

2200-8223-1

STATE OF MINNESOTA
OFFICE OF ADMINISTRATIVE HEARINGS
FOR THE MINNESOTA POLLUTION CONTROL AGENCY

In the Matter of Proposed Amendments
to Permanent Rules Governing Waste
JUDGE

REPORT OF-THE
ADMINISTRATIVE LAW

Combustor Permits and Standards of
Performance for Waste Combustors.
Minnesota Rules, Parts 7007.0200,
7007.0250, 7007.0501, 7007.0801,
7011.0551, 7011.0625, 7011.1201 to
7011.1285 and 7017.1000

The above-entitled matter came on for hearing before Administrative
Law
Judge Steve M. Mihalchick on the following dates at the following
locations:

December 6, 1993, St. Louis County Courthouse, Duluth, Minnesota.
December 7, 1993, Becker County Courthouse, Detroit Lakes,
Minnesota.
December 8, 1993, Minnesota Valley Regional Library, Mankato,
Minnesota.
December 13 and 15, 1993, MPCA Board Room, St. Paul, Minnesota.

This report is part of a rulemaking proceeding held pursuant to
Minn.
Stat. §§ 14.131 to 14.20 to hear public comment, to determine whether the
Minnesota Pollution Control Agency (MPCA or Agency) has fulfilled all
relevant
substantive and procedural requirements of law and rule, to determine
whether
the proposed rules are needed and reasonable, and to determine whether
any
modifications now proposed render the rules substantially different from
those
originally proposed.

Kathleen Winters, Assistant Attorney General, Suite 200, 520
Lafayette
Road, St. Paul, Minnesota 55155, appeared on behalf of the MPCA. The
agency
panel appearing in support of the rules consisted of Anne Jackson,
Michael
Mondloch, Robert McCarron, Laurel Mezner, Yolanda Hernandez, Edward
Swain and

Sherryl Livingston. Also testifying on behalf of the MPCA was David White of Radian Corporation, who acted as a consultant on certain portions of the rules.

At each of the hearing locations the hearing continued until all interested persons, groups or associations had had an opportunity to be heard concerning the adoption of these rules. The record remained open for the submission of written comments for 20 calendar days following the last scheduled hearing date, to January 6, 1994. Pursuant to Minn. Stat. § 14.15, subd. 1, five business days were allowed for the filing of responsive comments. At the close of business on January 13, 1994, the rulemaking record closed for all purposes.

The MPCA must wait at least five working days before taking any final action on the rules; during that period, this Report must be made available to all interested persons upon request.

Pursuant to the provisions of Minn. Stat. § 14.15, subd. 3 and 4, this Report has been submitted to the Chief Administrative Law Judge for his approval. If the Chief Administrative Law Judge approves the adverse findings of this Report, he will advise the MPCA of actions which will correct the defects and the MPCA may not adopt the rule until the Chief Administrative Law Judge determines that the defects have been corrected. However, in those instances where the Chief Administrative Law Judge identifies defects which relate to the issues of need or reasonableness, the MPCA may either adopt the Chief Administrative Law Judge's suggested actions to cure the defects or, in the alternative, if the MPCA does not elect to adopt the suggested actions, MPCA must submit the proposed rule to the Legislative Commission to Review Administrative Rules for the Commission's advice and comment.

If the MPCA elects to adopt the suggested actions of the Chief Administrative Law Judge and makes no other changes and the Chief Administrative Law Judge determines that the defects have been corrected, then the MPCA may proceed to adopt the rule and submit it to the Revisor of Statutes for a review of the form. If the MPCA makes changes in the rule other than those suggested by the Administrative Law Judge and the Chief Administrative Law Judge, then MPCA shall submit the rule, with the complete record, to the Chief Administrative Law Judge for a review of the changes before adopting it and submitting it to the Revisor of Statutes.

When the MPCA files the rule with the Secretary of State, it shall give notice on the day of filing to all persons who requested that they be informed of the filing.

Based upon all the testimony, exhibits and written comments, the Administrative Law Judge makes the following:

FINDINGS OF-FACT

Procedural Requirements

1. On September 29, 1993, the MPCA filed a copy of the Notice of Hearing with the Administrative Law Judge for preliminary review. The Administrative Law Judge reviewed the proposed notice that day, approved its form and so notified the MPCA.

2. On October 1, 1993, the MPCA filed the following documents with the Chief Administrative Law Judge:

- (a) A copy of the proposed rules certified by the Revisor of Statutes.
- (b) The Order for Hearing.
- (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.
- (e) The Statement of Need and Reasonableness.
- (f) A Statement of Additional Notice.

Also on October 1, 1993, the MPCA mailed a copy of the Statement of Need and Reasonableness (SONAR) to the Legislative Commission to Review Administrative Rules.

3. On October 15, 1993, the MPCA mailed the Notice of Hearing to all persons and associations who had registered their names with the MPCA for the purpose of receiving such notice and to additional persons and associations the MPCA determined may have an interest in the proposed rules.

4. On October 18, 1993, a Notice of Hearing and a copy of the proposed rules were published at 18 State Register 1086-1115.

5. On October 18, 1993, the MPCA filed copies of the six exhibits referred to in the SONAR with the Administrative Law Judge.

6. On October 29, 1993, the MPCA filed the following documents with the Administrative Law Judge:

- (a) The Notice of Hearing as mailed.
- (b) The Agency's certification that its mailing list was accurate and complete.
- (c) The Affidavit of Mailing the Notice to all persons on the Agency's list.
- (d) The Affidavit of Discretionary Mailing of Notice of Hearing pursuant to Minn. Stat. § 14.14, subd. 1a.
- (e) The names of MPCA 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.
- (f) A copy of the State Register containing the proposed rules.
- (g) Notices of Intent to Solicit Outside Information published at 12 State Register 830 (October 19, 1987) and 12 State Register 2519 (May 16, 1988) and a statement that no materials were received pursuant to the notices.

7. In documents mailed November 19, 1993, and received November 24, 1993, the MPCA advised the Administrative Law Judge that it would proceed with the public hearing because they had received more than 25 requests for hearing. It also filed copies of the comment letters and requests for hearing

that it had received during the 30-day comment period.

8. On November 22, 1993, the MPCA filed by facsimile transmission a revised list of witnesses, an errata correcting errors in the SONAR, and additional comments it had received after November 19, 1993. Comments received by the MPCA after that time were submitted at the hearing as part of Exhibit 13.

9. The documents listed above were available for inspection at the Office of Administrative Hearings from the date of filing to the date of the hearing. No one asked to inspect the file during that period.

10. The 20-day comment period following the hearing closed on January 6, 1994. During that period, 31 comments or packets of documents were received from various parties. The MPCA did not submit any post-hearing comments. on December 21, 1993, it filed Exhibit 63, which was an economic impact

analysis. On January 6, 1994, it filed Exhibit 82, which contained 23 reference documents the Agency intended to rely upon in its post-hearing response.

Three organizations reviewed the post-hearing comments. Carol Wiesner of the Minnesota Center for Environmental Advocacy (MCEA) reviewed the comments that had been filed during the first few days of the comment period. On January 6, 1994, when she personally filed MCEA's post-hearing comments, she indicated that she was going on vacation and would like to review the file at some later point. On January 7, the MPCA staff reviewed the comments that had been filed during the comment period. On that day, the Administrative Law Judge called Assistant Attorney General Kathleen Winters regarding the MPCA's failure to file comments during the comment period and was informed that it was the Agency's intention to put all their comments in the response to be filed at the end of the response period.

On January 7, 1994, the Minnesota Resource Recovery Association and its attorney, Larry Espel, requested copies of all the post-hearing comments. After they were provided a list of comments and documents filed, they modified their request to copies of all the public comments that had been filed. They were provided with a list of the documents filed by the MPCA, but they did not request copies of those documents.

11. On January 13, 1994, the final date of the response period, the MPCA filed its Agency Response to Testimony and Written Comments (MPCA's Post-hearing Response) and Attachment No. I thereto, which is a copy of the rules with the changes the MPCA proposes as a result of the hearing and comment process. Attachment No. I is attached hereto and incorporated as a part of this Report.

12. The only other post-hearing response to the comments was filed by the Minnesota Resource Recovery Association on January 13, 1994. In general, the association supports the rules as proposed by MPCA and has sought to discourage proposals made by environmental organizations that would impose

more strict emission standards and procedures than proposed by the MPCA. Its post-hearing response supported the MPCA's rules as proposed and argued against comments submitted by the Sierra Club Northstar Chapter and MCEA. No commentator, including the association, objected to the fact that the MPCA had not filed its comments by the end of the comment period.

13. Many comments have been received from individuals in the Duluth area since the close of the comment period on January 6, 1993. Many of those persons are students in the Honors Biology class at Duluth Denfield High School. Several of those comments were received after the close of the response period on January 13, 1994.

14. The Agency's failure to file its proposed amendments and Post-hearing Response within the comment period is a significant procedural defect. Waiting until the last day of the response period is contrary to the language and intent of Minn. Stat. § 14.15, subd. 1. The purpose of the five-day response period is to allow the Agency and the public to respond to new matters that arise during the post-hearing comment period and for the Agency to indicate whether it is willing to adopt amendments suggested by others during the comment period. By waiting until the last day of the response period, the MPCA impaired the ability of members of the public to

comment on the MPCA's final rule proposals. The Agency did so upon advice of counsel even though its comments and final rule proposals apparently were ready in draft form by January 6, 1994, and were merely supplemented thereafter to reference the additional written comments received during the comment period.

15, The MPCA's failure to file its comments and final proposed rules within the comment period was a harmless error as defined in Minn. Stat. § 14.15, subd. 5. Under that provision, the Administrative Law Judge must disregard any error or defect in a procedural requirement if that failure did not deprive any person or entity of an opportunity to participate meaningfully in the rulemaking process or the agency took corrective action to cure the defect so that it did not deprive any person or entity of an opportunity to participate meaningfully. In this case, and only under the particular facts of this case, the failure to file the comments and the final proposed rules in a timely manner did not deprive any person or entity of an opportunity to participate meaningfully in the process. This rulemaking process has been going on for over six years and virtually all of the organizations and many of the individuals who participated in the rule hearing also participated in the earlier advisory committees, staff meetings, MPCA meetings and private correspondence with MPCA staff. They have made their positions known and the MPCA has considered all their comments and adopted parts or all of many suggestions. As will be discussed below, the final proposed rules and final comments of the MPCA amounted to a fine tuning of the rules originally proposed at the hearing and made no significant policy changes. They were in response to matters that had been raised during the hearing and of which most of the participants were aware through that process. Lastly, and most importantly, only the Minnesota Resource Recovery Association and the MPCA itself reviewed all the post-hearing comments and the Minnesota Resource Recovery Association had no particular interest in reviewing the MPCA's final comments. This situation would have been quite different had any one requested to see the MPCA's post-hearing comments and wished to respond to

them. No one did. Therefore, no person or entity has been deprived of an opportunity to participate meaningfully in the rulemaking process.

16. Minn. Stat. § 14.11, subd. 1, requires that agencies proposing rules requiring the expenditure of public funds in excess of \$100,000 per year by local public bodies accompany the Notice of Intent to Adopt Rules with an estimate of the total cost to local public bodies for the two-year period following adoption of the rules. In the Notice of Hearing, the Agency states that the proposed rules will result in the expenditure of public money and the matter was discussed in the SONAR. A fiscal note was attached to the Notice of Hearing that contained the MPCA's estimate of the total cost to all local public bodies in the state to implement the rule for the two years immediately following adoption of the rule.

17. Minn. Stat. § 14.11, subd. 2, requires that an agency proposing a rule to determine whether the rule may have a direct and substantial adverse impact on agricultural land in the state and, if so, to then comply with the requirements of Minn. Stat. §§ 17.80 to 17.84. The proposed rules do not have an adverse impact on agricultural land in this state. As stated in the Notice of Hearing and the SONAR, the impact of the proposed rules is to lessen air pollutants and thereby protect agricultural lands from contamination.

18. Minn. Stat. § 14.115, subd. 2, requires an agency proposing rules that may affect small businesses to consider specified methods for reducing the impact of the rule on small businesses and to document in the SONAR how it has considered these methods. Minn. Stat. § 14.115, subd. 3, requires the agency to incorporate any of the methods considered that it finds to be feasible unless doing so would be contrary to the statutory objectives of the proposed rules. Minn. Stat. § 14.115 requires agencies to provide an opportunity for small businesses to participate in the rulemaking process by including a statement of the impact on small businesses in any advanced notice of proposed rulemaking, publishing notice of proposed rulemaking in publications likely to be obtained by affected small businesses, direct notification of small businesses that may be affected by the rule or conducting hearings concerning the impact of the rule on small businesses.

The MPCA addressed the small business impacts extensively in the Notice of Hearing and SONAR. It acknowledged that most of the business firms affected by the proposed rules were small businesses, the largest single class of which were groceries because of their use of small waste combustors to incinerate their waste. The smallest combustors, known as Class IV combustors, are the ones most likely to be used by small businesses. For the most part, the proposed rules ban Class IV combustors. Of course, this ban falls squarely on small businesses and the justification for it is discussed later in discussing that specific rule.

In the SONAR, the MPCA notes that it has reduced the impact on small business by exempting hospitals from the ban on Class IV combustors because they have very few alternatives in the disposal of medical waste. However, the small business requirements of Minn. Stat. § 14.115 do not apply to hospitals or other similar businesses whose standards and costs are regulated by the government. Minn. Stat. § 14.115, subd. 7(c). Nonetheless, it is clear that throughout the proposed rules, the Agency has considered, and applied where feasible, less stringent requirements for the smaller combustor operators and has used performance standards to the extent possible. Therefore, the Administrative Law Judge finds that the MPCA has complied with the requirements of Minn. Stat. § 14.115 in this proceeding.

Economic Impacts Evaluation

19. Minn. Stat. § 116.07, subd. 6, requires the MPCA, in exercising all its powers, which would include rulemaking, to give due consideration to business, commerce, trade, industry, traffic and other economic factors and matters affecting the feasibility and practicability of any proposed action.

As stated in the SONAR, this requires the MPCA to duly consider economic factors when adopting rules and to weigh the values of competing goals.

Thus,

the MPCA is mindful of the cost that environmental regulation imposes on people, businesses and other institutions and the need to take care that such

regulations do not strain the limits of available economic resources.

SONAR

at 364-365. In meeting this obligation, the MPCA prepared a cost estimate of

compliance with the proposed rules as described in the SONAR at 367-390 which

based in part upon a July 1993 study entitled Estimated Cost of Waste Disposal/Incineration and Alternatives prepared by MPCA staff and attached as

Exhibit 3 to the SONAR. The estimated cost for operating waste combustors in

Minnesota to comply with the rules was estimated at \$85 million in capital

costs and \$13.9 million in annual additional costs.

20. Several persons who generally favor stricter environmental controls argue that the MPCA's analysis fails to consider the economic costs associated with the damage to the environment caused by the failure to impose stricter standards on emissions and the failure to impose absolute bans on certain combustors. They presented studies which they argue provide measurable, comparable estimates of the economic value of control of the toxic emissions from combustors.

