur dioxide.

(gg) Method 7 for concentration of nitrogen oxides.

(hh) Method 8 for concentration of sulfuric acid mist and sulfur dioxide.

(ii) Method 9 for opacity.

(jj) Method 10 for concentration of carbon monoxide.

(kk) Method 11 for concentration of hydrogen sulfide.

(ll) Method 101-Reference Method for Determination of Particulate and Gaseous Mercury Emissions from Stationary Sources (Air Streams), Method 102-Reference Method for Determination of Particulate and Gaseous Mercury Emissions from Stationary Sources (Hydrogen Streams), or Reference Method 105-Method for Determination of Mercury in Wastewater Treatment Sewage Sludges, set forth in 40 C.F.R. Part 61, Appendix B, whichever is applicable, for mercury emissions.

(mm) Method 103-Beryllium Screening Method or Method 104-Reference Method for Determination of Beryllium Emissions from Stationary Sources, set forth in 40 C.F.R. Part 61, Appendix B, whichever is applicable.

(3) Alternative Test Methods. In lieu of the test method described in paragraph (2), the Director may:

(aa) Specify or approve minor changes in the Reference Method set forth in paragraph (2) or the applicable regulation; or

(bb) Approve the use of an equivalent method; or

(cc) Approve the use of an alternative method the results of which he has determined to be adequate for indicating whether an affected facility is in compliance.

(4) Testing Conditions. Performance tests shall be conducted under such conditions as the Director shall specify. The owner or operator shall make available to the Director such records as may be necessary to determine the conditions of the performance tests. Operations during periods of start-up, shutdown, and malfunction shall not constitute representative conditions of performance tests unless otherwise specified in an applicable regulation.

(5) Test Runs. Each performance test shall consist of three separate runs using the applicable test method. However, the Director reserves the right to require more than three runs under unusual circumstances. Each run shall be conducted for the time and under the conditions specified in the applicable standard. For the purpose of determining compliance with an applicable standard, the arithmetic mean of results of the three runs shall apply. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operator's control, compliance may, upon the Director's approval, be determined using the arithmetic mean of the results of the two other runs.

(6) Notification. The owner or operator shall notify the Director not less than 30 days prior to conducting any performance tests, unless a shorter time is accepted by the Director.

(7) Opacity.

(aa) Compliance with opacity standards in this part shall be determined by conducting observations in accordance with Reference Method 9. Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity standards. The results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were

made was not in excess of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the owner or operator shall meet the burden of proving that the instrument used meets (at the time of the alleged violation) Performance Specification 1, has been properly maintained and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way.

(bb) The opacity standards set forth in a regulation shall apply at all times except during periods of startup, shutdown, malfunction, and as otherwise provided in the applicable standard.

amendment (cc)

(8) Agency Tests. Upon order of the Agency or the Director, the owner or operator of an emission facility shall allow the Agency, or any authorized employee or agent of the Agency, to enter upon the premises of the owner or operator for purposes of conducting performance tests. The owner or operator shall provide performance testing facilities which will enable the Agency or its agents or employees to conduct performance tests. Such performance testing facilities shall include:

(aa) Sampling ports adequate for test methods applicable to such facility.

(bb) Safe sampling platform(s).

(cc) Safe access to sampling platform(s).

(dd) Utilities for sampling and testing equipment.

(9) Additional Requirements. The owner or operator shall meet any other requirements imposed by the Agency or the Director in ordering the running of the performance tests.

(c) Reports

(1) Excess Emissions. Any owner or operator of an affected facility who is required to install a continuous monitoring system shall submit a written report of excess emissions for every calendar quarter.

(aa) The report shall be submitted to the Director of the Division of Air Quality of the Agency.

(bb) The report shall be submitted in accordance with the following requirements:

(i) The report shall be postmarked by the 30th day following the end of each calendar quarter; and

(ii) The report shall contain the following information:

1. The magnitude of excess emissions, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions.

2. Specific identification of each period of excess emissions that occurred during startups, shutdowns, and malfunctions of the affected facility, the nature and cause of any malfunction (if known), and the corrective action taken or preventative measures adopted.

3. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

4. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

(2) Other Data. The owner or operator of any affected facility shall maintain a file of all measurements, including continuous monitoring system, monitoring device, and performance testing measurements; all continuous monitoring system performance evaluations; all continuous monitoring system or monitoring device calibration checks; adjustments and maintenance performed on these systems or devices; and all other information required by any regulation and shall keep that file in a permanent form suitable for inspection. The file shall be retained for at least two years following the date of such measurements, maintenance, reports, and records.

(3) Breakdowns. The owner or operator of an affected facility shall maintain records of the occurrence and duration of any startup, shutdown, breakdown, or malfunction in operation of the facility or any air pollution control equipment. The owner or operator shall maintain records of any periods of time in which a continuous monitoring system or monitoring device is inoperative. These records shall be retained for at least two years following the date of such shutdown, startup, breakdown, malfunction, or inoperation. These records shall be submitted to the Agency at such times as the Director may require.

(4) Emission Inventory. All owners or operators of emission facilities which emit more than 25 tons per year of particulate matter, sulfur oxides, nitrogen oxides, carbon monoxide, or hydrocarbons shall submit on or before April 1st of each year an emission inventory report covering the previous calendar year

(d) Shutdowns and Breakdowns

(1) Shutdown. The owner or operator of an emission facility shall notify the Director 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 owner or operator shall also notify the Director of the cause of the shutdown and the estimated duration. The owner or operator shall notify the Director when the shutdown is over.

(2) Breakdown. The owner or operator of an emission facility shall notify the Director 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 owner or operator shall also notify the Director of the cause of the breakdown and the estimated duration. The owner or operator shall notify the Director when the breakdown is over.

(3) Operation Changes. In any shutdown or breakdown covered by subparagraph (1) or (2) above, the owner or operator shall immediately take all practical steps to modify operations to reduce the emission of air contaminants. The Director 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 regulation shall permit the operation of an affected facility which may cause an immediate public health hazard.

(4) Monitoring Equipment. The owner or operator of a continuous monitoring system or monitoring device shall notify the Director of any breakdown or malfunction of such system or device.

[May 7, 1976]

CERTIFICATE OF BOARD'S
AUTHORIZING RESOLUTION

RECEIVED
JUN 27 1979
OFFICE OF HEARING
EXAMINERS

I, Terry Hoffman, do certify that I am the Executive Director of the Minnesota Pollution Control Agency, an Agency duly authorized under the laws of the State of Minnesota, and that the following resolution was adopted at a meeting of the Agency properly called on the 22nd day of May, 1979, that a quorum was present at said meeting; that the resolution will be set forth in the minutes of said meeting and has not been rescinded or modified:

> BE IT RESOLVED, that the Agency authorizes a public hearing to be held on proposed rules for the restriction of emissions from coal handling facilities (APC-33), surface coating facilities (APC-34), gasoline marketing facilities (APC-35), solvent metal cleaning facilities (APC-36), the use of cutback asphalt (APC-37), and miscellaneous fugitive emissions facilities (APC-40) and on amendments to Minnesota rules currently in effect known as APC-13; APC-21; and APC-24.
>
> BE IT FURTHER RESOLVED, that the Agency autthorizes a public hearing to be held on proposed rule relating to malfunctions and breakdowns (APC-20).
>
> BE IT FURTHER RESOLVED, that the Chairman and Executive Director of the Agency are hereby authorized to execute all documents necessary for such a public hearing, including, but not limited to, the Order for Hearing.

I further certify that the following resolution was adopted at a meeting of the Agency properly called on the 27th day of February, 1979; that a quorum was present at said meeting; and that the resolution is set forth in the minutes of said meeting and has not been rescinded or modified:

> BE IT RESOLVED, that the Minnesota Pollution Control Agency authorizes a Public Hearing to be held concerning Proposed Revisions to Minnesota Regulation APC 4.
>
> BE IT FURTHER RESOLVED, that the Executive Director is authorized to execute all documents necessary for this Public Hearing, including, but not limited to, the Order for Hearing.

