

**ENVIRONMENTAL PROTECTION AGENCY**
**40 CFR Part 60**

[EPA-HQ-OAR-2006-0534; FRL-8274-9]

RIN 2060-A004

**Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators**

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Proposed rule.

**SUMMARY:** On September 15, 1997, EPA adopted new source performance standards (NSPS) and emission guidelines for hospital/medical/infectious waste incinerators (HMIWI). The NSPS and emission guidelines were established under sections 111 and 129 of the Clean Air Act (CAA). On November 14, 1997, the Sierra Club and the Natural Resources Defense Council (Sierra Club) filed suit in the U.S. Court of Appeals for the District of Columbia Circuit (the Court) challenging EPA's methodology for adopting the regulations. On March 2, 1999, the Court issued its opinion. The Court remanded the rule to EPA for further explanation of the Agency's reasoning in determining the minimum regulatory "floors" for new and existing HMIWI. The Court did not vacate the regulations, so the NSPS and emission guidelines remained in effect during the remand and were fully implemented by September 2002. This action provides EPA's proposed response to the questions raised in the Court's remand.

Section 129(a)(5) of the CAA requires EPA to review and, if appropriate, revise the NSPS and emission guidelines every 5 years. In this action, EPA also is proposing our response to this 5-year review, which would revise the emission limits in the NSPS and emission guidelines to reflect the levels of performance actually achieved by the emission controls installed to meet the emission limits set forth in the September 15, 1997, NSPS and emission guidelines.

**DATES: Comments.** Comments must be received on or before April 9, 2007. Under the Paperwork Reduction Act, comments on the information collection provisions must be received by the Office of Management and Budget (OMB) on or before March 8, 2007. Because of the need to resolve the issues raised in this action in a timely manner, EPA will not grant requests for extensions beyond these dates.

**Public Hearing.** If anyone contacts EPA by February 26, 2007 requesting to speak at a public hearing, EPA will hold a public hearing on March 8, 2007. If you are interested in attending the public hearing, contact Ms. Pamela Garrett at (919) 541-7966 to verify that a hearing will be held.

**ADDRESSES:** Submit your comments, identified by Docket ID No. EPA-HQ-OAR-2006-0534, by one of the following methods:

*www.regulations.gov:* Follow the online instructions for submitting comments.

*E-mail:* Send your comments via electronic mail to *a-and-r-Docket@epa.gov*, Attention Docket ID No. EPA-HQ-OAR-2006-0534.

*Facsimile:* Fax your comments to (202) 566-1741, Attention Docket ID No. EPA-HQ-OAR-2006-0534.

*Mail:* Send your comments to: EPA Docket Center (EPA/DC), Environmental Protection Agency, Mailcode 6102T, 1200 Pennsylvania Ave., NW., Washington, DC 20460, Attention Docket ID No. EPA-HQ-OAR-2006-0534.

*Hand Delivery:* Deliver your comments to: EPA Docket Center (EPA/DC), EPA West Building, Room 3334, 1301 Constitution Ave., NW., Washington, DC 20460, Attention Docket ID No. EPA-HQ-OAR-2006-0534. Such deliveries are accepted only during the normal hours of operation (8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays), and special arrangements should be made for deliveries of boxed information.

*Instructions:* Direct your comments to Docket ID No. EPA-HQ-OAR-2006-0534. The EPA's policy is that all comments received will be included in the public docket and may be made available online at *www.regulations.gov*, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit information that you consider to be CBI or otherwise protected through *www.regulations.gov* or e-mail. The *www.regulations.gov* Web site is an "anonymous access" system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through *www.regulations.gov*, your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and

made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses.

**Public Hearing:** If a public hearing is held, it will be held at EPA's Campus located at 109 T.W. Alexander Drive in Research Triangle Park, NC, or an alternate site nearby. Persons interested in presenting oral testimony must contact Ms. Pamela Garrett at (919) 541-7966 at least 2 days in advance of the hearing.

**Docket:** EPA has established a docket for this action under Docket ID No. EPA-HQ-OAR-2006-0534 and Legacy Docket ID No. A-91-61. All documents in the docket are listed in the *www.regulations.gov* index. Although listed in the index, some information is not publicly available, e.g., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, will be publicly available only in hard copy form. Publicly available docket materials are available either electronically at *www.regulations.gov* or in hard copy at the EPA Docket Center EPA/DC, EPA West, Room 3334, 1301 Constitution Ave., NW., Washington, DC. The Public Reading Room is open from 8:30 a.m. to 4:30 p.m., Monday through Friday, excluding legal holidays. The telephone number for the Public Reading Room is (202) 566-1744, and the telephone number for the EPA Docket Center is (202) 566-1742.

**FOR FURTHER INFORMATION CONTACT:** Ms. Mary Johnson, Energy Strategies Group, Sector Policies and Programs Division (D243-01), Environmental Protection Agency, Research Triangle Park, North Carolina 27711; telephone number: (919) 541-5025; fax number: (919) 541-5450; e-mail address: *johnson.mary@epa.gov*.

**SUPPLEMENTARY INFORMATION:**

**Organization of This Document.** The following outline is provided to aid in locating information in this preamble.

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## I. General Information

*A. Does the proposed action apply to me?*

*Regulated Entities.* Categories and entities potentially affected by the proposed action are those which operate HMIWI. The NSPS and emission guidelines for HMIWI affect the following categories of sources:

Category	NAICS Code	Examples of potentially regulated entities
Industry .....	622110, 622310, 325411, 325412, 562213, 611310.	Private hospitals, other health care facilities, commercial research laboratories, commercial waste disposal companies, private universities.
Federal Government .....	622110, 541710, 928110 .....	Federal hospitals, other health care facilities, public health service, armed services.
State/local/Tribal Government ....	622110, 562213, 611310 .....	State/local hospitals, other health care facilities, State/local waste disposal services, State universities.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be affected by the proposed action. To determine whether your facility would be affected by the proposed action, you should examine the applicability criteria in 40 CFR 60.50c of subpart Ec and 40 CFR 60.32e of subpart Ce. If you have any questions regarding the applicability of the proposed action to a particular entity, contact the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

*B. What should I consider as I prepare my comments?*

### 1. Submitting CBI

Do not submit information that you consider to be CBI electronically through [www.regulations.gov](http://www.regulations.gov) or e-mail. Send or deliver information identified as CBI to only the following address: Ms. Mary Johnson, c/o OAQPS Document Control Officer (Room C404-02), U.S. EPA, Research Triangle Park, NC 27711, Attention Docket ID No. EPA-HQ-OAR-2006-0534. Clearly mark the part or all of the information that you claim to be CBI. For CBI information in a disk or CD ROM that you mail to EPA, mark the outside of the disk or CD ROM as CBI and then identify electronically within the disk or CD ROM the specific information that is claimed as CBI. In addition to one complete version of the comment that includes information claimed as CBI, a copy of the comment that does not contain the information claimed as CBI must be submitted for inclusion in the public docket. Information marked as

CBI will not be disclosed except in accordance with procedures set forth in 40 CFR part 2.

If you have any questions about CBI or the procedures for claiming CBI, please consult the person identified in the **FOR FURTHER INFORMATION CONTACT** section.

### 2. Tips for Preparing Your Comments

When submitting comments, remember to:

a. Identify the rulemaking by docket number and other identifying information (subject heading, **Federal Register** date and page number).

b. Follow directions. The EPA may ask you to respond to specific questions or organize comments by referencing a Code of Federal Regulations (CFR) part or section number.

c. Explain why you agree or disagree; suggest alternatives and substitute language for your requested changes.

d. Describe any assumptions and provide any technical information and/or data that you used.

e. If you estimate potential costs or burdens, explain how you arrived at your estimate in sufficient detail to allow for it to be reproduced.

f. Provide specific examples to illustrate your concerns, and suggest alternatives.

g. Explain your views as clearly as possible, avoiding the use of profanity or personal threats.

h. Make sure to submit your comments by the comment period deadline identified in the preceding section titled **DATES**.

### 3. Docket

The docket number for the proposed action regarding the HMIWI NSPS (40 CFR part 60, subpart Ec) and emission guidelines (40 CFR part 60, subpart Ce) is Docket ID No. EPA-HQ-OAR-2006-0534.

### 4. Worldwide Web (WWW)

In addition to being available in the docket, an electronic copy of this proposed action is available on the WWW through the Technology Transfer Network Web site (TTN Web). Following signature, EPA posted a copy of the proposed action on the TTN's policy and guidance page for newly proposed or promulgated rules at <http://www.epa.gov/ttn/oarpg>. The TTN provides information and technology exchange in various areas of air pollution control.

## II. Background

Section 129 of the CAA, entitled "Solid Waste Combustion," requires EPA to develop and adopt NSPS and emission guidelines for solid waste incineration units pursuant to CAA sections 111 and 129. Sections 111(b) and 129(a) of the CAA (NSPS program) address emissions from new HMIWI units, and CAA sections 111(d) and 129(b) (emission guidelines program) address emissions from existing HMIWI units. The NSPS are directly enforceable Federal regulations. The emission guidelines are not directly enforceable but, rather, are implemented by State air pollution control agencies through sections 111(d)/129 State plans.

An HMIWI is defined as any device used to burn hospital waste or medical/

infectious waste. Hospital waste means discards generated at a hospital, and medical/infectious waste means any waste generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in the production or testing of biologicals (e.g., vaccines, cultures, blood or blood products, human pathological waste, sharps). Hospital/medical/infectious waste does not include household waste, hazardous waste, or human and animal remains not generated as medical waste. An HMIWI typically is a small, dual-chamber incinerator that burns about 800 pounds per hour (lb/hr) of waste. Smaller units burn as little as 13 lb/hr while larger units burn as much as 3,700 lb/hr.

Incineration of hospital/medical/infectious waste causes the release of a wide array of air pollutants, some of which exist in the waste feed material and are released unchanged during combustion, and some of which are generated as a result of the combustion process itself. These pollutants include particulate matter (PM); heavy metals, including lead (Pb), cadmium (Cd), and mercury (Hg); toxic organics, including chlorinated dibenz-p-dioxins/dibenzofurans (CDD/CDF); carbon monoxide (CO); nitrogen oxides (NO<sub>x</sub>); and acid gases, including hydrogen chloride (HCl) and sulfur dioxide (SO<sub>2</sub>). In addition to the use of good combustion control practices, HMIWI units are typically controlled by wet scrubbers or dry sorbent injection fabric filters (dry scrubbers).

Combustion control includes the proper design, construction, operation, and maintenance of HMIWI to destroy or prevent the formation of air pollutants prior to their release to the atmosphere. Test data indicate that as secondary chamber residence time and temperature increase, emissions decrease. Combustion control is most effective in reducing CDD/CDF, PM, and CO emissions. The 0.25-second combustion level includes a minimum secondary chamber temperature of 1700 °F and a 0.25-second secondary chamber residence time. These combustion conditions are typical of older HMIWI. The 1-second combustion level includes a minimum secondary chamber temperature of 1700 °F and residence time of 1 second. These combustion conditions are typical of newer HMIWI. Compared to 0.25-second combustion, 1-second combustion will achieve substantial reductions in CDD/CDF and CO emissions, and will provide some control of PM, but will not reduce emissions of acid gases (HCl and SO<sub>2</sub>),

NO<sub>x</sub>, or metals (Pb, Cd, and Hg). The 2-second combustion level includes a minimum secondary chamber temperature of 1800 °F and residence time of 2 seconds. These combustion conditions will provide additional control of CDD/CDF, CO, and PM, but will not reduce emissions of acid gases (HCl and SO<sub>2</sub>), NO<sub>x</sub>, or metals (Pb, Cd, and Hg). The 2-second combustion conditions are considered to be the best level of combustion control (i.e., good combustion) that is applied to HMIWI. Wet scrubbers and dry scrubbers provide control of PM, CDD/CDF, HCl, and metals, but do not influence CO, SO<sub>2</sub> (at the low concentrations emitted by HMIWI units), or NO<sub>x</sub>; in fact, there are no technologies currently used by HMIWI that will consistently reduce SO<sub>2</sub> or NO<sub>x</sub> emissions. (See Legacy Docket ID No. A-91-61, item II-A-111; 60 FR 10669, 10671-10677; and 61 FR 31742-31743.)

On September 15, 1997, EPA adopted NSPS (40 CFR part 60, subpart Ec) and emission guidelines (40 CFR part 60, subpart Ce) for entities which operate HMIWI. The NSPS and emission guidelines are designed to reduce air pollution emitted from new and existing HMIWI, including HCl, CO, Pb, Cd, Hg, PM, CDD/CDF (total, or 2,3,7,8-tetrachlorinated dibenz-p-dioxin toxic equivalent (TEQ)), NO<sub>x</sub>, SO<sub>2</sub>, and opacity. The NSPS apply to HMIWI for which construction began after June 20, 1996, or for which modification began after March 16, 1998. The NSPS became effective on March 16, 1998, and its requirements apply as of that date or at start-up of a HMIWI unit, whichever is later. The emission guidelines apply to HMIWI for which construction began on or before June 20, 1996, and required compliance by September 2002.

CAA section 129 requires EPA to establish technology-based emission standards that reflect levels of control EPA determines are achievable for new and existing units, after considering costs, non-air quality health and environmental impacts, and energy requirements associated with the implementation of the standards.

In setting forth the methodology EPA must use to establish the technology-based performance standards and emissions guidelines, CAA section 129(a)(2) provides that standards "applicable to solid waste incineration units promulgated under section 111 and this section shall reflect the maximum degree of reduction in emissions of [certain listed air pollutants] that the Administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and

environmental impacts and energy requirements, determines is achievable for new and existing units in each category." This level of control is referred to as a maximum achievable control technology, or MACT standard.

In promulgating a MACT standard, EPA must first calculate the minimum stringency levels for new and existing solid waste incineration units in a category, generally based on levels of emissions control achieved or required to be achieved by the subject units. The minimum level of stringency is called the MACT floor, and CAA section 129(a)(2) provides that the "degree of reduction in emissions that is deemed achievable for new units in a category shall not be less stringent than the emissions control that is achieved in practice by the best controlled similar unit, as determined by the Administrator. Emissions standards for existing units in a category may be less stringent than standards for new units in the same category but shall not be less stringent than the average emissions limitation achieved by the best performing 12 percent of units in the category."

The minimum stringency requirements form the first and least stringent regulatory option EPA must consider in the determination of MACT for a source category. EPA must also determine whether to control emissions "beyond the floor," after considering the costs, non-air quality health and environmental impacts, and energy requirements of such more stringent control. These are the two steps EPA took in the 1997 HMIWI rulemaking. Finally, every 5 years after adopting a MACT standard under section 129, CAA section 129(a)(5) requires EPA to review and, if appropriate, revise the incinerator standards. In addition to responding to the Court's remand in *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999), this proposed action includes our first set of proposed revisions to the HMIWI standards, also known as the 5-year review.

### III. Summary

#### A. Litigation and Proposed Remand Response

1. What was EPA's general methodology for determining MACT?

The methodology used to determine MACT is similar for source categories under sections 112 and 129 of the CAA. However, because each source category is unique and the data available to determine the performance capabilities of technology can vary from one source category to another, the basic methodology must be adapted to fit the

source category in question. As the Court pointed out in the HMIWI litigation, it “generally defer[s] to an agency’s decision to proceed on the basis of imperfect scientific information, rather than to ‘invest the resources to conduct the perfect study.’” *Sierra Club v. EPA*, 167 F.3d at 662.

In general, all MACT analyses involve an assessment of the air pollution control systems or technologies used by the better performing units in a source category. The technology assessment can be based solely on actual emissions data, on knowledge of the air pollution control in place in combination with actual emissions data, or on State regulatory requirements, which give an indication of the actual performance of the regulated units. For each source category, the assessment of the technology involves a review of actual emissions data with an appropriate accounting for emissions variability. Where there is more than one method or technology to control emissions, the analysis results in a series of potential regulations (called regulatory options), one of which is selected as MACT.

The first regulatory option considered by EPA must be at least as stringent as the CAA’s minimum stringency requirements. However, MACT is not necessarily the least stringent regulatory option. EPA must examine more stringent regulatory options to determine MACT. Unlike the minimum stringency requirements, EPA must consider various impacts of the more stringent regulatory options in determining MACT. Only if the more stringent regulatory options are considered to have unreasonable impacts does EPA select the first “floor-based” regulatory option as MACT.

As stated earlier, the CAA requires that MACT for new sources be no less stringent than the emissions control achieved in practice by the best controlled similar unit. After EPA’s assessment of technology, EPA determines the best control currently in use for a given pollutant and establishes one potential regulatory option at the emission level achievable by that control. More stringent potential regulatory options might reflect controls used on other sources that could be applied to the source category in question.

For existing sources, the CAA requires that MACT be no less stringent than the average emissions limitation achieved by the best performing 12 percent of units in a source category. EPA must determine some measure of the average emissions limitation achieved by the best performing 12 percent of units to form the least stringent regulatory

option. Sometimes, a direct calculation of the actual emissions values from the best performing 12 percent of sources provides the basis for this regulatory option. More often, EPA determines the technology used by the average source in the best performing 12 percent of sources and establishes the floor based on the technology assessment for that average source. More stringent regulatory options reflect other technologies capable of achieving better performance.

2. What was EPA’s methodology in the 1997 HMIWI rulemaking?

On February 27, 1995, EPA published a notice of proposed rulemaking regarding emissions standards for HMIWI units (60 FR 10654). The proposal was the result of several years of reviewing available information. During the public comment period for the proposal, EPA received over 700 letters, some of which contained new information or indicated that the commenters were in the process of gathering more information for EPA to consider. The new information led EPA to consider the need for numerous changes to the proposed rule, and on June 20, 1996, the Agency published a re-proposal (61 FR 31736). Following an additional public comment period, EPA published the final rule on September 15, 1997 (62 FR 48348).

During the data-gathering phase of developing the 1995 proposal, EPA found it difficult to obtain an accurate count of the thousands of HMIWI units nationwide, or to find HMIWI units with add-on air pollution control systems in place. A few HMIWI units with combustion control were tested to assess performance of combustion control in reducing emissions. One unit with a wet scrubber, and a few units with dry scrubbing systems were tested to determine performance capabilities of add-on controls. (See 61 FR 31738.)

Altogether, data were available from only 7 out of the estimated then-operating 3,700 existing HMIWI units (60 FR 10674). Because EPA was under a court-ordered deadline to propose and adopt standards for HMIWI that did not provide sufficient time to collect more actual emissions data (see consent decree entered in *Sierra Club v. EPA*, Nos. CV-92-2093 and CV-93-0284 (E.D.N.Y.)), EPA proceeded to develop the regulations with the existing data, as described below. However, EPA specifically requested comment on EPA’s MACT determinations and on EPA’s conclusions about the performance capabilities of air pollution control technologies on HMIWI in light

of the relatively small database (60 FR 10686).

a. EPA’s Methodology for New HMIWI. In determining the least stringent regulatory option allowed by the CAA for new HMIWI, EPA first examined the data available for various air pollution control technologies applied to HMIWI to determine the performance capabilities of the technologies (i.e., the achievable emission limitations) (60 FR 10671–73, 61 FR 31741–43). To determine the performance capabilities, EPA grouped all of the test data by control technology and established the numerical value for the achievable emission limitations somewhat higher than the highest test data point for each particular control technology. (See Legacy Docket ID No. A-91-61, items IV-B-46, 47, 48, and 49.) Following the determination of performance capability, EPA identified the best control technology for each air pollutant for each subcategory of HMIWI, and established the numerical values for the least stringent regulatory option at the achievable emission limitation associated with that particular control technology. (See 60 FR 10673; Legacy Docket ID No. A-91-61, item IV-B-38; 61 FR 31745–46.) Other, more stringent, regulatory options were developed reflecting the actual performance of other, more effective, control technologies (61 FR 31766–68).

As stated in the 1996 re-proposal, the least stringent regulatory option for new large HMIWI units (units with maximum waste burning capacity of more than 500 lb/hr) was based on good combustion (i.e., 2-second combustion level) and a combination of two control technologies, high-efficiency wet scrubbers and dry injection/fabric filter dry scrubbers with carbon (61 FR 31746). New medium units (units with maximum waste burning capacity of more than 200 lb/hr but less than or equal to 500 lb/hr) would need to use good combustion and a combination of two control technologies, high-efficiency wet scrubbers and dry injection/fabric filter dry scrubbers without carbon, to meet the least stringent regulatory option. *Id.* New small units (units with maximum waste burning capacity of less than or equal to 200 lb/hr) would need to use good combustion and a moderate-efficiency wet scrubber to meet the least stringent regulatory option. *Id.*

In EPA’s final standards promulgated in 1997, EPA selected an overall more stringent regulatory option for new HMIWI (62 FR 48365). The final standards were based on emission limits achievable with good combustion and a

moderate-efficiency wet scrubber for new small HMIWI, and good combustion and a combined dry/wet control system with carbon for new medium and large HMIWI. *Id.* These standards reflected the MACT floor emissions levels for new small and large HMIWI, but were more stringent than the MACT floor for new medium HMIWI. *Id.* EPA estimated that the standards would reduce emissions from these units of HCl by up to 98 percent, PM and Pb by up to 92 percent, Cd by up to 91 percent, CDD/CDF by up to 87 percent, Hg by up to 74 percent, and CO, SO<sub>2</sub>, and NO<sub>x</sub> by up to 52 percent (62 FR 48366).

b. EPA's Methodology for Existing HMIWI. For existing units, EPA did not have sufficient emissions data to fully characterize the actual emissions performance of the best performing 12 percent of existing HMIWI, and, based exclusively on such data, EPA did not have a clear indication of the technology used by the best 12 percent of units. As a result, EPA used emission limits included in State regulations and State-issued permits (hereinafter referred to as regulatory limits) as surrogate information to determine emissions limitations achieved by the best performing 12 percent of units in each subcategory (60 FR 10674). EPA believed this information could be expected to reliably reflect levels of performance achieved on a continuous basis by better-controlled units that must meet these limits or risk violating enforceable requirements. EPA assumed that all HMIWI were achieving their regulatory limits (60 FR 10674). Where there were regulatory limits for more than 12 percent of units in a subcategory, the regulatory limits were ranked from the most stringent to least stringent, and the average of the regulatory limits for the top 12 percent of units in the subcategory was calculated. *Id.*; 61 FR 31744–45. Where the number of units subject to specific emissions limitations did not comprise 12 percent of the population in a subcategory, EPA assumed those units with regulatory limits were the best performing units, and the remaining units in the top 12 percent were assigned an emission value associated

with "combustion control." (See 60 FR 10674; 61 FR 31745; Legacy Docket ID No. A-91–61, item IV-B-24 at 2.) In previous **Federal Register** notices regarding HMIWI (60 FR 10654, 61 FR 31736, and 62 FR 48348), this level of control was referred to as "uncontrolled," which is misleading because sources with combustion control emit lesser amounts of CDD/CDF, CO, and PM. In the latter situation described above, the average of the regulatory limits plus enough combustion-controlled emission values to account for 12 percent of units in the subcategory was calculated. (See Legacy Docket ID No. A-91–61, item IV-B-24 at 2–4.)

After calculating the averages of regulatory limits and combustion-controlled emission values, EPA examined the resulting calculated values to determine what level of air pollution control would be needed to meet the calculated average values. (See 60 FR 10675–78; 61 FR 31755–56.) For many pollutants, the calculated averages presented no clear indication of the type of air pollution control used by the best performing units. However, the calculated values for three key pollutants, PM, CO, and HCl, did provide a good indication of the type of air pollution control used on the best performing 12 percent of units. The level of air pollution control associated with the calculated average values for PM, CO, and HCl formed the technical basis of the least stringent regulatory option considered by EPA (61 FR 31756, Table 13). The emission limitations assigned to each pollutant reflected the actual performance of the technology on which they were based. Finally, EPA developed a series of regulatory options based on progressively more stringent technologies and assigned emission limitations to each regulatory option based on the actual performance capabilities of the technologies (61 FR 31757, Table 14).

As stated in the 1996 re-proposal, large existing units would need to use good combustion and a high-efficiency wet scrubber to meet the least stringent regulatory option, while medium existing units would need to use good combustion and a moderate-efficiency wet scrubber, although dry scrubbers

could also be used with good combustion at large and medium existing units (61 FR 31745). EPA further stated that its inclination was to establish emission limitations for large and medium existing units based on regulatory options representing the MACT floors (61 FR 31778). Small existing units would need only to use good combustion practices to meet the regulatory option representing the MACT floor (61 FR 31745). With respect to small existing units, EPA stated that it had no inclination with regard to which regulatory option should be used to establish emission limitations and requested comment on requiring use of good combustion and a low-efficiency wet scrubber (61 FR 31778–79).

In EPA's final standards promulgated in 1997, EPA selected an overall more stringent regulatory option for existing HMIWI (62 FR 48371). The final standards were based on emission limits achievable with good combustion and a low-efficiency wet scrubber for most existing small HMIWI, good combustion and a moderate-efficiency wet scrubber for existing medium HMIWI, and good combustion and a high-efficiency wet scrubber for existing large HMIWI (62 FR 48371). The final standards allow small HMIWI that meet certain rural criteria to meet emissions limits achievable with good combustion alone. *Id.* These standards reflected the MACT floor emissions levels for existing small HMIWI meeting rural criteria, medium HMIWI, and large HMIWI, but were more stringent than the MACT floor for most existing small HMIWI (i.e., non-rural) (62 FR 48371–72). The final standards for existing medium and large HMIWI were structured so that either a dry scrubber or a wet scrubber could be used to achieve the emission limits. EPA estimated that the final emission guidelines would reduce emissions of CDD/CDF by up to 97 percent, Hg by up to 95 percent, PM by up to 92 percent, Pb by up to 87 percent, Cd by up to 84 percent, CO by up to 82 percent, HCl by up to 98 percent, and SO<sub>2</sub> and NO<sub>x</sub> by up to 30 percent (62 FR 48372). Table 1 of this preamble summarizes the emission limits for the NSPS and emission guidelines promulgated in 1997.