21. The MCEA presented several witnesses whose testimony, along with that of other witnesses, was summarized in its Final Comments submitted during the comment period. Ex. 86. A major argument of the MCEA is that the mercury limits proposed for Class C combustors and the lack of mercury limits for Class D and Class IV combustors are not reasonable because they are not commensurate with the magnitude of the mercury contamination problem in Minnesota. As part of that argument, MCEA argues that the MPCA's economic analysis is inadequate because it failed to consider the economic benefits from the use of pollution control equipment to decrease emissions of pollutants. Ex. 86 at 7. Because pollution from combustion sources creates environmental damage and has adverse effects on human health, fish and wildlife, enjoyment of the environment and the economic sectors particularly affected by those factors such as tourism, such pollution has a negative economic impact. Conversely, reducing such pollution creates some real economic benefits. Several witnesses testified that there are economic benefits associated with pollution control, that those benefits to the environment can be quantified and described in economic terms and that such benefits should be considered in promulgating rules for pollution controls. See e.g., Testimony of Shepard-Buchanan, T. 171-180, Ex. 52; Testimony of John Quighton, T. 187-194.

MCEA presented testimony estimating the economic value of reducing pollution from waste combustors using "externality costs" from a study entitled Environmental Cost of Electricity, prepared by Pace University Center for Legal and Environmental Studies (the Pace Study). MCEA generated its own cost estimates using the Pace Study methodology for mercury and dioxin emissions based on information provided by the MPCA in the SONAR and supporting documents, information contained in the Department of Public Services reply comments in a Public Utilities Commission proceeding to

establish interim environmental cost values, and a study entitled Economic Benefits of Reducing Toxic Air Pollution: a Minnesota Study by Patrick Welle, Daniel Hagen and James Vincent, July 1992 (Ex. 16). MCEA derived a range of costs for mercury pollution of \$1,240/lb to \$2,388/lb and at a range of environmental costs for dioxin emissions of \$2,314/gm to \$4,458/gm. Ex. 86 at 9.

22. The Minnesota Resource Recovery Association, a trade association representing the eight Class C waste combustors in Minnesota, opposes the proposals by MCEA to apply more restrictive mercury emission limits to Class C waste combustors (or at least the six Class C combustors that do not have the wet scrubber equipment already installed which removes substantial amounts of mercury from emissions). In the Association's post-hearing comments, Ex. 79, they argue that the contingent valuation survey performed by Professors Welle, Hagen, and Vincent, and upon which the MCEA figures are based in part, should not be relied upon. They cite a Harvard Law Review article that concludes that the contingent valuation method does not provide even a rough estimate of people's true preferences and therefore should not be used to value damage to

natural resources. Note: "Ask a silly question ... " Contingent Valuation Of Natural Resource Damages, 195 Harvard Law Review 1981 (1992) The article discussed the fact that the Department of Interior had adopted regulations approving the use of the contingent valuation method to assess natural resource damages for the purpose of implementing the Comprehensive Environmental Response, Compensation and Liability Act of 1980. The article talked about the unreliability of contingent valuation for this purpose and concluded by suggesting that the Department of Interior should reconsider its regulation (which it had adopted in spite of being presented with similar arguments).

23. In its Post-Hearing Response, the MPCA concluded that the Welle, Hagen & Vincent study's detailed findings were valid for other purposes, but did not apply to the issue of mercury control in waste combustors. The MPCA expressed its reasons for this conclusion as follows:

WHV [Professors Patrick Welle, Daniel Hagen and James Vincent] conducted a contingent valuation study of 2,000 households to determine their willingness-to-pay for a proposed set of regulations. Contingent valuation study methods get their name from their estimation of value that is based on a contingency. (How much would you be willing to pay if were to happen?) The 2,000 households sampled were given a questionnaire in which the expected benefits of the regulation were described and a range of household costs was defined. Respondents' answers were compiled into a set of willingness-to-pay estimates.

They also found that the best estimate of average willingness-to-pay was \$334.15 per year. This added up to a total willingness-to-pay of about \$550 million per year, or about \$0.35 per person per day.

The application of the air toxics study's findings do not apply to the proposed waste combustor rule. (Exhibit 86 at 9) WHV studied an economic condition that was much broader in substance and scope than the limited issues relevant to the proposed waste combustor rule. The main issue in the proposed rules is about direct regulation of mercury emissions at eight Class C waste combustors. The WHV study estimated the economic benefits of controlling emissions of over 300 toxic

substances in all sectors of the state's economy.

WHV estimated benefits for the whole state economy. The issue at hand in this case is limited to eight specific waste combustors. A localized distribution of environmental effects does not fit in with WHV's generalized study of benefits. The WHV study surveyed people who were distributed randomly across the state. Each person evaluated the same benefits associated

with the proposed air toxic regulation. An accurate survey of benefits from the proposed waste combustor rule would have to vary with respondents' locations relative to the mercury emission sources because the payment method would be local (e.g., increased tip fees). There may also be some local benefit, although there is no current measure or estimate of local benefits available.

The WHV survey assumed that households incur direct costs as a result of toxic emissions. A uniform distribution of cost is unlikely if the Class C facilities have to add mercury control equipment.

Prof. Welle in Duluth said the WHV study can be viewed as a statewide referendum on the issue of controlling toxic emissions. He pointed out that clear, and sometimes large, majorities of surveyed households supported three different versions of the proposed air toxic control regulations.

The MPCA accepts Prof. Welle's statement. The MPCA has found repeatedly during its twenty-year history that people in Minnesota tend to favor regulatory action to protect environmental values. WHV confirms this finding with credible statistics.

MPCA's Post-hearing Response at 32-34.

MCEA presented its own environmental benefit estimates to support the assertion that more stringent emissions standards are economically justified. Exhibit 86, at 8. The MCEA estimated that Class C facility controls on mercury render \$1,240 to \$2,388 of environmental benefit per pound of . Exhibit 53. The MPCA disputed the basis of the MCEA calculation, citing critical peer review of the Pace study and U.S. Department of Energy repudiation of the study. The total benefit under the MCEA formula was compared to the cost of the controls urged. The MPCA characterized the result as follows:

Estimated 20-year benefits (Exhibit 54 at 3, col. 4)	\$85 million
Estimated annual cost to Class C facilities (Exhibit 4c at Table 4.6, cols. 3 - 5)	\$10 \$12 million
Estimated 20-year cost: (operating cost + amortized capital cost) debt svc.	\$144 \$161 million

Costs exceed benefits by 70% to 90%

MPCA's Post-hearing Response at 36-37.

24. MCEA criticized the Agency for using different factors in its economic analysis for this rulemaking than those factors used in a prior rulemaking. The MPCA responded that "There is no requirement that the MPCA consider exactly the same economic factors in every rulemaking." MPCA's Post-hearing Response at 37, footnote 3. The Agency also pointed out the earlier rules were ambient air quality standards from all emission facilities, not strictly waste combustors. The Agency's economic analysis is not defective for using different factors for different rules.

25. Another reason given by the MPCA for not requiring more efficient mercury control equipment to six of the eight Class C combustors is the increase in household garbage disposal cost which would result. While the Agency's data was not stringently arrived at, the MPCA's estimate of \$65 per year in additional cost per Minnesota household is sufficiently precise to aid in the Agency's decision.

Effect on Tourism

26. Frank Hornstein, representing Clean Water Action Alliance; MCEA; Frank Schneider, past President and Treasurer of the Minnesota Sportfishing Congress; Chuck Meyer and Brett Smith on behalf of the Sierra Club; and others argued that the impact of mercury deposition into Minnesota lakes would have an adverse effect on the state's tourism industry. In particular, the negative effect of fish consumption advisories on sport fishing was advanced as a direct benefit of additional pollution controls. The MPCA disputed the claimed effect of pollution on tourism. In its response, the MPCA stated:

Available data on tourism and fishing show, to date, none of the harmful effects that have been asserted. The Minnesota Department of Health has issued fish consumption advisories since the mid-1970s. The Minnesota Department of Natural Resources (DNR) has completed two studies of tourism and fishing during the time when the advisories were made public. Exhibit 82, number 12. DNR findings show steady growth in tourism and fishing. The forecast is for continued steady growth in the future.

The DNR studies did not specifically investigate any mercury/fishing/tourism relationship. They were general surveys designed simply to identify trends, not underlying causes. If fish consumption advisories affected tourism during the 1970s and 1980s, the effect was not large enough to

make a noticeable difference in the sector's total output.

MPCA Post-hearing Response, at 41-42.

The Agency has given due consideration to economic factors in adopting these rules as required by Minn. Stat. § 116.07, subd. 6. Persons may disagree about where to draw the line, but the MPCA has in fact considered the impact upon the environment, in economic terms and others, in establishing the need for emissions control and setting the standards for emissions control.

Statutory Authority

27. Minn. Stat. § 116.07, subd. 4, provides that the MPCA may adopt rules for the prevention, abatement, or control of air pollution which may relate to sources of emission of air contamination or air pollution, the quality or composition of such emissions or to the quality or composition of the ambient air or outdoor atmosphere or to any other matter relevant to the prevention, abatement, or control of air pollution. The statute also provides that the MPCA may adopt rules for the collection, transportation, storage, processing, and disposal of solid waste and the prevention, abatement, or control of water and air pollution which may relate thereto and that such rules may relate to collection, transportation, processing, disposal, equipment, location, procedures, methods, systems or techniques or to any other matter relevant to the prevention, abatement or control of water, air, and land pollution related to solid waste.

28, The rules proposed in this proceeding include amendments to existing rules and new rules, all of which are directed to governing waste combustors in order to reduce emissions from those combustors. Therefore, the MPCA has statutory authority to adopt the proposed rules.

Substantive Provisions of the Proposed Rules

29. The portions of the proposed rules that were subject to comment or raise significant issues are discussed below. Any rule or rule subpart not discussed is found to be needed and reasonable and in compliance with all relevant substantive and procedural requirements of law or rule.

Definition; - Minn, R. 7011.1201

30. This rule provides the definitions of terms used in Minn. R. 7011.1201 to 7011.1285, which specifically deal with waste combustors, and related rules at 7007.0200, 7007.0250, 7007.0501 and 7007.0801, which are also being amended in this proceeding. Definitions are necessary to understand the rules where the terms are not commonly understood or where certainty of understanding is required. It is reasonable to include definitions to provide consistent understandings of the terms used.

31. Subparts 9 through 16 define eight different classes of combustors based upon combustor heat input capacity and by whether the combustor is "existing" or "new". The date of reference for determining whether the combustor is "new" is December 20, 1989, the date certain federal EPA regulations were applied. The existing combustors are classified as Class A, the largest, to Class D, the smallest. Class C includes the smallest combustor facilities that burn municipal solid waste (MSW) or refuse-derived fuel (RDF) and Class D was defined to separate regulation of the municipal waste combustors from the smaller industrial waste combustors and medical waste combustors that do not burn MSW or RDF. The minimum capacity to be defined as a Class D combustor is 3 million Btu/hr.

The "new" combustors are classified as Class I through Class IV. Class I waste combustors are the largest and have a design capacity of 93.75 x 100 Btu/hr or more, which covers the same capacities designated as Class A and Class B for the existing combustors. Class II combustors are equivalent to

the existing Class C combustors and Class III combustors are equivalent to the existing Class D combustors, that is they have a design capacity of 3.0×10^6 Btu/hr or more as a minimum capacity. Class IV is defined as combustors with a design capacity of less than 3.0×10^6 Btu/hr, regardless of age. This classification is appropriate because such combustors have never been regulated or required permits. The facilities in Minnesota that would be classified as Class IV waste combustors include those of grocery stores and other retail establishments, small commercial and industrial establishments, small hospitals and nursing homes.

Subpart 17 Cofired Unit

32. Subpart 17 defines "cofired unit" as an emissions unit which, in general, combusts 30 percent or less by weight of MSW or RDF along with a fuel that is not MSW or RDF. In other words, it is a boiler used for heating or generating electricity that mixes some MSW or RDF with its normal fossil fuel. These units are not designed primarily as waste combustors and are exempt from the standards and other requirements of these rules. Other rules apply to that type of combustor.

Minnesota Forest Industries and Minnesota Power urged the Department to modify the definition of "cofired unit" in subpart 17 to allow the burning of solid waste instead of mixed municipal solid waste. The effect of such a change is to allow burning waste wood for energy recovery. The MPCA indicated that such incineration was allowed and made changes in other portions of the rule to accommodate such incinerators. See Finding 38, below. The definition of "cofired unit" in subpart 17 is needed and reasonable, as proposed.

33. The MPCA has proposed a few modifications of the definitions in response to questions and comments at the hearing and in Post-hearing comments. See Attachment No. 1. The more significant modifications are discussed in this Report.

Subpart 33 Max-mum Demonstrated Capacity

34. United Power Association objected to the operating requirements of proposed rule 7011.1240, subpart 5, since the application of that rule to UPA's facility would deprive the utility of six megawatts of operating capacity. This deprivation would cost the utility, by its estimate, 1.8 million dollars. To meet the objection, the MPCA modified the definition of "maximum demonstrated capacity" in proposed subpart 33 to allow for alternative methods of calculating that capacity. In its Post-Hearing Response, the MPCA explained:

For those waste combustors who recover heat by generating steam, commentors indicated that complying strictly with the proposed requirements for measuring steam flow, thus unit load, would be very difficult and expensive. The reasonableness of allowing alternative methods of measuring unit load is discussed in the proposed revisions to Minn. Rules pt. 7011.1265, subp. 4a.

MPCA Post-Hearing Response, at 8.

The modification does not eliminate the proposed standard, it only allows a combustor operator to present an alternative method of demonstrating that capacity. If the Commissioner of the MPCA accepts that alternative method, the combustor operator need not meet the standard in the rule. The effect of the change is to allow a variance without the onus of the variance process. The modification addresses the commentator's objection to the proposed rules and does not constitute a substantial change. The subpart, as modified, is needed and reasonable.

Subpart 37 Normal Start-up

35. MCEA asserted that, as proposed, the definition of "normal start-up" did not contain any mechanism to require combustor operators to initiate testing for an existing combustor before a modification occurs to the combustor equipment. The MPCA agreed with the comment stating:

Proposed Minn. Rules pt. 7011.1270 requires emissions testing to begin once within "normal start-up". Rather than burden the text of Minn. Rules pt. 7011.1270 with explanations of what the testing schedule is if the facility is new versus when it is existing, the definition of "normal start-up" is revised to define normal start-up for existing facilities.

In order to allow facilities to plan and install equipment, "normal start-up" is defined to include the time provided in the rule for facilities to come into compliance with the provisions of the proposed rule under Minn. Rules pt. 7011.1215, subp. 5 or 6. The change is not substantial because it is a clarification of when existing facilities must test emissions.

MPCA Post-Hearing Response, at 8.

The language added to the definition eliminates the potential for confusion on what is a "normal start-up" for existing facilities. The rule, as modified, is needed and reasonable. The modification is not a substantial change.

RDF Stoker

36. The MPCA added a new definition of the term "RDF stoker." This new term is needed due to the addition of that term to the table in proposed rule

7011.1225, clarifying that the carbon monoxide (CO) standard applies to a specific type of combustion device, and not to the combustion of a fuel type known as RDF. The new definition is needed, reasonable and does not constitute a substantial change.

Subpart 45 - Solid Waste

37. Minnesota Power, Georgia Pacific, and Minnesota Forest Industries urged the MPCA to modify the definition of solid waste to exclude wood waste. The effect of the change is to allow combustion of wood waste outside some of the combustor restrictions. The MPCA declined to modify the rule, addressing the concerns of the commentators in other portions of the rule. The definition of "solid waste" in proposed subpart 45 is needed and reasonable.