PCA EXH. 2
7/23/79 KAK

IN WITNESS WHEREOF, I have hereunto subscribed my name this 29th day of May, 1979.

Terry Hoffman
Executive Director

Subscribed and sworn to before me this 29th day of May, 1979.

Notary Public

WILLIAM DONOHUE
NOTARY PUBLIC — MINNESOTA
RAMSEY COUNTY
My Commission Expires April 29, 1982

STATE OF MINNESOTA

COUNTY OF RAMSEY

RECEIVED
JUN 27 1979
OFFICE OF HEARING EXAMINERS

MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

No. PCA-79-009-MG

ORDER FOR HEARING

IT IS HEREBY ORDERED that a public hearing on the above-captioned rules be held in the Board Room of the Minnesota Pollution Control Agency, 1935 West County Road B2, Roseville, Minnesota, on Monday, July 23, 1979, commencing at 9:30 a.m. and continuing until all persons have had an opportunity to be heard.

IT IS FURTHER ORDERED that a Notice of Hearing be mailed to all persons or representatives of associations or other interested groups who have registered their names with the Secretary of State for that purpose.

IT IS FURTHER ORDERED that the Notice of Hearing be published in the State Register.

Joseph E. Grinnell
Chairman

Terry Hoffman
Executive Director

Dated: June 1, 1979

PCA EXH. 1
7/23/79 KAK

STATE OF MINNESOTA

COUNTY OF RAMSEY

MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

No. PCA-79-009-MG

NOTICE OF HEARING

NOTICE IS HEREBY GIVEN that a rule hearing in the above-entitled matter will be held in the Board Room of the Minnesota Pollution Control Agency, 1935 W. County Road B2, Roseville, Minnesota, on Monday, July 23, 1979, commencing at 9:30 a.m., and continuing on subsequent days if necessary until all persons have had an opportunity to be heard.

All interested or affected persons will have an opportunity to participate at the rule hearing. Statements may be made orally and written materials may be submitted at the hearing. In addition, written materials may be submitted by mail to Mr. Myron Greenberg, Hearing Examiner, Office of Hearing Examiners, 1745 University Avenue, St. Paul, Minnesota 55104, (612) 296-8109, either before or after the hearings until the record is closed. The record will remain open for five working days after the hearing ends, or for a longer period not to exceed twenty calendar days if ordered by the Hearing Examiner.

The proposed amendments to APC 4 would clarify that derating of boilers is a permissible means of achieving compliance with emission standards but that the actual heat input must be used in conducting performance tests. The proposed amendments to APC 21 primarily provide a different method for measuring opacity for intermittent sources. New rule 6 MCAR §4.0020 requires owners or operators of certain facilities to prepare and implement abatement plans to avoid malfunctions and breakdowns of control equipment and process equipment and to follow certain procedures to reduce excess emission to the lowest practicable amount during malfunctions and breakdowns. Because malfunctions and breakdowns will be covered in 6 MCAR §4.0020, the provisions in APC 21 relating to malfunctions and breakdowns are proposed to be deleted.

NOTICE: The proposed rules are subject to change as a result of the rule hearing process. The Agency therefore strongly urges those who are potentially affected in any manner by the substance of the proposed rules to participate in the rule hearing process.

The Agency's authority to promulgate the proposed rules is contained in Minn. Stat. §§116.07 subds. 2 and 4, 116.091 subd. 1, and 116.11 (1978).

Copies of the proposed rules are now available and one free copy may be obtained by writing to Mr. Edgar Crowley, P.E., Division of Air Quality, Minnesota Pollution Control Agency, 1935 West County Road B2, Roseville, Minnesota 55113. Additional copies will be available at the hearing at each location.