TABLE 1.—SUMMARY OF PROMULGATED EMISSION LIMITS

Pollutant (units)	Unit Size <sup>1</sup>	Limit for existing HMIWI <sup>2</sup>	Limit for new HMIWI <sup>2</sup>
HCl (parts per million by volume (ppmv)) .....	L, M, S .....	100 or 93% reduction .....	15 or 99% reduction.
CO (ppmv) .....	SR .....	3,100 .....	N/A. <sup>3</sup>
CO (ppmv) .....	L, M, S .....	40 .....	40
CO (ppmv) .....	SR .....	40 .....	N/A.
Pb (milligrams per dry standard cubic meter (mg/dscm)).	L, M .....	1.2 or 70% reduction .....	0.07 or 98% reduction. <sup>3</sup>

TABLE 1.—SUMMARY OF PROMULGATED EMISSION LIMITS—Continued

Pollutant (units)	Unit Size <sup>1</sup>	Limit for existing HMIWI <sup>2</sup>	Limit for new HMIWI <sup>2</sup>
Cd (mg/dscm) .....	S .....	1.2 or 70% reduction .....	1.2 or 70% reduction.
	SR .....	10 .....	N/A.
	L, M .....	0.16 or 65% reduction .....	0.04 or 90% reduction.
	S .....	0.16 or 65% reduction .....	0.16 or 65% reduction.
	SR .....	4 .....	N/A.
	L, M, S .....	0.55 or 85% reduction .....	0.55 or 85% reduction.
	SR .....	7.5 .....	N/A.
	L .....	0.015 .....	0.015
PM (grains per dry standard cubic foot (gr/dscf)) .....	M .....	0.03 .....	0.015
	S .....	0.05 .....	0.03.
	SR .....	0.086 .....	N/A.
CDD/CDF, total (nanograms per dry standard cubic meter (ng/dscm)).	L, M .....	125 .....	25
	S .....	125 .....	125
	SR .....	800 .....	N/A.
	L, M .....	2.3 .....	0.6
	S .....	2.3 .....	2.3
	SR .....	15 .....	N/A.
NO <sub>x</sub> (ppmv) .....	L, M, S .....	250 .....	250
	SR .....	250 .....	N/A.
SO <sub>2</sub> (ppmv) .....	L, M, S .....	55 .....	55
	SR .....	55 .....	N/A.

<sup>1</sup> L = Large; M = Medium; S = Small; SR = Small Rural.<sup>2</sup> All emission limits are measured at 7 percent oxygen.<sup>3</sup> Not applicable.

c. Compliance by HMIWI. At the time of promulgation (September 1997), EPA estimated that there were approximately 2,400 HMIWI operating in the United States. Those units combusted approximately 830 thousand tons of hospital/medical/infectious waste annually. Of those existing HMIWI, about 48 percent were small units, 29 percent were medium units, and 20 percent were large units. About 3 percent of the HMIWI were commercial units. EPA projected that no new small or medium HMIWI would be constructed, and that up to 60 new large

units and 10 new commercial units would be constructed.

After shutdown of approximately 97 percent of the 2,400 HMIWI that were operating in 1997, there are currently 72 existing HMIWI at 67 facilities. Additionally, only 4 new HMIWI at 3 facilities began operation following the 1997 rulemaking. These 76 existing and new units are estimated to combust approximately 165 thousand tons of waste annually. Of the 72 existing HMIWI subject to the emission guidelines, 44 are large units, 20 are medium units, and 8 are small units (6

of which meet the rural criteria). Twenty-one percent of the existing HMIWI are commercially owned. Of the four new HMIWI, three are large units, and one is a medium unit. Two of the new units are county-owned but accept waste from other sources, similar to commercial units. The actual emissions reductions achieved as a result of implementation of the standards exceeded the 1997 projections for all nine of the regulated pollutants. A comparison of the estimated pollutant reductions versus the actual reductions is presented in Table 2 of this preamble.

TABLE 2.—COMPARISON OF ESTIMATED POLLUTANT REDUCTIONS VERSUS ACTUAL POLLUTANT REDUCTIONS

Pollutant	Estimated emissions reduction, percent	Actual emissions reduction, percent <sup>1</sup>
HCl .....	98 .....	99.2
CO .....	75 to 82 .....	98.1
Pb .....	80 to 87 .....	98.7
Cd .....	75 to 84 .....	99.0
Hg .....	93 to 95 .....	99.0
PM .....	88 to 92 .....	98.1
CDD/CDF, total .....	96 to 97 .....	99.5
CDD/CDF, TEQ .....	95 to 97 .....	99.6
NO <sub>x</sub> .....	0 to 30 .....	70.6
SO <sub>2</sub> .....	0 to 30 .....	92.6

<sup>1</sup> Reflects the effect of unit shutdowns as well as the effect of compliance with the promulgated standards.

### 3. What was the Sierra Club's challenge?

On November 14, 1997, the Sierra Club and the Natural Resources Defense Council (Sierra Club) filed suit in the U.S. Court of Appeals for the District of Columbia Circuit (the Court). The Sierra

Club claimed that EPA had violated CAA section 129 by setting emission standards for HMIWI under CAA sections 129 and 111 that are less stringent than the statutory minimum stringency required by section 129(a)(2); that EPA had violated section 129 by

not including mandatory pollution prevention or waste minimization requirements in the HMIWI standards; and that EPA had not adequately considered the non-air quality health and environmental impacts of the standards. For new units, the Sierra

Club argued that to satisfy the statutory phrase “best controlled similar unit” in CAA section 129(a)(2), EPA should have identified the single best performing unit in each subcategory and based the MACT floor for that subcategory on that particular unit’s performance, rather than consider the performance of other units using the same technology. The Sierra Club also argued that EPA erroneously based the new unit floors on the emissions of the worst performing unit using a particular technology. Regarding existing units, the Sierra Club claimed that the plain meaning of CAA section 129(a)(2)’s words, “average emissions limitation achieved by the best performing 12 percent of units,” precludes the use of regulatory data, and claimed that the legislative history of section 129(a)(2) reflects congressional intent to prohibit EPA from relying on regulatory data. Moreover, the Sierra Club claimed that, for HMIWI, using regulatory data was impossible because such data existed for fewer than 12 percent of units, and because doing so would impermissibly import an achievability requirement into the unit floor determination. Finally, the Sierra Club argued that EPA failed to require HMIWI units to undertake programs to reduce the Hg and chlorinated plastic in their waste streams, in violation of CAA section 129(a)(3), and that EPA failed to consider the fact that CDD/CDF and Hg from HMIWI can contaminate water, sediment, and soil, and can bioaccumulate in food, in violation of the CAA’s requirement that EPA consider non-air quality impacts of setting HMIWI emissions standards.

#### 4. What was the Court’s ruling?

On March 2, 1999, the Court issued its opinion in *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999). While the Court rejected the Sierra Club’s claims regarding pollution prevention and non-air quality impacts, and rejected the Sierra Club’s statutory arguments under CAA section 129, the Court remanded the rule to EPA for further explanation regarding how EPA derived the MACT floors for new and existing HMIWI units. Furthermore, the Court did not vacate the regulations, stating that “[i]t is possible that EPA may be able to explain [EPA’s basis for the standards]” in response to the concerns raised by the Court. *Id.* at 664. The regulations remain in effect during the remand.

a. The Court’s Ruling on New Units. In response to the Sierra Club’s claims regarding EPA’s treatment of new units, the Court opined that ‘EPA would be justified in setting the floors at a level that is a reasonable estimate of the

performance of the ‘best controlled similar unit’ under the worst reasonably foreseeable circumstances [\* \* \*]. It is reasonable to suppose that if an emissions standard is as stringent as ‘the emissions control that is achieved in practice’ by a particular unit, then that particular unit will not violate the standard. This only results if ‘achieved in practice’ is interpreted to mean ‘achieved under the worst foreseeable circumstances.’ In *National Lime Ass’n v. EPA*, 627 F.2d 416, 431 n. 46 (D.C. Cir. 1980), we said that where a statute requires that a standard be ‘achievable,’ it must be achievable ‘under most adverse circumstances which can reasonably be expected to recur.’ The same principle should apply when a standard is to be derived from the operating characteristics of a particular unit.” *Sierra Club v. EPA*, 167 F.3d at 665. Thus, the Court refused to embrace the Sierra Club’s interpretation of CAA section 129(a)(2) as requiring EPA to base the MACT floor on only the lowest emissions data points observed (i.e., the level achieved by the best performing unit for each pollutant).

Relating to the Sierra Club’s claim that EPA erred in considering the emissions of units other than the best controlled unit, the Court refused to rule that EPA’s approach was unlawful, and posited that “[p]erhaps considering all units with the same technology is justifiable because the best way to predict the worst reasonably foreseeable performance of the best unit with the available data is to look at other units’ performance. Or perhaps EPA reasonably considered all units with the same technology equally ‘well-controlled,’ so that each unit with the best technology is a ‘best-controlled unit’ even if such units vary widely in performance.” *Sierra Club v. EPA*, 167 F.3d at 665.

However, the Court concluded that the possible rationale for this treatment of new units was not presented in the rulemaking record with enough clarity for the Court to determine that EPA’s “path may reasonably be discerned.” *Id.* Moreover, the Court ruled that EPA had “not explained why the phrase best controlled similar unit encompasses all units using the same technology as the unit with the best observed performance, rather than just that unit itself. [\* \* \* W]e do not know what interpretation the agency chose, and thus cannot evaluate its choice.” *Sierra Club v. EPA*, 167 F.3d at 665. The Court further directed EPA to provide additional explanation regarding how the Agency had calculated the upper bound of the best-controlled unit’s performance through rounding. *Id.*

b. The Court’s Ruling on Existing Units. With respect to existing units, the Court first rejected the Sierra Club’s “claim that EPA’s decision to base the floors on regulatory data fails the first step of the *Chevron* test. None of the Sierra Club’s arguments establish that Congress has ‘directly addressed’ and rejected the use of regulatory data.” *Id.*, at 661. After noting that the Sierra Club’s statutory objections to EPA’s methodology appeared to be premised on “the counterintuitive proposition that an ‘achieved’ level may not be ‘achievable,’ or, as Sierra Club puts it, may be better than ‘EPA’s notions about what is achievable,’ ” *id.* at 662, the Court rejected the Sierra Club’s statutory objections to using regulatory data and uncontrolled (i.e., combustion-controlled) emissions values. In other words, the Court implicitly embraced EPA’s view, under the principle of *National Lime*, that the MACT floor is premised on the fundamental concept that it be “achievable,” and should not be set at a level that happens to be reflected by the lowest observed data point without consideration of variability in operating conditions. Then, after analyzing and rejecting the Sierra Club’s arguments that the plain language of the CAA and its legislative history forbid EPA’s methodology, the Court further ruled that it found “nothing inherently impermissible about construing the statute to permit the use of regulatory data—if they allow EPA to make a reasonable estimate of the performance of the top 12 percent of units. Indeed, the Sierra Club conceded at oral argument that ‘a reasonable sample’ may be used ‘to find out what the best 12 percent are doing.’ Oral Arg. Tr. at 11. To be sure, the Sierra Club did not concede that permit data may be used. But neither has it provided any basis for believing that state and local limitations are such weak indicators of performance that using them is necessarily an impossible stretch of the statutory terms. [\* \* \*] We therefore reject the Sierra Club’s argument that the CAA forbids the use of permit and regulatory data, and hold that the use of such information is permissible as long as it allows a reasonable inference as to the performance of the top 12 percent of units. Similarly, as long as there is a reasonable basis for believing that some of the best performing 12 percent of units are uncontrolled [i.e., combustion controlled], EPA may include data points giving a reasonable representation of the performance of those units in its averaging.” *Sierra Club v. EPA*, 167 F.3d at 662, 663. Thus, the Court rejected all of the Sierra Club’s

arguments that the CAA prohibits EPA from basing MACT floor determinations on permit or regulatory data, or on uncontrolled (i.e., combustion-controlled) emissions values.

However, in addressing the manner in which EPA had specifically relied upon such data in the HMIWI rulemaking, the Court concluded that “[a]lthough EPA said that it believed the combination of regulatory and uncontrolled [i.e., combustion-controlled] data gave an accurate picture of the relevant [HMIWI]s’ performance, it never adequately said why it believes this. [\* \* \*] First, EPA has said nothing about the possibility that [HMIWI]s might be substantially overachieving the permit limits. If this were the case, the permit limits would be of little value in estimating the top 12 percent of [HMIWI]s’ performance. [\* \* \*] Second, EPA never gave any reason for its apparent belief that [HMIWI]s that were not subject to permit requirements did not deploy emission controls of any sort. Unless there is some finding to this effect, it is difficult to see the rationality in using ‘uncontrolled’ [i.e., combustion-controlled] data for the units that were not subject to regulatory requirements.” *Id.*, at 663–664. The Court further questioned the rationality of EPA using the highest of its test run data in cases where the regulatory data did not alone comprise the necessary 12 percent. *Id.*, at 664.

c. Subsequent Court Rulings Relevant to the Remand. Following the Court’s remand of the HMIWI MACT floors in *Sierra Club v. EPA*, the Court issued a series of rulings in other cases addressing MACT rules that bear on EPA’s proposed response regarding HMIWI. The first of these was *Nat'l Lime Ass'n v. EPA*, 233 F.3d 625 (D.C. Cir. 2000) (“*NLA II*”), which involved challenges to EPA’s MACT standards under CAA section 112(d) for portland cement manufacturing facilities. In that case, the Sierra Club argued that EPA should have based its estimate of the top performing 12 percent of sources on actual emissions data, in order to “reasonably estimate” such performance. But the Court determined that EPA’s approach of selecting “the median [performing] plant out of the best twelve percent of the plants for which it had information and set[ting]

the \* \* \* floor at the level of the worst performing plant in its databases using th[e same] technology [as the median plant]” had not been shown by the Sierra Club to reflect a not reasonable estimate. *NLA II*, 233 F.3d at 633.

In addition, the Court partially clarified its position regarding EPA’s approach of accounting for emissions performance variability by setting floors at a level that reasonably estimates “the performance of the ‘best controlled similar unit’ under the worst reasonably foreseeable circumstances.” *Sierra Club*, 167 F.3d at 665. In *NLA II*, the Court stressed that EPA should not simply set floors at levels reflecting the worst foreseeable circumstances faced by any worst performing unit in a given source category, and that while considering all units with the same technology may be justifiable because the best way to predict the worst reasonably foreseeable performance of the best unit with available data is to look at other units’ performance, such an approach would satisfy the CAA “if pollution control technology were the only factor determining emission levels of that HAP.” *NLA II*, 233 F.3d at 633.

In *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855 (D.C. Cir. 2001) (“*CKRC*”), the Court again refined its view on when it is appropriate for EPA to base MACT floors on the performance of air pollution control technology. In that case, the Sierra Club challenged EPA’s MACT standards for hazardous waste combustors (HWC), and argued that factors other than MACT technology influenced the emissions performance of the best performing sources.

The Court agreed that since EPA’s record evidence in the HWC rulemaking showed that factors besides MACT controls significantly influenced HWC emission rates, “emissions of the worst performing MACT source may not reflect what the best-performers actually achieve.” *CKRC*, 255 F.3d at 864. EPA had claimed that MACT floors must be achievable by all sources using MACT technology, and that to account for the best-performing sources’ operational variability we had to base floors on the worst performers’ emissions. But the Court stressed that “whether variability in the MACT control accurately estimates variability associated with the

best performing sources depends on whether factors other than MACT control contribute to emissions[,]” *id.*, and that “the relevant question here is not whether control technologies experience variability at all, but whether the variability experienced by the best-performing sources can be estimated by relying on emissions data from the worst-performing sources using the MACT control.” *Id.*, at 865.

In the specific case of the HWC rule, the Court concluded that, since record evidence showed that non-MACT factors influenced emissions performance, EPA could not base floors simply on the worst-performing MACT sources’ emissions. *Id.*, at 866. However, the Court also reiterated that “[i]f in the case of a particular source category or HAP, the Agency can demonstrate with substantial evidence—not mere assertions—that MACT technology significantly controls emissions, or that factors other than the control have a negligible effect, the MACT approach could be a reasonable means of satisfying the statute’s requirements.” *Id.*

5. Are revisions to the emission limits being proposed in response to the remand?

Yes, the proposed response to the remand would revise some of the emission limits in both the NSPS and emission guidelines. Relative to the NSPS, the emission limits for CO, Pb, Cd, Hg, PM, and CDD/CDF would be revised. Relative to the emission guidelines, the emission limits for HCl, Pb, Cd, and CDD/CDF would be revised. EPA believes that the revised emission limits being proposed as a result of its response to the remand can be achieved with the same emission control technology currently used by HMIWI. The proposed emission limits for the NSPS and emission guidelines necessary to respond to the Court’s remand are summarized in Table 3 of this preamble. Note that in several cases, further amendments to the emission limits are being proposed as a result of our 5-year review under CAA section 129(a)(5). Those proposed amendments are discussed in the following section of this preamble.

TABLE 3.—SUMMARY OF PROPOSED EMISSION LIMITS IN RESPONSE TO THE REMAND

Pollutant (units)	Unit size <sup>1</sup>	Proposed remand limit for existing HMIWI <sup>2</sup>	Proposed remand limit for new HMIWI <sup>2</sup>
HCl (ppmv) .....	L, M, S .....	78 or 93% reduction <sup>3</sup> .....	15 <sup>3</sup> or 99% reduction <sup>3</sup> .
CO (ppmv) .....	SR .....	3,100 <sup>3</sup> .....	N/A <sup>4</sup> .
	L, M, S .....	40 <sup>3</sup> .....	32
	SR .....	40 <sup>3</sup> .....	N/A <sup>4</sup> .

TABLE 3.—SUMMARY OF PROPOSED EMISSION LIMITS IN RESPONSE TO THE REMAND—Continued

Pollutant (units)	Unit size <sup>1</sup>	Proposed remand limit for existing HMIWI <sup>2</sup>	Proposed remand limit for new HMIWI <sup>2</sup>
Pb (mg/dscm) .....	L, M .....	0.78 or 71% reduction .....	0.060 or 98% reduction <sup>3</sup> .
	S .....	0.78 or 71% reduction .....	0.78 or 71% reduction.
	SR .....	8.9 .....	N/A <sup>4</sup> .
Cd (mg/dscm) .....	L, M .....	0.11 or 66% reduction <sup>3</sup> .....	0.030 or 93% reduction.
	S .....	0.11 or 66% reduction <sup>3</sup> .....	0.11 or 66% reduction <sup>3</sup> .
	SR .....	4 <sup>3</sup> .....	N/A <sup>4</sup> .
Hg (mg/dscm) .....	L, M .....	0.55 <sup>3</sup> or 87% reduction .....	0.45 or 87% reduction.
	S .....	0.55 <sup>3</sup> or 87% reduction .....	0.47 or 87% reduction.
	SR .....	6.6 .....	N/A <sup>4</sup> .
PM (gr/dscf) .....	L .....	0.015 <sup>3</sup> .....	0.009
	M .....	0.030 <sup>3</sup> .....	0.009
	S .....	0.050 <sup>3</sup> .....	0.018
	SR .....	0.086 <sup>3</sup> .....	N/A <sup>4</sup> .
CDD/CDF, total (ng/dscm) .....	L, M .....	115 .....	20
	S .....	115 .....	111
	SR .....	800 <sup>3</sup> .....	N/A <sup>4</sup> .
CDD/CDF, TEQ (ng/dscm) .....	L, M .....	2.2 .....	0.53
	S .....	2.2 .....	2.1
	SR .....	15 <sup>3</sup> .....	N/A <sup>4</sup> .
NO <sub>x</sub> (ppmv) .....	L, M, S .....	250 <sup>3</sup> .....	225
	SR .....	250 <sup>3</sup> .....	N/A <sup>4</sup>
SO <sub>2</sub> (ppmv) .....	L, M, S .....	55 <sup>3</sup> .....	46
	SR .....	55 <sup>3</sup> .....	N/A <sup>4</sup> .

<sup>1</sup>L = Large; M = Medium; S = Small; SR = Small Rural<sup>2</sup>All emission limits are measured at 7 percent oxygen.<sup>3</sup>No change proposed.<sup>4</sup>Not applicable.

#### B. Proposed Amendments (CAA Section 129(a)(5) 5-Year Review)

Section 129(a)(5) of the CAA requires EPA to conduct a review of the NSPS and emissions guidelines at 5 year intervals and, if appropriate, revise the NSPS and emission guidelines pursuant to the requirements under sections 111 and 129 of the CAA. In conducting such reviews, EPA attempts to assess the performance of and variability associated with the installed emissions control equipment (and developments in practices, processes and control technologies) and to revise as necessary and appropriate the NSPS and emission guidelines. In these reviews, EPA takes into account the currently installed equipment and its performance and operational variability. As appropriate, we also consider new technologies that have been demonstrated to reliably control emissions from the source category. In setting numerical emission limits from single, "snap shot" stack test data, EPA must exercise technical judgment to ensure the achievability of such limits over the course of anticipated operating conditions. EPA has completed the 5-year review, and the proposed amendments discussed below reflect the changes that EPA has determined are appropriate in addition to the amendments that are necessary to respond to the Court's remand. These proposed amendments do not reflect adoption of new control technologies or

processes, but do reflect more efficient practices in operation of the control technologies that sources used in order to meet the 1997 MACT standards.

Following year 2002 compliance with the emission guidelines, EPA gathered information on the performance levels actually being achieved by HMIWI that were operating under the guidelines. After implementation of the guidelines in 1997, approximately 94 percent of HMIWI shut down, and 3 percent demonstrated eligibility for exemptions from the HMIWI regulation. Those HMIWI that remained in operation either continued operation with their existing configuration or were retrofitted with add-on air pollution control devices in order to meet the standards. The retrofits were completed on time, and the controls installed to meet the required emission limitations were highly effective in reducing emissions of all of the CAA section 129 pollutants emitted by HMIWI. For those HMIWI, relative to a 1995 baseline, the emission guidelines reduced organic emissions (CDD/CDF) by about 90 percent, metals emissions (Pb, Cd, and Hg) by more than 80 percent, and acid gas emissions (HCl and SO<sub>2</sub>) by more than 70 percent. Including shutdowns and exemptions, nationwide HMIWI emissions of organics, metals, and acid gases each decreased by about 99 percent or more relative to a 1995 baseline. It should be noted that the original HMIWI emission

limits were based primarily on permit information and other regulatory requirements, and not on actual performance or stack test data. To this end, it was highly uncertain at promulgation what the precise performance efficiency and day-to-day operational variability associated with the promulgated regulatory requirements would yield. Thus, the 2002 compliance test information provided the first quantitative assessment of the performance of the installed control equipment's ability to attain the NSPS and emissions guideline limits.

The goal of the current technology review is to assess the performance efficiency of the installed equipment and to ensure that the emission limits reflect the performance of the technologies required by the MACT standards. In addition, the review addresses whether new technologies and processes and improvements in practices have been demonstrated at sources subject to the emissions limitations. EPA's intent for future technology reviews is to include similar analyses that also assess risk along with new technologies. For the current review, while new technologies have not yet been demonstrated to reliably control emissions more efficiently at reasonable cost at HMIWI units than those used to meet MACT, improvements in operational practices

do support some additional revision of the standards, in order to better reflect the best operation of the MACT controls.

These proposed amendments would revise the NSPS and emission guidelines, in some cases beyond the point needed to respond to the Court's remand, based on the performance

levels currently being achieved by HMIWI. The revisions discussed in the following text apply to both the NSPS and the emission guidelines, unless otherwise specified.

1. Are revisions to the emission limits being proposed?

Yes, the proposed amendments would revise the emission limits in both the

NSPS and emission guidelines. EPA's technology review demonstrates that the proposed emission limits can be achieved with the same emission control technology currently used by HMIWI. The proposed emission limits for the NSPS and emission guidelines are summarized in Tables 4 and 5 of this preamble.

TABLE 4.—SUMMARY OF PROPOSED 5-YEAR REVIEW EMISSION LIMITS FOR NEW HMIWI

Pollutant (units)	Unit Size <sup>1</sup>	Proposed Limit <sup>2</sup>
HCl (ppmv)	L, M, S	15 <sup>3</sup> or 99% reduction.
CO (ppmv)	L, M, S	25
Pb (mg/dscm)	L, M	0.060 or 99% reduction.
	S	0.64 or 71% reduction.
Cd (mg/dscm)	L, M	0.0050 or 99% reduction.
	S	0.060 or 74% reduction.
Hg (mg/dscm)	L, M	0.19 or 96% reduction.
	S	0.33 or 96% reduction.
PM (gr/dscf)	L, M	0.0090.
	S	0.018.
CDD/CDF, total (ng/dscm)	L, M	16
	S	111
CDD/CDF, TEQ (ng/dscm)	L, M	0.21
	S	2.0
NO <sub>x</sub> (ppmv)	L, M, S	212
SO <sub>2</sub> (ppmv)	L, M	21
	S	28

<sup>1</sup>L = Large; M = Medium; S = Small

<sup>2</sup>All emission limits are measured at 7 percent oxygen.

<sup>3</sup>No change proposed.

TABLE 5.—SUMMARY OF PROPOSED 5-YEAR REVIEW EMISSION LIMITS FOR EXISTING HMIWI

Pollutant (units)	Unit Size <sup>1</sup>	Proposed Limit <sup>2</sup>
HCl (ppm)	L, M, S	51 or 94% reduction.
CO (ppm)	SR	398
Pb (mg/dscm)	All	25
	L, M, S	0.64 or 71% reduction.
Cd (mg/dscm)	SR	0.60
	L, M, S	0.060 or 74% reduction.
Hg (mg/dscm)	SR	0.050
	L, M, S	0.33 or 96% reduction.
PM (gr/dscf)	SR	0.25 <sup>3</sup>
	L	0.015
	M	0.030 <sup>3</sup>
	S	0.030
	SR	0.030
CDD/CDF, total (ng/dscm)	L, M, S	115
	SR	800 <sup>3</sup>
CDD/CDF, TEQ (ng/dscm)	L, M, S	2.0
	SR	15 <sup>3</sup>
NO <sub>x</sub> (ppmv)	All	212
SO <sub>2</sub> (ppmv)	All	28

<sup>1</sup>L = Large; M = Medium; S = Small; SR = Small Rural

<sup>2</sup>All emission limits are measured at 7 percent oxygen.

<sup>3</sup>No change proposed.

As indicated by Table 5 of this preamble, the proposed emission limits for Pb, Cd, and Hg for existing small rural HMIWI are more stringent than those being proposed for existing large, medium, and small HMIWI. We believe that this better emissions performance by existing small rural HMIWI is a result

of the waste stream of a small rural hospital not including certain materials that are in the waste stream of a non-rural hospital and that cause relatively higher Pb, Cd and Hg emissions.