Subpart 46 - Waste Combustor

38. The MPCA made two modifications to proposed subpart 46, defining "waste combustor." The term "waste" was modified in the subpart to read "solid waste." This change replaces a term which was not defined in the rules with one that is defined in the rules. The second modification expressly states that a combustion device burning primarily wood is excluded from the definition of "waste combustor." This modification meets the comments of Minnesota Power, Georgia Pacific, and Minnesota Forest Industries relating to combusting wood and wood products. The MPCA described the reasons for the modification as follows:

Emissions from boilers burning wood, wood waste, and paper mill sludges are different from solid waste combustor emissions. Metal emissions from wood-fired boilers depend on the amount of metals in the wood, and the efficiency of the control equipment. Organic emissions, in particular dioxin, appear to be far lower than for waste combustors. Carbon monoxide emissions are far higher than waste combustors, in particular because of the differences in the combustion facility and fuel properties (Exhibit 82 No. 4 p 8-38).

Because of the heightened concerns about emissions of toxic materials into the air, and the relative uncertainty of what happens to various industrial wastes during combustion in utility and industrial boilers, the MPCA has evaluated the combustion of industrial wastes on a case-by-case basis. The evaluation typically results in test burns, and the development of a permit that contains site-specific operating and monitoring requirements based on that test (Exhibit 82 Nos. 16 and 17).

The current rulemaking did not evaluate the performance of wood-fired boiler technologies, or the control of their emissions. It is not reasonable to apply waste combustor standards to these facilities without undertaking research similar to that conducted for waste combustors. Rather than mis-apply emission standards through this rulemaking, the MPCA will evaluate the environmental impacts from the combustion of treated wood, and other industrial wastes in boilers in a separate rulemaking whose purpose will be to evaluate the overall practice of burning non-MSW wastes in industrial and utility boilers.

Therefore, the MPCA will exclude wood-fired boilers from the definition of waste combustors in Minn. Rules pt. 7011.1201, subp. 46.

MPCA Post-Hearing Response, at 9-10.

The changes do not alter the rule from any policy intended by the MPCA. Subpart 46, as modified, is needed and reasonable. The changes do not constitute substantial changes.

39 In conjunction with the exemption of combustion devices burning primarily wood, the MPCA added a definition of "wood." The definition includes unprocessed wood in the form of bulk wood, sawdust, shavings, or other forms, and refuse derived fuel made of such products. The MPCA used the definition found in the Code of Federal Regulations 40 CFR Part 60, subparts Db and Dc which define "wood" as wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including but not limited to sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues (40 CFR 60.41b, 60.41c). MPCA Post-Hearing Comment, at 10. The different forms of wood are properly included in the definition since there is no significant difference between them in the process of combustion. The proposed subpart is needed and reasonable to identify what fuels are allowed in exempt wood-fired boilers. The new subpart does not constitute a substantial change.

Incorporations by Reference - Minn.R. 7011.12Q5

40. Minn. Stat. § 14.07, subd. 4, allows agencies to incorporate by reference the text from state and federal statutes and rules and other publications and documents that the Revisor of Statutes determines are conveniently available to the public. It also requires any such incorporations to be stated in the rules identifying the publication or document and stating whether it is subject to frequent change and a statement as to its availability.

41. These rules incorporate by reference certain technical reference documents and this part of the rules fully identifies the documents, states that they are subject to frequent change and states where they are available. In the rule certification attached to the proposed rules, the Revisor of Statutes identifies the same documents as being incorporated by reference. Pursuant to Minn. Stat. § 14.07, subd. 4, the Revisor's Certificate constitutes the Revisor's finding that the documents are conveniently available to the public.

42. In its Post-Hearing Response, the MPCA made a minor correction to the title of one of the documents referred to in this rule. The rule part, as modified, is needed and reasonable. The modification does not constitute a substantial change.

Ban on Class IV Waste Combustors.-Exceptions. Minn. R. 7011.1220

43. Minn. R. 7011.1220, subpart 1, states that no person shall operate a Class IV waste combustor unless that combustor falls within one of four categories: A waste combustor located at a hospital; a waste combustor located at a forensic science laboratory; a crematorium, pathological waste combustor, or waste combustor used solely for the disposal of animal carcasses; or a metals recovery incinerator. In its Post-Hearing Response, the MPCA made some nonsubstantive language improvements to this subpart. See Attachment No. I. Subpart 2 of this rule prohibits all waste combustors from combusting yard waste or waste tires unless specifically allowed to do so in the air emission permit for that waste combustor.

44. The MPCA evaluated three factors in deciding how to regulate the Class IV waste combustors: The environmental impact of Class IV waste combustors, the MPCA's resources available for enforcing standards at Class IV waste combustors and the cost of owning and operating a Class IV waste combustor in compliance with current and proposed standards versus the cost of other methods of disposal. SONAR at 131. The MPCA estimates that there are up to 1,300 incinerators in operation throughout the state. The great majority of these, about 1,000, are located in grocery stores. There are 20 still operating at hospitals, 18 at nursing homes and the remainder are found in other retail, commercial and industrial facilities and governmental operations, including schools.

The operation of the existing Class IV waste combustors results in high localized ambient air concentrations of particulate matter (PM), metals and dioxins. For example, the MPCA has estimated that in 1990, all Minnesota waste combustors other than very small combustors, the Class IV waste combustors, emitted 1,542 gm/yr of dioxins. At the same time, it estimated that the Class IV waste combustors themselves emitted anywhere from 2,330 to 23,296 gm/yr of dioxins. SONAR at 24 and Appendix 2. Similarly, according to the tables in Appendix 2 of the SONAR, the Class IV combustors emitted 1,104 lbs of the total 2,873 lbs of mercury emitted by Minnesota's waste combustors in 1990. Even though there were 1,300 Class IV combustors as compared to about 37 larger combustors, the Class IV combustors actually burned less than 10 percent of the total amount of waste combusted in 1990. Thus, both in total emissions and in emissions per pound of waste combusted, the Class IV waste combustors produce an extremely high amount of toxic emissions.

The MPCA selected three hospital incinerators for testing which appeared to be among the best operated hospital incinerators in the state. These three particular incinerators all exceeded particulate matter and opacity emission limits in the existing standards of performance. From that test, the MPCA

assumed it to be likely that the remaining 140 or so hospital incinerators were also likely to be out of compliance and, in 1992, requested that all hospitals operating waste combustors demonstrate compliance with existing rules, upgrade their incinerators to achieve the existing standards or cease operation. Most ceased operating and chose alternative means of waste disposal, The remaining 20 are attempting to demonstrate compliance with the existing standards of performance.

Based upon the experience with the hospital incinerators, the MPCA reasonably assumes that virtually all existing Class IV incinerators are not meeting existing standards. The MPCA staff is inadequate to staff any program that would allow the Class IV waste combustors to obtain permits. In the SONAR it argued that it did not have sufficient Air Quality Division staff to regulate 1,300 air emission sources. That is a somewhat specious argument because if only 20 of 140 hospitals are attempting to comply with the old limits, we could expect something less than 180 of the existing Class IV combustors to attempt to comply with the new limits being adopted in this proceeding. Nonetheless, it would be a substantial increase in the staff burden because, at the present time, the Air Quality Enforcement staff conducts about 450 facility inspections per year. SONAR at 132.

The MPCA expects that most Class IV waste combustors would not be able to meet the standards imposed under the revised rules. Moreover, an MPCA

analysis of the cost of disposal for Class IV waste combustors and alternatives to using the combustor concludes that in the case of grocery stores and other retail and commercial facilities, it is always less expensive to use commercial disposal of solid waste, with or without recycling, than to incinerate the same quantity of solid waste. SONAR at 133-135. Thus, it is generally reasonable to ban Class IV waste combustors entirely.

Class IV Combustors at Nursing Homes

45. Lakeview Methodist Health Care Center (Lakeview), Representative Henry Kalis, Care Providers of Minnesota (Care Providers), and Marshall Nelson & Associates (Marshall Nelson) objected to the ban on Class IV waste combustors as it applies to combustors at nursing homes. The MPCA's basis for banning these combustors was challenged by Marshall Nelson, insofar as the two new incinerators that Marshall Nelson has tested in the past eighteen months meet the proposed emissions limits. The three older combustors tested by the MPCA failed the proposed limits. Marshall Nelson maintains its test of two incinerators is more "statistically valid" than the MPCA's test.

Neither the MPCA test nor Marshall Nelson's test are statistically valid, because neither is a random sampling and both the sample sizes are too small. The MPCA chose three existing incinerators in good condition following proper incineration procedures to determine if the run of the mill Class IV combustor could meet the proposed emission standards. Marshall Nelson's test was limited to new combustors it had installed. Those combustors are not representative of the 1,300 existing Class IV combustors in Minnesota.

46. Lakeview, Representative Kalis, and Marshall Nelson maintained that the costs of alternative disposal exceed the cost of incineration. Lakeview shut down its incinerator in 1991 due to a failure in the chimney. The cost of incineration is described as \$200 per month. Exhibit 57. Lakeview estimated its cost of hauling as between \$800 to \$1,200 per month. Id. Marshall Nelson provided an economic analysis to show that incineration was one-third as costly as hauling uncombusted waste. Exhibit 69.

The MPCA asserts that the cost of disposal by hauling is always lower than the cost of disposal by combustion, if the combustion is conducted by a Class IV combustor that is meeting the hospital waste combustor emission standards. Exhibit 4C. The MPCA used the Cost Control Manual of the U.S. Environmental Protection Agency's Office of Air Quality Planning and Standards (OAQPS) to estimate costs of waste disposal. Cost estimates cited by the commentators failed to include many legitimate costs in arriving at the true cost of incineration. For example, no commentator included the cost of hauling ash in its cost estimate for incineration of waste. Lakeview has ceased its incineration due to the expense for repairing its chimney, but it did not include that amortized repair cost in its estimate for the total cost of incineration.

Only eighteen nursing homes currently operate incinerators out of 444 nursing homes in Minnesota. Presumably, the other 426 nursing homes have resolved their waste disposal needs without incurring undue expense. Janet Woehrle, a registered nurse at Itasca Medical Center, recounted that hospital's experience in waste reduction and prevention and indicated that the hospital saved \$11,030 per year through those efforts. Exhibit 73. The comment did not identify whether those savings came from reduced use of disposable materials or reduced cost of disposal.

47. The MPCA has demonstrated that the ban on Class IV combustors is not unreasonable due to the cost of alternative methods of waste disposal. The Agency's calculations were more detailed and comprehensive than those of the commentators. These calculations show disposal of infectious wastes from small generators by Class IV combustors as more expensive in overall cost than hauling.

Exceptions to the Class IV Ban

48. The MPCA has created four exceptions to the ban on Class IV waste combustors. The first is for waste combustors located at hospitals. In its cost analysis, the MPCA found that the cost to larger hospitals to incinerate the large quantity of infectious waste they generate becomes comparable to the cost of commercial disposal for the infectious waste.

Browning Ferris Industries, Inc. (BFI) argued that exempting hospitals from the Class IV combustor ban but not nursing homes has no rational basis and violates equal protection. This argument was not made to support exempting nursing homes, but rather to oppose exempting hospitals from the Class IV combustor ban. This is the same argument used by the MPCA to justify its ban on Class IV combustors; that hauling is available at reasonable cost. BFI proposed that any incinerators allowed under the proposed rules undergo the permitting process and meet specific emissions standards adopted for Class IV combustors.

Beyond the equal protection and rational basis arguments, BFI maintained that exempting some Class IV combustors would conflict with the MPCA's statutory obligation to prevent pollution. BFI cited the Agency's own technical data to suggest that the emissions from all Class IV combustors require the protections of the permit process and ongoing monitoring.

The justification for exempting Class IV combustors located at hospitals from the ban on such combustors is that hospitals produce a large volume of infectious waste for which incineration is an appropriate disposal option.

Nursing homes generate less waste classified as "infectious waste" requiring the more stringent (and expensive) disposal methods. BFI maintains that the cost for providing appropriate hauling services for infectious waste, even in the volume that such waste is generated by hospitals, is reasonable.

MCEA and the American Lung Association opposed exempting Class IV combustors located at hospitals, but proposed that a phase-out period of five years be allowed. The proposal allows hospitals to arrange alternative disposal methods and provides a period for haulers to develop fully adequate disposal services to all areas of Minnesota. At present, ten haulers operate in Minnesota using seven treatment facilities. The two facilities of those seven that are located in Minnesota handle the bulk of the infectious waste hauled in the state. The MPCA stated:

Exhibit 4C states "there are now 10 commercial transporters offering services in Minnesota using seven different infectious waste treatment facilities." Of the seven treatment facilities used, however, only two are located in Minnesota. These two facilities have the majority of the market. While the MPCA agrees that there is ample capacity for the disposal

of infectious waste in Minnesota, there is not a lot of competition among the waste treatment facilities. As stated in the SONAR (pages 135 through 137) a ban on hospital incinerators would place these facilities in a position of extreme dependence upon the commercial infectious waste disposal providers. If one or more the infectious waste treatment facilities were to discontinue to offer the service, the incentive to offer the service at an affordable price decreases. The hospitals, and other smaller quantity generators of infectious waste, are then captive to the pricing practices of the remaining providers without alternatives.

MPCA Post-Hearing Response, at 56.

The hospitals operating Class IV combustors handle much larger amounts of infectious waste than do nursing homes. So long as hospitals operate waste combustors those hospitals can serve as regional disposal centers and reduce the disposal costs of medical clinics, dental offices, and nursing homes for infectious wastes. Because there are very few commercial providers of infectious waste disposal in Minnesota, the MPCA is justified in its belief that banning the larger hospital waste combustors would place those hospitals in a position of extreme dependence on those few infectious waste disposal providers, which could result in uncontrolled disposal costs for them. SONAR at 136. Thus, the MPCA has demonstrated that exempting waste combustors used at hospitals from the ban on Class IV waste combustors is needed and reasonable. Allowing the Class IV combustors located at hospitals to function also supports the reasonableness of banning such combustors at nursing homes by providing alternatives for disposal of infectious waste from those facilities.

Exception for Forensic Laboratories;

49. The Minnesota Department of Health (MDH) asserted that it should be exempted from the Class IV combustor ban because its waste is similar to that in hospitals. MDH also suggested that, as a forensic laboratory, it was entitled to the same treatment as the forensic laboratory of the Bureau of Criminal Apprehension. The MPCA responded that:

At the generation rate stated (40 to 60 lb/wk. of infectious and

laboratory waste) the cost of commercial infectious waste disposal is always cheaper than incineration (Exhibit 4C, page 98).

MPCA Post-Hearing Response, at 61.

The situation of MDH is more akin to nursing homes than hospitals. The exemption of the forensic laboratory combustor operated by the BCA will be discussed below. The MPCA has demonstrated banning the Class IV combustor operated by MDH to be needed and reasonable. Other waste disposal options exist for MDH. These same reasons apply to preclude any exemption from the Class IV combustor ban for the laboratory operated by MDH.