NOTICE: Any person may request notification of the date on which the Hearing Examiner's Report will be available, after which date the Agency may not take any final action on the rules for a period of five working days. Any person may request notification of the date on which the hearing record has been submitted (or resubmitted) to the Attorney General by the Agency. If you desire to be so notified, you may so indicate at the hearing. After the hearing, you may request notification by sending a written request to the Hearing Examiner (in the case of the Hearing Examiner's Report), or to the Agency (in the case of the Agency's submission or resubmission to the Attorney General).

NOTICE IS HEREBY GIVEN that 25 days prior to the hearing, a Statement of Need and Reasonableness will be available for review at the Agency and at the Office of Hearing Examiners. This Statement of Need and Reasonableness will include a summary of all of the evidence which will be presented by the Agency at the Hearing justifying both the need for and the reasonableness of the proposed rules. Copies of the Statement of Need and Reasonableness may be obtained from the Office of Hearing Examiners at a minimal charge. Copies of the Statement of Need and Reasonableness are also available from Mr. Crowley.

Please be advised that Minn. Stat. ch. 10A (1978) requires each lobbyist to register with the Ethical Practices Board within five days after he commences lobbying. Lobbying includes attempting to influence rulemaking by communicating or urging others to communicate with public officials. A lobbyist is generally any individual who spends more than $250.00 per year for lobbying or any individual who is engaged for pay or authorized to spend money by another individual or association and who spends more than $250.00 per year or five hours per month lobbying. The statute in question provides certain exceptions. Questions should be directed to the Minnesota Ethical Practices Board, 41 State Office Building, St. Paul, Minnesota 55155, telephone (612) 296-5615.

Joseph F. Grinnell, Chairman
Minnesota Pollution Control Agency

Terry Hoffman, Executive Director
Minnesota Pollution Control Agency

Dated: June 1, 1979

Pursuant to the provisions of Minn. Stat. § 15.0412, subd. 6, an agency, in preparing proposed rules, may seek information or opinion from sources outside the agency. Notices of intent to solicit outside opinion must be published in the *State Register* and all interested persons afforded the opportunity to submit data or views on the subject, either orally or in writing.

The *State Register* also publishes other official notices of state agencies, notices of meetings, and matters of public interest.

Housing Finance Agency

Notice of Intent to Solicit Outside Opinion for Rules Governing Housing Programs for Urban American Indians

Notice is hereby given that the Minnesota Housing Finance Agency is seeking information or opinions from sources outside the Agency in preparing to propose the adoption of rules governing housing programs for urban Native Americans. These rules are authorized by Laws of 1978, ch. 670.

To facilitate the gathering of information, informational meetings will be held at various locations throughout the state. The first such meeting will be held in Duluth, Minnesota at the American Indian Fellowship Association, 8 East Second Street, on June 15, 1978 at 4:00 p.m. Any interested persons may submit data or reviews on this subject in writing or orally at this meeting.

Written material may also be submitted to:

May Hutchinson
Minnesota Housing Finance Agency
200 Nalpak Building
333 Sibley Street
St. Paul, MN. 55101

Any written material received shall become a part of the hearing record in the event rules governing the subject matter are promulgated.

James J. Solem
Executive Director

Pollution Control Agency

Notice of Intent to Solicit Outside Opinion Regarding Proposed Changes to the Existing State Air Quality Implementation Plan

Notice is hereby given that the Minnesota Pollution Control Agency will be revising its existing State Air Quality Implementation Plan to achieve National Ambient Air Quality Standards. The revisions to the plan will require new regulations to be developed and some existing regulations may be amended.

The Pollution Control Agency is interested in soliciting comments on the adequacy of the existing State Implementation Plan and suggestions for improvements.

All interested or affected persons or groups are requested to participate. Statements of information or comments may be made orally or in writing. Written statements of information and comments may be addressed to:

Edward M. Wiik, Director
Division of Air Quality
Minnesota Pollution Control Agency
1935 West County Road B-2
Roseville, Minnesota 55113

Oral statements of information and comment will be received during regular business hours over the telephone at (612) 296-7358.