2. Are other amendments being proposed?

The proposed amendments would also make the following changes based on information received during implementation of the HMIWI NSPS and emission guidelines and would

apply equally to the NSPS and emission guidelines, unless otherwise specified.

a. Performance Testing and Monitoring Amendments. The proposed amendments would allow sources to use the results of previous emissions tests to demonstrate compliance with the revised emission limits as long as the sources certify that the previous test results are representative of current operations. Only those sources whose previous emissions tests do not demonstrate compliance with one or more revised emission limits would be required to conduct another emissions test for those pollutants (note that sources are already required to test for HCl, CO, and PM on an annual basis). The proposed amendments would require, for existing HMIWI, annual inspections of scrubbers and fabric filters, and a one-time Method 22 visible emissions test of the ash handling operations to be conducted during the next compliance test. For new HMIWI, the proposed amendments would require CO continuous emissions monitoring systems (CEMS), bag leak detection systems for fabric-filter controlled units, annual inspections of scrubbers and fabric filters, and Method 22 visible emissions testing of the ash handling operations to be conducted during each compliance test. For existing HMIWI, use of CO CEMS would be an approved alternative, and specific language with requirements for CO CEMS is included in the proposed amendments. For new and existing HMIWI, use of PM, HCl, multi-metals, and Hg CEMS, and semi-continuous dioxin monitoring (continuous sampling with periodic sample analysis) also are approved alternatives, and specific language for these alternatives is included in the proposed amendments.

b. Other Amendments. The proposed amendments would revise the definition of "Minimum secondary chamber temperature" to read "Minimum secondary chamber temperature means 90 percent of the highest 3-hour average secondary chamber temperature (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the PM, CO, and dioxin/furan emission limits."

The proposed amendments would require sources to submit, along with each test report, a description of how operating parameters are established during the initial performance test and subsequent performance tests.

3. Is an implementation schedule being proposed?

Yes; under the proposed amendments to the emission guidelines, and

consistent with CAA section 129, revised State plans containing the revised emission limits and other requirements in the proposed amendments would be due within 1 year after promulgation of the amendments. That is, revised State plans would have to be submitted to EPA 1 year after the date on which EPA promulgates revised standards.

The proposed amendments to the emission guidelines then would allow HMIWI units up to 3 years from the date of approval of a State plan, but not later than 5 years after promulgation of the revised standards, to demonstrate compliance with the amended standards. Consistent with CAA section 129, EPA expects States to require compliance as expeditiously as practicable. HMIWI units have already installed the emission control equipment necessary to meet the proposed revised limits, and EPA, therefore, anticipates that most State plans will include compliance dates sooner than 5 years following promulgation of the amendments. In most cases, the only changes necessary are to review the revisions and adjust the emission monitoring and reporting accordingly.

In revising the emission limits in a State plan, a State has two options. First, it could include both the current and the new emission limits in its revised State plan, which allows a phased approach in applying the new limits. That is, the State plan would make it clear that the current emission limits remain in force and apply until the date the new emission limits are effective (as defined in the State plan). States whose HMIWI units do not find it necessary to improve their performance in order to meet the new emission limits may want to consider a second approach where the State would insert the new emission limits in place of the current emission limits, follow procedures in 40 CFR part 60, subpart B, and submit a revised State plan to EPA for approval. If the revised State plan contains only the new emission limits (i.e., the current emission limits are not retained), then the new emission limits must become effective immediately since the current limits would be removed from the State plan.

4. Has EPA changed the applicability date of the 1997 NSPS?

No; however, HMIWI may be treated differently under the amended standards than they were under the 1997 standards in terms of whether they are "existing" or "new" sources, and there will be new dates defining what are "new" sources and imposing

compliance deadlines regarding any amended standards. The applicability date for the NSPS units, with respect to the standards as promulgated in 1997, remains June 20, 1996; however, units for which construction is commenced after the date of this proposal, or modification is commenced on or after the date 6 months after promulgation of the amended standards, would be subject to more stringent NSPS emission limits than units for which construction or modification was completed prior to those dates. Under the proposed amendments, units that commenced construction after June 20, 1996, and on or before February 6, 2007, or that are modified before the date 6 months after the date of promulgation of any revised final standards, would continue to be or would become subject to the NSPS emission limits that were promulgated in 1997 and that remain in the 40 CFR part 60, subpart Ec NSPS, except where the revised emission guidelines would be more stringent. In that case, HMIWI that are NSPS units under the 1997 rule would also need to comply with the revised emission guidelines for existing sources, by the applicable compliance date for such existing sources. Similarly, emission guidelines units under the 1997 rule would need to meet the revised emission guidelines by the applicable compliance date for the revised guidelines. HMIWI that commence construction after February 6, 2007 or that are modified 6 months or more after the date of promulgation of any revised standards would have to meet the revised NSPS emission limits being added to the subpart Ec NSPS and any remaining NSPS limits from the 1997 rule, as applicable, within 6 months after the promulgation date of the amendments or upon startup, whichever is later.

#### IV. Rationale

##### *A. Rationale for the Proposed Response to the Remand*

This action responds to the Court's remand by (1) further explaining the reasoning processes by which EPA determined the MACT floors and the MACT standards for new and existing HMIWI for the portions of those processes that are being retained under our remand response, and (2) explaining revisions to the processes, the MACT floors, and the MACT standards for new and existing HMIWI that result from our response to the remand.

##### 1. New HMIWI

The Court raised three issues with regard to EPA's treatment of the MACT floor for new units and the achievable

emission limitations. First, the Court asked EPA to explain why the floor was based on the highest emissions levels of the “worst-performing” unit employing the MACT technology rather than on the lowest observed emissions levels of the best performing unit using the MACT technology. (See *Sierra Club v. EPA*, 167 F.3d at 665.) Second, the Court requested further explanation of why EPA considered multiple units employing the MACT technology, rather than identify the single best-performing unit and basing the floor on that particular unit’s performance with that technology. *Id.* Third, the Court requested further explanation of EPA’s procedure for determining the achievable emission limitation from the available data, where EPA selected a numerical value somewhat higher than the highest observed data point. The Court stated that EPA’s procedure “[m]ay be justifiable as a means of reasonably estimating the upper bound of the best-controlled unit’s performance, but in the absence of agency explanation of both the decision to increase the levels and the choice of method for determining the increases, we are in no position to decide.” *Id.*

As discussed in detail below, for the first two issues, the Court described potential rationale for EPA’s method. However, because the Court concluded that this rationale was not adequately presented in the rulemaking record, the Court asked for further clarification by EPA. In subsequent cases the Court further addressed these potential rationales, and discussed under what circumstances they would and would not be persuasive. In fact, the Court’s potential rationale for EPA’s method reflects the principles used by EPA in determining the MACT floor for new units and the achievable emission limitations for this source category, and is the method that has been used by EPA throughout most of the Agency’s 30-year history in developing achievable technology-based emission limitations for source categories in cases where the application of control technology has been the only means by which sources have limited emissions, and the variability of technology performance is a critical factor in determining an emission limitation’s achievability. (See, e.g., *American Iron and Steel Inst. v. EPA*, 115 F.3d 979, 1000 (D.C. Cir. 1997); *BP Exploration & Oil, Inc., v. EPA*, 66 F.3d 784, 794 (6th Cir. 1995); *NRDC v. EPA*, 790 F.2d 289, 299 (3d Cir. 1986); *National Ass’n of Metal Finishers v. EPA*, 719 F.2d 624, 659 (3d Cir. 1983); *rev’d on other grounds sub nom, Chemical Mfrs. Ass’n v. NRDC*, 470 U.S.

116 (1985); *American Petroleum Inst. v. EPA*, 661 F.2d 340, 347 n. 23 (5th Cir. 1981); *Bunker Hill Co. v. EPA*, 572 F.2d 1286, 1302 (9th Cir. 1977); *Marathon Oil Co. v. EPA*, 564 F.2d 1253, 1266–67 (9th Cir. 1977); *FMC v. Train*, 639 F.2d 973, 985–86 (4th Cir. 1976).) As discussed elsewhere in this preamble, in *CKRC* the Court stressed that where record evidence suggests that factors other than application of control technology influence emissions, EPA will not be able to demonstrate “that floors based on the worst-performing MACT sources’ emissions represent ‘a reasonable estimate of the performance of the [best-performing] units.’” *CKRC*, 255 F.3d at 866, quoting *Sierra Club*, 167 F.3d at 662. However, the Court reiterated that where EPA’s record demonstrates that MACT technology significantly controls emissions, or that factors other than the control have a negligible effect, the approach of accounting for variability by basing the floor on the highest emissions resulting from a source using MACT technology “could be a reasonable means of satisfying the statute’s requirements.” *CKRC*, at 866.

a. Applicability of *National Lime* to CAA Section 129. CAA section 129(a)(3) states that “[s]tandards under section 111 and this section applicable to solid waste incineration units shall be based on methods and technologies for removal or destruction of pollutants before, during, or after combustion [\* \* \*].” This language requires that such a standard be based on the degree of reduction in air pollutant emissions that can be achieved through application of a particular method of pollution control, and any other factors that record evidence shows significantly affect emissions performance. Much like the language in CAA sections 111 and 129 governing the HMIWI standards, Congress has used similar language in other statutes to direct adoption of technology-based standards. (See, e.g., CAA section 169(3) defining “best available control technology”; Clean Water Act section 301(b)(2)(A), for “best available technology economically achievable” or “BAT” standards; Clean Water Act section 304(b)(1) for “best practicable technology” or “BPT” standards.)

As the Court has stated, “[t]echnology-based provisions [in the CAA] require EPA to promulgate standards only after finding that the requisite technology exists or may be feasibly developed. Absolute standards, on the other hand, require compliance with statutorily prescribed standards and time tables, irrespective of present technologies.” (See *NRDC v. Reilly*, 983 F.2d 259, 268 (D.C. Cir. 1993) (holding

that elimination of feasibility requirements and specification of particular control systems indicated that congressional amendment of CAA section 202(a)(6) resulted in an “absolute” standard.) MACT standards under CAA sections 111 and 129 are “technology-based,” rather than “absolute” standards. The legislative history to the 1990 CAA Amendments clearly shows that Congress intended the MACT standards to be technology-based. (See *I A Legislative History*, at 863 (Senator Durenberger referring to “the MACT technology-based standards” in debates on the bill reported by the Conference Committee); *id.*, at 1128 (Senator Dole explaining that changes made to CAA section 129 in the Conference Committee “make the technology test more closely approximate the role of the NSPS”); S. Rep. No. 101–228, at 133–134 (1989) (referring to CAA section 112 MACT standards as “technology-based standards” and noting that technology-based effluent standards under the Clean Water Act served as a model for the new MACT standards).)

CAA section 129 does not specify a type of control technology for HMIWI, but instead requires EPA to develop floor levels already achieved in practice by one or more units, and then issue standards that EPA determines are “achievable” for units in that source category. As the Court stated in *National Lime Ass’n v. EPA* (627 F.2d 416, 431 n. 46 (D.C. Cir. 1980)) (“*NLA I*”), and restated in *Sierra Club*, “where a statute requires a standard to be achievable, it must be achievable ‘under most adverse circumstances which can reasonably be expected to recur.’” (See *Sierra Club*, 167 F.3d at 665.) In other words, “EPA would be justified in setting floors at a level that is a reasonable estimate of the performance of the ‘best controlled similar unit’ under the worst reasonably foreseeable circumstances[.]” *Id.* This concept of “worst reasonably foreseeable circumstances” is fundamental in developing achievable technology-based emission limitations, since, once the standard is in force, sources will be expected to comply with it at all times by relying on the technology that formed the basis for EPA’s determination that the promulgated emissions limitation is achievable. As the Court stated in *Sierra Club*, “[i]t is reasonable to suppose that if an emissions standard is as stringent as ‘the emissions control that is achieved in practice’ by a particular unit, then that particular unit will not violate the standard. This only results if ‘achieved in practice’ is interpreted to

mean ‘achieved under the worst foreseeable circumstances.’” *Id.*

EPA agrees with the Court that, in order to satisfy the requirements of *NLA I*, “[t]he same principle should apply when a standard is to be derived from the operating characteristics of a particular unit[,]” as is the case under CAA section 129(a)(2). *Id.* CAA section 129(a)(2) requires that the new unit MACT floor be “not less stringent than the emissions control that is achieved in practice by the best controlled similar unit, as determined by the Administrator.” It would have been unreasonable for EPA to base the MACT floors solely on the lowest levels of emissions observed without an assessment of whether those observed levels could be met on a continuous basis, and the CAA and its legislative history provide no support in deviating from the general practice EPA has followed in the wake of *NLA I*. In a report on H.R. 3030, the House Committee on Energy and Commerce explained that “MACT is not intended to require unsafe control measures, or to drive sources to the brink of shutdown.” (See H.R. Rep. No. 101-490, pt. 1, at 328 (1990).) This view is consistent with *NLA I*, which involved challenges to standards EPA promulgated under section 111 of the CAA and is particularly applicable to the HMIWI rulemaking under CAA section 129, since this rule has its basis in authority in both section 129 and section 111. (See CAA section 129(a)(1)(A) and (C).)

Moreover, interpreting CAA section 129 as subject to the principles of *NLA I* appropriately notes the critical distinction between a level of emissions that has been continuously achieved through performance using control technology, and one that has been observed at a single point in time. A level that has been continuously achieved is capable of being met under most conditions which can reasonably be expected to recur because variability in operating conditions is taken into account. Such a level best effectuates Congress’ intent because it ensures that the MACT floor will result in reduced emissions without forcing sources to shut down. A lowest observed emission level, however, is not representative of a unit’s performance under most conditions which can reasonably be expected, and may be impossible to achieve on a regular, let alone continuous, basis. While an observed lowest emissions level may be appropriate for use in determining whether a source is in compliance with an emission standard that must be continuously met, it is not an appropriate level upon which to base

the minimum stringency level of such a standard.

In addition, Congress’ use of the phrases “as determined by the Administrator” and “achieved in practice” in CAA section 129(a)(2) in the directive to establish MACT floors shows that Congress expected EPA to consider variability in operating conditions and other relevant factors in the Agency’s determinations. The term “practice” is defined as “[r]epeated or customary action; habitual performance; a succession of acts of a similar kind; custom; usage.” (See Black’s Law Dictionary 1172 (6th ed. 1990).) Thus, achieved in “practice” means achieved on a repeated, customary, or habitual basis. Under the statutory mandate that the level “achieved in practice” be “determined by the Administrator,” EPA must exercise its judgment, based on an evaluation of the relevant factors and available data, to determine the level of emissions control that can be customarily achieved using the relied-upon technology under variable conditions. Merely locating the lowest emissions data point and setting the MACT standard at that level would not constitute a considered “determination by the Administrator” as to what has been “achieved in practice.” (See, e.g., Senate Debate on Conference Report, 10-26-90, reprinted in *I A Legislative History of CAA Amendments of 1990*, 103d Cong., 1st Sess. at 1128-1129 (Comm. Print 1993) (exchange between Senators Dole and Durenberger confirming that the phrase “achieved in practice” accounts for the distinction between research-type pollution control systems and systems that are “economically viable for widespread use,” and stressing that MACT floors should rely upon technologies that can “stand the rigors of day to day operations”)).

Ultimately, *NLA I* is controlling because the case addressed how standards must be set in the face of variable operating conditions, and involved one of the same provisions of the CAA, section 111, under which the HMIWI rule was promulgated. *NLA I* held that EPA is required to use data that is representative of emissions that could be achieved in the industry as a whole. (See 627 F.2d at 433.) In developing the standards at issue in that case, EPA relied upon tests of the emissions from particular units to determine the level of emissions control that was achievable across the entire industry. The Court directed EPA to identify “variable conditions that may contribute substantially to the amount of emissions, or otherwise affect the efficiency of the emissions control

systems.” *Id.* The Court then stated that “where test results are relied upon, it should involve the selection or use of test results in a manner which provides some assurance of the achievability of the standard for the industry as a whole, given the range of variable factors found relevant to the standards’ achievability.” *Id.* This does not mean that EPA must test every plant, but it does mean that “due consideration must be given to the possible impact on emissions of recognized variations in operations and some rationale offered for the achievability of the promulgated standards given the tests conducted and the relevant variables identified.” *Id.*, at 434. Thus, applying *NLA I* to the HMIWI rule adopted under CAA sections 111 and 129, it is really a misnomer to characterize EPA as basing the MACT floor on the emissions of the “worst performing” unit using the technology in question, since that unit’s level of emissions necessarily more closely represents the level “achieved in practice” by the given technology than would the lowest emissions level observed at a source using that “best” technology.

b. Variability Between Facilities or Units. In remanding the NSPS at issue in *NLA I*, the Court noted that its decisions under CAA section 111 “evince a concern that variables be accounted for, that the representativeness of test conditions be [sic] ascertained, that the validity of tests be assured and the statistical significance of results be determined.” (See *NLA I*, 627 F.2d at 452-53.) (See, also, *Portland Cement Ass’n v. Ruckelshaus*, 486 F.2d 375, 396 (D.C. Cir. 1973), cert. denied, 417 U.S. 921 (1974).) When floors and standards are developed based on emissions data, EPA accounts for several types of variability to avoid adopting unachievable standards. The first type of variability is that concerning operational distinctions between facilities or units. As the *Sierra Club* Court stated in reviewing the HMIWI rule, “[p]erhaps considering all units with the same technology is justifiable because the best way to predict the worst reasonably foreseeable performance of the best unit with the available data is to look at other units’ performance. Or perhaps EPA reasonably considered all units with the same technology equally ‘well-controlled,’ so that each unit with the best technology is a ‘best-controlled unit’ even if such units vary widely in performance.” (See 167 F.3d at 665.) These are two ways of saying essentially the same thing, and these concepts have

been used by EPA throughout most of the Agency's history in determining achievable technology-based emission limitations, in cases where application of control technology significantly controls emissions and no record evidence indicates that factors other than the control have more than a negligible effect. Examining multiple units using the same technology gives the best picture of the performance capability of that particular technology, since it provides EPA with a more complete set of data by which to evaluate what levels of emissions control a technology can achieve as it is applied to varying sources. Such an analysis is necessary especially when adopting standards that all sources in a category will have to be able to meet by using the identified technology. Since MACT floors and standards are generally expressed as numerical emissions limits, it is necessary to account for this variability in order to adopt a regulation that is 'achievable' by the industry as a whole." (See *NLA I*, 627 F.2d at 437.)

Section 129(a)(2) of the CAA requires that EPA determine the emissions control achieved by the "best controlled similar unit" when establishing the MACT floors for new units. A solid waste incineration "unit" is defined as "a distinct operating unit of any facility which combusts any solid waste material" (CAA section 129(g)(1)). To achieve the best level of pollution control, that unit will utilize a particular method of pollution control (and possibly use other means that affect its emissions performance). The emissions control achieved by that method (and by any additional means) is the emissions control achieved by the "best controlled similar unit." Thus, the MACT floor for new units is based on the "emissions control" that is attained by the specific method of pollution control and any other means used to limit emissions at the best similar unit, rather than merely on the emissions measured at a particular unit.

In this way, by basing the MACT floor on the capability of a particular method of pollution control used at "similar" "best" "units," instead of on the emissions measured at a single unit, EPA ensures that the floors would not only be achievable by the single best performing unit, but are also achievable by other units using the same technology and/or emissions limiting means as the best similar unit, and that it is reasonable to require the best similar unit and all future new units to meet this floor on a continuous basis. In contrast, identifying the "emissions control" of the "best controlled similar

unit" as being a single data point from a single source provides merely a snapshot of emissions performance that may not be replicable by either that single source or by other sources using the same control technology, and, therefore, does not provide a basis for enforceably requiring all sources to perform to that level.

Thus, the most reasonable way to interpret the statutory phrase "best controlled similar unit" in CAA section 129 is as encompassing all units using the same technology and emissions limiting means as the single unit with the best observed performance, rather than just that single best performing unit itself. A contrary interpretation would seem to directly conflict with the Court's directive in *NLA I*, and is not compelled by the Court rulings in *Sierra Club*, *NLA II*, and *CKRC*. Applying this approach to evaluating "best technologies" at "best controlled similar units," where different design characteristics are identified (e.g., low-efficiency versus moderate-efficiency versus high-efficiency wet scrubbers), the data are grouped such that each data set reflects the performance of an "identical" control device, providing the best indication of the true performance of each control device and enabling the Agency to adopt a numerical standard that can be met with the subject technology at all units employing this technology, and can be enforced. Again, where the record evidence indicates that the only means of control of emissions at units is application of control technology, and there is no record evidence showing that other means of emissions limitation significantly affect emissions performance, basing the MACT floor on this approach is fully consistent with the Court's rulings in the MACT cases.

c. Variability Between and Within Tests at Facilities. Another type of variability that EPA accounts for in order to ensure the achievability of technology-based standards that rely upon application of pollution controls concerns operational distinctions between and within tests at the same unit. Regarding "between-test variability," even where conditions appear to be the same when two or more tests are conducted, variations in emissions are often caused by different settings for emissions testing equipment and differences in sample handling. Varying results may also be caused by use of different field teams to conduct the testing, or different laboratories to analyze the results. All these variations are typical.

An achievable standard needs to account for these differences between

tests, in order for "a uniform standard [to] be capable of being met under most adverse conditions which can reasonably be expected to recur[.]" (See *NLA I*, 627 F.2d at 431, n. 46.) (See also *Portland Cement Ass'n*, 486 F.2d at 396 (noting industry point that "a single test offered a weak basis" for inferring that plants could meet the standards).) Without accounting for variation among different emissions tests, it can be determined with a significant degree of statistical confidence that even a single unit will not be able to meet the standard over a reasonable period of time, when one can expect adverse conditions to recur. The Courts have recognized this basic principle in reviewing technology-based effluent standards under the Clean Water Act. As the U.S. Court of Appeals for the 5th Circuit stressed regarding "best practicable technology" or "BPT" standards under section 304(b)(1) of the Clean Water Act, "[t]he same plant using the same treatment method to remove the same toxic does not always achieve the same result. Tests conducted one day may show a different concentration of the same toxic than are shown by the same test on the next day. This variability may be due to the inherent inaccuracy of analytical testing, i.e., 'analytical variability,' or to routine fluctuations in a plant's treatment performance." (See *Chemical Mf'rs Ass'n v. EPA*, 870 F.2d 177, 228 (5th Cir. 1989).) (See also *American Petroleum Institute v. EPA*, 540 F.2d 1023, 1035-36 (10th Cir. 1976) ("Even in the best treatment systems, changes occur in ability to treat wastes. [\* \* \*] [V]ariability factors present[] a practical effort to accommodate for variations in plant operations"); *FMC Corp. v. Train*, 539 F.2d 973, 985 (4th Cir. 1976) (variability factors account for "the fact that even in the best treatment systems changes continually occur in the treatability of wastes").)

The same types of differences leading to between-test variability also cause variations in results between various runs comprising a single test, or "within-test variability." A single test at a unit usually includes at least three separate test runs. (See 40 CFR 63.7(e)(3) (for MACT standards under section 112 of the CAA), and 40 CFR 60.8(f) (for NSPS under CAA section 111).) (See also *Portland Cement Ass'n*, 486 F.2d at 397 (noting differences in conditions among several test runs).)

d. Application of *NLA I*, *Sierra Club*, *NLA II*, and *CKRC* Principles in HMIWI Rulemaking. Based on the record for the 1997 rulemaking, the best way to determine the worst reasonably foreseeable circumstances for the

particular technologies used to control emissions at HMIWI was to first examine the highest data point actually observed from HMIWI equipped with each particular technology. If an emission value has been observed and there is no reason to believe it represents poor performance (i.e., there is nothing that can be done to prevent its recurring), it is likely to occur again in the future and, therefore, reflects a foreseeable circumstance. It is incorrect to characterize the highest data point as the “worst performance” of the best performing unit, or to characterize one control device’s performance as “better” than another’s based solely on the results of a single emission test. This is because such focuses relate to essentially random single data occurrences, rather than to estimating what a particular technology can be expected to continuously achieve. Rather, each data point, whether from one unit or from several identical units using the same technology, should be viewed as a snapshot of the actual performance of the technology in use. Along with an understanding of the factors affecting the performance of the technology, each of these snapshots gives information about the normal, and unavoidable, variation in emissions that would be expected to recur over time when using the identified technology. Conversely, when there is evidence that an emission data point reflects poor performance (design, operation, or both), such a data point should not be considered in determining the achievable emission limitation associated with the technology.

Furthermore, a distinction must be made between an emission level that has been “observed” and an emission limitation that can be continuously “achieved.” The purpose of the MACT program is to compel sources to replicate emission reduction strategies used by the best-performing sources. Thus, MACT floors are based on the control strategies used by the best-performing sources to reduce emissions, not based on a snapshot level of emissions from sources without regard to whether this level reflects application of any replicable emission control strategies. CAA section 129(a)(2) does not direct EPA to assess relative emission “levels” in determining MACT floors; it directs EPA to assess the degree of emissions “control” or “reduction” or “limitation” “achieved” by the best-controlled or best-performing sources. The plain meaning of these words implies that a source is utilizing some method or technique to reduce emissions that is within a source

operator’s power to adopt. The reference to a “degree of reduction” supports the view that the words “control” and “limitation” appearing in section 129(a)(2) require a source to have reduced emissions from uncontrolled levels through some control technique. See *NLA II*, 233 F.3d at 631–32 (rejecting position that EPA is required to set new source floors at the lowest recorded emission level for which it has data and to set existing source floors at the average of the lowest 12 percent or recorded emission level data points).

The Court has recognized that EPA may consider variability in estimating the degree of emission reduction achieved by best-performing sources and in setting MACT floors. See *Mossville Envt'l Action Now v. EPA*, 370 F.3d 1232, 1241–42 (D.C. Cir 2004) (holding EPA may consider emission variability in estimating performance achieved by best-performing sources and may set floor at level that best-performing source can expect to meet “every day and under all operating conditions”). Since an emission limitation must be complied with at all times, for it to be achievable it must be set at a level that will not force sources to violate it when operating conditions are not ideal and higher emissions levels might be observed. For example, a car which has been observed to consume 0.02 gallons of gasoline in a one-mile downhill stretch of highway cannot be said to have “achieved” a minimum 50 miles per gallon fuel efficiency rate when that same car is later certain to consume 0.04 gallons of gasoline in a one-mile uphill stretch of highway (25 miles per gallon). Rather, the minimum fuel efficiency of the car will be that which the car can meet in adverse circumstances, the uphill stretch. So it is with emissions limitations, which cannot reasonably be set at levels which would force sources to operate in violation even when properly employing the control technology upon which the standards are based.