50. The MPCA proposes to exempt waste combustors located at forensic science laboratories from the Class IV ban. This exception was requested by the Bureau of Criminal Apprehension (BCA). SONAR Appendix 5. The BCA is a

law enforcement agency that uses its Class IV incinerator to incinerate what it calls infectious waste and drug evidence that it collects during its involvement in criminal cases. The BCA incinerates approximately 800 lbs of infectious waste and 200 lbs of drug evidence each year. The MPCA proposes to exempt forensic science laboratories because of privacy interests surrounding the evidence analyzed by the laboratory. The BCA requested the exemption on the grounds that the illegal drugs must be used in the performance of its official duties or destroyed. Minn. Stat. § 609.5316, subd. 1. The BCA says that because it is illegal for anyone other than a person or entity registered with the Drug Enforcement Administration to possess the drugs, the drugs could not be provided to a private waste disposal service for disposal. Moreover, they state that transporting the contraband to another facility for disposal would also risk diversion of the drugs. Therefore, they claim, it is necessary for the BCA to dispose of the drug contraband itself. The BCA also argues that its evidence is investigative data under the Government Data Practices Act, which is confidential and cannot be released. Thus, the blood and urine samples and blood-soaked materials it analyzes cannot be released to disposal facilities without removing all identifying characteristics. Lastly, it argues that its blood and blood-soaked materials are infectious waste and that the same concerns raised by hospitals in disposing of infectious waste apply to the BCA.

51. The MPCA has failed to demonstrate the reasonableness of the exception for waste combustors located at forensic science laboratories in two respects. First, the use of the term "forensic science laboratory" and its definition appears to be far broader than the exception contemplated by the MPCA. The term is defined in Minn. R. 7011.1201, subp. 23, as a laboratory engaged in the analysis of evidence for legal proceedings. It is not at all clear from the record whether the MPCA intended the exception to apply to just the BCA laboratory or to all laboratories operated by the law enforcement agencies engaged primarily in the analysis of evidence for criminal

investigations and proceedings. At page 244 of the SONAR, the MPCA indicates the exception would cover one or two laboratories. In any event, the definition could apply to virtually every laboratory or testing agency in the state because many tests and analyses are used in many kinds of "legal proceedings." Such an exception is too broad and would exempt too many incinerators that lack even the needs of the BCA.

52. The exemption for the BCA, and similar law enforcement laboratories if that was intended, is not justified by BCA's stated needs, particularly in light of the MPCA's refusal to grant exemptions to nursing homes, the MDH laboratory, and some small hospitals. All of these appear to be similarly situated to the BCA, except for the drug contraband. If the fact that the BCA has "confidential" information requiring it to incinerate that data, then thousands of state agencies, political subdivisions, health care providers and social service agencies would require incinerators to destroy their nonpublic data. Likewise, the BCA's amount of blood, urine and blood-soaked materials, to the extent that it actually constitutes "infectious waste," is small. It should be far more economical for the BCA to send that waste to a regional hospital or to another infectious waste disposal provider than to combust the material itself.

The only thing unique about the BCA is that it has drug contraband that must be destroyed. But 200 lbs per year is hardly justification for operating a waste combustor. Moreover, there does not appear to be any other law

enforcement agency in the state, all of which deal with drug contraband, that has requested an exception from the ban on Class IV incinerators. Again, it should be far less expensive, and just as secure, for police officers to transport this contraband to a waste combustor and insure that it is destroyed. BCA's needs are matters of cost and convenience that are not greater than those of nursing homes, grocery stores, and small hospitals. Allowing an exception for the BCA, and other similar law enforcement agency incinerators if that was what was intended, has not been demonstrated to be reasonable. To cure this defect, the proposed exemption for forensic laboratories must be deleted. The Agency must also delete the references to forensic science laboratory found in the proposed rules at 7007.0250, subp. 6(2); 7011.1233, subp. 4; 7011.1210; and, 7011.1201, subp. 23. These deletions conform with the correction of a defect in the rules and they do not constitute a substantial change.

Pathological-Waste Combustors-And Metal Recovery incinerators

53. The PCA has provided an exception from the Class IV ban for those combustors used for the cremation of human remains and the disposal of pathological waste and animal carcasses because there are no suitable alternatives for disposal of such waste. The MPCA has demonstrated that this exception is reasonable for that reason.

54. The MPCA has also exempted metal recovery incinerator units from the Class IV waste combustor ban. There are ten known units currently operating in Minnesota and there is presently no adequate alternative to incineration for this process. However, because of the potential for improper or poor operation, standards of performance are imposed on these facilities, along with a requirement to obtain an air emissions facility permit. For these reasons, the exception has been demonstrated to be reasonable.

Health and Odor

55. Dennis R. Sandvig, Administrator of the Buffalo Lake Nursing Home, and Catherine A. Hagen, R.N., Administrator of Naeve Parkview Home, asserted that the waste generated by nursing homes is susceptible to producing foul odors and health concerns which compel the nursing home operator to dispose of

the waste daily. Where such disposal is by hauling, the commentators suggest that the service is unavailable, or not available at a reasonable cost. The MPCA responded to these comments as follows:

Another typical comment presented is a potential odor problem. Commentors argue that the only way to deal with this problem is through daily pick-up of the waste and special containers required to deal with the waste. Daily pick-up is said to be prohibitively expensive. If the chucks and diapers are properly bagged and sealed, there should not be a persistent odor problem and therefore, it is unnecessary to have daily pick-up. Only waste that is defined by Minnesota Statutes as infectious waste requires special containers. Since the quantity of infectious waste generated at nursing homes is small, this cost is not significant. Again,

approximately 96 percent of the nursing homes have found ways to deal with these concerns.

MPCA Post-Hearing Response, at 55.

Buffalo Lake Nursing Home argued that nursing homes would be unable to comply with the infectious waste rules if the use of on-site Class IV combustors are denied by the MPCA. The Agency pointed out that the majority of organic-contaminated waste from nursing homes consists of chucks and diapers, These products are contaminated with fecal matter and urine, neither of which fall under the infectious waste requirements. Minn. Stat. § 116.76.

The MPCA has carefully considered the impact of including nursing homes in the ban on Class IV combustors. The evidence supports the Agency's position. Any nursing home that can demonstrate an undue hardship arising from this ban may apply for a variance. Including nursing homes in the ban on Class IV combustors is needed and reasonable.

Meat Processing Plants

56, Robert Huisken, Plant Manager for Huisken Meat Center, Inc., objected to including combustors located at meat processing plants in the Class IV combustor ban. The only other disposal option identified by the commentator was landfilling their waste, which was described as more expensive and more environmentally damaging. The MPCA asserted that ordinary cardboard, which comprises the bulk of the waste combusted, is most appropriately recycled. Huisken pointed out that blood-soaked cardboard is not suitable for recycling. Alternatives were explored by the Agency, among them were waxed cardboard, plastic containers, and plastic bags inside plain cardboard containers. If plastic bags are used, the volume of unrecyclable cardboard is drastically reduced. MPCA Post-Hearing Response, at 59-60. The variance procedure is available if a person can demonstrate a particular waste disposal situation justifies operating a Class IV combustor.

The MPCA has carefully considered the concerns of meat processors and concluded that the benefits of including those combustors in the ban outweighs the additional cost that might be incurred. The Agency has shown that the proposed rule is needed and reasonable.

Grocery Stores

57. One grocery store objected to the cost of disposing of cardboard once Class IV combustors located at grocery stores are banned. The MPCA characterized the cardboard waste as the "most-often recycled wastes" produced by grocery stores. MPCA Post-Hearing Response, at 61. The same analysis used for meat processors applies to grocery stores, but with even more force, since less cardboard is contaminated and thereby not suitable for recycling. Banning Class IV combustors located at grocery stores has been shown to be needed and reasonable.

Requirements of Class IV Waste Combustors - Minn. R. 7011.1235

58. This rule was previously entitled "Stack Height and Combustion Chamber". The PCA has retitled it to more correctly reflect its contents. It is reasonable to do so.

Subpart 1 Stack Height

59. Subpart 1 of this rule establishes a formula for the minimum stack height required at Class IV waste combustors. Because these combustors typically have short stacks and low exhaust gas flow rates, they tend to create localized high ambient air concentrations of emitted pollutants. Where a Class IV combustor stack (chimney) is nearby any building, the height of the stack must meet the requirements in proposed rule 7011.1235, subpart 1. The subpart sets out a formula for calculating the minimum acceptable height. A stack is nearby if it is within the lesser of five times the building's height or width. The nearby building which yields the tallest required stack height is to be used for the calculation.

There are two different calculations to determine the required stack height. Under the first calculation, the stack height must be equal to or greater than one and one-half times the height of the building. For the second calculation, the stack height must be equal or greater to the height of the building and one-half the longest diagonal distance of the building footprint. Only the lesser height limit of these two calculations is required of Class IV combustor stacks.

Immanuel St. Joseph's Hospital objected to the stack height requirement as too costly. The commentator also suggested that higher stacks posed a danger to helicopters transporting patients, a common practice at hospitals. Marshall Nelson maintained that the stack height standard is arbitrary and unreasonable. The American Lung Association also objected to stack height requirements, but on the ground that emissions controls are necessary rather than greater dispersal.

Dr. Rita B. Messing, Environmental Toxicologist for the Minnesota Department of Health, supported the MPCA's position on stack height as appropriate for providing the pollution protection necessary to avoid health problems for persons in the vicinity of the combustor stack. (Exhibit 13ee)
Roger Johnson, Director of Plant Operations for St. Gabriel's Hospital,
Roger

A. Haines, Director of Buildings and Grounds for Community Memorial Hospital and Richard G. Korman, Research Analyst for the Minnesota Hospital Association objected to the potential for increased awareness of the surrounding community to the presence of a waste combustor. Some commentators suggested that the rules either establish a minimum stack height requirement or more stringent emission limits but not both. The Minnesota Hospital Association suggested Class IV combustor operators be given the opportunity to demonstrate that the emissions from their stacks at the existing height poses no health risk. (Exhibits 13bb, 13e, 13h, 13n, 13o, 13p, 13q, 13r, 13bb, 13ee, 42, 43, 58, 68, and 69).

In response to these comments, the MPCA stated:

It is not redundant to establish a minimum stack height for waste combustors and more stringent emission limits. The proposed emission limits were established at a less than optimal level in recognition of the fact that more stringent limits would have been impossible to meet due to the cost of the control equipment. With little or no dispersion or

dilution as a result of a too short stack, the ambient air concentrations of pollutants can be high even when the stack gas concentrations meet air emission limitations. Emissions from a short stack are troublesome due to the manner in which objects affect air flow. Short stacks can result in emissions (at high concentrations) being drawn into the air intakes for nearby buildings (T. vol. II, pages 29 to 36). The SONAR discusses this issue in more detail on pages 250 and 251 and 253 through 260.

Three possibilities were considered in light of the comments:
1) eliminate the stack height requirement; 2) change the formula for determining the minimum stack height; and 3) allow alternative techniques to achieve the same dispersion as a taller height and require individual permits.

The MPCA considered eliminating the stack height requirement from the proposed rule as has been requested by commentors. However, the potential result is continued high local ambient concentrations of pollutants (specifically metals, dioxin, and hydrogen chloride) near the stack. (See Table IV-15 on page 68 of Report on the Assessment of Operation and Emissions of On-site Medical Waste Incinerators, MPCA, 12/91). Since more is known now, compared to when the current rule was promulgated, about the pollutants emitted from Class IV medical waste combustors and the high concentration of pollutants that result from short stacks, it would be irresponsible to allow this situation to continue.

If the formula for determining the minimum stack height were changed to allow a lower effective stack height, it would have the same potential result as eliminating the requirement all together. As discussed in the SONAR on pages 256 through 258, the minimum stack height formula, as proposed, raises the exhaust plume above the most severe region of building

downwash. To change the formula to allow short stack height would place the plume in this region of severe downwash. The result is continued high local ambient concentrations of pollutants near the stack. Therefore, it would be unreasonable to change the proposed formula in that manner.

The proposed rule has been changed to allow the owner or operator to comply by 1) exhausting flue gases through a stack that complies with the minimum height requirement as originally proposed in Minn. Rules pt. 7011.1235, subp. 1, or by 2) employing any alternative technique that achieves the same dispersion of emissions as the requirement in Minn. Rules pt. 7011.1235, subp. 1, and obtaining a permit that reflects the specific characteristics of the facility.

MPCA Post-Hearing Response, at 4-5.

The MPCA has carefully considered the relation of emissions and combustor technology in arriving at the stack height requirement. The Agency has

identified a need for establishing a general stack height requirement for Class IV combustors. The minimum height proposed has been shown to be reasonable. To ensure no combustor operator is unduly restricted, the MPCA has modified the rule to allow combustor operators to demonstrate that they can achieve the same result with another method.

60. The concept of allowing a Class IV combustor to employ an alternative technique that achieves the same dispersion and to require that a permit be obtained in such a case is reasonable and not a substantial change in the rules. However, the language chosen by the MPCA to carry out its intent is confusing. First, no addition is made to Rule 7011.1235, subp. 1, the stack height requirement, indicating that a waste combustor can employ an alternative technique to the stack height requirement if it obtains a permit to do so. Thus, on reading the subpart, it would appear that the stack height requirement is absolute. The MPCA has added language to Minn. R. 7007.0250, subp. 6, regarding the alternative to the stack height requirement. That subpart, as originally proposed, required all waste combustors to obtain a state permit unless it was a Class IV waste combustor at a hospital or forensic science laboratory or a crematorium, pathological waste combustor or waste combustor used solely for the disposal of animal carcasses. To the list of waste combustors listed under this subpart that do not have to obtain a state permit, the MPCA proposes to add:

A Class IV waste combustor that does not demonstrate compliance with the stack height provisions of part 7011.1235, subp. 1;

Sep Attachment No. 1. It was the MPCA's intent to say that even though it is a Class IV waste combustor that is exempt from the ban and otherwise would not be required to obtain a permit, a Class IV combustor that chooses to use an alternative technique to the stack height requirement must nonetheless obtain a state permit. The language of the rule does not do so. In fact, the rule actually creates a new group of Class IV waste combustors exempt from the permit requirement that consists of those Class IV waste combustors that do not comply with the stack height requirements. This result is just the

opposite of what the MPCA intended. The Administrative Law Judge would recommend that Minn. R. 7007.0250, subp. 6, as originally proposed, be modified to read as follows:

Subp. 6. Waste combustors. A waste combustor, as defined in part 7011.1201, must obtain a permit under this part unless it is:

- 1) a Class IV waste combustor-used-for-the-on site
located at a hospital, or
- 2)

2) a waste combustor subject to the exemptions in part 7011.1215, subpart 3.

Notwithstanding the foregoing exemptions a class IV waste combustor that does not comply with the stack height requirement of part 7011.1235 subp. 1 but uses alternative techniques to achieve equivalent ambient pollution concentrations must obtain a permit under the part.

A provision should also be added to Minn. R. 7011.1235, subp. 1, indicating the availability of using an alternative technique to the stack height requirement if a permit is obtained.

Class IV Mercury and Ash Plans

61. The MPCA has also proposed to add a new subpart 3 to this rule to require Class IV waste combustors to implement mercury and ash plans. In its Post-Hearing Response, the MPCA stated that several commentors had noted that this was not required by the proposed rules, that it had intended that the plans be implemented and that it would not make sense to require a plan without implementation. The new subpart would require the plans to be implemented upon submittal. This provision is reasonable and not a substantial change.

Emission Limits for Pollutants Other Than Mercury Minn. R. 7011.1215 and 7011.1225-7011.1233

62. The actual emission limits for waste combustors are set forth in Minn. R. 7011.1227 for Class A, B and C waste combustors, Minn. R. 7011.1229 for Class I and II waste combustors, Minn. R. 7011.1231 for Class III and D waste combustors and Minn. R. 7011.1233 for Class IV waste combustors. These limits, except as to mercury, will be discussed in this section. Mercury emissions control, including the emission limits on mercury, will be discussed in the next section.