Any written material received by the Agency shall become part of the hearing record during adoption or revision of regulations.

Department of Human Rights

Settlement Agreements and Predetermination Agreements for the Period Beginning May 1, 1978 and Ending June 2, 1978

Settlement Agreements

In addition to specific remedies, standard agreements reached prior to a hearing contain the following stipulations:

1. The agreement does not constitute an admission by the respondent of a violation of Minn. Stat. ch. 363.

PCA EXH. 11
7/23/79 KAK

PCA-79-009-MG

STATE OF MINNESOTA
OFFICE OF HEARING EXAMINERS

FOR THE MINNESOTA POLLUTION CONTROL AGENCY

RECEIVED
NOV 05 1979
MPCA
ATTORNEY GENERAL

IN THE MATTER OF THE PROPOSED ADOPTION OF AMENDMENTS TO MINN. RULES APC 4 RELATING TO POWER PLANTS AND APC 21 RELATING TO OPACITY AND PROPOSED ADOPTION OF NEW RULE 6 MCAR § 2.0020 RELATING TO MALFUNCTIONS AND BREAK-DOWNS OF CONTROL EQUIPMENT AND PROCESS EQUIPMENT.

REPORT OF THE
CHIEF HEARING EXAMINER

WHEREAS, a hearing was held on July 23, 1979, before Myron S. Greenberg, a Hearing Examiner of the State Office of Hearing Examiners, on the above-entitled matter in compliance with Minn. Stat. § 15.0412, subd. 4; and

WHEREAS, the Report of Hearing Examiner made pursuant to Minn. Stat. § 15.052, subd. 3, was issued to the Pollution Control Agency on September 17, 1979; and

WHEREAS, the Pollution Control Agency has now determined to adopt rules pursuant to Minn. Stat. § 15.0412, subd. 4; and

WHEREAS, the Pollution Control Agency has submitted said rules to the Chief Hearing Examiner for review pursuant to Minn. Stat. § 15.052, subd. 4, and 9 MCAR § 2.110; and

WHEREAS, the Chief Hearing Examiner finds that the final proposed rules are not substantially different from those proposed at the public hearing and that the Pollution Control Agency has met all requirements of Minn. Stat. § 15.0412, subd. 4.

NOW, THEREFORE, upon receipt of this Report, the Pollution Control Agency has the responsibility of submitting the complete hearing record and the rules as adopted by the Agency to the Attorney General, notifying all persons who requested to be informed that the hearing record has been submitted to the Attorney General, and publishing in the State Register, all pursuant to Minn. Stat. § 15.0412, subd. 4.

Dated this 2nd day
of November, 1979.

DUANE R. HARVES
Chief Hearing Examiner

STATE OF MINNESOTA)
)
COUNTY OF RAMSEY)

I, Elaine Embretson, being first duly sworn, hereby deposes and says:

1. That she is the secretary to the nine-member citizen board of the Minnesota Pollution Control Agency.

2. That it is her responsibility to maintain the official minutes of each Board Meeting.

3. That the attached exerpt from the minutes of the October 30, 1979, Board Meeting reflect the true, correct, and complete recorded minutes of the Board's consideration of the adoption of the Amendments to Minn. Rules APC 4 and APC 21.

FURTHER AFFIANT SAYETH NOT.

Elaine Embretson

Elaine Embretson

Subscribed and sworn to before me
this 20th day of November, 1979:

MARYANNE GIBBONS
NOTARY PUBLIC - MINNESOTA
RAMSEY COUNTY
My Commission Expires Sept 28, 1985

Notary Public

for its asphalt refining, roofing paper manufacturing and petroleum storage facilities on Hwy 13, west of Savage. He said the staff is recommending that the permit be issued as all of the facilities are in compliance with the applicable regulations.