The emission data used to develop the emission limitations in the HMIWI regulations reflect properly designed and operated air pollution control technology on properly designed and operated HMIWI, and emission data that reflected poor operation of the HMIWI unit or the air pollution control technology were excluded. (See Legacy Docket ID No. A-91-61, items II-A-111 and IV-B-14.) The incinerators selected by EPA for testing represented a range of incinerator designs and air pollution control systems in use on this source category. (See Legacy Docket ID No. A-91-61, item IV-B-46.) The incinerators

and air pollution controls were inspected thoroughly, and maintenance was performed where necessary to ensure that the incinerators and pollution controls were functioning properly. (See Legacy Docket ID No. A-91-61, items II-A-93, II-A-94, and II-A-85.) During testing, most test runs were conducted under representative conditions to minimize emissions. (See Legacy Docket ID No. A-91-61, items II-A-111, IV-B-46, and IV-B-47.) However, some test runs were purposely conducted under conditions that would represent poor operation (e.g., overcharging waste to the incinerator) to determine the effect of improper operation on emissions. (See Legacy Docket ID No. A-91-61, items II-A-111 and IV-B-46.) These test runs demonstrated that improper operation results in higher emissions. (See Legacy Docket ID No. A-91-61, items II-A-111, IV-B-46, and II-A-81.) Of course, the test runs reflecting poor operation were not used in developing the achievable emission limitations. *Id.* It is important to note that such poor operation is precluded by the good combustion requirements and the parametric monitoring requirements in the 1997 final rule. In addition to data gathered by EPA directly, vendors of air pollution control systems submitted test reports to EPA. (See Legacy Docket ID No. A-91-61, items II-I-230 through 237, II-I-243 and 244, II-I-248, IV-B-48 and 49, IV-J-11, IV-J-15 and 16, IV-J-20, IV-J-24, IV-J-27, IV-J-29 through 31, IV-J-33 and 34, IV-J-39 and 40, and IV-J-47.) The test reports were submitted primarily by wet scrubber vendors to demonstrate to EPA that wet scrubbers could achieve lower emissions than EPA had concluded from the EPA-collected data. (EPA had conducted testing on only one wet scrubber system.) (See 61 FR 31742; Legacy Docket ID No. A-91-61, item IV-B-48.) The test reports and the data collected by EPA reflect the best performance of the air pollution controls that can reasonably be expected when continuously applied on HMIWI.

MACT and other technology-based standards are necessarily derived from short-term emissions test data, but such data are not representative of the range of operating conditions that facilities face on a day-to-day basis. In statistical terms, each test produces a limited data sample, not a complete enumeration of the available data for performance of the unit over a long period of time. (See Natrella, *Experimental Statistics*, National Bureau of Standards Handbook 91, chapter 1 (revised ed., 1966).) EPA, therefore, often needs to adjust the

short-term data to account for these varying conditions, so facilities properly employing optimal controls can remain in compliance with the standards on a continuous basis.

With the relatively small data sets EPA had to work with in the 1997 HMIWI rulemaking, it is possible that EPA has not recorded the highest emissions levels that would occur under the worst reasonably foreseeable circumstances. As the Court noted, it would “generally defer to an agency’s decision to proceed on the basis of imperfect scientific information, rather than to ‘invest the resources to conduct the perfect study.’” (See *Sierra Club*, 167 F.3d at 662.) “[S]ince EPA had data on only one percent of about 3,000 [HMIWI], the data gathering costs of any non-sampling method may well have been daunting.” *Id.*, at 663. In fact, the “perfect study” cannot be conducted, regardless of the resources expended to conduct it. Every study ends with some uncertainty in the results. There is no “cookbook” methodology for determining achievable emission limitations from data. In every case, but especially in cases where data are limited as with the 1997 HMIWI rulemaking, EPA must make judgments about what constitutes the worst reasonably foreseeable circumstance and put those judgments out for public comment. In the case of the HMIWI rulemaking, the “high” data points simply reflected the normal, and unavoidable, variation in emissions that would be expected to recur over time when properly using the best control technologies and strategies we determined were being used at HMIWI units. In fact, while the highest observed value is a “foreseeable circumstance,” it may not reflect the worst reasonably foreseeable circumstance. In determining the 1997 final MACT standards, EPA chose to account for the “worst reasonably foreseeable circumstance” by adding 10 percent to the highest observed emissions levels in the data, and then rounding up those figures. Upon review of this approach in responding to the Court’s remand, we have determined that although the highest observed data point may not reflect the “worst reasonably foreseeable circumstance,” we do not have information to support accounting for the “worst reasonably foreseeable circumstance” by adding 10 percent to the highest observed emissions levels, and then rounding up those figures. We, therefore, propose to base revised MACT standards for new HMIWI units on the highest observed data points

associated with employed control strategies.

In the *CKRC* case, the Court left open the possibility that the approach of basing floors on the “worst-performing MACT sources” emissions represent ‘a reasonable estimate of the performance of the [best-performing] units,’” *CKRC* at 866, quoting *Sierra Club* at 662, provided that “in the case of a particular source category or HAP, the Agency can demonstrate with substantial evidence—not mere assertions—that MACT technology significantly controls emissions, or that factors other than the control have a negligible effect[.]” *CKRC* at 866, citing *NLA II* at 633. The Court in *Sierra Club* essentially already found this to be the situation for the HMIWI rulemaking, and it was, therefore, appropriate for EPA to base its MACT floor review in the 1997 rule strictly on the emissions reductions achieved by use of control technologies. The *Sierra Club* had claimed that EPA wrongly failed to require HMIWI units to undertake programs to reduce the Hg and chlorinated plastics in HMIWI waste streams. *Sierra Club*, at 666. While the petitioner raised this objection in its challenge to the promulgated standards, rather than its objection to the floor methodology, the Court’s response to the *Sierra Club*’s claim shows that in the case of the 1997 HMIWI rulemaking, EPA appropriately focused on the control technologies used at HMIWI units, and that, therefore, under the *CKRC* ruling it was appropriate, in this instance, to base floors on the highest emissions levels achieved by units employing the MACT technologies.

The Court observed that “EPA does not deny that the waste stream reductions the *Sierra Club* calls for would reduce pollution. The less mercury in, the less mercury out, and the less chlorinated plastic in, the less HCl out. But the EPA has consistently argued in its response to comments and here that it does not have evidence that allows quantification of the relevant output reduction. For mercury, the only quantitative evidence before EPA was that a pollution prevention program aimed at mercury could reduce mercury emissions from very high levels to typical levels. See RTC at 7–14 to 7–15. For chlorinated plastics, there was no quantitative evidence before the agency. See RTC at 7–16, 7–18. The *Sierra Club* does not contest the adequacy of EPA’s data-gathering with respect to these measures.” *Id.* (Note that the emission guidelines and NSPS require HMIWI to prepare a waste management plan under §§ 60.35e and 60.55c that would segregate from the health care waste

stream certain solid waste components contributing to toxic emissions from the incinerator (62 FR 48380, 48387).)

**e. Development of the Proposed Revised Emission Limits.** While we are proposing to respond to the Court’s remand regarding new units by basing floors and standards on the same control technologies that formed the basis for the 1997 standards, in some cases it is necessary to adjust the emission limits in order to correct for the concerns regarding our 1997 methodology that the Court raised. As at promulgation of the 1997 rule, EPA examined the data available for various air pollution control technologies applied to HMIWI to determine the performance capabilities of the technologies; identified the best control technology for each air pollutant for each subcategory of HMIWI (i.e., MACT floor); considered control technologies more stringent than the MACT floor; made a determination regarding the achievable emissions levels from using control technologies upon which the emission standards would be based; and then established numerical emission limits achievable with those technologies. The proposed revised standards are based on the same technologies upon which the 1997 final standards were based—good combustion and a moderate-efficiency wet scrubber for new small HMIWI, and good combustion and a combined dry/wet control system with carbon for new medium and large HMIWI—and reflect the MACT floor emissions levels for new small and large HMIWI, but are more stringent than the MACT floor for new medium HMIWI. The rationale for these determinations regarding identification of MACT can be found at 62 FR 48365.

As explained earlier in this preamble, we are proposing emission limits for each air pollutant for each subcategory of new HMIWI based on the highest observed data points associated with the control technologies upon which the emission standards are based, since we identified the “best controlled similar unit” as one using the relevant control technologies for each subcategory of new units. The proposed percent reduction limits for HCl, Pb, Cd, and Hg were established based on average combustion-controlled emissions estimates and highest observed data points associated with the control technologies upon which the emission standards for each of these pollutants for each subcategory are based. This is the same approach used at the time of promulgation with two exceptions—the proposed percent reduction limits do not include the addition of 10 percent

to the highest observed emissions levels, nor does it include the rounding up of those figures. A summary of the control technologies upon which the proposed standards for new HMIWI are based, the highest observed data points associated with those control technologies, and the proposed emission limits for new

HMIWI in response to the remand are presented in Table 6 of this preamble. Note that MACT for NO<sub>x</sub> and SO<sub>2</sub> are “combustion control,” although combustion control results in no emission reductions for those pollutants because NO<sub>x</sub> emissions are not reduced by combustion control, and NO<sub>x</sub> add-on

controls have not been demonstrated on HMIWI; and SO<sub>2</sub> emissions are not reduced by combustion control, and acid gas controls are not effective in reducing SO<sub>2</sub> emissions from HMIWI at the low SO<sub>2</sub> levels associated with HMIWI.

TABLE 6.—SUMMARY OF REMAND RESPONSE FOR NEW HMIWI

Pollutant (units)	Unit Size <sup>1</sup>	MACT	Highest observed data point <sup>2</sup>	Proposed emission limit <sup>2</sup>
HCl (ppmv) .....	L, M, S .....	Wet scrubber .....	9.3	15 <sup>3</sup> or 99% reduction <sup>3</sup> .
CO (ppmv) .....	L, M, S .....	Good combustion .....	32	32.
Pb (mg/dscm) .....	L, M .....	Dry scrubber w/carbon .....	0.06	0.060 or 98% reduction <sup>3</sup> .
	S .....	Wet scrubber .....	1.1	0.78 <sup>4</sup> or 71% reduction.
Cd (mg/dscm) .....	L, M .....	Dry scrubber w/carbon .....	0.03	0.030 or 93% reduction.
	S .....	Wet scrubber .....	0.14	0.11 <sup>4</sup> or 66% reduction <sup>3</sup> .
Hg (mg/dscm) .....	L, M .....	Dry scrubber w/carbon .....	0.45	0.45 or 87% reduction.
	S .....	Wet scrubber .....	0.47	0.47 or 87% reduction.
PM (gr/dscf) .....	L, M .....	Dry scrubber w/carbon .....	0.009	0.0090.
	S .....	Moderate-efficiency wet scrubber .....	0.018	0.018.
CDD/CDF, total (ng/dscm) .....	L, M .....	Dry scrubber w/carbon .....	20	20.
	S .....	Wet scrubber .....	111	111.
CDD/CDF, TEQ (ng/dscm) .....	L, M .....	Dry scrubber w/carbon .....	0.53	0.53.
	S .....	Wet scrubber .....	2.1	2.1.
NO <sub>x</sub> (ppmv) .....	L, M, S .....	Combustion Control <sup>5</sup> .....	225	225.
SO <sub>2</sub> (ppmv) .....	L, M, S .....	Combustion Control <sup>5</sup> .....	46	46.

<sup>1</sup> L = Large; M = Medium; S = Small.

<sup>2</sup> All values are measured at 7 percent oxygen.

<sup>3</sup> No change proposed.

<sup>4</sup> Remand standards for existing small non-rural HMIWI are proposed.

<sup>5</sup> Combustion control results in no emissions reduction.

Note that no change is proposed for the emission limit for HCl for new large, medium, and small HMIWI. In this situation, the highest observed emission point (i.e., 9.3 ppmv) is not used as a basis for the proposed emission limits. Public comments concerning use of EPA Method 26A when testing for HCl emissions at sources with wet scrubbers were submitted with respect to the recently promulgated standards for other solid waste incineration units (70 FR 74870, December 16, 2005). The commenter asserted that EPA Method 26A is not adequate for demonstrating compliance with an HCl standard below 20 ppmv when sampling sources with wet scrubbers. Although EPA did not concede that there is an outright problem, we acknowledged that a tester may need to take certain precautions to ensure that there is no bias when sampling streams with low HCl concentrations in certain environments and promulgated an HCl emission limit of 15 ppmv (versus the proposed limit of 3.7 ppmv). Method 26A also notes that there is a possible measurable negative bias below 20 ppmv HCl perhaps due to reaction with small amounts of moisture in the probe and filter (40 CFR part 60, appendix A). Accordingly, because many of the wet-scrubber controlled HMIWI used

Method 26A to measure HCl emissions below 20 ppmv and did not take precautions to ensure no negative bias, in this action we are proposing to retain the emission limit of 15 ppmv and also are including provisions that require sources to condition the filter before testing, and use a cyclone and post test purge if water droplets may be present. In the cases of Pb and Cd for new small HMIWI, using the highest observed data points would result in emission limits less stringent (i.e., higher) than the proposed emission limits for existing small non-rural HMIWI. Because the existing source analysis provides limits that can be achieved by existing HMIWI, there is no reason to believe that new HMIWI could not also meet the more stringent limits. This unanticipated result may be due to the small amount of Pb and Cd emissions data available for wet scrubbers at promulgation. Regardless, we are proposing emission limits for Pb and Cd for new small HMIWI that are the same as those proposed for existing small non-rural HMIWI.

## 2. Existing Units

The Court raised three specific concerns regarding EPA's approach for existing units in concluding that EPA had not adequately explained why the

combination of regulatory and uncontrolled (i.e., combustion-controlled) data provided a “reasonable estimate” of HMIWI performance: “First, EPA has said nothing about the possibility that [HMIWI] might be substantially overachieving the [regulatory] limits. [Footnote:] Although the agency conceded in its response to comments that ‘actual emission data routinely fall below the State permit emission limits,’ [\* \* \*] the context makes reasonably clear that the EPA was referring to data on ‘actual emissions’ during tests; EPA implied that ‘these levels are not routinely achieved in practice.’ [\* \* \*] [End Footnote] If this were the case, the permit limits would be of little value in estimating the top 12 percent of [HMIWI]s’ performance” (167 F.3d at 663, and at n. 3). According to the Court, “[d]ata in the record suggest that the regulatory limits are in fact much higher than emissions that units achieve in practice.” *Id.*, at 663.

“Second, EPA never gave any reason for its apparent belief that [HMIWI]s that were not subject to [regulatory limits] did not employ emission controls of any sort. Unless there is some finding to this effect, it is difficult to see the rationality in using ‘uncontrolled’ data for the units that

were not subject to regulatory requirements" (167 F.3d at 664). The Court pointed out that "[d]ata submitted by the American Hospital Association [AHA] in 1995 indicate that over 55% of [HMIWI]s in each category were controlled by wet scrubbers." *Id.*, footnote omitted. As a result, the Court found it "difficult to see how it was rational to include any uncontrolled [i.e., combustion-controlled] units in the top 12 percent, at least with respect to pollutants that wet scrubbing controls." *Id.*

Third, the Court held that "assuming the regulatory data was a good proxy for the better controlled units and that there were shortfalls in reaching the necessary 12 percent, EPA has never explained why it made sense to use the highest of its test run data to make up the gap." *Id.*

Subsequent court decisions also addressed the type of information EPA may use to estimate emissions performance and establish MACT floors for existing units. In *NLA II*, the Court rejected the Sierra Club's claim that it was unreasonable for EPA to select "the median [performing] plant out of the best twelve percent of the plants for which it had information and set the \* \* \* floor at the level of the worst performing plant in its databases using th[e same] technology [as the median plant]." 233 F.3d at 630. As long as EPA's estimate of the performance of the top 12 percent was reasonable, the Court held, EPA was not required to use actual emissions data. *Id.* While in *CKRC* the Court held that EPA had not justified in the HWC rulemaking basing the floor on emissions levels of the worst performing plant utilizing MACT control technology, when record evidence indicated other factors beyond MACT technology affected emissions performance, the Court reiterated that EPA could use estimates, as long as they reflected a "reasonable[] estimate [of] the performance of the \* \* \* best-performing plants." 255 F.3d at 862.

Specifically regarding the use of State permits to determine MACT floors, the Court in *Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936 (D.C. Cir. 2004) ("NMWDA"), rejected EPA's approach for small municipal waste combustion units because "as in Sierra Club, EPA stated only that it 'believes' state permit limits reasonably reflect the actual performance of the best performing units without explaining why this is so." 358 F.3d at 954. There, EPA had asserted that the inherent variability of emission levels made other data inaccurate, but the Court concluded that EPA gave "no evidence that the [State] permit levels reflect the emission levels of the best-

performing" units, and that EPA's stated "belief" did not rise to the level of a "reasonable estimate." *Id.* However, in *Mossville Envt'l Action Now v. EPA* (370 F.3d 1232 (D.C. Cir. 2004)), the Court concluded that "instead of simply claiming that it believes its [relied upon] standards estimate what the best five plants actually achieve, EPA points to some evidence. In its response to comments, EPA cited its analysis of three years of data, and \* \* \* met its burden of establishing that its standards reasonably estimate the performance of the best five performing sources. Having cited the great variability of emission levels, even within the same plants, and the inherent difficulty in other standards it considered, the EPA's selection of the [relevant] standards as the MACT floor is reasonable because it has supported its decision with record data that shows the connection between its MACT floor and the top performing plants." 370 F.3d at 1242.

a. The Possibility that HMIWI Sources are Substantially Overachieving their Regulatory Limits. With regard to the *Sierra Club* Court's first concern, the Court itself noted early in its opinion that "the necessary relationship [of regulatory data serving as a reasonable proxy to indicate HMIWI performance] seems quite reasonable here. Indeed, it seems likely that any jurisdiction bothering to impose limits would not knowingly set them below what it found firms to be achieving in practice. And there seems no reason to think that underachieving firms would be overrepresented in jurisdictions making this effort." 167 F.3d at 662. The Court also expressed support for the notion that, when faced with limited actual emissions information, a substitute "reasonable sample" may be used "to find out what the best 12 percent are doing[.]" (*id.*, citing Oral Arg. Tr. at 11), and that "EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem." *Id.* Specifically, the Court noted "that since EPA had data on only one percent of about 3000 [HMIWI]s, [\* \* \*] the data-gathering costs of any non-sampling method may well have been daunting." *Id.*, at 663.

There are three reasons why EPA chose to use the regulatory limits at their face value in calculating the existing source MACT floor for the 1997 rule. First, regulatory data were used because there was very little actual emissions data available and very little data available indicating the type of air pollution control used by the best performing units. (See 61 FR at 31738.) None of the available information indicated that the regulated entities

were substantially overachieving or underachieving their regulatory limits. Second, there was no information before the Agency suggesting that the State regulatory agencies erred in establishing the regulatory limits or that the States' regulatory limits were outdated. It was thus reasonable for EPA to expect that the State regulatory limits provided a reasonable estimate of the actual performance of HMIWI units. Third, it was reasonable for EPA to expect that regulated entities take their regulatory limits into account when designing their control equipment. To some extent, control equipment can be designed to meet various levels of emissions, and regulated entities do not normally spend more money than necessary to meet a regulatory limit. As noted above, the Court observed that "there seems no reason to think that underachieving firms would be overrepresented" by regulatory limits (167 F.3d at 662). Conversely, there is no reason to generally assume that substantially overachieving firms would be overrepresented in jurisdictions imposing regulatory limits. Rather, what is most likely is that sources in regulated jurisdictions will have assessed whether steps to control emissions are needed to comply with the regulatory limits, and that, in order to account for emissions variability when applying control technologies, they will be targeting their emissions levels at some safe point below the regulatory limits. Hence, with no information in the 1997 rulemaking record to indicate otherwise, EPA generally expected that regulatory limits were being achieved, through application of emissions control methods, at emissions levels that sources deem necessary in order to minimize the risk of violating the relevant limit, and were neither substantially overachieving the limits nor underachieving them.

The Court noted that the administrative record indicated that, in some cases, sources were overachieving their regulatory limits, where the floors based on the weighted average of the regulatory limits and the "uncontrolled" (i.e., combustion-controlled) data were significantly higher than the values used for combustion-controlled data. (See 167 F.3d at 663, citing A-91-61, IV-B-024 at 2-3). Here, the Court was referring to some regulatory limits that, in fact, reflected higher emissions levels than did EPA's uncontrolled (i.e., combustion-controlled) emission estimates, and suggested that in these cases it would be unreasonable for EPA to view the best performing 12 percent

of sources as actually polluting at levels so much higher than the test units for which EPA assumed no emissions controls were in place. *Id.* at 663–664.

EPA agrees that a regulatory limit does not reflect “actual performance” when that limit is higher than the level attributed to the worst reasonably foreseeable performance of an uncontrolled (i.e., combustion-controlled) source. Since the data forming the basis for the existing source MACT floor must provide a reasonable estimation of the “actual performance” of the best performing 12 percent of HMIWI, such high regulatory limits should not have been included in the best-performing 12 percent. Therefore, in our re-visiting the MACT floor for existing HMIWI based on the 1997 record, in situations for which there is no information in the 1997 record indicating the presence of an add-on pollution control device (“APCD”) or other use of air pollution control methods but there are regulatory limits, we propose the substitution of combustion-controlled data for regulatory limits where those data reflect lower emissions levels than do regulatory limits that appear to be unrelated to actual controls. We propose to continue to use combustion-controlled data in situations for which there is no information indicating air pollution controls are in use and there are no regulatory limits.

b. Emission Control on HMIWI Not Subject to Regulatory Limits. The Court’s second concern was that EPA had not made a finding that HMIWI that were not subject to regulatory requirements did not use emissions controls of any kind. The Court viewed such a finding as a necessary prerequisite to using uncontrolled (i.e., combustion-controlled) data for units not subject to regulatory requirements. This issue can be partly resolved by correcting a misunderstanding that may have resulted from our 1997 administrative record. The Court focused on information submitted in 1995 by the AHA suggesting that “over 55% of [HMIWI]s in each category were controlled by wet scrubbers.” (See 167 F.3d at 664, citing AHA Comments, Exhibit 3.) Based on its review of the AHA comments, the Court assumed that under EPA’s estimation of the HMIWI population, more than 12 percent in each category “would as a matter of mathematical necessity have to be controlled.” *Id.*, at 664, n. 8. The Court then observed that “it is difficult to see how it was rational to include any uncontrolled [i.e., combustion-controlled] units in the top 12 percent,

at least with respect to pollutants that wet scrubbing controls.” *Id.*, at 664.

With regard to the AHA “data” identified by the Court as indicating 55 percent of HMIWI use wet scrubbers, EPA believes that the Court was led by this information into assuming that unregulated HMIWI were in fact applying add-on emissions controls, when the record does not actually substantiate such an assumption, especially for small HMIWI. The AHA asserts “almost all properly designed, operated, and controlled [HMIWI] can readily meet a particulate emission limit of 0.10 gr/dscf *without* an [add-on air pollution control] system” (IV-D-637, Exhibit 2, emphasis added). The AHA then concludes “[t]herefore, it is reasonable that as many as 50 percent of those [HMIWI] having such an emission limit would be uncontrolled.” *Id.* The AHA goes on to assume that 50 percent of all HMIWI with particulate emission limits of 0.10 gr/dscf or higher are controlled with wet scrubbers, while an even higher percentage of units with more stringent particulate emission limits are assumed to be controlled. *Id.* This is akin to saying that, because homeowners are generally not required to install wet scrubbers on fireplaces, it is reasonable to assume that as many as 50 percent of homes with fireplaces do not have wet scrubbers, while the other 50 percent of home fireplaces are equipped with wet scrubbers. The AHA makes a basic assumption that at least 50 percent of all HMIWI have wet scrubbers, no matter what requirements they are subject to. With no other information to support its assumption, AHA’s “data” indicating 55 percent of HMIWI are equipped with wet scrubbers is altogether unreliable. In addition, EPA’s documented difficulty in identifying sources with add-on controls during the development of the HMIWI emission testing program is in direct conflict with the large number of controlled sources suggested by the AHA “data.”

Based on information from various sources in the docket from the 1997 rulemaking, including an AHA HMIWI inventory, we now estimate that about 32 percent of large, 4 percent of medium, and 1 percent of small HMIWI at the time of the 1997 rulemaking were equipped with add-on control systems. Other sources in the 1997 record that provided an indication of whether or not HMIWI were equipped with add-on air pollution control and upon which these estimates are based include a survey of HMIWI in California and New York, air permits from State regulatory agencies, responses to information collection requests, telephone contact

summaries, HMIWI emissions test reports, and various inventories. (See Legacy Docket ID No. A-91-61, items IV-J-82, IV-B-07, II-B-94, II-D-175 through 178, II-I-151, IV-J-89, IV-E-65, IV-E-74, IV-E-86, and II-B-61; Docket EPA-HQ-OAR-2006-0534, document titled “List of Test Reports Used to Identify HMIWI Control Devices”). Our assessment that few HMIWI were equipped with add-on controls is also supported by economics in that it would not have made sense for an HMIWI to be voluntarily equipped with an air pollution control device that costs one to three or more times as much as the entire HMIWI. Further supporting our assessment is the fact that the expected outcome of the regulation (which was not refuted by any commenters), that 50 to 80 percent of existing incinerators (including 100 percent of the small units) would shut down rather than meet the regulations because those that chose to meet the regulations would have to install air pollution control to comply, was, in fact, more than realized. (See 60 FR 10665, 61 FR 31768, and 62 FR 48372.) In fact, all but 8 small units, 6 of which meet the rural criteria and did not have to install air pollution control to comply, 20 medium units, and 44 large units have shut down, rather than meet the standards that would have been achieved by use of the very controls AHA appeared to assume were in place. Consequently, EPA concludes that the 1997 record, as confirmed by recent data showing the vast reduction in sources (as opposed to sources installing controls), shows that most HMIWI were not equipped with add-on air pollution control and that the use of uncontrolled (i.e., combustion-controlled) emission estimates where there was no indication of air pollution control (and where any applicable regulatory limits allowed higher levels of emissions than our combustion-controlled emissions values reflected) was warranted. Based on the number of HMIWI shutdowns, it appears very likely that there were even fewer HMIWI with air pollution controls than we estimated based on the information discussed above (i.e., that about 32 percent of large, 4 percent of medium, and 1 percent of small HMIWI were equipped with add-on control systems).

c. EPA’s Use of the Highest Emissions Data to Reflect Uncontrolled (i.e., Combustion-Controlled) Emissions. The Court’s third concern regarded our use of the highest of the test run data to reflect uncontrolled (i.e., combustion-controlled) emissions in cases where regulatory data did not comprise the

necessary 12 percent of best performing sources. Our reason for this approach is the same as the reason described earlier regarding new units for using the highest data point from MACT-particular technology to reflect the performance of that technology and identify the “best controlled similar unit.” As the Court stated in *NLA I*, “where test results are relied upon, it should involve the selection or use of test results in a manner which provides some assurance of the achievability of the standard for the industry as a whole, given the range of variable factors found relevant to the standard’s achievability.” (See 627 F.2d at 433). EPA reads the Court’s opinion in *Sierra Club* as at least endorsing the principles of *NLA I* with respect to existing units, as the Court described as “counterintuitive” the Sierra Club’s “proposition that an ‘achieved’ level may not be ‘achievable[.]’” (See 167 F.3d at 662). In addition, we also read *CKRC* as allowing this approach, where no evidence in the record contradicts the assumption that “factors other than the control have a negligible effect [on emissions performance],” 255 F.3d at 866, and, therefore, the presence or absence of known effective MACT controls is the prime determinant of emissions performance.