63. Minn. R. 7011.1215 is entitled Applicability of Standards of Performance for Waste Combustors. This particular rule sets forth to whom the standards apply and how quickly existing facilities will need to come into compliance with the standards. Under subparts 1, 2 and 3, the standards apply

to all waste combustors except cofired facilities, who are subject to other specified rules, and crematoria, pathological waste combustors and waste combustors used solely for disposal of animal carcasses. The reason for exempting these facilities has been discussed above. Subpart 3 of the rule does impose some performance standards on crematoria, pathological waste combustors units and waste combustor units used for disposal of animal carcasses by prohibiting them from emitting gases that are greater than 20 percent opacity, requiring them to install and operate an afterburner that maintains flue gases at 1,200°F for at least 0.3 seconds and requiring them to store and transport ash in a manner that prevents avoidable amounts of particulate matter from becoming airborne. Emissions from pathological waste incinerators have been measured by the EPA and found to contain very low concentrations of metals, particulate matter and dioxins. Therefore, the MPCA

has determined that the control requirements being placed on medical waste incinerators are not required, but that to prevent these facilities from becoming a nuisance, these standards, which are not burdensome, should be applied. The rule is reasonable.

64. Subpart 4 states that the standards apply at all times when waste is being combusted except during start-up, shut down or malfunction for a period not exceeding three hours. This rule is generally consistent with the federal rule regarding new source performance standards at 40 C.F.R. § 60.8(c). It is reasonable.

65. One commentator objected to the effect of subpart 4, insofar as the rule rendered operators subject to an enforcement action for violating operating procedures even where that violation did not result in an emission limit being exceeded. In its Post-Hearing Response, the MPCA expanded this subpart to apply to the emission limits for Class IV combustors set out at part 7011.1233 and the particulate matter control device operating temperature and mercury additive feed requirements of pt. 7011.1240, subs. 2 and 6. The MPCA justified this modification as follows:

This subpart is revised to expand the applicability of the three-hour exemptions for startup, shutdown or malfunctions. One comment suggested that a violation of an operating requirement that did not lead to a violation of an emission limit would nonetheless subject the operator to an enforcement action. The promulgated federal standards and guidelines and the supporting documents were reevaluated and the MPCA interpretation was reviewed in light of the comments received. The MPCA believes that the U.S. Environmental Protection Agency (EPA) intended to include the operating standards in the startup, shutdown and malfunction exemption from standards. For this reason, the proposed rule is revised to reflect this interpretation.

MPCA Post-Hearing Comment, at 11.

The modification meets the concern of the commentator, is reasonable and is not a substantial change.

Transition Period for Standards

66. Minn. R. 7011.1215, subp. 5, gives Class A, B and C waste combustors holding a permit on the effective date of the rule three years to comply with the requirements of these rules. That is the maximum allowed by an EPA requirement that states' rules must require that municipal waste combustors be in compliance within 36 months after the effective date of state emission standards. No transition period is specified for Class I or II waste combustors because there are none currently operating in Minnesota. Subpart 6 allows Class D, III and IV waste combustors operating on the effective date of these rules until January 30, 1996, to comply with the proposed rules except that a Class IV waste combustor operating under an air emissions permit issued between December 1, 1992, and the effective date of these rules must comply with the new rules upon expiration of the permit. The shorter transition time

allowed for the smaller combustors is reasonable because a lesser time is required for them to make any modifications required of them. With regard to the Class IV facilities, the proposed emission limits may not require the installation of any air pollution equipment at all because the standards are based upon the use of very good combustion equipment and good operating practices.

Emission Standards

67. Minn. R. 7011.1225 is entitled Standards of Performance for Waste Combustors and contains the actual prohibition on waste combustors emitting gases into the atmosphere that contain particulate matter, polychlorinated dibenzo-p-dioxines and polychlorinated dibenzofurans (PCDD/PCDF), mercury, carbon monoxide, sulfur dioxide, or hydrogen chloride in excess of the amounts set forth in parts 7011.1227, 7011.1229, 7011.1231 or 7011.1233, whichever applies to that particular class of waste combustors. The need for and reasonableness of controlling these pollutants was studied for years by the MPCA and has been well documented in the SONAR and during the hearing process.

In setting the standards contained in these rules, the MPCA has followed the lead and requirements of the EPA. The EPA has concluded that standards of performance for waste combustors need to be established due to health-related issues and requires that states submit plans that establish emission standards for existing sources that are at least as stringent as the EPA guidelines. 1990 amendments to the Clean Air Act require that standards of performance for both new and existing waste combustors must now reflect the application of "maximum achievable control technology" or MACT. In developing the standards here, the MPCA has extensively analyzed the control technologies for industrial, medical and commercial waste incinerators and considered the cost of incorporating such equipment in developing its standards.

The standards set here are based upon a thorough, rational analysis of the scientific evidence and economic factors. Therefore, the MPCA has demonstrated the reasonableness of its proposed standards of performance. All the emission limits are technologically and economically achievable. In some cases it is clear that a majority of the combustors in a class are already achieving the limit, so even stricter limits could be justified. But the proposed limits should still lead to significant air quality improvements.

MCEA suggested that the different emission standard for Class D combustors burning more than 30% RDF as of January 1, 1991, be deleted. The MPCA did alter the subpart containing that exemption, but only to clarify the which rules apply to Class D combustors. The MPCA based the differential treatment on the need to allow two existing Class D combustors that combust 100% RDF to continue operating. Errata SONAR, at 5. The MPCA considered the intent of the Legislature in enacting Minn. Stat. § 116.90 in coming to this conclusion. id. The treatment of Class D waste combustors has been shown to be needed and reasonable.

Table 1

68. Minn. R. 7011.1227, entitled Table 1, sets the emission limits for Class A, B and C waste combustors. These are the larger classes of combustors that were issued permits before December 20, 1989. They are the existing

municipal waste combustors. The fact that they were issued permits on or before December 20, 1989, is part of the definitions of these waste combustor classes, but that date is restated, redundantly, in Minn. R. 7011.1225, 7011.1227 and 7011.1229. These references to the date do not render the rules unreasonable, but they create an impression that there are different standards for Class A, B and C waste combustors that did not hold a permit on December 20, 1989. By definition, there are no such waste combustors. The MPCA may wish to delete the redundant language.

69. At the present time there are 12 municipal waste combustors that fall into Class A, B or C; two Class As, two Class Bs, and eight Class Cs. Kent Burton, President of Integrated Waste Services Association, suggested adopting federal emission guidelines on dioxins for very large waste combustors. The MPCA responded:

Adopting this suggestion in these proposed rules would results in dioxin emission limits that are least 4 times more generous than the proposed standards, and at least 10 time more generous than what Class A facilities are currently emitting. Exhibit 4d, p. 34. As discussed at length in the SONAR, the emission limits are technology-based, and are achievable. The dioxin limits will not be changed.

MPCA Post-Hearing Response, at 47.

70. UPA suggested that the S02 emission control standard of 70% could not be met with the existing scrubber and baghouse technology installed at its Elk River facility and the cost to improve that technology is unreasonably high. The EPA removal rate of 50% of S02 was suggested as an alternative standard by UPA. In setting the S02 standard, the MPCA considered the additional operating costs incurred by the Elk River facility and calculated that the cost translated into a \$0.77 per ton of waste processed. SONAR, at 191-2. The anticipated standard to be set by the EPA was also considered. MPCA Post-Hearing Response, at 47-48. The MPCA also pointed out that combustion control techniques are available to meet the S02 emission limit and the means of calculating compliance will be agreed upon in the permitting process. id.

The MPCA has declined to make the suggested changes. The SO₂ removal standards have been shown to be needed to protect the environment! The fiscal impact of the emission standard on combustor operators does not render the proposed rule unreasonable. The MPCA modified each table to clarify that the standards applied to the particular waste combustor, not stationary sources. Table 1 was further modified to clarify that RDF stokers were required to meet the carbon monoxide (CO) standard. This change is needed since the MPCA used EPA standards for RDF stoker facilities in its rule. The existing language was ambiguous as to whether all facilities using RDF are required to meet that standard. The modification clarifies the rule and is not a substantial change.

Table 2

71. Minn. R. 7011.1229, Table 2, sets the emission limits for Class I and II waste combustors. These are new, larger waste combustor units and the

standards are based on the use of the best performing air pollution control systems and call for the limitation of mercury and dioxin emissions to the highest degree possible. The limits are the same as those imposed on Class A and B waste combustors and have been shown to be needed and reasonable.

Table 3

72. Minn. R. 7011.1231, Table 3, establishes the emission limitations for Class III and D waste combustors. These are the smaller combustors and include one commercially-operated medical waste incinerator and about 20 large on-site incinerators at industrial, medical and commercial sites. These waste combustors are not affected by existing federal standards. The existing Class D waste combustors typically do not have pollution control equipment and are not required to use "good combustion practices." The MPCA feels that it is probable that these waste combustors have high dioxin emissions and emit more dioxins than the other groups of waste combustors on the basis of the amount of waste processed, as well as on overall quantity. They also generate relatively high levels of mercury. Because of the environmental burden of dioxins and mercury, the MPCA has adopted limitations that require the new Class III waste combustors to use combustion systems and control equipment that incorporate efficient control of dioxins and mercury. Likewise, because of the impact of dioxins and mercury from the older Class D waste combustors, these rules propose new limits for those waste combustors. Thus, a PCDD/PCDF (dioxin/furan) standard of 60 ng/dscm (nanograms per dry square centimeter) is set for Class III waste combustors and 200 ng/dscm is imposed on Class D waste combustors. The mercury limits will be discussed in the next section.

73. MCEA and other commentators objected to the limitations for Class D waste combustors as being too lax. The MPCA responded:

The particulate matter and dioxin emission limits are technology based standards. The evaluation of combustion and air pollution control devices, and the emission limits they

are able to achieve, is contained in Exhibit 4e. The cost of implementing the various technologies was evaluated in Exhibit 4c and 4e, Appendix 2. As stated in the SONAR at 142, the MPCA is unable at this time to establish health-based standards that are generally applicable throughout the state, therefore, standards are technology-based.

MPCA Post-Hearing Response, at 49.

The mercury standard proposed will be dealt with later in this Report. An objection to the CO standard made by Georgia Pacific was met when wood combustors were exempted from the waste combustor rules. The remaining emission standards in tables 1-3 are needed and reasonable, as modified.

Table 4

74. Minn. R. 7011.1233, Table 4, sets forth the emission limits for Class IV waste combustors. As previously discussed, particularly because of the high dioxin emissions of the existing Class IV waste combustors, these

rules ban most Class IV waste combustors. The limits proposed in this rule are expected by the MPCA to apply to about 20 waste combustors located at hospitals and ten metals recovery incinerator units. As noted in pt. 7011.1215, subp. 3, crematoria and pathological waste combustors are exempt from the performance standards of this part and subject to standards set forth in pt. 7011.1215, subp. 3, because the waste consists mostly of water and emission concentrations are very low.

For Class IV combustors located at hospitals the MPCA has proposed emission limits that reflect the use of good combustion practices. Good combustion practices provide significant reductions of particulate matter and dioxin emissions from such facilities. They also propose the requirement for mercury waste separation programs at these facilities that are discussed in the next section. Considering these factors, the MPCA has proposed reasonable standards for particulate matter, opacity and carbon monoxide. For metals recovery incinerators, the MPCA imposes a somewhat stricter limit on particulate matter control. This was done because eight of the ten known operating metals recovery incinerators already use fabric filters or wet scrubbers to control emissions and are able to achieve that particulate emission limit, 0.035 gr/dscf. The MPCA has demonstrated that this rule is reasonable.

Mercury Emissions Control. Limits Waste Separation Plans Measurement-MID R. R. 7011.1227 7011.1229 7011.1231 7011.1233 7011.1255 7011.1265.

75. There is no significant dispute in this record that there is a mercury contamination problem in Minnesota. Mercury in the water in the form of methyl mercury "bioconcentrates" in fish and presents a danger to other species in the food chain that eat fish. This includes loons, mink, otter and humans. Mercury is a neurotoxin that affects primarily the central nervous system. Prenatal life is particularly susceptible to brain damage from mercury. The high mercury levels in Minnesota lakes has caused the Minnesota Department of Health to issue fish consumption advisories suggesting that humans limit the amount of fish they eat from certain Minnesota lakes. According to the MPCA, virtually all of the mercury in remote lakes in Minnesota is a result of atmospheric deposition and about 3/4 of the mercury is a result of air pollution. Transportation of the airborne mercury to and

from this state is apparent, so it is necessary to take measures to reduce mercury emissions in the state and across the continent.

According to a technical paper prepared by Anne M. Jackson and David M. White for the MPCA, SONAR Exhibit 1, there are an estimated 10,771 pounds of atmospheric mercury emissions in Minnesota each year. Of that, the largest single source is estimated to be volatilization from surfaces that were painted with latex paint before 1991. An estimated 3,000 pounds, or 28 percent of the total, comes from that source. Mercury was added as a fungicide to latex paint before 1991. The second largest source is estimated to be combustion of coal, contributing 2,000 lbs/yr, or 19 percent of the total. The third largest source in Minnesota is estimated to be the combustion of municipal solid waste, at 1,500 lbs/yr or 14 percent of the total, by Class A, B and C municipal waste combustors. Of the 1500 lbs/yr, approximately 967 lbs/yr, or 65 percent, of the mercury emissions from municipal waste combustors, comes from the Class C waste combustors.

76. Although it is not set out separately in the technical paper, the Class IV waste combustors produce almost as much in mercury emissions as the Class A, B and C waste combustors combined. SONAR Appendix 2, Table 4.

77. As stated in a foregoing finding, Minn. R. 7011.1227, Table 1, sets the emission limits for Class A, B and C waste combustors. With regard to mercury, emission limits have been set for Class A and B facilities based on the use of activated carbon injection devices. Limits are specified on a short term basis and a long term basis. For example, for a mass burn, the short term limit is 100 ug/dscm or 85 percent removal and for long term it is set at 60 ug/dscm or 85 percent removal. For Class C waste combustors, the MPCA chose not to require the addition of activated carbon injection because it would be too costly for these combustors and render them incapable of competing with other forms of waste disposal, such as landfills.

The MPCA selected emission limits for Class C waste combustors based on the use of good combustion practices, highly efficient particulate matter standards, and a mercury emission limit that reflects emission limits achievable with waste separation programs. For six of the Class C waste combustors, the mass burn emission limit for mercury is set at 1,000 ug/dscm for the short term and 600 ug/dscm for the long term. For the two Class C waste combustors that have wet scrubber control equipment, Fergus Falls and Western Lake Superior Sanitary District (WLSSD), the limits are set at 100 ug/dscm or 85 percent removal for the short term and 60 ug/dscm or 85 percent removal for the long term.

78. Minn. R. 7011.1229, Table 2, which sets the emission limits for Class I and II waste combustors, sets the mercury emission limit for them at 100 ug/dscm for short term mass burn and 60 ug/dscm for long term mass burn. This is based on requiring these waste combustors to use scrubbing and activated carbon injection, which is appropriate for these new units.