Ms. Watson moved and Mr. Grinnell seconded this motion:

> BE IT RESOLVED, that the Minnesota Pollution Control Agency approves issuance of the proposed permit No. 389-79-OT-1 to Richard's Companies: (Richard's Oil Company, Richard's Roofing Company, and Richards Asphalt & Refining Company) to operate an asphalt refining and roofing paper manufacturing plant and fuel oil storage facility.
>
> BE IT FURTHER RESOLVED, that the Executive Director is hereby authorized to execute the permit on behalf of the Agency.

When put to a vote, the motion carried unopposed.

Ms. Hoffman informed the members at this time, that a briefing on the proposed water quality standards would be held in the Board room on Tuesday, November 6, commencing at 9:00 a.m.

X Approval of Order Adopting Rule Governing Derating of Boilers [6MCAR§4.004] and Data Reduction Method of Determining Opacity [6MCAR§4.0021]

Lisa Tiegel, Special Assistant Attorney General, addressed the Agency and informed the Board that hearings on the proposed amendments to Minn. Rules APC-4 and 21 (relating to power plants and opacity, respectively) and new rule 6 MCAR §4.0020 (relating to malfunctions and breakdowns of control equipment and process equipment) were were held on July 23 and 24, 1979, Prior to the close of the record in this hearing, the Agency withdrew consideration of the new rule 6 MCAR §4.0020 and of those portions of APC-21 which would have been addressed in the new rule.

Ms. Tiegel pointed out that the Hearing Examiner's Report, dated September 17, 1979, has been received. In general, the staff recommends that the Agency adopt the Findings and Conclusions of the Hearing Examiner with the Exceptions as noted.

Bernie Gallagher, Division of Air Quality, explained the method of monitoring and controlling the derating of the boilers.

The following resolution was moved by Ms. Watson and seconded by Mr. Gadler:

> BE IT RESOLVED, that the MPCA hereby approves and adopts the staff's Findings of Fact and Conclusions in the matter of the proposed adoption of Amendments to Minn. Rules APC-4 relating to Power Plants and to APC-21 relating to Opacity and hereby approves and adopts Amendments to Minn. Rules APC-4 and 21 as finally amended by the staff's Order Adopting Rules; and,
>
> BE IT FURTHER RESOLVED, that the Chairman and the Executive Director are hereby authorized to sign the Findings of Fact and Conclusions and Order Adopting Rules in the matter of the proposed Amendments to Minn. Rules APC-4 and 21.

The Chairman called for the question and the motion prevailed.

Consideration of Policy Regarding the Review of APC-1

Ms. Hoffman reviewed the history concerning the request for review of APC-1 and indicated that because of the heavy work load involved in completing the State Implementation Plan (SIP) more time was needed for review of APC-1.

She reviewed that on May 22, 1979, the Agency Board adopted a resolution which directed the staff to review Rule APC-1 with respect to Photochemical Oxidants and Sulfur Oxide Standards. This review of Rule-APC-1 is to be conducted in such form and manner as to ensure the commencement of a public hearing on or before November 1, 1979, or as soon as major work on the SIP is completed. The staff has not yet completed its work on the SIP revisions and, therefore, cannot implement the public hearing process on Rule APC-1 by November 1, 1979.

Charles Dayton, Esquire, representing Sierra Club, appeared before the Agency to recommend that the Board wait for the federal study on SO_2, C.O. and NO_2, to be completed. The staff study could proceed but no hearings should be held.

SUGGESTED STAFF RESOLUTION

BE IT RESOLVED that the Agency hereby approves and adopts the Staff's Findings of Fact and Conclusions in the matter of the of the proposed adoption of amendments to Minn. Rules APC 4 relating to Power Plants and to APC 21 relating to Opacity and hereby approves and adopts amendments to Minn. Rules APC 4 and 21 as finally amended by the Staff's proposed Order Adopting Rules; and,

BE IT FURTHER RESOLVED that Art Engelbrecht, Chairman of the Agnecy, and Terry Hoffman, Executive Director, be and are hereby authorized to sign the attached Findings of Fact and Conclusions and Order Adopting Rules in the matter of the proposed amendments to Minn. Rules APC 4 and 21.