Where regulatory data indicating use of emissions control was absent in the 1997 rulemaking record, EPA needed to find a surrogate emission limitation that reflected uncontrolled (i.e., combustion-controlled) emissions, expecting, when not faced with data indicating otherwise, that facilities with no regulatory limits would not be controlling their emissions with add-on controls or other control methods (beyond combustion control). In this situation, EPA used the highest test data point from a well-operated HMIWI as a surrogate for the worst reasonably foreseeable circumstances. The highest test data points reflect the normal, and unavoidable, variation in emissions that would be expected to recur over time. Table 7 of this preamble summarizes the performance values used for units for which there is no information indicating an APCD is present and there are no regulatory limits, or where regulatory limits do exist but reflect emissions levels that are higher than the values for uncontrolled (i.e., combustion-controlled) units.

TABLE 7.—UNCONTROLLED (I.E., COMBUSTION-CONTROLLED) PERFORMANCE VALUES

Pollutant (units)	Performance value <sup>1</sup>
HCl (ppmv) .....	2,770
CO (ppmv) - .....	<sup>1</sup> 584.9
Pb (micrograms per dry standard cubic meter $\mu\text{g}/\text{dscm}$ ) .....	8,629
Cd ( $\mu\text{g}/\text{dscm}$ ) .....	3,520
Hg ( $\mu\text{g}/\text{dscm}$ ) .....	6,543.4
PM (gr/dscf) .....	<sup>2</sup> 0.278
CDD/CDF, total (ng/dscm) ...	<sup>2</sup> 8,102
CDD/CDF, TEQ (ng/dscm) ...	<sup>2</sup> 236
NO <sub>x</sub> (ppmv) .....	224.5
SO <sub>2</sub> (ppmv) .....	46.39

<sup>1</sup> All performance values are measured at 7 percent oxygen.

<sup>2</sup> Based on 1-second combustion level

d. Determining the MACT Floor and MACT for Existing Units. As discussed above, the Sierra Club Court identified some potential errors in EPA’s methodology for determining the existing source MACT floors for HMIWI. After reviewing the 1997 HMIWI record in the context of the Court’s opinion, EPA agrees that, in determining the MACT floor, the Agency should not have used regulatory limits that reflected higher emissions levels (and that did not appear to be related to any air pollution controls) than those corresponding to EPA’s combustion-controlled emission estimates. Furthermore, as we examined the 1997 record and our estimates of the performance of HMIWI where we had some indication that add-on controls may have been used, we determined that we should not have used combustion-controlled emission estimates in the floor calculations to represent the performance of those sources. Additionally, for this rulemaking we propose that where actual emissions test data reflecting emissions performance was available in the 1997 record for use in determining the MACT floor, that data should take precedence over other types of data (i.e., regulatory limits or performance values).

EPA’s reassessment of the 1997 MACT floors and MACT decisions, based on an adjusted methodology that addresses the Court’s issues discussed above, results in proposed emission limits that in many cases are more stringent than the limits promulgated in 1997. EPA’s first step in redoing the MACT analysis based on the 1997 record for existing HMIWI was to determine the pollutant-specific values that make up the best performing 12 percent of existing units within each

size category. Actual test data, where available in the 1997 record, were the initial type of pollutant-specific values considered. Next, where the 1997 record has information indicating that a source employed some type of add-on control but there are no test data or regulatory limits for that source, an average of the maximum dry and wet control system performance was determined for each pollutant, and those values were added to the data set towards comprising the best performing 12 percent. We believe that use of these averages is an appropriate method of estimating the performance of HMIWI (1) where the 1997 record has limited information indicating the presence of some type of add-on control but no test data for the unit, and (2) where we are unsure if the control is similar to, or is as efficient as, those for which we have data, or if the unit even employed a true control device. As previously stated, we believe it very likely that there were fewer HMIWI with air pollution controls than we estimated in 1997, and to which we have assigned pollutant-specific average control device values. If, in fact, those sources were employing true control devices, common sense dictates that there wouldn’t have been the large number of unit shut downs that occurred in response to the promulgated standards. However, because we had some indication that an add-on control device was in place on those sources, we recognize that the use of uncontrolled (i.e., combustion-controlled) emission estimates (at promulgation) did not provide a reasonable estimate of their performance. Similarly, use of performance values associated with a specific type of add-on control device seems inappropriate when no details are available on the control device and there is, in fact, some doubt as to the presence of a true control device at all. Despite the doubts of the presence of a true control device, the approach we have selected assumes that the 1997 record is correct and assigns “default” performance values to the units that are based on the expected performance of the types of control devices used in the industry in 1997. These default performance values, based on the average of the maximum dry and wet control system performance, also are used where regulatory limits exist but are higher than the default performance values.

Table 8 of this preamble summarizes the performance values for HCl, Pb, Cd, Hg, CDD/CDF, and PM for units for which the 1997 record has information indicating that they employed some

type of add-on control but has no test data or regulatory limits corresponding to specific controls, or where regulatory limits exist but are higher than the values based on an average of the maximum dry and wet control system performance.

TABLE 8.—PERFORMANCE VALUES BASED ON AVERAGE OF MAXIMUM DRY AND WET CONTROL SYSTEM PERFORMANCE

Pollutant (units)	Performance value <sup>1</sup>
HCl (ppmv) .....	53.165
Pb (µg/dscm) .....	568.5
Cd (µg/dscm) .....	83.65
Hg (µg/dscm) .....	459.5
PM (gr/dscf) .....	0.0195
CDD/CDF, total (ng/dscm) ...	65.35
CDD/CDF, TEQ (ng/dscm) ...	1.296

<sup>1</sup> All performance values are measured at 7 percent oxygen.

The values for CO, NO<sub>x</sub> and SO<sub>2</sub> are based on the performance of combustion-controlled HMIWI because, as stated at proposal and promulgation of the 1997 HMIWI standards, as well as earlier in this preamble, CO emission levels are affected by combustion practices rather than the control systems used by HMIWI; NO<sub>x</sub> control had not been demonstrated on HMIWI; and the acid gas controls used by HMIWI were not effective in reducing SO<sub>2</sub> emissions from HMIWI due to the low inlet levels of SO<sub>2</sub> associated with hospital/medical/infectious waste. Therefore, for units (1) where the 1997 record contains information indicating that they employed some type of add-on control but for which there was no test data or regulatory limits, or (2) where regulatory limits existed but were higher than the values for CO, NO<sub>x</sub>, or SO<sub>2</sub> based on combustion-controlled HMIWI, the performance values for CO (584.9 ppmv), NO<sub>x</sub> (224.5 ppmv), and SO<sub>2</sub>

(46.39 ppmv) are the same as those presented in Table 7 of this preamble.

The next step in the MACT analysis for existing HMIWI was to determine the average emission limitation achieved by the best-performing 12 percent of existing sources where there are 30 or more sources in the category or subcategory. Our general approach to identifying the average emission limitation has been to use a measure of central tendency, such as the arithmetic mean or the median. If the median is used when there are at least 30 sources, then the emission level that is at the bottom of the best performing 6 percent of sources (i.e., the 94th percentile) represents the MACT floor control level. We based our MACT floors for each pollutant within each size category on this approach. We then determined the technology associated with each “average of the best-performing 12 percent” value by comparing the average values to average performance data for wet scrubbers, dry injection fabric filters (also known as dry scrubbers), and combustion controls (no add-on air pollution controls). Those pollutants with average values that were higher than the relevant combustion-controlled emission estimate were identified as having a “combustion control” floor, even if the pollutant is not reduced by combustion control. The technology needed to meet the remaining average values reflects the technology used by the average unit in the top 12 percent and serves as the basis for the MACT floor. EPA then considered, on a pollutant-specific basis, technologies that were more stringent than the MACT floor technologies.

Add-on control technology-based MACT floors were identified for large HMIWI for HCl, Pb, Cd, Hg, PM, and CDD/CDF. The MACT floor technology for all size units for NO<sub>x</sub> and SO<sub>2</sub> is

“combustion control” although, as previously explained in this preamble, combustion control results in no emission reductions for those pollutants. “Good combustion” (i.e., 2-second combustion) was identified as the MACT floor technology for all size units for CO. “Combustion control” floors were identified for medium HMIWI for Pb, Cd, Hg, and CDD/CDF and for small HMIWI for HCl, Pb, Cd, Hg, and CDD/CDF. However, for these pollutants for all medium and most small HMIWI, we have decided to propose limits that are more stringent than the “combustion control” floors and are consistent with the control technology-based MACT floors that were identified for large HMIWI for these pollutants (i.e., Pb, Cd, Hg, and CDD/CDF for medium HMIWI and HCl, Pb, Cd, Hg, and CDD/CDF for small HMIWI). The control technologies identified as the MACT floors for HCl and PM for medium HMIWI, and for PM for small HMIWI, provide an indication of the level of control of the other pollutants—a level of technology that is consistent with those technologies identified for large HMIWI. The rationale for not basing the proposed emission limits on other technologies that would result in even more stringent limits can be found at 62 FR 48371–72. As at the 1997 promulgation, MACT for small HMIWI that meet certain “rural criteria” was determined to be at the MACT floor level for each pollutant (i.e., no “beyond-the-floor”-based emission limits).

Table 9 of this preamble shows the average emission value, based on the ranking of emissions data, regulatory data, and performance data, of each pollutant for the top 12 percent of HMIWI in each subcategory. The values in Table 9 allow EPA to identify the technology associated with the average unit in the top 12 percent of HMIWI.

TABLE 9.—AVERAGE EMISSION VALUES FOR TOP 12 PERCENT OF HMIWI<sup>1</sup>

Pollutant (units)	HMIWI size		
	Small	Medium	Large
HCl (ppmv) .....	2,770	53	50
CO (ppmv) .....	100	100	100
Pb (mg/dscm) .....	8.63	8.63	0.569
Cd (mg/dscm) .....	3.52	3.52	0.084
Hg (mg/dscm) .....	6.54	4.27	0.460
PM (gr/dscf) .....	0.080	0.030	0.020
CDD/CDF, total (ng/dscm) ...	8,102	8,102	65.4
CDD/CDF, TEQ (ng/dscm) .....	236	236	1.30
NO <sub>x</sub> (ppmv) .....	225	225	225
SO <sub>2</sub> (ppmv) .....	46.4	46.4	46.4

<sup>1</sup> All emission values are measured at 7 percent oxygen.

Table 10 of this preamble shows the technology associated with each average emission value.

TABLE 10.—MACT FLOOR TECHNOLOGY

Pollutant (units)	HMIWI Size		
	Small	Medium	Large
HCl (ppmv) .....	combustion control .....	dry scrubber .....	dry scrubber.
CO (ppmv) .....	good combustion .....	good combustion .....	good combustion.
Pb (mg/dscm) .....	combustion control .....	combustion control .....	wet scrubber.
Cd (mg/dscm) .....	combustion control .....	combustion control .....	wet scrubber.
Hg (mg/dscm) .....	combustion control .....	combustion control .....	dry scrubber.
PM (gr/dscf) .....	low-efficiency wet scrubber .....	moderate-efficiency wet scrubber .....	moderate-efficiency wet scrubber.
CDD/CDF, total (ng/dscm) .....	combustion control .....	combustion control .....	wet scrubber.
CDD/CDF, TEQ (ng/dscm) .....	combustion control .....	combustion control .....	wet scrubber.
NO <sub>x</sub> (ppmv) .....	combustion control .....	combustion control .....	combustion control.
SO <sub>2</sub> (ppmv) .....	combustion control .....	combustion control .....	combustion control.

For small units, the CO and PM values indicate that good combustion control (i.e., 2-second combustion) and a low-efficiency wet scrubber reflect the CO and PM MACT floors. For medium units, as well as large units, the CO, HCl, and PM values indicate that good combustion control used in conjunction with either a dry scrubber or moderate-efficiency wet scrubber reflects the CO, HCl, and PM MACT floors. As previously stated, EPA concluded that emission limits for small units that meet the rural criteria should reflect the MACT floor level of control for all pollutants. The average emission value and MACT floor level of control for PM vary by unit size, and we are proposing emission limits based on those levels of control. The average emission values, and associated MACT floor levels of control, for CO, NO<sub>x</sub>, and SO<sub>2</sub> are the same for all size units. For most small units and all medium units, however, we concluded that emission limits for HCl, Pb, Cd, Hg, and CDD/CDF should reflect the MACT floor level of control for large units for those pollutants.

The resulting numerical emission limits were determined by combining the appropriate average emission value for each pollutant for each size HMIWI with a variability factor. We believe it is necessary to account for variability

given the limited amount of actual data available in the 1997 record and the resulting need for use of various, and often presumptive, types of information to formulate the best performing 12 percent of HMIWI. At promulgation, we recognized the need to account for variability and did so as described earlier in this preamble. Although we maintain that the methodology we used was not unreasonable given the available information at promulgation, we now have additional information (the 2002 compliance test data for all of the currently operating units) for use in calculating pollutant-specific variability factors. While these data were not available at promulgation, they are the only data available for providing a quantitative assessment of variability of emissions from well-controlled HMIWI. To determine the pollutant-specific variability factors, a statistical analysis was conducted. Specifically, the emission limit achievable for each pollutant was determined based on the combination of actual emissions test data, regulatory data, and estimated performance levels (as described earlier) and a statistics-based variability factor calculated for each pollutant. To calculate the variability factors, we used the general equation: variability factor =

t \* standard deviation. This general equation has been used by EPA in similar analyses. (See, e.g., 68 FR 27650; 69 FR 55235-7; 70 FR 28615.) We selected the 90th percentile confidence level for this one-sided t-statistics test. The 90th percentile provides a variability factor appropriate for well-controlled sources that is based on data from well-controlled sources (i.e., the only sources that are still in operation).

Table 11 of this preamble presents the values determined by adding the variability factors to the average emission values for each pollutant for existing large and medium HMIWI. The table also presents the proposed revised emission limits for existing large and medium HMIWI necessary to respond to the Court's remand and the percent reduction limits for HCl, Pb, Cd, and Hg. The percent reduction limits are based on average combustion-controlled emissions estimates and maximum performance values for the MACT identified for each pollutant for each subcategory. This is the same approach used at the time of promulgation of the 1997 rule, except that the proposed percent reduction limits do not include the addition of 10 percent to the maximum performance values or the rounding up of those figures.

TABLE 11.—AVERAGE EMISSION VALUES, CONSIDERING VARIABILITY, AND EMISSION LIMITS<sup>1</sup>—EXISTING LARGE AND MEDIUM HMIWI

Pollutant (units)	Large		Medium	
	Average + variability	Emission limit	Average + variability	Emission limit
HCl (ppmv) .....	78	78 or 93% reduction <sup>2</sup> .....	57.9	78 <sup>3</sup> or 93% reduction <sup>2</sup> .
CO (ppmv) .....	110	40 <sup>2</sup> .....	113	40 <sup>2</sup>
Pb (mg/dscm) .....	0.78	0.78 or 71% reduction .....	9.02	0.78 <sup>3</sup> or 71% reduction <sup>3</sup> .
Cd (mg/dscm) .....	0.11	0.11 or 66% reduction .....	3.56	0.11 <sup>3</sup> or 66% reduction <sup>2</sup> .
Hg (mg/dscm) .....	0.64	0.55 <sup>2</sup> or 87% reduction .....	4.34	0.55 <sup>2</sup> or 87% reduction <sup>3</sup> .
PM (gr/dscf) .....	0.025	0.015 <sup>2</sup> .....	0.043	0.030 <sup>2</sup>

TABLE 11.—AVERAGE EMISSION VALUES, CONSIDERING VARIABILITY, AND EMISSION LIMITS<sup>1</sup>—EXISTING LARGE AND MEDIUM HMIWI—Continued

Pollutant (units)	Large		Medium	
	Average + variability	Emission limit	Average + variability	Emission limit
CDD/CDF, total (ng/dscm) .....	115	115 .....	8,150	115 <sup>3</sup>
CDD/CDF, TEQ (ng/dscm) .....	2.16	2.2 .....	237	2.2 <sup>3</sup>
NO <sub>x</sub> (ppmv) .....	284	250 <sup>2</sup> .....	273	250 <sup>2</sup>
SO <sub>2</sub> (ppmv) .....	61	55 <sup>2</sup> .....	51.8	55 <sup>2</sup>

<sup>1</sup> All emission values are measured at 7 percent oxygen.<sup>2</sup> No change from current emission limit.<sup>3</sup> Emission limit is the same as that for large HMIWI.

Table 12 of this preamble presents the same information for existing small non-

rural HMIWI and for existing small HMIWI meeting the rural criteria.

TABLE 12.—AVERAGE EMISSION VALUES, CONSIDERING VARIABILITY, AND EMISSION LIMITS<sup>1</sup>—EXISTING SMALL AND SMALL RURAL HMIWI

Pollutant (units)	Large		Medium	
	Average + variability	Emission limit	Average + variability	Emission limit
HCl (ppmv) .....	2,772	78 <sup>3</sup> or 93% reduction <sup>2</sup> .....	3,125	23,100
CO (ppmv) .....	103	40 <sup>2</sup> .....	109	240
Pb (mg/dscm) .....	8.85	0.78 <sup>3</sup> or 71% reduction <sup>3</sup> .....	8.88	8.9
Cd (mg/dscm) .....	3.54	0.11 <sup>3</sup> or 66% reduction <sup>2</sup> .....	3.54	4
Hg (mg/dscm) .....	6.55	0.55 <sup>2</sup> or 87% reduction <sup>3</sup> .....	6.56	6.6
PM (gr/dscf) .....	0.095	0.050 <sup>2</sup> .....	0.089	0.086
CDD/CDF, total (ng/dscm) .....	8,335	115 <sup>3</sup> .....	8,518	2800
CDD/CDF, TEQ (ng/dscm) .....	239	2.2 <sup>3</sup> .....	244	215
NO <sub>x</sub> (ppmv) .....	225	250 <sup>2</sup> .....	273	2250
SO <sub>2</sub> (ppmv) .....	46.4	55 <sup>2</sup> .....	51.8	255

<sup>1</sup> All emission values are measured at 7 percent oxygen.<sup>2</sup> No change from current emission limit.<sup>3</sup> Emission limit is the same as that for large HMIWI.

For pollutants where this remained analysis (based on the average of the best performing 12 percent of HMIWI plus the variability factor) resulted in emission limits less stringent (i.e., higher) than the current emission limits, we retained the current emission limits. This is because we see no reason to upwardly revise standards that the regulated industry has already demonstrated are achievable based on compliance data. In fact, now that we have received the 2002 compliance data for HMIWI units, it is apparent that EPA's estimate of the achievable emissions performance levels from use of the identified MACT technology was reasonably accurate. While we are not in this proposal attempting to justify our prior existing unit MACT floor decisions *post hoc* based on new data that we could not have relied upon in the 1997 rulemaking itself, we note that, similar to the *Mossville* case, we currently find ourselves in a situation where actual emissions data fairly confirms our prior estimates of what the

best controlled HMIWI units could achieve when using MACT controls.

The resulting emission limits being proposed for medium HMIWI for HCl and SO<sub>2</sub>; for small HMIWI for NO<sub>x</sub> and SO<sub>2</sub>; and for small rural HMIWI for SO<sub>2</sub> are the same as those being proposed for large HMIWI because, in these instances, the medium, small, and small rural HMIWI are expected to achieve reductions similar to large HMIWI.

*B. Rationale for the Proposed Amendments (CAA Section 129(a)(5) 5-Year Review)*

In recent rulemakings (see, e.g., 71 FR 34422, 34436–38 (June 14, 2006) (proposed amendments to the NESHAP for Hazardous Air Pollutants for Organic Hazardous Air Pollutants from the Synthetic Organic Chemical manufacturing Industry)) EPA has addressed the similar technology review requirement under CAA section 112(d)(6). EPA stated that the statute provides the Agency with broad discretion to revise MACT standards as we determine necessary, and to account for a wide range of relevant factors,

including risk. EPA does not interpret such technology review requirements to require another analysis of MACT floors for existing and new units, but rather requires us to consider developments in pollution control in the industry and assess the costs of potentially stricter standards reflecting those developments. (See, *id.*, at 34436–47.) Moreover, as a general matter, EPA has stated that where we determine that existing standards are adequate to protect public health with an ample margin of safety and prevent adverse environmental effects, it is unlikely that EPA would revise MACT standards merely to reflect advances in air pollution control technology. *Id.*, at 34437–38.

Under CAA section 112(d)(6), the first round of technology review for MACT standards is subject to the same statutory timeframe as EPA's residual risk review under CAA section 112(f)(2), with both reviews occurring 8 years following initial promulgation of MACT. We interpret CAA section 129(a)(5)'s technology review

requirement as providing us the same degree of discretion in terms of whether to revise MACT standards, for the reasons discussed in those prior rulemakings. (See, *id.*, at 34436–38.) However, the deadline for the first round of technology review under section 129(a)(5) (5 years following MACT promulgation) does not coincide with the deadline for residual risk review under section 112(f)(2) (9 years, in the case of HMIWI standards). Therefore, this first section 129(a)(5) technology review for HMIWI does not account for or reflect our residual risk analysis. In future rounds of review under section 129(a)(5) for the HMIWI standards, we intend to follow our general policy, and for our technology reviews and conclusions to be informed by our residual risk analysis, which we will have performed by that point.

In exercising its discretion under CAA section 129(a)(5), EPA is proposing in this technology review to adopt emission limits based on the 2002 data because it believes that these limits represent the cost-effective operation of the MACT control technology. EPA is aware of the possibility that regulated units are likely to operate at a level somewhat below emission standards in order to account for operational variability. It is not our intent to preclude this practice through successive rounds of the section 129(a)(5) technology review. EPA requests comment on its proposal (as outlined below) to adopt more stringent emission limits in this instance through its section 129(a)(5) technology review.

#### 1. How were the proposed emission limits developed?

The proposed revised emission limits resulting from our 5-year review of the HMIWI standards under section 129(a)(5) of the CAA are based on the performance of units within the industry that currently are subject to the MACT standards. One set of emission limits is proposed for existing HMIWI regulated under CAA section 111(d)/129(b) emission guidelines, and another set of emission limits is proposed for new HMIWI (units commencing construction after February 6, 2007) regulated under CAA section 111(b)/129(a) NSPS. Units that were subject to the 1997 NSPS as new units (referred to as “1997 NSPS units” for the remainder of this preamble) will remain subject to the 1997 NSPS (including revisions resulting from EPA’s response to the Court remand), but will also be subject to any requirements of the revised emission guidelines that are more stringent than the 1997 NSPS requirements. The proposed emission

limits for existing units, 1997 NSPS units, and new units were developed following the procedures discussed below.

As background, with one exception resulting from the analyses associated with our response to the Court remand, the proposed emission limits for new and existing units are based on the application of the same control technologies upon which the 1997 MACT standards were based. For new large and medium units, both the current and proposed emission limits are based upon good combustion and the application of combined control systems that include both dry scrubbers (i.e., dry injection fabric filters or spray dryer fabric filters) with carbon injection and wet scrubbers. The current and proposed emission limits for new small units are based on good combustion and the application of a moderate-efficiency wet scrubber. For large, medium, and most small existing units, the current and proposed emission limits are based on good combustion control for CO; combustion controls (i.e., no add-on controls) for NO<sub>x</sub> and SO<sub>2</sub>; and the application of either dry scrubbers or wet scrubbers (with various “efficiencies” depending on the size of the unit) for the remaining pollutants. The current emission limits for one additional subcategory, existing small rural units, are based solely on good combustion (i.e., the MACT floor identified in the 1997 analysis was not based on add-on control technology). With the exception of PM, the proposed emission limits for existing small rural units also are based solely on good combustion. In our remand analysis, we identified a low-efficiency wet scrubber as being the MACT floor for PM for these units. Although all small rural units currently use only good combustion, to address this difference in the MACT floors (i.e., 1997 analysis versus remand analysis), we are proposing a PM emission limit for existing small rural units based on the application of low-efficiency wet scrubbers to existing small non-rural units (i.e., MACT floor for small non-rural units in the 1997 analysis as well as the remand analysis). While this performance level is associated with the expected performance of a low-efficiency wet scrubber, the combustion controls in place on these six existing small rural units achieve this performance level, based on the initial compliance tests for these units.

In performing this 5-year review, we have not recalculated new MACT floors, but have proposed to revise the emission limits to reflect the actual performance of the MACT technologies.

We believe this approach reflects the most reasonable interpretation of the review requirement of CAA section 129(a)(5), and is consistent with how we have interpreted the similar review requirement of CAA section 112(d)(6) regarding MACT standards promulgated under section 112. (See 71 FR 27327–28; 69 FR 48350–51; and 70 FR 20008.) The language of section 129(a)(5) directs EPA to “review” our promulgated standards under CAA section 111/129, and to “revise such standards and requirements” “in accordance with this section and section 111.” It does not, however, direct EPA to conduct, at 5-year-intervals, new MACT floor and beyond-floor analyses based on each 5-years’ changing information as to what might comprise the top 12 percent of sources or constitute the best controlled similar unit. There is no indication that Congress intended for section 129(a)(5) to inexorably force existing source standards progressively lower and lower in each successive review cycle, the likely result of requiring successive floor determinations.