85%. Removal -Standard for Mercury

79. Minn. R. 7011.1231, Table 3, sets the mercury limits for the new Class III waste combustors at 500 ug/dscm or 85 percent removal short term and 300 ug/dscm or 85 percent removal long term. No limits are set for Class D waste combustors. Setting the limits for the new Class III waste combustors is appropriate because they can be designed to use combustion systems and control equipment that control mercury at a reasonable cost. Rather than proposing a mercury emission limit for Class D waste combustors, the MPCA proposes to reduce mercury emissions through the implementation of mercury separation plans that Class D waste combustors, along with certain other waste combustors, will have to develop. Moreover, Class D waste combustors are required to conduct stack testing for mercury by these rules, which will allow the MPCA to monitor mercury reduction efforts.

Class IV Emission Limits

80. Minn. R. 7011.1233, Table 4, sets the emission limits for those few Class IV waste combustors that will be allowed to operate. Like the Class D waste combustors, no mercury emission limits are specified for the Class IV waste combustors. Again, the MPCA intends to achieve mercury emission reduction at these facilities by use of the mercury separation plans and by monitoring stack emissions for actual mercury reduction.

81. There was strong objection to the lack of mercury emission controls on the Class IV and Class D waste combustors and the higher limits on the Class III and Class C waste combustors. Robert J. Shimit, a Native American whose Anishinabe name means Thunder Cloud, testified at the hearing in Detroit Lakes about the impact on our indigenous people of mercury contamination. They typically eat more fish than nonindigenous Minnesotans and many still maintain economies built around fishing. He suggested tighter emission controls on all combustors, including coal burners, a study on the affects of mercury contamination at various points in the future, a mandated recycling program for all users of waste combustors, no exemptions from the Class IV waste combustor ban ("Hospitals should be in the health business not the disposal business."), allocation of funds to study mercury effects on high-risk populations of indigenous people, Asians, Hispanics and others who subsist on fish, and a multilingual educational program on recycling and on the dangers of eating fish from mercury-polluted waters.

The students in the Honors Biology class at Duluth Denfield High School expressed the nearly unanimous sentiment that mercury was a great danger in our environment, that tighter controls should be placed on waste combustors, particularly the Class C waste combustors, and that they would be willing to pay more in their utility bills for the cost of such control. The Minnesota Center for Environmental Advocacy (MCEA) argued in its Post-Hearing Comments that the failure to establish mercury emission limits for Class D and Class IV waste combustors and the high limits established for Class C waste combustors are not reasonable primarily because they will not result in any reductions in mercury emissions. Ex. 86. MCEA argues that the proposed limits for the Class C facilities are easily achievable now so there is little net effect. Indeed, it appears that four of the six Class C combustors without wet scrubbers have average mercury concentrations well below the 600 ug/dscm standard. Only the Richards Asphalt Waste Combustor at 1,407 ug/dscm and the City of Red Wing Waste Combustor at 934 ug/dscm appear to exceed the 600

ug/dscm limit at present.

Given the level of mercury emission reduction resulting from these particular limits, the MCEA argues that the limits are not commensurate with the severity of the mercury contamination problem in Minnesota as documented by the SONAR and other evidence in the record. MCEA recommends that a 100 ug/dscm limit on the emission of mercury from Class C, D and IV waste combustors be imposed to take effect four years from the effective date of the rules. This, they suggest, would enable the MPCA to determine whether progress is made from implementing the mercury separation plans and would allow facilities adequate time to implement progressive mercury source reduction plans and determine their effectiveness and if the plans are not working, purchase the additional pollution control equipment necessary to reduce the mercury emissions.

82. As noted previously, the Minnesota Resource Recovery Association (MRRA), which represents Class C combustor operators, opposes any tighter restrictions on emissions from those combustors. Exs. 79 and 106. They argue that the proposed rules will successfully eliminate uncontrolled sources so that waste will be managed only by facilities that meet specific, more stringent emission limits, which in turn will also have increased monitoring and emission testing requirements.

83. The dangers of mercury pollution and the issues of to what extent air emissions of mercury by waste combustors must be controlled, are matters the MPCA has considered thoroughly in developing the proposed rules. The matters were discussed at length in the SONAR which referred to the engineering and economic studies performed by the MPCA staff itself or considered by them. The considerations were in depth, meaningful, and well done. In its Post-Hearing Response, the MPCA expressed its approach toward mercury emission controls as follows:

The MPCA has proposed mercury emission limits as a "package". The package contains specifications on what methods should be used to collect stack gas samples, how large a sample of gas must be collected, how many samples must be used to determine average mercury concentrations, what the numerical emission limit for the concentrations must be, and under what conditions the mercury removal efficiency is to be used to satisfy the demonstration of compliance with the mercury emission standard.

MPCA Post-Hearing Comment, at 21.

Class A, B and C Mercury Emission-StAndards

84. Fergus Falls and HERC objected to the table I standard for mercury (Hg) as unreasonably strict. The combustors operated by these two commentators would have to meet the particulate standard or the 85% removal standard. HERC and George Psihos, President of Psihos & ASC., Inc., asserted that the studies relied upon by the MPCA to support the removal standard are inconclusive. At the hearing, the MPCA introduced data that suggests a 95% standard is attainable. HERC suggested that the MPCA made an erroneous assumption to arrive at the 85 percent removal efficiency from carbon injection for mercury control. The MPCA responded:

The MPCA agrees with HERC that based on expected reaction kinetics, it is not expected that high capture rates can be maintained at low inlet mercury concentrations. If the inlet concentrations of mercury are low, the outlet concentrations will be such that the removal efficiency requirements will not apply-

MPCA Post-Hearing Response, at 22.

Thus, the combustor emissions must meet either the particulate standard

or the percentage removal standard, but not both. HERC pointed out that no vendor would guarantee 85% Hg removal and argued that this meant that the proposed standard was unreasonable. The MPCA disagreed with this assertion insofar as the vendors have not yet been required to meet this standard, and therefore the lack of a guarantee is hypothetical. MPCA Post-Hearing Comment, at 26. Further, the MPCA is obligated to set standards regardless of what vendors will or will not guarantee. As is the case with exempted Class IV combustors, where a facility cannot meet the promulgated standards (or justify

a variance), the combustor must stop operating. Vendor contracts cannot control the MPCA's final decision on standards. Much of the new operating procedures and new technology developed over the past few decades has been a response to stricter standards.

Psihos pointed out that only two Class C waste combustors exist in Minnesota equipped with scrubbers. The Hg removal results from the Fergus Falls facility were characterized as 95% removal efficiency and the results from the Western Lake Superior Sanitary District facility (WLSSD) were characterized as 79% removal efficiency. Exhibit 81. Psihos suggested that multiple tests be used to determine the range of actual removal efficiencies. Another criticism from Psihos, directed to the MPCA's methodology, was that the actual Hg emissions from the WLSSD facility were higher than the Fergus Falls facility, contradicting the outcome one would expect from the differing types of combustion.

Regarding the data set, the MPCA responded:

The size of the data set that must be collected under the provisions of this rule is also a major aspect of the reasonableness of the flue gas concentration and removal efficiency emission limits. The data set is a minimum of three samples for each test event, and that each sample must be at least one-hour long, but can be up to two-hours long. The short-term limit is based on each test event and the long-term limit is based on the average of four test events. None of the commentators suggested that the proposed data set was unreasonable. One (Exhibit 39) pointed out that the likelihood of compliance with the standards could be increased by simply taking more samples.

MPCA Post-Hearing Comment, at 22-23.

Carbon Injection as a Mercury Control Method

85. HERC argued that the carbon injection rate suggested by the MPCA as a good means to meet the Hg removal standard was too expensive. The estimate provided by HERC was \$240,000 per year in additional cost. The MPCA responded that its estimate of carbon feed rates necessary to obtain the proposed standard of removal efficiency is half of HERC's estimate. MPCA Post-Hearing Response, at 24. The MPCA has run a number of computer simulations to

determine if the removal efficiency standard can be met without undue expense. These simulations suggest the emission removal rates can be attained without undue expense. The MPCA explains variations between the results from differing carbon feed rates as being controlled by the use of differing particulate capture methods (electrostatic precipitators vs. the filter method).

As stated in the MPCA Response:

The MPCA established emission limits for Class A and B waste combustors based on the use of activated carbon injection.

The cost to comply with the standards, even using the high carbon feed rates of Exhibit 37, was calculated, and is well within the range of costs suggested by one commenter (Exhibit 83 at No. 3). SONAR at 199. As calculated, the cost is relatively inexpensive. There is neither a cost nor technical impediment to using an increased carbon feed rate. The Case 4 data demonstrates that, using elevated carbon feed rates, the risk of failure is zero.

Case 5 shows that another method of reducing the number of exceedances, while using moderate carbon feed rates, is by collecting 2-hour samples, rather than the 1-hour samples reflected by the previous four cases. Case 5 represents MPCA's expectation of current mercury inlet concentrations, given the aggressive waste separation programs in Minnesota. Facilities have been required to test with sample collection periods of two hours in the past, (Exhibit 82, No. 9), and is allowed in the proposed rule (Minn. Rules pt. 7011.1265, subp.3.C). Here again, there is no difference in the number of exceedances that occur, regardless of the required removal efficiencies. Simply by testing for a longer period of time, the number of exceedances is zero.

MPCA Post-Hearing Response, at 25-26.

86. A statistical study of the probability of combustors meeting the mercury emissions or removal standards was performed by Mr. David White of Radian Corporation. This study concluded that, with activated carbon injection, a zero percent failure rate could be achieved. The required amount of carbon is not excessive. The MPCA has demonstrated that the 85% removal efficiency standard for Hg is needed and reasonable in light of the cost of achieving that goal.

Mercury-Limit for RDF

87. NSP suggested the mercury emission limit for RDF fuel was too low, and suggested that instead, 100 ug/dscm be the emission limit (Exhibit 13uu and Exhibit 78). Robert S. Evans II, Manager of Environmental Service of NRG Energy, Inc., expressed the opinion that the proposed standards "penalized" RDF combustors in relation to massburn facilities. The difference between Hg emissions standards for Class C combustors equipped with scrubbers and those

equipped with electrostatic precipitators was criticized by Fergus Falls and Psihos. They suggested that the facilities equipped with scrubbers would be encouraged to refit their pollution control equipment to get the "benefit" of the less strict pollution standard. The MPCA responded:

As stated in the SONAR, the emission limits proposed in this rule are technology-based. The emission limits have been demonstrated to be achievable for each of the technologies, without causing an economic hardship for the waste combustor

owners or operators to achieve. RDF-stokers and fluidized beds are able to achieve the standards proposed in the rules for two reasons: processing waste may be removing some of the wastes with mercury, and the RDF-stokers and fluidized beds have very high particulate matter generation in the process of combusting the RDF, providing an inherent source of carbon to the air pollution control system. RDF combustors with spray dryer/fabric filters in Minnesota are currently meeting the proposed emission limits without any further modifications. Since most RDF combustors in Minnesota are currently controlled with scrubbing systems, or are required to install them under existing federal regulations, there is no economic disadvantage to RDF-stokers by establishing a more-stringent mercury emission limit. Other than making a correction to 7011.1229, the MPCA proposes no change to the mercury emission limit for combustors using RDF.

MPCA Post-Hearing Response, at 31.

Since ESP control equipment is less efficient than scrubbers, there is no "benefit" to be gained by refitting combustors. The likelihood of violating the different standard for each type of control equipment is the same. The MPCA has supported the differing standards with a demonstration of facts showing the need and reasonableness of the rule.

Mercury Separation

87. Minn. R. 7011.1255 states that the waste combustor owner or operator must prepare a plan to identify, separate and collect combustion solid waste which contains mercury. The plan must include the collection of household batteries, electrical devices and switches, electrical lighting components and solid waste from laboratories where mercury is used and include a plan to identify, separate and collect before combustion other significant sources of mercury. It also requires each application for reissuance of a permit to include a revised plan for improved separation of mercury before combustion. Mercury separation plans are an integral part of the mercury emission limits, or lack thereof, established for the smaller waste combustors. There appears to be universal agreement with the MPCA that eliminating mercury from the waste stream prior to combustion is the most effective means of reducing mercury emissions from combustion. The disagreements are over how strict the requirements for the mercury separation plans should be and whether they

should be used in lieu of strict emission limits or in conjunction with them. In the last one or two years, progress has been made in eliminating mercury from products altogether. As discussed previously, mercury is no longer used in latex paint, the single largest source of mercury in the air. Mercury from household batteries, the primary source of mercury in the waste stream, is also being reduced because of restrictions on the use of mercury in the batteries by laws such as those adopted by the Minnesota Legislature starting in 1990. Other items containing mercury, such as thermostats, thermometers, electrical switches, appliances, and fluorescent and high-intensity discharge lamps, are now banned from the municipal waste stream by statute. The county solid waste programs are now required by law to incorporate these bans into their solid waste management plans and educate the public about them.

88. The application of Minn. R. 7011.1255 is not stated in the rule itself. It is made applicable to Class IV waste combustors that are not banned by pt. 7011.1210, subp. 3E (as amended by the MPCA, see Attachment No.

1). That is the rule requiring Class IV waste combustors that are exempt from the ban to submit a notice to the MPCA with various information about the waste combustor and certain plans and schedules. For Class C, D, III and those Class IV waste combustors seeking a permit (those which are proposing an alternative to the stack height requirements), Minn. R. 7007.0501, subp. 5, requires the application for the permit to contain a mercury separation plan in accordance with pt. 7011.1255. It would be helpful to understanding the application of this rule if it contained an introductory clause such as, "If a mercury waste separation plan is required by parts 7007.0501 or 7011.1210

However, the rule is not defective in this regard as written.

89. The waste combustors operating under permits must submit a revised and improved mercury separation plan with each application for reissuance of the permit. No similar requirement appears for the Class IV waste combustors that file a one-time notice under pt. 7011.1210. A provision should be added to pt. 7011.1255 requiring the periodic revision and improvement of the mercury separation plan for those waste combustors.

90. Some commentators objected to the additional requirement of mercury separation plans as an approach to controlling emissions. The requirement was criticized as a public policy which should not be implemented by private combustor owners or as not likely to be effective at controlling emissions.

In its Post-Hearing Response, the MPCA stated:

The facilities are responsible for the wastes they accept at their facilities. They currently have provisions of ensuring that hazardous wastes, infectious wastes, and other "unacceptable wastes" do not appear at their facilities (Schurtz, Detroit Lakes).

We have pointed in that in the implementation of ash toxicity management plans, the waste combustors owners are expected to work with county solid waste management planners to make

changes in solid waste management policies to meet the goals of the ash toxicity requirements (SONAR at 74). The owner may choose to work with local solid waste officials, haulers and solid waste generators in education programs, may separate waste collection systems, or may even install waste processing equipment prior to incinerating waste.

MPCA Post-Hearing Response, at 44-45.

91. In response to the criticism that mercury separation plans would be ineffectual at reducing mercury emissions, the MPCA cited Hennepin County's mercury separation program. That program is credited with reducing HERC's mercury emissions to one-half the emissions of similar facilities. SONAR, at 169; Exhibit 1, Appendix A, Table 2-1. The MPCA also compared the cost of mercury separation programs (\$2,700 to \$5,400 per lb/Hg) to the cost of control equipment (\$7,000 per lb/Hg). MPCA Post-Hearing Reponse, at 47.

Mercury separations plans are cost-effective and have an impact on emissions from waste combustors. Imposing a requirement that each facility have a mercury separation plan is both needed and reasonable.