STATE OF MINNESOTA

COUNTY OF RAMSEY

MINNESOTA POLLUTION

CONTROL AGENCY

In the Matter of the Proposed Action of Amendments to Minn. Rule APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR Sec. 4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment.

CERTIFICATE OF COMPLIANCE WITH RULEMAKING PROCEDURES

I, Special Assistant Attorney General Lisa R. Tiegel, do hereby declare that I have examined the proposed rules and all related documents and that, based on them and my personal familiarity with the applicable procedures, all rulemaking required by statute and rule procedures have been followed.

Lisa R. Tiegel
Special Assistant
Attorney General

Dated: 11/10/79

STATE OF MINNESOTA

COUNTY OF RAMSEY

RECEIVED
JUN 27 1979
OFFICE OF HEARING EXAMINERS

MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

No. PCA-79-009-MG

AFFIDAVIT OF MAILING

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

Thomas B Townsend, being first duly sworn, hereby deposes and says that in the City of Roseville, county and state aforesaid, on the 14th day of June, 1979, he served the foregoing "Notice of Hearing," by depositing in the United States mail at said City of Roseville, true and correct copies thereof, properly enveloped, with postage prepaid, and addressed to those named on the attached mailing lists, including the Secretary of State's list.

Thomas B Townsend

Subscribed and sworn to before me this 15th day of June, 1979:

MARY E. WYATT
NOTARY PUBLIC-MINNESOTA
RAMSEY COUNTY
My Comm. Expires Oct. 24, 1983

Mary E. Wyatt
Notary Public

PCA EXH. 7
7/23/79 KAK

STATE OF MINNESOTA

COUNTY OF RAMSEY

RECEIVED
JUN 27 1979
OFFICE OF HEARING EXAMINERS

MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of the Proposed Adoption of Amendments to Minn. Rules APC 4 Relating to Power Plants and APC 21 Relating to Opacity and Proposed Adoption of New Rule 6 MCAR §4.0020 Relating to Malfunctions and Breakdowns of Control Equipment and Process Equipment

No. PCA-79-009-MG

CERTIFICATE OF DELIVERY OF SECRETARY OF STATE'S LIST

I hereby certify that the attached 584 labels and 15 sheets constitute the complete list of persons, associations, and other interested groups who as of 1:50 o'clock PM, this 11th day of June, 1979, have requested pursuant to Minn. Stat. §15.0412 subd. 4 (1978) that their names be placed on file with the Secretary of State for the purpose of receiving notice of public hearing on proposed rules.

SECRETARY OF STATE

JOAN ANDERSON GROWE

By Joan Anderson Growe

PCA EXH. 6
7/23/79 KAK

PCA EXH. 5
7/20/79 KAK
STATE OF MINNESOTA

COUNTY OF RAMSEY

RECEIVED
JUN 27 1979
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AFFIDAVIT OF RECEIPT OF SECRETARY OF STATE'S LIST

STATE OF MINNESOTA)
) ss.
COUNTY OF RAMSEY)

Thomas B Townsend, being duly sworn on oath deposes and says:

1. That he is an employee of the Air Quality Division, Minnesota Pollution Control Agency, State of Minnesota

2. That on the 11th day of June, 1979, he went to the Secretary of State's office for the State of Minnesota and requested a current list of all representatives of associations or other interested groups or persons who had registered their names with the Secretary of State for the purpose of obtaining notices of public hearings relating to the promulgation of rules pursuant to Minn. Stat. §15.0412.

3. That on the 11th day of June, 1979, in response to the above request, the Secretary of State provided him with such a list, a copy of which is attached hereto and incorporated by reference.

FURTHER AFFIANT SAYETH NOT.

Thomas B Townsend

Subscribed and sworn to before me this 11th day of June, 1979:

Mary E. Wyatt
Notary Public

MARY E. WYATT
NOTARY PUBLIC-MINNESOTA
RAMSEY COUNTY
My Comm. Expires Oct. 24, 1983