Following MACT compliance in September 2002, EPA obtained compliance test reports from all operating HMIWI (76 units at 70 facilities) and used those data to evaluate MACT performance. When the HMIWI regulations were first proposed in 1995, re-proposed in 1996, and promulgated in 1997, only limited information was available about HMIWI emission controls, and significant engineering judgment was necessary in selecting the emission limits. The year 2002 compliance data show that the control technologies that were installed and the practices that were implemented to meet the 1997 NSPS and emission guidelines achieved reductions somewhat superior to what we expected under the 1997 limits for many of the pollutants. EPA used the compliance test data to develop the emission limits contained in the amendments we are proposing under the 5-year review. EPA believes that the proposed emission limits more accurately reflect actual real-world HMIWI MACT performance than what we had estimated in 1997 and what we re-estimated based on the 1997 record in response to the Court’s remand (discussed previously in this preamble). We believe that it is necessary, as well as appropriate, to update the 1997 promulgated standards based on the actual performance of MACT technologies in situations where compliance test data indicate that the technologies achieve better performance levels than those we previously

estimated based on the information available at the time of promulgation.

a. Existing Units. The first step in the analysis was to assess the performance of the HMIWI currently subject to the emission guidelines with respect to each regulated pollutant. We first examined the data separately for each unit size, and the data showed, for all pollutants except PM, that the performance of units with add-on controls, regardless of size, (excluding small rural units, which do not employ add-on controls), is similar. Therefore, we combined the data, regardless of unit size, for all of the pollutants except PM, and conducted analyses on the combined data sets. In addition, for the pollutants with emission limits based on good combustion and combustion control (i.e., no add-on controls), namely CO, NO<sub>x</sub>, and SO<sub>2</sub>, the data for small rural units also were combined with the data for all of the other subcategories of units. Analyses were performed on each data set, and we calculated the 99 percent upper tolerance limit (UTL), which is the emission level that 99 percent of the HMIWI would be expected to achieve. A similar methodology was used for stack test-based emission limits in the 5-year review recently conducted for large municipal waste combustors (MWC). In the preamble to that final action, EPA indicated that analysis of data to estimate emission limits to be enforced by stack test methods must be done using a different approach (i.e., lower percent UTL) than where enforcement is to be based on CEMS and that the percentile must also reflect a reasonable consideration of emissions variability and compliance limitations of stack testing (See 71 FR 27329). EPA further indicated that for this type of technology review, the 99 percent UTL was appropriate to use as a tool for estimating achievable emission levels for emission limits enforced by stack testing. *Id.* In this proposed rulemaking, the 99 percent UTL was used as the starting point for selecting the revised emission limits. We compared the 99 percent UTL values to several other values, including the 1997 promulgated emission limits and the revised limits that we are proposing in response to the Court's remand ("remand limits"). For several pollutants, the value associated with the 99 percent UTL was higher than the remand limit. In these cases, we selected the remand limit, rather than the 99 percent UTL value, as the proposed emission limit. We also graphically compared the 99 percent values and remand limits, where applicable, to all of the data that were

used to calculate the percentile values. In many cases, this visual comparison revealed that the 99 percent UTL value or remand limit fell within a break in the data that indicated a level of performance that the technologies, considering variability, could readily achieve but that the "worst performing" units were not achieving during their compliance tests. Thus, our analyses indicate that the emission limits that we selected reflect the actual performance of the MACT control technologies while also serving to require modest improvements in performance from units that are not achieving the performance levels demonstrated in practice by the control technologies currently being used in the industry.

For small non-rural HMIWI, we used a different methodology for assessing PM performance because there are only two units and, therefore, statistics are not a useful tool. Both of the small non-rural units are equipped with wet scrubbers. Because existing medium units are predominantly equipped with wet scrubbers, the PM emission limit developed using the 99 percent UTL value of the data set for existing medium units also is being proposed for small non-rural units.

A different methodology also was used for assessing performance of the six small rural HMIWI. To determine the actual performance of these small combustion-controlled units while considering the inherent variability in emissions, we obtained test data for all six units (although, as allowed in the emission guidelines, not all of the pollutants were tested at every unit) and selected as the emission limit the highest individual test run from the compliance testing for HCl, Pb, Cd, Hg, and CDD/CDF. This methodology uses actual test data to provide a reasonable estimate of the performance of the small rural units for these pollutants, where statistics are not a useful tool, while accounting for variability. There are exceptions to this methodology for CO, NO<sub>x</sub>, and SO<sub>2</sub>. As previously mentioned in this preamble, the CO, NO<sub>x</sub>, and SO<sub>2</sub> data for small rural units were combined with the CO, NO<sub>x</sub>, and SO<sub>2</sub> data for the other subcategories of units. The 99 percent UTL methodology was then used as the starting point, as previously described in this preamble, to determine proposed emission limits that would apply to all of the subcategories of existing HMIWI. Another exception to this methodology is the proposed emission limit for PM. As previously explained in this preamble, we are proposing a PM emission limit for existing small rural units based on the application of low-

efficiency wet scrubbers to existing small non-rural units (i.e., we are proposing the same PM emission limit for small rural and non-rural units). While many of the resulting proposed emission limits for small rural units are significantly more stringent than the 1997 promulgated limits, the proposed limits more accurately reflect the actual performance of these units.

Finally, we examined the available data for calculating percent reduction requirements for HCl, Pb, Cd, and Hg. Percent reduction standards were included in the 1997 promulgated standards for these pollutants, and we are proposing to update these requirements to reflect the now-known actual performance of HMIWI utilizing MACT controls. For HCl, we obtained percent reduction data from five large HMIWI using dry scrubbers (i.e., the control technology upon which the emission limits for existing large, medium, and small non-rural units are based), and these data showed percent reductions from 94.2 percent to greater than 99 percent. To account for variability, we based the proposed percent reduction requirement of 94 percent on the lowest percent reduction recorded during the individual test runs (i.e., 94.2 percent). The three-run test that included the 94.2 percent value showed significant variability and demonstrates the need to account for variability. The percent reduction values for the three runs ranged from 94.2 percent to 97.8 percent while there was no identifiable change in the operation of the unit or the dry scrubber. For Pb and Cd from existing large, medium, and small non-rural HMIWI, we used the same methodology as for HCl, and the data sets showed even greater variability. For Hg, we used the only available estimate of percent reduction. The proposed percent reduction standards are 71 percent for Pb, 74 percent for Cd, and 96 percent for Hg. The 5-year review methodology used to assess performance of existing HMIWI resulted in no change to the PM standards for existing large and medium units, and CDD/CDF standards for existing small rural units. All of the other standards for existing HMIWI were adjusted based on either the 5-year review or the remand analyses.

Table 13 of this preamble summarizes the emission limits promulgated in 1997, the emission limits resulting from the proposed response to the Court remand, and the emission limits being proposed as a result of the 5-year review for existing HMIWI. Note that these proposed limits for existing HMIWI only apply to units for which construction was commenced on or before June 20,

1996, or for which modification was commenced before March 16, 1998.

TABLE 13.—SUMMARY OF 1997 PROMULGATED EMISSION LIMITS, PROPOSED REMAND RESPONSE EMISSION LIMITS, AND PROPOSED 5-YEAR REVIEW LIMITS FOR EXISTING HMIWI

Pollutant (units)	Unit size <sup>1</sup>	Promulgated limit <sup>2</sup>	Proposed remand response limit <sup>2</sup>	Proposed 5-year review limit <sup>2</sup>
HCl (ppmv)	L, M, S .....	100 or 93% reduction .....	78 or 93% reduction .....	51 or 94% reduction.
	SR .....	3,100 .....	3,100 .....	398
CO (ppmv)	All .....	40 .....	40 .....	25
	L, M, S .....	1.2 or 70% reduction .....	0.78 or 71% reduction .....	0.64 or 71% reduction.
Pb (mg/dscm)	SR .....	10 .....	8.9 .....	0.60
	L, M, S .....	0.16 or 65% reduction .....	0.11 or 66% reduction .....	0.060 or 74% reduction.
Cd (mg/dscm)	SR .....	4 .....	4 .....	0.050
	L, M, S .....	0.55 or 85% reduction .....	0.55 or 87% reduction .....	0.33 or 96% reduction.
Hg (mg/dscm)	SR .....	7.5 .....	6.6 .....	0.25
	L .....	0.015 .....	0.015 .....	0.015
	M .....	0.03 .....	0.030 .....	0.030
	S .....	0.05 .....	0.050 .....	0.030
PM (gr/dscf)	SR .....	0.086 .....	0.086 .....	0.030
	L .....	125 .....	115 .....	115
	SR .....	800 .....	800 .....	800
	L, M, S .....	2.3 .....	2.2 .....	2.0
CDD/CDF, total (ng/dscm)	SR .....	15 .....	15 .....	15
	L, M, S .....	250 .....	250 .....	212
CDD/CDF, TEQ (ng/dscm)	All .....	55 .....	55 .....	28
	All .....	250 .....	250 .....	212
NO <sub>x</sub> (ppmv)	All .....	250 .....	250 .....	212
SO <sub>2</sub> (ppmv)	All .....	55 .....	55 .....	28

<sup>1</sup> L = Large; M = Medium; S = Small; SR = Small Rural

<sup>2</sup> All emission limits are measured at 7 percent oxygen.

Table 14 of this preamble summarizes the emission limits promulgated in 1997 and the emission limits being proposed as a result of EPA's response to the Court remand for the 1997 NSPS HMIWI. Note that these proposed limits for 1997 NSPS HMIWI only apply to units for which construction was commenced after June 20, 1996, and on or before the date of this proposal, or for which modification is commenced

before the date 6 months after promulgation of the proposed limits. Also note that where the proposed 5-year review limits for existing HMIWI are more stringent than those resulting from the remand response for 1997 NSPS HMIWI, the more stringent limits for existing HMIWI are included in the table as the limits being proposed. HMIWI subject to the 1997 NSPS, however, will not find these proposed

limits, as presented in Table 14 of this preamble, in subparts Ec or Ce of 40 CFR part 60. Instead, they must consider the proposed revisions to subpart Ec of 40 CFR part 60 regarding existing HMIWI, as well as in the proposed revisions to subpart Ce of 40 CFR part 60 regarding 1997 NSPS HMIWI, and comply with the more stringent emission limit.

TABLE 14.—SUMMARY OF 1997 PROMULGATED EMISSION LIMITS AND PROPOSED LIMITS IN RESPONSE TO THE REMAND FOR 1997 NSPS HMIWI

Pollutant (units)	Unit size <sup>1</sup>	Promulgated limit <sup>2</sup>	Proposed remand response limit <sup>2</sup>
HCl (ppmv)	L, M, S .....	15 or 99% reduction .....	15 or 99% reduction.
	SR .....	25 <sup>3</sup> .	25 <sup>3</sup> .
CO (ppmv)	L, M, S .....	40 .....	0.060 or 98% reduction.
	L, M .....	0.07 or 98% reduction .....	0.64 <sup>3</sup> or 71% reduction.
Pb (mg/dscm)	S .....	1.2 or 70% reduction .....	0.030 or 93% reduction.
	L, M .....	0.04 or 90% reduction .....	0.060 <sup>3</sup> or 74% reduction <sup>3</sup> .
Cd (mg/dscm)	S .....	0.16 or 65% reduction .....	0.33 <sup>3</sup> or 96% reduction <sup>3</sup> .
	L, M .....	0.55 or 85% reduction .....	0.0090
Hg (mg/dscm)	L, M .....	0.015 .....	0.018
	S .....	0.03 .....	20
PM (gr/dscf)	L, M .....	25 .....	111
	S .....	125 .....	0.53
CDD/CDF, total (ng/dscm)	L, M .....	0.6 .....	2.0 <sup>3</sup> .
	S .....	2.3 .....	212 <sup>3</sup> .
CDD/CDF, TEQ (ng/dscm)	L, M, S .....	250 .....	28 <sup>3</sup> .
	L, M, S .....	55 .....	
NO <sub>x</sub> (ppmv)	L, M, S .....	250 .....	
SO <sub>2</sub> (ppmv)	L, M, S .....	55 .....	

<sup>1</sup> L = Large; M = Medium; S = Small

<sup>2</sup> All emission limits are measured at 7 percent oxygen.

<sup>3</sup> Because the proposed 5-year review limit for existing HMIWI is more stringent than the one resulting from the remand response for 1997 NSPS HMIWI, the more stringent limit for existing HMIWI is being proposed.

b. New Units. The first step in the analysis for new large and medium

HMIWI was to assess the performance of the units currently operating a

combined dry/wet control system, which is the control technology upon

which the 1997 NSPS for large and medium HMIWI was based. Four units currently are operating such controls, and we obtained compliance test data for each unit for use in assessing performance. We selected as the proposed emission limit the highest individual test run from the compliance testing for each pollutant. This methodology uses actual test data from the best-controlled sources in the industry to provide a reasonable estimate of the performance of these units, while accounting for variability. In several instances, the emission limit suggested by the highest run from the four combined-control sources was higher than either the emission limit for new sources that we are proposing in response to the Court remand or the 5-year review emission limit that we are proposing for existing sources. This was likely a result of the small amount of data that we used to establish the limits, and, in these instances, we are proposing the most stringent among these three limits for new sources.

Although there are no small HMIWI subject to the current NSPS, we are proposing emission limits based on the performance of moderate-efficiency wet scrubbers, which is the control technology upon which the 1997 limits for new small units was based. As an

initial step in selection of these emission limits, we used the performance values representative of control with a moderate-efficiency wet scrubber as determined for the existing medium HMIWI. We then compared these values to the values for new small units developed in response to the remand and, in each case, we selected the more stringent value as the proposed emission limit.

To determine proposed percent reduction requirements for new units for HCl, Pb, Cd, and Hg, we followed a methodology similar to that used for existing units. For HCl, we obtained percent reduction data from two units controlled with the MACT control technology for HCl for new large and medium units (wet scrubbers), and these data showed percent reductions greater than 99 percent. To account for variability, we based the percent reduction requirement of 99 percent on the lowest percent reduction recorded during the individual test runs (i.e., 99.1 percent). We used the same methodology for each of the three metals for new large and medium units, and the corresponding percent reduction standards based on the MACT control technology (dry scrubbers) are 99 percent for Pb, 99 percent for Cd, and 96 percent for Hg. For HCl from new

small HMIWI, we used the same methodology as for new large and medium units because the MACT control technology upon which the reductions are based is the same (wet scrubbers). For Pb and Cd from new small HMIWI, we used the same methodology as for new large and medium units, except that the MACT control technology upon which the reductions are based is a wet scrubber. For Hg, we used the only available estimate of percent reduction. The proposed percent reduction standards for new small units are 99 percent for HCl, 71 percent for Pb, 74 percent for Cd, and 96 percent for Hg. The 5-year review methodology used to assess performance of new units resulted in no change to the HCl standards for all new units. All of the other standards for new units were adjusted based on either the 5-year review or the remand analyses.

Table 15 of this preamble summarizes the emission limits promulgated in 1997 and the emission limits being proposed as a result of the 5-year review for new HMIWI. Note that these proposed limits for new HMIWI only apply to units for which construction is commenced after the date of this proposal, or for which modification is commenced on or after the date 6 months after promulgation of the proposed limits.

TABLE 15.—SUMMARY OF 1997 PROMULGATED EMISSION LIMITS AND PROPOSED 5-YEAR REVIEW LIMITS FOR NEW HMIWI

Pollutant (units)	Unit size <sup>1</sup>	Promulgated limit <sup>2</sup>	Proposed 5-year review limit <sup>2</sup>
HCl (ppmv) .....	L, M, S .....	15 or 99% reduction .....	15 or 99% reduction.
CO (ppmv) .....	L, M, S .....	40 .....	25
Pb (mg/dscm) .....	L, M .....	0.07 or 98% reduction .....	0.060 or 99% reduction.
	S .....	1.2 or 70% reduction .....	0.64 or 71% reduction.
Cd (mg/dscm) .....	L, M .....	0.04 or 90% reduction .....	0.0050 or 99% reduction.
	S .....	0.16 or 65% reduction .....	0.060 or 74% reduction.
Hg (mg/dscm) .....	L, M .....	0.55 or 85% reduction .....	0.19 or 96% reduction.
	S .....	0.55 or 85% reduction .....	0.33 or 96% reduction.
PM (gr/dscf) .....	L, M .....	0.015 .....	0.0090
	S .....	0.03 .....	0.018
CDD/CDF, total (ng/dscm) .....	L, M .....	25 .....	16
	S .....	125 .....	111
CDD/CDF, TEQ (ng/dscm) .....	L, M .....	0.6 .....	0.21
	S .....	2.3 .....	2.0
NO <sub>x</sub> (ppmv) .....	L, M, S .....	250 .....	212
SO <sub>2</sub> (ppmv) .....	L, M .....	55 .....	21
	S .....	55 .....	28

<sup>1</sup> L = Large; M = Medium; S = Small.

<sup>2</sup> All emission limits are measured at 7 percent oxygen.

2. How did EPA determine the proposed performance testing and monitoring requirements?

We are proposing minor adjustments to the performance testing and monitoring requirements that were promulgated in 1997. For existing HMIWI and 1997 NSPS HMIWI, we are

proposing retaining the current requirements of the rule and adding the following requirements: Annual inspections of scrubbers and fabric filters; and one-time testing of the ash handling operations at the time of the next compliance test using EPA Method 22 of appendix A of 40 CFR part 60.

These proposed requirements were selected to provide additional assurance that sources continue to operate at the levels established during their initial performance test. The proposed amendments would allow sources to use the results of previous emissions tests to demonstrate compliance with the

revised emission limits as long as the sources certify that the previous test results are representative of current operations. Only those sources whose previous emissions tests do not demonstrate compliance with one or more revised emission limits would be required to conduct another emissions test for those pollutants (note that sources are already required to test for HCl, CO, and PM on an annual basis).

Additional requirements also are proposed for new HMIWI. For new sources, we are proposing retaining the current requirements and adding the following requirements: Use of CO CEMS; annual inspections of scrubbers and fabric filters; use of bag leak detection systems on fabric filter-based control systems; and annual testing of the ash handling operations using EPA Method 22 of appendix A of 40 CFR part 60. For existing sources, in addition to the proposed changes in monitoring requirements, we also are proposing to allow for the optional use of bag leak detection systems. We also are clarifying that the rule allows for the following optional CEMS use: CO CEMS for existing sources and 1997 NSPS sources; and PM CEMS, HCl CEMS, multi-metals CEMS, Hg CEMS, and semi-continuous dioxin monitoring for existing, 1997 NSPS, and new sources. The optional use of HCl CEMS, multi-metals CEMS, and semi-continuous dioxin monitoring will be available on the date a final performance specification for these monitoring systems is published in the **Federal Register** or the date of approval of a site-specific monitoring plan. The proposed testing and monitoring provisions are discussed below.

a. Bag Leak Detection Systems. The proposed amendments would provide, as an alternative PM monitoring technique for existing sources and 1997 NSPS sources and a requirement for new sources, the use of bag leak detection systems on HMIWI controlled with fabric filters. Bag leak detection systems have been applied successfully at many industrial sources. EPA is proposing to drop the opacity testing requirements for HMIWI that use bag leak detection systems.

b. CO CEMS. The proposed amendments would require the use of CO CEMS for new sources, and allow the use of CO CEMS on existing sources and 1997 NSPS sources. Owners and operators that use CO CEMS would be able to discontinue their annual CO compliance test as well as their monitoring of the secondary chamber temperature. The continuous monitoring of CO emissions is an effective way of ensuring that the

combustion unit is operating properly. The proposed amendments incorporate the use of performance specification (PS)-4B (Specifications and Test Procedures for Carbon Monoxide and Oxygen Continuous Monitoring Systems in Stationary Sources) of appendix B of 40 CFR part 60.

The proposed CO emission limits are based on data from infrequent (normally annual) stack tests and compliance would be demonstrated by stack tests. The change to use of CO CEMS for measurement and enforcement of the same emission limits must be carefully considered in relation to an appropriate averaging period for data reduction. EPA considered this issue and concluded the use of a 24-hour block average was appropriate to address CO emissions variability, and EPA has included the use of a 24-hour block average in the proposed rule. The 24-hour block average would be calculated following procedures in EPA Method 19 of appendix A of 40 CFR part 60. Facilities electing to use CO CEMS as an optional method would be required to notify EPA 1 month before starting use of CO CEMS and 1 month before stopping use of the CO CEMS. In addition, EPA specifically requests comment on whether continuous monitoring of CO emissions should be required for all existing HMIWI and all 1997 NSPS HMIWI.

c. PM CEMS. The proposed amendments would allow the use of PM CEMS as an alternative testing and monitoring method. Owners or operators who choose to rely on PM CEMS would be able to discontinue their annual PM compliance test. In addition, because units that demonstrate compliance with the PM emission limits with a PM CEMS would clearly be meeting the opacity standard, compliance demonstration with PM CEMS would be considered a substitute for opacity testing. Owners and operators that use PM CEMS also would be able to discontinue their monitoring of minimum wet scrubber pressure drop, horsepower, or amperage. The proposed amendments incorporate the use of PS-11 (Specifications and Test Procedures for Particulate Matter Continuous Emission Monitoring Systems at Stationary Sources) of appendix B of 40 CFR part 60 for PM CEMS, and PS-11 QA Procedure 2 to ensure that PM CEMS are installed and operated properly and produce good quality monitoring data.

The proposed PM emission limits are based on data from infrequent (normally annual) stack tests and compliance would be demonstrated by stack tests. The use of PM CEMS for measurement

and enforcement of the same emission limits must be carefully considered in relation to an appropriate averaging period for data reduction. EPA considered this issue and concluded the use of a 24-hour block average was appropriate to address PM emissions variability, and EPA has included the use of a 24-hour block average in the proposed rule. The 24-hour block average would be calculated following procedures in EPA Method 19 of appendix A of 40 CFR part 60. An owner or operator of an HMIWI unit who wishes to use PM CEMS would be required to notify EPA 1 month before starting use of PM CEMS and 1 month before stopping use of the PM CEMS.

d. Other CEMS and Monitoring Systems. EPA also is proposing the optional use of HCl CEMS, multi-metals CEMS, Hg CEMS, and semi-continuous dioxin monitoring as alternatives to the existing methods for demonstrating compliance with the HCl, metals (Pb, Cd, and Hg), and CDD/CDF emissions limits. For the reasons explained above for CO CEMS and PM CEMS, EPA has concluded that the use of 24-hour block averages would be appropriate to address emissions variability, and EPA has included the use of 24-hour block averages in the proposed rule. The 24-hour block averages would be calculated following procedures in EPA Method 19 of appendix A of 40 CFR part 60.

Although final performance specifications are not yet available for HCl CEMS and multi-metals CEMS, EPA is considering development of performance specifications. The proposed rule specifies that these options will be available to a facility on the date a final performance specification is published in the **Federal Register** or the date of approval of a site-specific monitoring plan.

The use of HCl CEMS would allow the discontinuation of HCl sorbent flow rate monitoring, scrubber liquor pH monitoring, and the annual testing requirements for HCl. EPA has proposed PS-13 (Specifications and Test Procedures for Hydrochloric Acid Continuous Monitoring Systems in Stationary Sources) of appendix B of 40 CFR part 60 and believes that performance specification can serve as the basis for a performance specification for HCl CEMS use at HMIWI. In addition to the procedures used in proposed PS-13 for initial accuracy determination using the relative accuracy test, a comparison against a reference method, EPA is taking comment on an alternate initial accuracy determination procedure, similar to the one in section 11 of PS-15 (Performance Specification for

Extractive FTIR Continuous Emissions Monitor Systems in Stationary Sources of appendix B of 40 CFR part 60 using the dynamic or analyte spiking procedure.

EPA believes multi-metals CEMS can be used in many applications, including HMIWI. EPA has monitored side-by-side evaluations of multi-metals CEMS with EPA Method 29 of appendix A of 40 CFR part 60 at industrial waste incinerators and found good correlation. EPA also approved the use of multi-metals CEMS as an alternative monitoring method at a hazardous waste combustor. EPA believes it is possible to adapt proposed PS-10 (Specifications and Test Procedures for Multi-metals Continuous Monitoring Systems in Stationary Sources) of appendix B of 40 CFR part 60 or other EPA performance specifications to allow the use of multi-metals CEMS at HMIWI. In addition to the procedures used in proposed PS-10 for initial accuracy determination using the relative accuracy test, a comparison against a reference method, EPA is taking comment on an alternate initial accuracy determination procedure, similar to the one in section 11 of PS-

15 using the dynamic or analyte spiking procedure.

Relative to the use of Hg CEMS, EPA believes that PS-12A (Specifications and Test Procedures for Total Vapor Phase Mercury Continuous Emission Monitoring Systems in Stationary Sources) of appendix B of 40 CFR part 60 can provide the basis for using Hg CEMS at HMIWI. An owner or operator of an HMIWI unit who wishes to use Hg CEMS would be required to notify EPA 1 month before starting use of Hg CEMS and 1 month before stopping use of the Hg CEMS. The use of multi-metals CEMS or Hg CEMS would allow the discontinuation of wet scrubber outlet flue gas temperature monitoring. Mercury sorbent flow rate monitoring could not be eliminated in favor of a multi-metals CEMS or Hg CEMS because it also is an indicator of CDD/CDF control. Additionally, there is no annual metals test that could be eliminated.

The semi-continuous monitoring of dioxin would entail use of a continuous automated sampling system and analysis of the sample using EPA Reference Method 23 of appendix A of 40 CFR part 60. The option to use a

continuous automated sampling system would take effect on the date a final performance specification is published in the **Federal Register** or the date of approval of a site-specific monitoring plan. Semi-continuous monitoring of dioxin would allow the discontinuation of fabric filter inlet temperature monitoring. Dioxin/furan sorbent flow rate monitoring could not be eliminated in favor of semi-continuous monitoring of dioxin because it also is an indicator of Hg control. Additionally, there is no annual CDD/CDF test that could be eliminated. If semi-continuous monitoring of dioxin as well as multi-metals CEMS or Hg CEMS are used, Hg sorbent flow rate monitoring and CDD/CDF sorbent flow rate monitoring (in both cases activated carbon is the sorbent) could be eliminated. EPA requests comment on other parameter monitoring requirements that could be eliminated upon use of any or all of the optional CEMS discussed above. Table 16 of this preamble presents a summary of the HMIWI operating parameters, the pollutants influenced by each parameter, and alternative monitoring options for each parameter.

TABLE 16.—SUMMARY OF HMIWI OPERATING PARAMETERS, POLLUTANTS INFLUENCED BY EACH PARAMETER, AND ALTERNATIVE MONITORING OPTIONS FOR EACH PARAMETER

Operating parameter/monitoring requirement	Pollutants Influenced by Operating Parameter (by Control Device Type)			Alternative monitoring options
	Dry scrubber	Wet scrubber	Combined system	
Maximum charge rate .....	All <sup>1</sup> .....	All <sup>1</sup> .....	All <sup>1</sup> .....	None.
Minimum secondary chamber temperature .....	PM, CO, CDD/CDF .....	PM, CO, CDD/CDF .....	PM, CO, CDD/CDF .....	CO CEMS <sup>2</sup> .
Maximum fabric filter inlet temperature .....	CDD/CDF .....	.....	CDD/CDF .....	Semi-continuous dioxin monitoring system (SCDMS).
Minimum CDD/CDF sorbent flow rate .....	CDD/CDF .....	.....	CDD/CDF .....	SCDMS and multi-metals CEMS or Hg CEMS.
Minimum Hg sorbent flow rate .....	Hg .....	.....	Hg .....	Hg CEMS.
Minimum HCl sorbent flow rate .....	HCl .....	.....	HCl .....	PM CEMS.
Minimum scrubber pressure drop/ horsepower amperage.	.....	PM .....	.....	.....
Minimum scrubber liquor flow rate .....	.....	HCl, PM, Cd, Pb, Hg, CDD/CDF .....	HCl, PM, Cd, Pb, Hg, CDD/CDF .....	HCl CEMS, PM CEMS, multi-metals CEMS, and SCDMS.
Minimum scrubber liquor pH .....	.....	HCl .....	HCl .....	HCl CEMS.
Maximum flue gas temperature (wet scrubber outlet).	.....	Hg .....	.....	Hg CEMS or multi-metals CEMS.
Do not use bypass stack (except during startup, shutdown, and malfunction).	All <sup>1</sup> .....	All <sup>1</sup> .....	All <sup>1</sup> .....	None.
Air pollution control device inspections .....	All <sup>1</sup> .....	All <sup>1</sup> .....	All <sup>1</sup> .....	None.