92. The MPCA has proposed to modify Minn. R. 7011.1235, which places certain requirements on Class IV waste combustors, by adding a new subpart 3 that requires mercury and ash plans to be implemented upon submittal. This result is the outcome desired by the MPCA. The new language is a reasonable modification that is not a substantial change. The MCEA noted that Minn. R. 7007.0801, which sets forth the conditions that must be contained in permits for waste combustors, at subp. 2F, requires air emission permits for Class C and Class III waste combustors to require the implementation of their mercury separation plans, but contains no implementation requirement for the Class D facilities. As the MPCA noted in its Post-Hearing Response regarding Class IV waste combustor mercury separation plans, it would not make sense to require a plan without implementation. Therefore, the MPCA added subp. 3 to 7011.1235 governing Class IV waste combustors. However, because the MPCA is now proposing that those Class IV waste combustors proposing an alternative to the stack height requirements do so by obtaining a permit, there is no implementation date applicable to them either. The failure to require Class D and permitted Class IV waste combustors to implement their mercury separation plans is apparently an oversight. To correct this defect, pt. 7007.0801, subp. 2F, should be amended to read:

For Class C, D and III any waste combustors require the implementation of a plan as described in part 7011.1255 to identify, separate, and collect solid wastes which contain mercury before the mercury is combusted.

The rule, with the foregoing correction, is needed and reasonable. The modifications to the rule do not constitute a substantial change.

93. Minn. R. 7011.1265 requires owners and operators of waste combustors to perform certain performance tests following specified methods and

procedures. The test proposed by the MPCA to measure emissions is set forth at 40 C.F.R. Part 266, Appendix IX, Section 3.1. This test is generally known as "Method 29." HERC objected to requiring Method 29 as the test for measuring compliance with the metal emission standards. The commentator suggested Method 101A (40 C.F.R. Part 61, Appendix B) was the accepted test for metal emissions and that Method 29 has not been adopted by the EPA.

While the most current version of Method 29 has not been published outside the EPA's electronic bulletin board (identified in that medium as CTM-012.WPF), one version has been published in the Code of Federal Regulations, a publication with wide distribution. The MPCA can choose to adopt a test method without EPA adopting it first, so long as the MPCA shows the choice is needed and reasonable, and, in the case of an incorporation by reference, so long as the document is conveniently available to the public.

Psihos indicates that the cost of inlet and outlet testing, required under Method 29, will add \$26,000 to the cost of operating the wet scrubber pollution control equipment. This cost would not be incurred if an

electrostatic precipitator is used. The MPCA responded that inlet and outlet testing is required to determine if the removal efficiency standard is being met. MPCA Post-Hearing Response, at 22. The MPCA supported its choice of Method 29 as follows:

- i. It is a more precise measure of mercury emission;
- ii. It is more cost effective;
- iii. It allow facilities to develop a body of data on other metals.

MPCA Post-Hearing Response, at 27-28.

The Agency cited Method 29's lower relative standard deviation as making measurement errors less likely. Method 29 measures sixteen metals, including several that are likely to be included in required federal testing. Method 101A would require additional tests for other metals. MPCA Post-Hearing Response, at 27-28.

94. HERC objected to Method 29 as not having been "validated." The MPCA dismissed the objection, stating:

The MPCA is unpersuaded that Method 29 is not an "approved" U.S. EPA method. T. vol. I at 70. Prior to adoption of the 1990 Clean Air Act amendments, "validation" of test methods was not required. The concept was introduced with the amendments specifically with regard to waste combustors. Method 29 was developed specifically for testing waste combustors, and has first been promulgated as the test method for measuring metals emissions from hazardous waste combustors.

MPCA Post-Hearing Response, at 28.

The MPCA has demonstrated that using Method 29 to test for metals is needed and reasonable. The existence of an alternative test method does not render the Agency's choice unreasonable.

95. In response to comments by HERC and others indicating some confusion with how the rule is to function, the MPCA modified the item. As modified, the proposed rule reads:

C. For metal emissions, Code of Federal Regulations, title 40, part 266, Appendix IX, section 3.1, as amended, shall be used for measuring metal emissions, except that Paragraph 3.1.1.1 is revised to read: Applicability.

This method is applicable to the determination of total chromium (Cr), cadmium (Cd), arsenic (As), nickel (Ni), manganese (Mn), beryllium (Be), copper (Cu), zinc (Zn), lead (Pb), selenium (Se), phosphorus (P), thallium (Tl), silver (Ag), antimony (Sb), barium (Ba), and mercury (Hg) emissions from stationary sources. This method may also

be used for determining particulate emissions when not performing a mercury analysis because changes in the procedures to further facilitate particulate determination may affect the front-half mercury determination.

To determine the mercury concentration, the arithmetic average of three or more samples at the outlet of the air pollution control device shall be used. The minimum sample volume shall be 30 dscf. The maximum sample run time shall be two hours. To determine the percent reduction of mercury, concurrent sampling for mercury at the inlet and outlet of the air pollution control system shall be performed at each occurrence of mercury emissions performance testing.

Owners and operators of RDF combustors may choose to conduct mercury emissions testing either every 90 days or every 15 months. If the owner or operators of an RDF combustor chooses to conduct testing every 90 days, the requirements of subitems (1) and (2) apply. If the RDF combustor chooses to test every 15 months, the requirements of subitem (3) apply.

The MPCA's modification is reasonable and not a substantial change. However, the MPCA has no authority to "revise" a part of the federal regulations. To say ". . . except that in lieu of paragraph 3.1.1.1, the following shall apply:" would more accurately indicate the effect of the rule.

Permit Requirements, Permit Applications. Permit Contents, Class IV Notifications -
Minn. R. 7097.0200, 7007.0250- 7007.0501, 707.0801 and 7011.1210

96. Minn. R. 7007.0200 is a previously adopted rule listing sources required to obtain a "Part 70 Permit". That is a federal operating permit under 40 C.F.R. pt. 70 for major sources of air pollutants. In the proposed rules, the MPCA added a new subpart 4a which would add waste combustors to the list of sources required to obtain a Part 70 Permit if they are a major source as defined in the rule, or if a performance standard has been promulgated for them under the Clean Air Act. In its Post-Hearing Response, the MPCA noted that the new subpart was unnecessary and decided to simply modify the existing

subpart 4 which required Part 70 Permits for solid waste incinerators required to obtain permits under the Clean Air Act. The modification is reasonable and not a substantial change.

97. Minn. R. 7007.0250 is another existing rule listing sources that are required to obtain a state permit. The MPCA has proposed a new subpart 6 for this rule, listing waste combustors as defined in the definition section as sources required to obtain a permit, except that the Class IV waste combustors not subject to the ban on Class IV waste combustors are not required to obtain a permit. As discussed previously, the MPCA now has modified the rule to

create an exception to the exception and to require those Class IV waste combustors who propose to operate with an alternative to the stack requirements to obtain a permit. The problems with the language proposed by the MPCA to carry out its intent have been discussed above.

98. The decision of the MPCA to allow the Class IV waste combustors to operate without obtaining a state permit was attacked by Citizens for a Better Environment (Exhibit 13 qq), Minnesota Center for Environmental Advocacy (MCEA) (Exhibit 30), Cannon Rivers Watershed Partnership (Exhibit 71), Janet Woerhle (Exhibit 73), and Browning-Ferris Industries (BFI) (Exhibit 77). According to the SONAR, the MPCA chose instead to require them to notify the MPCA of their existence and to comply with certain conditions. These facilities, namely the several waste combustors located at hospitals, do not have the pollution control equipment and the level of sophistication in operation for which the facility-specific conditions typically specified in permits are necessary. It is also noted in the SONAR that Minn. Stat. § 116.07, subd. 4, specifically allows local units of government to establish permitting procedures in emission standards for waste combustors that are more stringent than those set by the MPCA. Local units of government also have zoning authority which would allow public input.

99. The MPCA maintains that individual permits are not necessary for those Class IV combustors that will operate under the proposed rules. The purpose for permits, according to the Agency, is to tailor the operating standards to each individual source of emissions. The Agency considers most Class IV combustors to be so similar in operation and environmental impact that permits are unnecessary. Proposed federal E.P.A. standards for Class IV combustors allow states to adopt "class permits" that would avoid the need for individual combustor operators to obtain permits. The MPCA has also concluded that the "public participation" sought by the commentators is merely an effort to shut down such combustors. MPCA Post-Hearing Response, at 57-59.

The MPCA has shown that its approach toward Class IV combustor permits is rationally related to the outcome to be achieved and supported by facts demonstrated in the record. The option to not require permits for exempt Class IV combustors has been shown to be needed and reasonable.

100. Existing Minn. R. 7007.0500 governs the contents of a standard application for an air emission permit for any of the sources required to obtain various permits. Proposed Minn. R. 7007.0501 governs the additional contents required in a permit application for a waste combustor. Again, this rule applies to all waste combustors, including the Class IV waste combustors that propose to operate with an alternative to the stack height requirements (and therefore must obtain a permit). In its Post-Hearing Response, the MPCA proposed a number of modifications to the rule, most of which were required to incorporate the option of permitting Class IV waste combustors with alternatives to the stack height requirement. The rule is reasonable as modified and the modifications do not constitute a substantial change from the rule as originally proposed.

101. Existing Minn. R. 7007.0800 specifies the contents of all air emission permits issued by the MPCA. In this proceeding, the Agency is proposing a new Minn. R. 7007.0801 which contains the additional permit conditions to be contained in air emission permits for waste combustors. Again, the MPCA has now proposed additional language that would require such

permits issued for Class IV waste combustors to require the installation and operation of equipment necessary to achieve the ambient pollutant concentrations that would have been achieved with the use of the minimum stack height required in pt. 7011.1235, subp. 1.

Notification

102. Minn. R. 7011.1210 is a new rule that requires owners and operators of Class IV waste combustors to notify the Commissioner of the MPCA of the existence of the waste combustor and to supply specified information and plans with the notice. As originally proposed, the rule required existing Class IV waste combustors to notify the Commissioner within 90 days of the effective date of the rule and new Class IV waste combustors to notify the Commissioner 90 days prior to installation. All were required to submit a number of items, information and documents, including such things as the mercury separation plan, an ash disposal plan and the results of a performance test demonstrating compliance with the emission limits. No particular mention was made in the rule of whether it applied to the great majority of the Class IV waste combustors that would now be banned.

103. In its Post-Hearing Response, the MPCA has divided the rule into three subparts addressed to prohibited combustors, Class IV waste combustors at hospitals or forensic laboratories and new waste combustors. In its Post-Hearing Response, the MPCA explained that the notification requirement was intended to apply primarily to those waste combustors that will continue to operate after the ban goes into effect and that it is not necessary that all the information required be submitted by those that will be shutting down within two years. The new subpart 1 proposed by the MPCA requires the Class IV waste combustors to notify the Commissioner within 90 days of the name of the owner and operator, the address of the waste combustor and a schedule showing that the waste combustor will cease operating by the effective date in part 7011.1215, subp. 6 (January 30, 1996, or upon expiration of an air emissions permit issued after December 1, 1992.) The

MPCA states in its Post-Hearing Response that the addition is not a substantial change because these facilities were required to shut down under the original proposal and that the provision simply requires notice.

104. The Administrative Law Judge finds that the MPCA has demonstrated the need for and reasonableness of requiring banned combustors to file a notice that they are shutting down. Since Class IV waste combustors that are not banned are required to file a notice within 90 days that they will continue to operate and will comply with the requirements of the rules, it can be assumed that all the other Class IV waste combustors will shut down by the time the ban takes effect. However, since the MPCA does not have a complete listing of all Class IV waste combustors, the Agency is entitled to require such reporting from those combustor operators who will not be continuing to operate.

105. Notwithstanding the foregoing Finding, the requirement for these mostly small businesses to file notices simply adds to their paperwork without providing the MPCA with much meaningful information. The information provided may offer the MPCA some comfort in knowing that certain waste combustors will indeed be shutting down, but the rule requires them to do that anyway. The rule would not be rendered defective should the MPCA delete the reporting

requirement for banned Class IV combustors and such a modification would not constitute a substantial change.

106. The new subparts 2 and 3 proposed by the MPCA in its Post-Hearing Response more clearly delineate between what is required from an existing facility and what is required from a new facility without making any substantive changes. Subpart 2 refers to existing Class IV waste combustors at hospitals or forensic science laboratories. The reference to waste combustors at hospitals is appropriate because crematoria and pathological waste combustors are exempt from this rule and metals recovery incinerators are required to obtain permits. (Allowing an exception for forensic laboratories has been discussed above.) However, subpart 3 refers to "new waste combustors" and requires the owner or operator of a Class IV combustor installed after the effective date of this part to provide the notification. This should not apply to new crematoria and pathological waste combustors or new metals recovery incinerators. Therefore, it would be better if this rule referred to new waste combustors at hospitals. This clarification to the rule would also make it appropriate to delete the sentence "Owners or operators are reminded that the prohibitions of part 7011.1220, subp. 1, apply." The MPCA has proposed that this be added to the new subpart 3, but it does not actually constitute a rule at all and should be deleted.

General Requirements industrial Solid Waste Management Plans
Minn, R. 7011.1245 And-7,011.1250.

107. Minn. R. 7011.1245, as originally proposed, required owners and operators of waste combustors to design, construct and operate their facilities in compliance with eight specified provisions in the part 7035 rules applicable to solid waste management facilities. These include such items as security requirements, inspection requirements, household hazardous waste management requirements and emergency preparedness plans. UPA and NSP questioned the applicability of those provisions to waste combustor facilities. In response, the MPCA has proposed to modify the rule to allow operators to identify those of the listed items that are not applicable. It

is the MPCA's intention that those issues would then be resolved during the permitting process. The rule, as modified, is necessary and reasonable and the modification proposed does not constitute a substantial change.

108. Minn. R. 7011.1250 requires the owner or operator of a waste combustor to prepare a plan for the management of industrial solid waste in accordance with part 7035.2535, subp. 5A and B. Minor nonsubstantive changes were proposed by the MPCA in its Post-Hearing Response. The rule is necessary and reasonable as proposed and modified.

Operating-Requirements and Reporting

Minn. R. 7011.1240, 7011,1285, 7011.0551 and 7011.0625.

109. Minn. R. 7011.1240 sets forth the operating requirements for waste combustors. It applies to all waste combustors except crematoria and pathological waste combustors which are exempt from this part under pt. 7011.1215, subp. 3. Some of the operating requirements are part of federal regulations for municipal waste combustors found at 40 C.F.R. § 60.56a. Several of the requirements have been extended to include the smaller waste combustors not yet covered by the federal regulations. The operating procedures are generally necessary because modern waste combustors are

complicated facilities and persons operating the facilities require special skills. Moreover, the emission limits established by the MPCA in these rules were established at levels consistent with good combustion practice and the operating requirements are needed to help assure that good combustion practice occurs. The rule imposes requirements for certified operators, a limit on the particulate matter control device operating temperature, a requirement that auxiliary fuels, not waste, be used to start up a waste combustor and to maintain operating temperature after feeding of the solid waste has been discontinued, a limit on operating above the demonstrated capacity of the system, a requirement to maintain mercury additive feed rates, prohibitions on the use of dump stacks and notice requirements regarding shutdown, breakdown or initial startup.