<sup>1</sup> "All" pollutants designation does not include SO<sub>2</sub> and NO<sub>x</sub>, which are regulated at combustion-controlled levels (no add-on controls) and have no associated parameter monitoring.

<sup>2</sup> Optional method for existing and 1997 NSPS sources; required for new sources.

Table 17 of this preamble presents a summary of the HMIWI test methods

and approved alternative compliance methods.

TABLE 17.—SUMMARY OF HMIWI TEST METHODS AND APPROVED ALTERNATIVE METHODS

Pollutant/parameter	Test method(s) <sup>1</sup>	Approved alternative method(s)	Comments
PM .....	Method 5, Method 29.	PM CEMS .....	PM CEMS are optional for all sources in lieu of annual PM test.
CO .....	Method 10 .....	CO CEMS .....	CO CEMS are optional for existing and 1997 NSPS sources in lieu of annual CO test; CO CEMS are required for new sources.
HCl .....	Method 26 or Method 26A.	HCl CEMS .....	HCl CEMS are optional for all sources in lieu of annual HCl test.
Cd .....	Method 29 .....	Multi-metals CEMS.	
Pb .....	Method 29 .....	Multi-metals CEMS.	
Hg .....	Method 29 .....	ASTM D6784-02, multi-metals CEMS or Hg CEMS.	
CDD/CDF .....	Method 23 .....	Semi-continuous dioxin monitoring system.	
Opacity .....	Method 22 .....	Bag leak detection system or PM CEMS.	
Flue and exhaust gas analysis .....	Method 3, 3A, or 3B.	ASME PTC 19-10-1981 Part 10.	
Opacity from ash handling .....	Method 22 .....	None.	

<sup>1</sup> EPA Reference Methods in appendix A of 40 CFR part 60.

## V. Impacts of the Proposed Action for Existing Units

The emission limits for existing HMIWI that we are proposing as part of this action are based on the actual performance of the MACT control technologies. This proposed action is expected to result in modest improvements in performance being required by HMIWI that are not achieving the performance levels demonstrated in practice by the control technologies currently being used in the industry. Based on compliance test reports from all existing operating HMIWI (72 units at 67 facilities) following MACT compliance in September 2002, 18 existing large HMIWI and 4 existing medium HMIWI are likely to find it necessary to improve performance of their units in order to achieve the proposed emission limits which their compliance test data indicates they would not meet. The modest improvements anticipated include adding lime (for SO<sub>2</sub>), increasing lime use (for HCl and SO<sub>2</sub>), increasing natural gas use (for CO and CDD/CDF), and increasing scrubber horsepower (for Pb, Cd, and Hg). Facilities may resubmit previous compliance test data that indicates that their HMIWI meets the proposed emission limits if the facility certifies that the test results are representative of current operations. Those facilities would then not be required to test for those pollutants to prove compliance with the emission limits.

### A. What are the primary air impacts?

As a result of the modest improvements estimated to be required at 22 HMIWI such that they would achieve the proposed emission limits, EPA estimates that a total of approximately 24,700 pounds per year (lb/yr) of the regulated pollutants would be reduced. Approximate reductions by pollutant follow:

- HCl—20,600 lb/yr
- CO—400 lb/yr
- Pb—35 lb/yr
- Cd—3 lb/yr
- Hg—30 lb/yr
- PM—2,700 lb/yr
- CDD/CDF—0.0007 lb/yr
- NO<sub>x</sub>—200 lb/yr
- SO<sub>2</sub>—700 lb/yr

### B. What are the water and solid waste impacts?

EPA estimates that approximately 80 tpy of additional solid waste and 267,000 gallons per year of additional wastewater would be generated as a result of the increase of lime use by some facilities.

### C. What are the energy impacts?

EPA estimates that approximately 3,600 megawatt-hours per year of additional electricity would be required to support the increase in scrubber horsepower that we estimate would be required to enable some facilities to achieve the proposed emission limits.

### D. What are the secondary air impacts?

Secondary air impacts associated with this proposed action are direct impacts that result from the increase in natural gas use and/or wet scrubber horsepower

that we estimate may be required to enable some facilities to achieve the proposed emission limits. We estimate that the adjustments could result in emissions of 211 lb/yr of PM; 1,880 lb/yr of CO; 1,230 lb/yr of NO<sub>x</sub>; and 1,450 lb/yr of SO<sub>2</sub> from the increased electricity and natural gas usage.

### E. What are the cost and economic impacts?

EPA estimates that the national total costs for the 72 existing HMIWI and 4 1997 NSPS HMIWI to comply with this proposed action would be approximately \$488,000 in the first year of compliance. This estimate includes the costs that would be incurred by the 22 HMIWI that we anticipate needing to improve performance (i.e., costs of improvements in emissions control and emissions tests for pollutants for which the improvements are made), and the additional monitoring (i.e., annual control device inspections), testing (i.e. initial Method 22 test), and recordkeeping and reporting costs that would be incurred by all 76 HMIWI as a result of this proposed action.

Approximately 50 percent of the estimated total cost in the first year is for emissions control, 11 percent is for monitoring, 32 percent is for testing, and 7 percent is for recordkeeping and reporting. National total costs for subsequent years are estimated to be approximately \$308,000 per year, with approximately 78 percent of the total cost for emissions control, 18 percent for monitoring, and 3 percent for testing.

Economic impact analyses focus on changes in market prices and output

levels. If changes in market prices and output levels in the primary markets are significant enough, impacts on other markets are also examined. EPA's economic impact analysis for this proposed action assessed the magnitude of the cost of market changes resulting from the proposed amendments by comparing annualized costs to annual sales. We were able to assess the cost of market changes for 70 HMIWI (sales information was unavailable for the other 6 units). For purposes of assessing economic impacts of the proposed action, the total annualized cost of this proposed action is estimated to be \$328,000 and was determined by first annualizing at 7 percent over 15 years the difference between the first year costs and subsequent year costs for each of the 76 HMIWI, and adding to that value the subsequent year costs for each HMIWI; followed by then combining the annualized costs for the 76 HMIWI. The \$328,000 was distributed among the 76 HMIWI, resulting in cost-to-sales ratios ranging from 0.0006 percent to 0.06 percent, with an average cost-to-sales ratio of 0.003 percent. Because of the small size of these regulatory costs and estimated impacts, no additional market analysis is needed. Neither the modest national costs nor the facility level costs are anticipated to significantly impact any market.

## VI. Impacts of the Proposed Action for New Units

The current NSPS apply to HMIWI for which construction began after June 20, 1996, or for which modification began after March 16, 1998. There are three new HMIWI and one modified HMIWI that are subject to the current NSPS. No additional units have become subject to the NSPS since 2002. Considering this information, EPA does not anticipate any new HMIWI, and, therefore, no impacts of the proposed standards for new units. However, in the unlikely event that a new HMIWI is constructed, we are proposing new emission limits for those units based on performance of the control technology upon which current NSPS limits are based, as well as additional monitoring requirements, including use of CO CEMS and use of bag leak detection systems for fabric filters. Because EPA does not anticipate any new HMIWI, we, therefore, do not expect there to be any air impacts, water or solid waste impacts, energy impacts, or cost or economic impacts associated with the proposed standards for new sources.

## VII. Relationship of the Proposed Action to Section 112(c)(6) of the CAA

Section 112(c)(6) of the CAA requires EPA to identify categories of sources of seven specified pollutants to assure that sources accounting for not less than 90 percent of the aggregate emissions of each such pollutant are subject to standards under CAA section 112(d)(2) or 112(d)(4). EPA has identified medical waste incinerators as a source category that emits five of the seven CAA section 112(c)(6) pollutants: Polycyclic organic matter (POM), dioxins, furans, Hg, and polychlorinated biphenyls (PCBs). (The POM emitted by HMIWI is composed of 16 polycyclic aromatic hydrocarbons (PAH) and extractable organic matter (EOM).) In the *Federal Register* notice Source Category Listing for Section 112(d)(2) Rulemaking Pursuant to Section 112(c)(6) Requirements, 63 FR 17838, 17849, Table 2 (1998), EPA identified medical waste incinerators (now referred to as HMIWI) as a source category "subject to regulation" for purposes of CAA section 112(c)(6) with respect to the CAA section 112(c)(6) pollutants that HMIWI emit. HMIWI are solid waste incineration units currently regulated under CAA section 129. For purposes of CAA section 112(c)(6), EPA has determined that standards promulgated under CAA section 129 are substantively equivalent to those promulgated under CAA section 112(d). (See *Id.* at 17845; see also 62 FR 33625, 33632 (1997).) As discussed in more detail below, the CAA section 129 standards effectively control emissions of the five identified CAA section 112(c)(6) pollutants. Further, since CAA section 129(h)(2) precludes EPA from regulating these substantial sources of the five identified CAA section 112(c)(6) pollutants under CAA section 112(d), EPA cannot further regulate these emissions under that CAA section. As a result, EPA considers emissions of these five pollutants from HMIWI units "subject to standards" for purposes of CAA section 112(c)(6).

As required by the statute, the CAA section 129 HMIWI standards include numeric emission limitations for the nine pollutants specified in that section. The combination of good combustion practices and add-on air pollution control equipment (dry sorbent injection, fabric filters, wet scrubbers, or combined fabric filter and wet scrubber systems) effectively reduces emissions of the pollutants for which emission limits are required under CAA section 129: Hg, CDD/CDF, Cd, Pb, PM, SO<sub>2</sub>, HCl, CO, and NO<sub>x</sub>. Thus, the NSPS and emissions guidelines specifically require reduction in emissions of three

of the CAA section 112(c)(6) pollutants: Dioxins, furans, and Hg. As explained below, the air pollution controls necessary to comply with the requirements of the HMIWI NSPS and emission guidelines also effectively reduce emissions of the following CAA section 112(c)(6) pollutants that are emitted from HMIWI units: POM and PCBs. Although the CAA section 129 HMIWI standards do not have separate, specific emissions standards for PCBs and POM, emissions of these two CAA section 112(c)(6) pollutants are effectively controlled by the same control measures used to comply with the numerical emissions limits for the enumerated CAA section 129 pollutants. Specifically, as byproducts of combustion, the formation of PCBs and POM is effectively reduced by the combustion and post-combustion practices required to comply with the CAA section 129 standards. Any PCBs and POM that do form during combustion are further controlled by the various post-combustion HMIWI controls. The add-on PM control systems (either fabric filter or wet scrubber) and activated carbon injection in the fabric filter-based systems further reduce emissions of these organic pollutants, as well as reducing Hg emissions. The post-MACT compliance tests at currently operating HMIWI show that the HMIWI MACT regulations reduced Hg emissions by greater than 80 percent and CDD/CDF emissions by about 90 percent from pre-MACT levels. In light of the fact that similar controls have been demonstrated to effectively reduce emissions of POM and PCBs from another incineration source category (municipal solid waste combustors), it is, therefore, reasonable to conclude that POM and PCB emissions are substantially reduced at all 76 HMIWI. Thus, while the proposed rule does not identify specific limits for POM and PCB, they are, for the reasons noted above, nonetheless "subject to regulation" for purposes of section 112(c)(6) of the CAA.

## VIII. Statutory and Executive Order Reviews

### A. Executive Order 12866: Regulatory Planning and Review

Under Executive Order 12866 (58 FR 51735; October 4, 1993), this proposed action is a "significant regulatory action" because it is likely to raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order. Accordingly, EPA submitted this proposed action to the Office of Management and Budget (OMB) for

review under Executive Order 12866, and any changes made in response to OMB recommendations have been documented in the docket for this action.

#### *B. Paperwork Reduction Act*

The information collection requirements associated with this proposed action are included in the information collection requirements addressing the HMIWI standards in their entirety, which have been submitted for approval to the OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The Information Collection Request (ICR) documents prepared by EPA have been assigned EPA ICR number 1899.04 for subpart Ce and 1730.05 for subpart Ec.

The requirements in this proposed action result in industry recordkeeping and reporting burden associated with review of the amendments for all HMIWI, initial EPA Method 22 testing for all HMIWI, annual inspections of scrubbers and fabric filters for all HMIWI, and stack testing and development of new parameter limits for HMIWI that need to make performance improvements. The total nationwide recordkeeping and reporting burden of this proposed action is estimated at 722 hours at a cost of approximately \$32,800. This burden and cost would only be applicable once. After that, the total nationwide recordkeeping and reporting burden and costs would be \$0 (above and beyond current burden and costs).

The annual average burden associated with the emission guidelines over the first 3 years following promulgation of this proposed action is estimated to be 49,878 hours at a total annual labor cost of \$2,433,045. The total annualized capital/startup costs and operation and maintenance (O&M) costs associated with the monitoring requirements, EPA Method 22 testing, storage of data and reports, and photocopying and postage over the 3-year period of the ICR are estimated at \$407,953 and \$333,258 per year, respectively. (The annual inspection costs are included under the recordkeeping and reporting labor costs.) The annual average burden associated with the NSPS over the first 3 years following promulgation of this proposed action is estimated to be 2,004 hours at a total annual labor cost of \$91,011. The total annualized capital/startup costs are estimated at \$13,046, with total operation and maintenance costs of \$36,310 per year.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a

Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR part 9.

To comment on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including the use of automated collection techniques, EPA has established a public docket for this action, which includes these ICR documents, under Docket ID No. EPA-HQ-OAR-2006-0534. Submit any comments related to the ICR documents for this proposed action to EPA and OMB. See **ADDRESSES** section at the beginning of this notice for where to submit comments to EPA. Send comments to OMB at the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street, NW., Washington, DC 20503, Attention: Desk Office for EPA. Since OMB is required to make a decision concerning the ICR between 30 and 60 days after February 6, 2007, a comment to OMB is best assured of having its full effect if OMB receives it by March 8, 2007. The final action will respond to any OMB or public comments on the information collection requirements contained in this proposal.

#### *C. Regulatory Flexibility Act*

The Regulatory Flexibility Act (RFA) generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedures Act or any other statute unless the agency certifies that the proposed action will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small government organizations, and small government jurisdictions.

For purposes of assessing the impacts of this proposed action on small

entities, small entity is defined as follows: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; or (3) a small organization that is any not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

After considering the economic impacts of this proposed action on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities. Because none of the HMIWI facilities are expected to be significantly impacted by this proposed action, that also means that none of the four small entity-owned facilities would be expected to be significantly impacted. None of the 22 HMIWI that we estimate would need to make improvements in order to meet the proposed emission limits are owned by small entities. The only estimated economic impacts on small entities would result from the additional monitoring requirements (annual control device inspections), testing requirements (one-time EPA Method 22 testing), and associated recordkeeping and reporting requirements of this proposed action.

We continue to be interested in the potential impacts of this proposed action on small entities and welcome comments on issues related to such impacts.

#### *D. Unfunded Mandates Reform Act*

Title II of the Unfunded Mandates Reform Act (UMRA) of 1995, Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and Tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures by State, local, and Tribal governments, in the aggregate, or by the private sector, of \$100 million or more in any 1 year. Before promulgating an EPA rule for which a written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective, or least burdensome alternative that achieves the objectives of the proposed rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to

adopt an alternative other than the least costly, most cost-effective, or least burdensome alternative if EPA publishes with the final rule an explanation why that alternative was not adopted.

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including Tribal governments, EPA must develop a small government agency plan under section 203 of the UMRA. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA's regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements.

EPA has determined that this proposed action does not contain a Federal mandate that may result in expenditures of \$100 million or more for State, local, and Tribal governments, in the aggregate, or the private sector in any 1 year. Thus, this proposed action is not subject to the requirements of section 202 and 205 of the UMRA. In addition, EPA has determined that this proposed action contains no regulatory requirements that might significantly or uniquely affect small governments. Therefore, this proposed action is not subject to the requirements of section 203 of the UMRA.

#### *E. Executive Order 13132: Federalism*

Executive Order 13132 (64 FR 43255; August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" are defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government." This proposed action does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This proposed action will not impose substantial direct compliance costs on State or local governments, and will not preempt

State law. Thus, Executive Order 13132 does not apply to this proposed action.

In the spirit of Executive Order 13132, and consistent with EPA policy to promote communications between EPA and State and local governments, EPA specifically solicits comment on this proposed action from State and local officials.

#### *F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments*

Executive Order 13175, (65 FR 67249; November 9, 2000), requires EPA to develop an accountable process to ensure "meaningful and timely input by Tribal officials in the development of regulatory policies that have Tribal implications."

This proposed action does not have Tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on Tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. EPA is not aware of any HMIWI owned or operated by Indian Tribal governments. Thus, Executive Order 13175 does not apply to this proposed action.

#### *G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks*

Executive Order 13045 (62 FR 19885; April 23, 1997), applies to any rule that: (1) Is determined to be "economically significant" as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, EPA must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives EPA considered.

EPA interprets Executive Order 13045 as applying only to those regulatory actions that are based on health or safety risks, such that the analysis required under section 5-501 of the Executive Order has the potential to influence the regulation. This proposed action is not subject to Executive Order 13045 because it is based on technology performance and not on health and safety risks.

#### *H. Executive Order 13211: Actions That Significantly Affect Energy Supply, Distribution or Use*

This proposed action is not a "significant energy action" as defined in Executive Order 13211, "Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use" (66 FR 28355; May 22, 2001) because it is not likely to have a significant adverse effect on the supply, distribution, or use of energy. EPA estimates that the requirements in this proposed action would cause some HMIWI to increase the horsepower of their wet scrubbers, resulting in approximately 3,600 megawatt-hours per year of additional electricity being used.

Given the negligible change in energy consumption resulting from this proposed action, EPA does not expect any price increase for any energy type. The cost of energy distribution should not be affected by this proposed action at all since the action would not affect energy distribution facilities. We also expect that there would be no impact on the import of foreign energy supplies, and no other adverse outcomes are expected to occur with regard to energy supplies.

#### *I. National Technology Transfer Advancement Act*

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Pub. L. 104-113, Section 12(d), 15 U.S.C. 272 note) directs EPA to use voluntary consensus standards (VCS) in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. The VCS are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by VCS bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency does not use available and applicable VCS.

This proposed action involves technical standards. EPA cites the following standards: EPA Methods 1, 3, 3A, 3B, 5, 9, 10, 10B, 22, 23, 26, 26A, and 29 in 40 CFR part 60, appendix A. Consistent with the NTTAA, EPA conducted searches to identify voluntary consensus standards in addition to these EPA methods. No applicable voluntary consensus standards were identified for EPA Methods 9 and 22. The search and review results are in the docket for this proposed action.

Two voluntary consensus standards were identified as acceptable

alternatives to EPA test methods for the purposes of this proposed action. The voluntary consensus standard ASME PTC 19-10-1981-Part 10, "Flue and Exhaust Gas Analyses," is cited in the proposed action for its manual method for measuring the oxygen content of exhaust gas. This part of ASME PTC 19-10-1981-Part 10 is an acceptable alternative to EPA Method 3B.

The voluntary consensus standard ASTM D6784-02, "Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method)," is an acceptable alternative to EPA Method 29 (portion for mercury only) as a method for measuring Hg.

The search for emissions measurement procedures identified 16 other voluntary consensus standards. EPA determined that these 16 standards identified for measuring emissions of the pollutants subject to emission standards in this proposed action were impractical alternatives to EPA test methods for the purposes of this action. Therefore, EPA does not intend to adopt these standards for this purpose. A document that discusses the determinations for these 16 methods is located in the docket to this proposed action.

Section 60.56c of subpart Ec of 40 CFR part 60 and § 60.37e of subpart Ce of 40 CFR part 60 list the testing methods included in the proposed action. Under 40 CFR 60.8(b) and 60.13(i) of subpart A (General Provisions), a source may apply to EPA for permission to use alternative test methods or alternative monitoring requirements in place of any required testing methods, performance specifications, or procedures.

#### List of Subjects in 40 CFR Part 60

Environmental protection, Administrative practice and procedure, Air pollution control, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated: January 26, 2007.

**Stephen L. Johnson,**  
Administrator.

For the reasons stated in the preamble, title 40, chapter I, part 60 of the Code of Federal Regulations is proposed to be amended as follows:

#### PART 60—[AMENDED]

1. The authority citation for part 60 continues to read as follows:

**Authority:** 42 U.S.C. 7401, *et seq.*

#### Subpart Ce—[Amended]

2. Section 60.32e is amended by revising paragraphs (a) and (i) to read as follows:

##### § 60.32e Designated facilities.

(a) Except as provided in paragraphs (b) through (h) of this section, the designated facility to which the guidelines apply is each individual HMIWI for which construction was commenced on or before June 20, 1996 and each individual HMIWI currently subject to subpart Ec as promulgated in 1997 (for which construction was commenced after June 20, 1996 but no later than February 6, 2007 or for which modification commenced after March 16, 1998 but no later than 6 months after the date of promulgation of this subpart).

\* \* \* \* \*

(i) Beginning 3 years after the date of promulgation of this subpart, or on the effective date of an EPA approved operating permit program under Clean Air Act title V and the implementing regulations under 40 CFR part 70 in the State in which the unit is located, whichever date is later, designated facilities subject to this subpart shall operate pursuant to a permit issued under the EPA-approved operating permit program.

3. Section 60.33e is amended by revising paragraph (b) to read as follows:

##### § 60.33e Emission guidelines.

\* \* \* \* \*

(b) For approval, a State plan shall include the requirements for emission limits at least as protective as those requirements listed in Table 2 of this subpart for any small HMIWI constructed on or before June 20, 1996 which is located more than 50 miles from the boundary of the nearest Standard Metropolitan Statistical Area (defined in § 60.31e) and which burns less than 2,000 pounds per week of hospital waste and medical/infectious waste. The 2,000 lb/week limitation does not apply during performance tests.

\* \* \* \* \*

4. Section 60.36e is amended by adding paragraphs (c) and (d) to read as follows:

##### § 60.36e Inspection guidelines.

\* \* \* \* \*

(c) For approval, a State plan shall require that each HMIWI subject to the emission limits under § 60.33e(a) undergo an initial air pollution control device inspection that is at least as protective as the following within 1 year following approval of the State plan:

(1) At a minimum, an inspection shall include the following:

(i) Inspect air pollution control device(s) for proper operation, if applicable;

(ii) Ensure proper calibration of thermocouples, sorbent feed systems, and any other monitoring equipment; and

(iii) Generally observe that the equipment is maintained in good operating condition.

(2) Within 10 operating days following an air pollution control device inspection, all necessary repairs shall be completed unless the owner or operator obtains written approval from the State agency establishing a date whereby all necessary repairs of the designated facility shall be completed.

(d) For approval, a State plan shall require that each HMIWI subject to the emission limits under § 60.33e(a) undergo an air pollution control device inspection annually (no more than 12 months following the previous annual air pollution control device inspection), as outlined in paragraphs (c)(1) and (2) of this section.

5. Section 60.37e is amended by revising paragraphs (a) and (b)(1) and adding paragraph (e) to read as follows:

##### § 60.37e Compliance, performance testing, and monitoring guidelines.

(a) Except as provided in paragraph (b) of this section, for approval, a State plan shall include the requirements for compliance and performance testing listed in § 60.56c of subpart Ec of this part, excluding the fugitive emissions annual testing requirement under § 60.56c(c)(3), the CO CEMS requirements under § 60.56c(c)(5), and the bag leak detection system requirements under § 60.57c(g). Sources may, however, elect to use CO CEMS as specified under § 60.56c(c)(5) or bag leak detection systems as specified under § 60.57c(g).

(b) \* \* \*

(1) Conduct the performance testing requirements in § 60.56c(a), (b)(1) through (b)(9), (b)(11) (Hg only), (b)(12), and (c)(1) of subpart Ec of this part. The 2,000 lb/week limitation under § 60.33e(b) does not apply during performance tests.

\* \* \* \* \*

(e) The owner or operator of a designated facility may use the results of previous emissions tests to demonstrate compliance with the emission limits, provided that the conditions in paragraphs (e)(1) through (e)(3) of this section are met:

(1) The previous emissions tests must have been conducted using the applicable procedures and test methods

listed in § 60.56c(b)(1) through (b)(9), (b)(11) (Hg only), and (b)(12). Previous emissions test results obtained using EPA-accepted voluntary consensus standards are also acceptable.

(2) The HMIWI at the affected facility shall be operated in a manner (e.g., with charge rate, secondary chamber temperature, etc.) that would be expected to result in the same or lower emissions than observed during the previous emissions test(s), and the HMIWI may not have been modified such that emissions would be expected to exceed (notwithstanding normal test-to-test variability) the results from previous emissions test(s).

(3) The previous emissions test(s) must have been conducted in 1997 or later.

6. Section 60.38e is amended by revising paragraph (a) and adding paragraph (c) to read as follows:

**§ 60.38e Reporting and recordkeeping guidelines.**

(a) For approval, a State plan shall include the reporting and recordkeeping requirements listed in § 60.58c(b), (c), (d), (e), and (f) of subpart Ec of this part, excluding § 60.58c(b)(7) (siting).

\* \* \* \* \*

(c) For approval, a State plan shall require the owner or operator of each HMIWI subject to the emission limits under § 60.33e(a) to:

(1) Maintain records of the annual air pollution control device inspections, any required maintenance, and any repairs not completed within 10 days of an inspection or the timeframe established by the State regulatory agency; and

(2) Submit an annual report containing information recorded under paragraph (c)(1) of this section no later than 60 days following the year in which data were collected. Subsequent reports shall be sent no later than 12 calendar months following the previous report (once the unit is subject to permitting requirements under title V of the Act, the owner or operator shall submit these reports semiannually). The report shall be signed by the facilities manager.

7. Section 60.39e is amended as follows:

- a. By revising paragraph (a);
- b. By revising paragraph (c) introductory text;
- c. By revising paragraph (d)(3); and
- d. By revising paragraph (f).

**§ 60.39e Compliance times.**

(a) Not later than 1 year after the date of promulgation of this subpart, each State in which a designated facility is operating shall submit to the Administrator a plan to implement and enforce the emission guidelines.