110. UPA objected to the operating requirements on the ground that, as applied to its facility, the rule would deprive UPA of 6 megawatts (MW) of operating capacity at its Elk River plant. This would happen because the Elk River facility is de-rated when burning RDF from 39 MW to 33 MW. Exhibit 72. UPA can obtain 39 MW of peak capacity when RDF and natural gas are combined for combustion. However, if the Elk River facility is restricted to 110% of its maximum demonstrated capacity when RDF is used, as required by Minn. Rule 7011.1240, subpart 5, that facility cannot reach its true maximum capability. The Mid-continent Area Power Pool (MAPP) Engineering Handbook standards were suggested as an appropriate alternative to the proposed operating requirements.

111. In its Post-Hearing Response, the MPCA addressed this issue as follows:

The MPCA understands the seriousness of this issue. The promulgated federal guidelines do not allow the MPCA the latitude necessary to make the changes to the proposed rule and still have that rule comply with the federal requirements. It is apparent that the issues of URGE tests and power pool agreements were never presented during the comment period for the promulgated federal standards and guidelines. Therefore, these issues were never considered when federal rules were drafted and, later, adopted. The MPCA

knows of no alternative language that would allow operation above 110 percent of the maximum demonstrated capacity and comply with the federal requirements. This will have to be dealt with through a variance for those facilities for which this is an issue.

The MPCA suggests that facilities raise this issue when the EPA reevaluates the standards and guidelines to make a MACT determination for municipal waste combustors. At this point, the federal standards and guidelines can be changed to include provisions for URGE tests and power pool agreements. The proposed rule can then be revised to accommodate these concerns.

MPCA Post-Hearing Response, at 48-49.

As subpart 5 is proposed, a combustor is only precluded from operating above 110% of maximum demonstrated capacity where no performance test has been conducted and the facility has demonstrated compliance with the emission limitations. The MPCA has considered the issue and concluded that, as the existing federal requirements are worded, the rule cannot be modified. The rule has been demonstrated to be needed and reasonable. A variance may be sought as an interim resolution of this problem.

In its Post-Hearing Response, the MPCA made several minor nonsubstantive changes to pt. 7011.1240. The rule, as modified, is necessary and reasonable and the modifications proposed are not substantial changes.

112. Minn. R. 7011.1285 specifies the records that must be maintained and reports that must be submitted by waste combustors. As explained in the SONAR, the maintenance of operating records and the submittal of reports are necessary as a means of determining compliance with the requirements of the rules. Most of the requirements set forth are based upon federal recording and reporting requirements for the large waste combustors.

113. NSP and Olmstead County objected to the requirement of annual reports by combustor operators as redundant, since quarterly reports are also required. In its Post-Hearing Response, the MPCA responded to these comments as follows:

Facilities that are using continuous emissions monitors are already required by existing rule to submit quarterly reports to the MPCA. The quarterly report requirement cannot be eliminated. The MPCA believes that information required in the annual report can be supplied through the quarterly reports, therefore, for all waste combustors except Class IV waste combustors are relieved of the annual report requirement.

The contents of the quarterly report are revised to include several items: a report of waste combusted to reflect quarterly totals, and a certification that is required by existing rules.

Class IV waste combustors will continue to be required to submit an annual report. Subpart 4 is revised to eliminate the summary of shutdowns and breakdowns. Since existing rules

require owners or operators to report shutdowns and breakdowns, the MPCA can simply review its compliance files.

The rule, as modified, is necessary and reasonable and the modifications proposed by the MPCA are not substantial changes.

114. Minn. R. 7011.0551 is a new recordkeeping and a reporting rule for "boiler" operators who combust RDF which makes up 30 percent or less of their total fuel input. These are the cofired units excluded from the definition of waste combustor under pt. 7011.1201, subp. 17. Under the Clean Air Act and Minn. Stat. § 116.90, they are exempt from the waste combustor standards. The EPA has also exempted them from reporting requirements, but the MPCA has chosen not to do so because no such exemption appears in Minn. Stat.

116.90. Moreover, requiring these units to keep records and submit certain reports allows the MPCA to monitor the operation of these units. The proposed rule requires such units to maintain an operating log of the weights of mixed MSW and RDF combusted and of every other fuel combusted and to calculate the ratio of MSW and RDF to the total of materials combusted for each 24 hour period. It also requires them to submit quarterly reports giving the daily weights of the MSW, RDF, and other fuel combusted during the quarter.

115. The MPCA made a minor nonsubstantial change to this rule in its Post-Hearing Response to require a calculation made pursuant to the rule to be included in the log of waste combusted. The rule, as modified, is necessary and reasonable and the modification made is not a substantial change.

116. Minn. R. 7011.1625 imposes record keeping and reporting requirements on units directly combusting solid waste. According to the SONAR, there are a few such units in Minnesota and they fall under the exemption in Minn. Stat. § 116.90 for solid fuel-fired boilers that use RDF as a portion of their fuel. The purpose of this statute was to ensure that permitting procedures did not act as a hinderance to acceptable uses of RDF. This part imposes the same record keeping and reporting requirements as pt. 7011.0551 and is a reasonable extension of the federal and state requirements regarding the cofiring of MSW and RDF in solid fuel-fired equipment.

Continuous Monitoring and Performance Testing

Minn R. 7011.1260 7011.1265- 7011.1270 7017-1000

117. Minn. R. 7011.1260 requires waste combustors to install and operate monitoring devices to measure specified operating conditions on a continuous basis. According to the SONAR, continuous monitoring provides a record of the emissions and operating parameters that is as complete as practicable and as close to real-time as possible. Such monitoring data is used to make adjustments in the operation of the waste combustor while operating and also provides information to the MPCA for its responsibilities. Some of the

continuous monitoring requirements are based upon federal requirements for the large waste combustors.

Psihos objected to the cost of inlet and outlet testing required. HERC suggested quarterly testing be dropped in favor of annual testing. UPA and NSP objected to the timing of ash testing and air emissions testing since the number of testing firms is limited and twelve combustors would be conducting tests within the same two-week period. NSP also suggested changes to the steam-flow measurement method in proposed rule 7011.1265, subpart 4.

118. In its Post-Hearing Response, the MPCA proposed a number of modifications to the proposed rule, several in response to comments that had been received. UPA pointed out the interrelation of several rules regarding steam flow and load level would not provide the best indicator of actual load level. UPA objected to the potential cost of installing new feedwater flow measurement devices. The MPCA stated:

Federal regulation 40 CFR Part 60.13 (i)(4), recently incorporated into Minnesota rules by reference at Minn. Rules pt. 7017.1010, allows for alternative methods that enable

accurate and reliable measurements. Since alternatives are allowed, this subpart is also revised to allow alternatives.

MPCA Post-Hearing Response, at 15.

The modifications meet the objections of the commentator and do not constitute substantial changes. The rule, as modified, is needed and reasonable.

119. In its Post-Hearing Response, the MPCA has also met comments by NSP and others by proposing a new subpart 4A which allows alternative methods for measuring unit load in place of steam flow measurement as required under subp. 4. See Attachment No. 1. The MPCA proposed this part because of the difficulty of measuring steam flow for some waste combustors. The proposal allows waste combustors to use an alternative method that produces equivalent results if it is approved by the Commissioner. This modification is necessary and reasonable and is not a substantial change.

120. NSP objected to the requirement in proposed rule 7011.1260, subpart 7(D) that a compliance test of a continuously monitored emission standard be demonstrated before continuing combustion. NSP suggested that shut-down might not be required in all such exceedences and continuous monitoring serves the function of a compliance test. The MPCA responded as followed:

Subp. 5. Operation of Continuous Monitors. Item B. Federal regulation 40CFR 60.58a (h) (10) requires that valid continuous monitoring data at municipal waste combustors (MWCs) for carbon monoxide, steam flow, and particulate matter control device inlet temperature be obtained 75 percent of the hours per day for 75 percent of the days per month the affected facility is operated and combusting municipal solid waste (MSW).

The MPCA, through conditions contained in air emission facility permits, requires that all continuous monitors maintain and operated so that they collect valid data for 90 percent of the hours the facility is operated each calendar quarter.

Under the federal requirements, for each month, the facility must collect data for 75 percent of the hours per day (18 hours) for 75 percent of the days per month (22.5 days). The

current permit conditions are more restrictive than the federal requirements, because more operating time must be measured and recorded. However, if continuous monitor operation or maintenance prevents the system from collecting data for 9 days that fall within a single month, then the permit conditions have been met, while the federal conditions have not.

Therefore, the rule must be revised to include BOTH the state's current requirements and the federal conditions.

Class III and D waste combustors must also install continuous monitor systems. The operating schedule of these waste combustors is likely to be non-continuous, in contrast to the municipal waste combustors. Since all state air emission facilities must comply with the 90 percent requirement, it is reasonable to extend this requirement to Class III and D waste combustors as well. Extending the federal requirement to Class III or D waste combustors will not pose an additional burden, because on a month-to-month basis, the requirement to ensure monitoring for 75 percent of the hours per day for 75 percent of the days of the month is less restrictive. Since these waste combustors do not operate continuously, there are far fewer hours that require monitoring. Maintenance of monitors can, and does, occur when the waste combustor is not operating, although span checks and drift calibrations must still occur on-line while the combustor is operating. Because less operating time will be used to maintain or repair continuous monitors, a higher percentage of operating hours will be monitored.

Subp. 6. Recording Data from Continuous Monitors. Item B (3) is revised to include that the output from the alternative methods of measuring steam flow are recorded, as discussed above.

MPCA Post-Hearing Response, at 15-16.

121. The MRRA and NSP objected to the proposed requirements for combustion chamber temperature monitoring and exceedances. The MPCA rejected suggested changes and stated:

Temperature monitoring is required to ensure the application of good combustion practices to minimize organic emissions, specifically dioxins. Carbon monoxide emissions have been correlated with dioxin emissions, but that correlation is not always reliable. High temperatures in the combustion chamber ensure the destruction of dioxin precursors, so that they are not available to form dioxins downstream of the waste combustor. Temperature monitoring is required to ensure that combustors operate at the chamber temperatures at which compliance with the dioxin emission limit was demonstrated. No change to this subpart is proposed.

MPCA Post-Hearing Response, at 66-67

The MPCA has demonstrated the need for requiring combustion chamber temperature monitoring. The cost of such monitoring does not render the requirement unreasonable.

122. Olmstead County objected to the shut down requirement in proposed rule 7011.1260, subpart 7(C) where emission limits have been exceeded. The commentator suggested that an "administrative" permit amendment be established to avoid the shut down requirement or that such a requirement be eliminated where a permit amendment is taking place to address exceedences. The MPCA responded:

This subpart is proposed to achieve compliance with the requirements of Minn. Stat. § 116.85. Minn. Stat. § 116.85 subd. 2 does not provide the MPCA with discretion to allow startup, unless testing is undertaken to demonstrate compliance with permit requirements. Further, permit amendments, and their timing, are governed by the operating permit rules which were adopted by the MPCA in October 1993. That rule establishes permit application and issuance timelines. The subpart remains as proposed.

MPCA Post-Hearing Response, at 67.

Subpart 7 is needed and reasonable, as proposed.

123. Minn. R. 7011.1265 specifies the required performance tests, methods and procedures to be performed by waste combustor operators. These tests are necessary because federal regulations require that there be test methods for determining compliance with the standards. Determining compliance requires uniform measurement tests, methods and procedures. Again, the federal regulations for the large combustors, Classes I, A and B, have been applied and extended to the smaller waste combustors. In its Post-Hearing Response, the MPCA proposed a modification in subp. 3C regarding the test method for metal emissions. That is discussed above in the section on controlling mercury emissions.

124. Minn. R. 7011.1270 sets the frequency at which the performance tests, waste composition studies and ash sampling must occur. It is, of course, necessary to specify the frequency at which such matters must be performed and they are specified in this rule if they are not specified elsewhere. In the originally proposed rule, there was some vagueness regarding what tests were being referred to and when testing was to commence. In its Post-Hearing Response, the MPCA has clarified these matters. The MPCA deleted the requirement that ash sampling be conducted concurrently with air

emission testing because of concerns expressed at the hearing that there may be an insufficient number of testing laboratories to do all that testing at once. The Agency made a number of other modifications to clarify the rule and respond to public comments. The rule, as proposed and modified, is necessary and reasonable and the modifications proposed are not substantial changes.

125. Minn. R. 7017.1000 is an existing rule that describes the requirements for all continuous emission monitors. In 1991, the EPA adopted an additional performance standard applicable to carbon monoxide continuous monitors at 40 C.F.R. pt. 60, Appendix B, Performance Specification 4A. The MPCA proposes here to add a new item to the Minnesota rule to include reference to that performance specification. Such a reference is necessary and reasonable. The new language does not constitute a substantial change.

operator Training and Certification - Minn. R. 7011.1275, 7011.1280

126. Minn. R. 7011.1275 establishes the standards for training of waste combustor facility personnel. Federal regulations require standards for municipal waste combustors to include personnel training requirements. Because the appropriate operation of waste combustors is a primary element of emissions control at all facilities, it is necessary and reasonable to ensure that the operators are properly trained. The rules proposed here reflect the federal requirements and the consensus of those who participated in the development of the rules. The rule requires a program of instruction and on-the-job training based upon an operating manual developed for each waste combustor. The operating manual requirements are also specified. The rule is necessary and reasonable as proposed.

127. Minn. R. 7011.1280 provides for the certification of operators by the Commissioner. Again, operator certification requirements are a part of the federal requirements for municipal waste combustors and the federal certification requirements have been adopted to the extent practical. The rule is necessary and reasonable as proposed.

Based upon the foregoing Findings of Fact, the Administrative Law Judge makes the following:

CONCLUSIONS

1. That the MPCA gave proper notice of the hearing in this matter.
2. That the MPCA has fulfilled the procedural requirements of Minn. Stat. §§ 14.14, subds. 1, 1a and 14.14, subd. 2, and all other procedural requirements of law or rule.
3. That the MPCA has demonstrated its statutory authority to adopt the proposed rules and has fulfilled all other substantive requirements of law or rule within the meaning of Minn. Stat. §§ 14.05, subd. 1, 14.15, subd. 3 and 14.50 (i) (ii).

4. That the MPCA has documented the need for and reasonableness of its proposed rules with an affirmative presentation of facts in the record within the meaning of Minn. Stat. §§ 14.14, subd. 2 and 14.50 (iii), except as noted at Findings 51, 52, 60, and 92.

5. That the amendments and additions to the proposed rules which were suggested by the MPCA after publication of the proposed rules in the State Register do not result in rules which are substantially different from the proposed rules as published in the State Register within the meaning of Minn. Stat. § 14.15, subd. 3, and Minn. Rule 1400.1000, Subp. 1 and 1400.1100.

6. That the Administrative Law Judge has suggested action to correct the defects cited in Conclusion 4 as noted at Findings 52, 60, and 92.

7. That due to Conclusion 4 and 6, this Report has been submitted to the Chief Administrative Law Judge for his approval pursuant to Minn. Stat. § 14.15, subd. 3.

8. That a finding or conclusion of need and reasonableness in regard to any particular rule subsection does not preclude and should not discourage the MPCA from further modification of the proposed rules based upon an examination of the public comments, provided that no substantial change is made from the proposed rules as originally published, and provided that the rule finally adopted is based upon facts appearing in this rule hearing record.

Based upon the foregoing Conclusions, the Administrative Law Judge makes the following:

RECOMMENDATION

It IS HEREBY RECOMMENDED: that the proposed rules, with the modifications proposed by the MPCA, be adopted except where specifically otherwise noted above.

Dated this day of February, 1994.

STEVE M. MIHALCHICK
Administrative Law Judge