\* \* \* \* \*

(c) State plans that specify measurable and enforceable incremental steps of progress towards compliance for designated facilities planning to install the necessary air pollution control equipment may allow compliance on or before the date 3 years after EPA approval of the State plan (but not later than 5 years after the date of promulgation of this subpart). Suggested measurable and enforceable activities to be included in State plans are:

\* \* \* \* \*

(d) \* \* \*

(3) If an extension is granted, require compliance with the emission guidelines on or before the date 3 years after EPA approval of the State plan (but not later than 5 years after the date of promulgation of this subpart).

\* \* \* \* \*

(f) The Administrator shall develop, implement, and enforce a plan for existing HMIWI located in any State that has not submitted an approvable plan within 2 years after the date of promulgation of this subpart. Such plans shall ensure that each designated facility is in compliance with the provisions of this subpart no later than 5 years after the date of promulgation of this subpart.

8. Table 1 to subpart Ce is revised to read as follows:

TABLE 1 TO SUBPART CE.—EMISSION LIMITS FOR SMALL, MEDIUM, AND LARGE HMIWI

Pollutant	Units (7 percent oxygen, dry basis)	Emission limits HMIWI size		
		Small	Medium	Large
Particulate matter .....	Milligrams per dry standard cubic meter (mg/dscm) (grains per dry standard cubic foot (gr/dscf)).	69 (0.030) .....	69 (0.030) .....	34 (0.015).
Carbon monoxide .....	Parts per million by volume (ppmv) .....	25 .....	25 .....	25.
Dioxins/furans .....	Nanograms per dry standard cubic meter total dioxins/furans (ng/dscm) (grains per billion dry standard cubic feet (gr/10 <sup>9</sup> dscf)) or ng/dscm TEQ (gr/10 <sup>9</sup> dscf).	115 (50) or 2.0 (0.87)	115 (50) or 2.0 (0.87)	115 (50) or 2.0 (0.87).
Hydrogen chloride .....	ppmv or percent reduction .....	51 or 94% .....	51 or 94% .....	51 or 94%
Sulfur dioxide .....	P <sub>ppmv</sub> .....	28 .....	28 .....	28.
Nitrogen oxides .....	P <sub>ppmv</sub> .....	212 .....	212 .....	212.
Lead .....	mg/dscm (grains per thousand dry standard cubic feet (gr/10 <sup>3</sup> dscf)) or percent reduction.	0.64 (0.28) or 71% .....	0.64 (0.28) or 71% .....	0.64 (0.28) or 71%.
Cadmium .....	mg/dscm (gr/10 <sup>3</sup> dscf) or percent reduction ..	0.060 (0.026) or 74%	0.060 (0.026) or 74%	0.060 (0.026) or 74%.
Mercury .....	mg/dscm (gr/10 <sup>3</sup> dscf) or percent reduction ..	0.33 (0.14) or 96% .....	0.33 (0.14) or 96% .....	0.33 (0.14) or 96%.

9. Table 2 of subpart Ce is revised to read as follows:

TABLE 2 TO SUBPART CE.—EMISSION LIMITS FOR SMALL HMIWI WHICH MEET THE CRITERIA UNDER § 60.33E(B)

Pollutant	Units (7 percent oxygen, dry basis)	HMIWI emission limits
Particulate matter .....	mg/dscm (gr/dscf) .....	69 (0.030).
Carbon monoxide .....	P <sub>ppmv</sub> .....	25.

TABLE 2 TO SUBPART CE.—EMISSION LIMITS FOR SMALL HMIWI WHICH MEET THE CRITERIA UNDER § 60.33E(B)—Continued

Pollutant	Units (7 percent oxygen, dry basis)	HMIWI emission limits
Dioxins/furans .....	ng/dscm total dioxins/furans (gr/10 <sup>9</sup> dscf) or ng/dscm TEQ (gr/10 <sup>9</sup> dscf) .....	800 (350) or 15 (6.6).
Hydrogen chloride .....	ppmv or percent reduction .....	398.
Sulfur dioxide .....	P <sub>pmv</sub> .....	28.
Nitrogen oxides .....	P <sub>pmv</sub> .....	212.
Lead .....	mg/dscm (gr/10 <sup>3</sup> dscf) or percent reduction .....	0.60 (0.26).
Cadmium .....	mg/dscm (gr/10 <sup>3</sup> dscf) or percent reduction .....	0.050 (0.022).
Mercury .....	mg/dscm (gr/10 <sup>3</sup> dscf) or percent reduction .....	0.25 (0.11).

**Subpart Ec—[Amended]**

10. Section 60.50c is amended by revising paragraphs (a), (k) and (l) to read as follows:

**§ 60.50c Applicability and delegation of authority.**

(a) Except as provided in paragraphs (b) through (h) of this section, the affected facility to which this subpart applies is each individual hospital/medical/infectious waste incinerator (HMIWI):

(1) For which construction is commenced after June 20, 1996 but no later than February 6, 2007;

(2) For which modification is commenced after March 16, 1998 but no later than 6 months after the date of promulgation of this subpart;

(3) For which construction is commenced after February 6, 2007; or

(4) For which modification is commenced after 6 months after the date of promulgation of this subpart.

\* \* \* \* \*

(k) The requirements of this subpart shall become effective 6 months after the date of promulgation of this subpart.

(l) Beginning 3 years after the date of promulgation of this subpart, or on the effective date of an EPA-approved operating permit program under Clean Air Act title V and the implementing regulations under 40 CFR part 70 in the State in which the unit is located, whichever date is later, affected facilities subject to this subpart shall operate pursuant to a permit issued under the EPA approved State operating permit program.

11. Section 60.51c is amended by adding a definition for “Bag leak detection system” in alphabetical order and revising the definition for “Minimum secondary chamber temperature” to read as follows:

**§ 60.51c Definitions.**

*Bag leak detection system* means an instrument that is capable of monitoring PM loadings in the exhaust of a fabric filter in order to detect bag failures. A bag leak detection system includes, but

is not limited to, an instrument that operates on triboelectric, light-scattering, light-transmittance, or other effects to monitor relative PM loadings.

\* \* \* \* \*

*Minimum secondary chamber temperature* means 90 percent of the highest 3-hour average secondary chamber temperature (taken, at a minimum, once every minute) measured during the most recent performance test demonstrating compliance with the PM, CO, and dioxin/furan emission limits.

\* \* \* \* \*

12. Section 60.52c is amended by revising paragraph (c) to read as follows:

**§ 60.52c Emission limits.**

\* \* \* \* \*

(c) On and after the date on which the initial performance test is completed or is required to be completed under § 60.8, whichever date comes first, no owner or operator of an affected facility shall cause to be discharged into the atmosphere visible emissions of combustion ash from an ash conveying system (including conveyor transfer points) in excess of 5 percent of the observation period (i.e., 9 minutes per 3-hour period), as determined by EPA Reference Method 22 of appendix A of this part, except as provided in paragraphs (d) and (e) of this section.

\* \* \* \* \*

13. Section 60.56c is amended as follows:

a. By revising paragraph (b) introductory text;

b. By revising paragraphs (b)(4) and (b)(6) through (b)(8), (b)(9) introductory text, and (b)(10);

c. By revising paragraph (b)(11);

d. By revising paragraphs (c)(2) through (4);

e. By adding paragraphs (c)(5), and (c)(6);

f. By revising paragraph (d) introductory text;

g. By adding paragraphs (e)(6) and (7);

h. By adding paragraphs (f)(7) through (9);

i. By adding paragraphs (g)(6) through (9); and

j. By adding paragraph (k).

**§ 60.56c Compliance and performance testing.**

\* \* \* \* \*

(b) Except as provided in paragraph (k) of this section, the owner or operator of an affected facility shall conduct an initial performance test as required under § 60.8 to determine compliance with the emission limits using the procedures and test methods listed in paragraphs (b)(1) through (b)(12) of this section. The use of the bypass stack during a performance test shall invalidate the performance test.

\* \* \* \* \*

(4) EPA Reference Method 3, 3A, or 3B of appendix A of this part shall be used for gas composition analysis, including measurement of oxygen concentration. EPA Reference Method 3, 3A, or 3B of appendix A of this part shall be used simultaneously with each of the other EPA reference methods. As an alternative, ASME PTC-19-10-1981-Part 10 may be used.

\* \* \* \* \*

(6) EPA Reference Method 5 or 29 of appendix A of this part shall be used to measure the particulate matter emissions. As an alternative, PM CEMS may be used as specified in paragraph (c)(4) of this section.

(7) EPA Reference Method 9 of appendix A of this part shall be used to measure stack opacity. As an alternative, demonstration of compliance with the PM standards using bag leak detection systems as specified in § 60.57c(g) or PM CEMS as specified in paragraph (c)(4) of this section is considered demonstrative of compliance with the opacity requirements.

(8) For affected facilities under § 60.50c(a)(1) and (a)(2), EPA Reference Method 10 or 10B of appendix A of this part shall be used to measure the CO emissions. As an alternative, CO CEMS may be used as specified in paragraph (c)(4) of this section.

(9) EPA Reference Method 23 of appendix A of this part shall be used to

measure total dioxin/furan emissions. As an alternative, an owner or operator may elect to sample dioxins/furans by installing, calibrating, maintaining, and operating a continuous automated sampling system for monitoring dioxin/furan emissions as specified in paragraph (c)(6) of this section. For Method 23 sampling, the minimum sample time shall be 4 hours per test run. If the affected facility has selected the toxic equivalency standards for dioxins/furans, under § 60.52c, the following procedures shall be used to determine compliance:

\* \* \* \* \*

(10) EPA Reference Method 26 or 26A of appendix A of this part shall be used to measure HCl emissions, with the additional requirements for Method 26A specified in paragraphs (b)(10)(i) through (iii) of this section. As an alternative, HCl CEMS may be used as specified in paragraph (c)(4) of this section. If the affected facility has selected the percentage reduction standards for HCl under § 60.52c, the percentage reduction in HCl emission (%R<sub>HCl</sub>) is computed using the following formula:

$$(\%R_{HCl}) = (E_i - E_o)/E_i \times 100$$

Where:

%R<sub>HCl</sub>=percentage reduction of HCl emissions achieved;

E<sub>i</sub>=HCl emission concentration measured at the control device inlet, corrected to 7 percent oxygen (dry basis); and

E<sub>o</sub>=HCl emission concentration measured at the control device outlet, corrected to 7 percent oxygen (dry basis).

(i) The probe and filter shall be conditioned prior to sampling using the procedure described in paragraphs (b)(10)(i)(A) through (C) of this section.

(A) Assemble the sampling train(s) and conduct a conditioning run by collecting between 14 liters per minute (L/min) (0.5 cubic feet per minute (ft<sup>3</sup>/min)) and 30 L/min (1.0 ft<sup>3</sup>/min) of gas over a 1-hour period. Follow the sampling procedures outlined in section 8.1.5 of Method 26A of appendix A of this part. For the conditioning run, water may be used as the impinger solution.

(B) Remove the impingers from the sampling train and replace with a fresh impinger train for the sampling run, leaving the probe and filter (and cyclone, if used) in position. Do not recover the filter or rinse the probe before the first run. Thoroughly rinse the impingers used in the preconditioning run with deionized water and discard these rinses.

(C) The probe and filter assembly shall be conditioned by the stack gas

and shall not be recovered or cleaned until the end of testing.

(ii) For the duration of sampling, a temperature around the probe and filter (and cyclone, if used) between 120 °C (248 °F) and 134 °C (273 °F) shall be maintained.

(iii) If water droplets are present in the sample gas stream, the requirements specified in paragraphs (b)(10)(iii)(A) and (B) of this section shall be met.

(A) The cyclone described in section 6.1.4 of EPA Reference Method 26A of appendix A of this part shall be used.

(B) The post-test moisture removal procedure described in section 8.1.6 of EPA Reference Method 26A of appendix A of this part shall be used.

(11) EPA Reference Method 29 of appendix A of this part shall be used to measure Pb, Cd, and Hg emissions. As an alternative, Hg emissions may be measured using ASTM D6784-02. As an alternative for Pb, Cd, and Hg, multi-metals CEMS, or Hg CEMS, may be used as specified in paragraph (c)(4) of this section. If the affected facility has selected the percentage reduction standards for metals under § 60.52c, the percentage reduction in emissions (%R<sub>metal</sub>) is computed using the following formula:

$$(\%R_{metal}) = (E_i - E_o)/E_i \times 100$$

Where:

%R<sub>metal</sub>=percentage reduction of metal emission (Pb, Cd, or Hg) achieved;

E<sub>i</sub>=metal emission concentration (Pb, Cd, or Hg) measured at the control device inlet, corrected to 7 percent oxygen (dry basis); and

E<sub>o</sub>=metal emission concentration (Pb, Cd, or Hg) measured at the control device outlet, corrected to 7 percent oxygen (dry basis).

\* \* \* \* \*

(c) \* \* \*

(2) Except as provided in paragraphs (c)(4) and (c)(5) of this section, determine compliance with the PM, CO, and HCl emission limits by conducting an annual performance test (no more than 12 months following the previous performance test) using the applicable procedures and test methods listed in paragraph (b) of this section. If all three performance tests over a 3-year period indicate compliance with the emission limit for a pollutant (PM, CO, or HCl), the owner or operator may forego a performance test for that pollutant for the subsequent 2 years. At a minimum, a performance test for PM, CO, and HCl shall be conducted every third year (no more than 36 months following the previous performance test). If a performance test conducted every third year indicates compliance with the emission limit for a pollutant (PM, CO, or HCl), the owner or operator may

forego a performance test for that pollutant for an additional 2 years. If any performance test indicates noncompliance with the respective emission limit, a performance test for that pollutant shall be conducted annually until all annual performance tests over a 3-year period indicate compliance with the emission limit. The use of the bypass stack during a performance test shall invalidate the performance test.

(3) For large HMIWI under § 60.50c(a)(1) and (a)(2) and for all HMIWI under § 60.50c(a)(3) and (a)(4), determine compliance with the visible emission limits for fugitive emissions from flyash/bottom ash storage and handling by conducting a performance test using EPA Reference Method 22 on an annual basis (no more than 12 months following the previous performance test).

(4) Facilities using optional CEMS to demonstrate compliance with the PM, CO, HCl, Pb, Cd, and/or Hg emission limits under § 60.52c shall:

(i) Determine compliance with the appropriate emission limit(s) using a 24-hour block average, calculated as specified in section 12.4.1 of EPA Reference Method 19 of appendix A of this part.

(ii) Operate all CEMS in accordance with the applicable procedures under appendices B and F of this part. For those CEMS for which performance specifications have not yet been promulgated (HCl, multi-metals), this option takes effect on the date a final performance specification is published in the **Federal Register** or the date of approval of a site-specific monitoring plan.

(iii) Be allowed to substitute use of an HCl CEMS for the HCl annual performance test, minimum HCl sorbent flow rate, and minimum scrubber liquor pH to demonstrate compliance with the HCl emission limit.

(iv) Be allowed to substitute use of a PM CEMS for the PM annual performance test and minimum pressure drop across the wet scrubber, if applicable, to demonstrate compliance with the PM emission limit.

(v) Be allowed to substitute use of a CO CEMS for the CO annual performance test and minimum secondary chamber temperature to demonstrate compliance with the CO emission limit.

(5) For affected facilities under § 60.50c(a)(3) and (a)(4), determine compliance with the CO emission limit using a CO CEMS according to paragraphs (c)(5)(i) and (c)(5)(ii) of this section:

(i) Determine compliance with the CO emission limit using a 24-hour block average, calculated as specified in section 12.4.1 of EPA Reference Method 19 of appendix A of this part.

(ii) Operate the CO CEMS in accordance with the applicable procedures under appendices B and F of this part.

(iii) Use of a CO CEMS may be substituted for the CO annual performance test and minimum secondary chamber temperature to demonstrate compliance with the CO emission limit.

(6) Facilities using a continuous automated sampling system to demonstrate compliance with the dioxin/furan emission limits under § 60.52c shall record the output of the system and analyze the sample using EPA Reference Method 23 of appendix A of this part. This option to use a continuous automated sampling system takes effect on the date a final performance specification applicable to dioxin/furan from monitors is published in the **Federal Register** or the date of approval of a site-specific monitoring plan. The owner or operator of an affected facility who elects to continuously sample dioxin/furan emissions instead of sampling and testing using EPA Reference Method 23 shall install, calibrate, maintain, and operate a continuous automated sampling system and shall comply with the requirements specified in § 60.58b(p) and (q) of subpart Eb of this part.

(d) Except as provided in paragraphs (c)(4), (c)(5), and (c)(6) of this section, the owner or operator of an affected facility equipped with a dry scrubber followed by a fabric filter, a wet scrubber, or a dry scrubber followed by a fabric filter and wet scrubber shall:

\* \* \* \*

(e) \*

(6) For HMIWI under § 60.50c(a)(3) and (a)(4), operation of the affected facility above the CO emission limit as measured by the CO CEMS shall constitute a violation of the CO emission limit.

(7) For HMIWI under § 60.50c(a)(3) and (a)(4), failure to initiate corrective action within 1 hour of a bag leak detection system alarm; or failure to operate and maintain the fabric filter such that the alarm is not engaged for more than 5 percent of the total operating time in a 6-month block reporting period shall constitute a violation of the PM emission limit. If inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If

corrective action is required, each alarm is counted as a minimum of 1 hour. If it takes longer than 1 hour to initiate corrective action, the alarm time is counted as the actual amount of time taken to initiate corrective action. If the bag leak detection system is used to demonstrate compliance with the opacity limit, this would also constitute a violation of the opacity emission limit.

(f) \*

(7) For HMIWI under § 60.50c(a)(3) and (a)(4), operation of the affected facility above the CO emission limit as measured by the CO CEMS shall constitute a violation of the CO emission limit.

(8) For all HMIWI, operation of the affected facility above the PM, CO, HCl, Pb, Cd, and/or Hg emission limit as measured by the CEMS specified in paragraph (c)(4) of this section shall constitute a violation of the applicable emission limit.

(9) For all HMIWI, operation of the affected facility above the CDD/CDF emission limit as measured by the continuous automated sampling system specified in paragraph (c)(6) of this section shall constitute a violation of the CDD/CDF emission limit.

(g) \*

(6) For HMIWI under § 60.50c(a)(3) and (a)(4), operation of the affected facility above the CO emission limit as measured by the CO CEMS shall constitute a violation of the CO emission limit.

(7) For HMIWI under § 60.50c(a)(3) and (a)(4), failure to initiate corrective action within 1 hour of a bag leak detection system alarm; or failure to operate and maintain the fabric filter such that the alarm is not engaged for more than 5 percent of the total operating time in a 6-month block reporting period shall constitute a violation of the PM emission limit. If inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm is counted as a minimum of 1 hour. If it takes longer than 1 hour to initiate corrective action, the alarm time is counted as the actual amount of time taken to initiate corrective action. If the bag leak detection system is used to demonstrate compliance with the opacity limit, this would also constitute a violation of the opacity emission limit.

(8) For all HMIWI, operation of the affected facility above the PM, CO, HCl, Pb, Cd, and/or Hg emission limit as measured by the CEMS specified in paragraph (c)(4) of this section shall constitute a violation of the applicable emission limit.

(9) For all HMIWI, operation of the affected facility above the CDD/CDF emission limit as measured by the continuous automated sampling system specified in paragraph (c)(6) of this section shall constitute a violation of the CDD/CDF emission limit.

\* \* \* \*

(k) The owner or operator of an affected facility may use the results of previous emissions tests to demonstrate compliance with the emission limits, provided that the conditions in paragraphs (k)(1) through (k)(3) of this section are met:

(1) The previous emissions tests shall have been conducted using the applicable procedures and test methods listed in paragraph (b) of this section. Previous emissions test results obtained using EPA-accepted voluntary consensus standards are also acceptable.

(2) The HMIWI at the affected facility shall be operated in a manner (e.g., with charge rate, secondary chamber temperature, etc.) that would be expected to result in the same or lower emissions than observed during the previous emissions test(s) and the HMIWI may not have been modified such that emissions would be expected to exceed (notwithstanding normal test-to-test variability) the results from previous emissions test(s).

(3) The previous emissions test(s) shall have been conducted in 1997 or later.

14. Section 60.57c is amended as follows:

- By revising paragraph (a);
- By adding paragraph (e);
- By adding paragraph (f); and
- By adding paragraph (g).

#### **§ 60.57c Monitoring requirements**

(a) Except as provided in § 60.56c(c)(4) through (c)(6), the owner or operator of an affected facility shall install, calibrate (to manufacturers' specifications), maintain, and operate devices (or establish methods) for monitoring the applicable maximum and minimum operating parameters listed in Table 3 to this subpart (unless optional CEMS are used as a substitute for certain parameters as specified) such that these devices (or methods) measure and record values for these operating parameters at the frequencies indicated in Table 3 at all times except during periods of startup and shutdown.

\* \* \* \*

(e) The owner or operator of an affected facility shall ensure that each HMIWI subject to the emission limits in § 60.52c undergoes an initial air pollution control device inspection that is at least as protective as the following:

(1) At a minimum, an inspection shall include the following:

(i) Inspect air pollution control device(s) for proper operation, if applicable;

(ii) Ensure proper calibration of thermocouples, sorbent feed systems, and any other monitoring equipment; and

(iii) Generally observe that the equipment is maintained in good operating condition.

(2) Within 10 operating days following an air pollution control device inspection, all necessary repairs shall be completed unless the owner or operator obtains written approval from the Administrator establishing a date whereby all necessary repairs of the designated facility shall be completed.

(f) The owner or operator of an affected facility shall ensure that each HMIWI subject to the emission limits under § 60.52c undergoes an air pollution control device inspection annually (no more than 12 months following the previous annual air pollution control device inspection), as outlined in paragraphs (e)(1) and (e)(2) of this section.

(g) For affected facilities under § 60.50c(a)(3) and (a)(4) using an air pollution control device that includes a fabric filter and not using PM CEMS, determine compliance with the PM emission limit using a bag leak detection system and meet the requirements in paragraphs (g)(1) through (g)(12) of this section for each bag leak detection system. Affected facilities under § 60.50c(a)(1) and (a)(2) may elect to demonstrate continuous compliance with the PM emission limit using a bag leak detection system and meet the requirements in paragraphs (g)(1) through (g)(12) of this section.

(1) Each triboelectric bag leak detection system shall be installed, calibrated, operated, and maintained according to the "Fabric Filter Bag Leak Detection Guidance," (EPA 454/R-98-015, September 1997). This document is available from the U.S. Environmental Protection Agency (U.S. EPA); Office of Air Quality Planning and Standards; Sector Policies and Programs Division; Measurement Policy Group (D-243-02), Research Triangle Park, NC 27711. This document is also available on the Technology Transfer Network (TTN) under Emission Measurement Center Continuous Emission Monitoring. Other types of bag leak detection systems shall be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations.

(2) The bag leak detection system shall be certified by the manufacturer to

be capable of detecting PM emissions at concentrations of 10 milligrams per actual cubic meter (0.0044 grains per actual cubic foot) or less.

(3) The bag leak detection system sensor shall provide an output of relative PM loadings.

(4) The bag leak detection system shall be equipped with a device to continuously record the output signal from the sensor.

(5) The bag leak detection system shall be equipped with an audible alarm system that will sound automatically when an increase in relative PM emissions over a preset level is detected. The alarm shall be located where it is easily heard by plant operating personnel.

(6) For positive pressure fabric filter systems, a bag leak detector shall be installed in each baghouse compartment or cell.

(7) For negative pressure or induced air fabric filters, the bag leak detector shall be installed downstream of the fabric filter.

(8) Where multiple detectors are required, the system's instrumentation and alarm may be shared among detectors.

(9) The baseline output shall be established by adjusting the range and the averaging period of the device and establishing the alarm set points and the alarm delay time according to section 5.0 of the "Fabric Filter Bag Leak Detection Guidance."

(10) Following initial adjustment of the system, the sensitivity or range, averaging period, alarm set points, or alarm delay time may not be adjusted. In no case may the sensitivity be increased by more than 100 percent or decreased more than 50 percent over a 365-day period unless such adjustment follows a complete fabric filter inspection that demonstrates that the fabric filter is in good operating condition. Each adjustment shall be recorded.

(11) Record the results of each inspection, calibration, and validation check.

(12) Initiate corrective action within 1 hour of a bag leak detection system alarm; operate and maintain the fabric filter such that the alarm is not engaged for more than 5 percent of the total operating time in a 6-month block reporting period. If inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted. If corrective action is required, each alarm is counted as a minimum of 1 hour. If it takes longer than 1 hour to initiate corrective action, the alarm time is counted as the actual

amount of time taken to initiate corrective action.

15. Section 60.58c is amended as follows:

a. By adding paragraphs (b)(2)(xvi) through (xviii);

b. By revising paragraph (b)(6);

c. By revising paragraph (c)

introductory text;

d. By revising paragraph (c)(2);

e. By adding paragraph (c)(4);

f. By revising paragraph (d)

introductory text;

g. By adding paragraphs (d)(9) through (11); and

h. By adding paragraph (g).

#### **§ 60.58c Reporting and recordkeeping requirements.**

\* \* \* \* \*

(b) \* \* \*

(2) \* \* \*

(xvi) Records of the annual air pollution control device inspections, any required maintenance, and any repairs not completed within 10 days of an inspection or the timeframe established by the Administrator.

(xvii) For affected facilities using a bag leak detection system, records of each alarm, the time of the alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken.

(xviii) For affected facilities under § 60.50c(a)(3) and (a)(4), concentrations of CO as determined by the continuous emission monitoring system.

\* \* \* \* \*

(6) The results of the initial, annual, and any subsequent performance tests conducted to determine compliance with the emission limits and/or to establish or re-establish operating parameters, as applicable, and a description of how the operating parameters were established or re-established, if applicable.

\* \* \* \* \*

(c) The owner or operator of an affected facility shall submit the information specified in paragraphs (c)(1) through (c)(4) of this section no later than 60 days following the initial performance test. All reports shall be signed by the facilities manager.

\* \* \* \* \*

(2) The values for the site-specific operating parameters established pursuant to § 60.56c(d) or § 60.56c(i), as applicable, and a description of how the operating parameters were established during the initial performance test.

\* \* \* \* \*

(4) For each affected facility that uses a bag leak detection system, analysis and supporting documentation

demonstrating conformance with EPA guidance and specifications for bag leak detection systems in § 60.57c(g).

(d) An annual report shall be submitted 1 year following the submission of the information in paragraph (c) of this section and subsequent reports shall be submitted no more than 12 months following the previous report (once the unit is subject to permitting requirements under title V of the Clean Air Act, the owner or operator of an affected facility must submit these reports semiannually). The annual report shall include the information specified in paragraphs (d)(1) through (9) of this section. All reports shall be signed by the facilities manager.

\* \* \* \* \*

(9) Records of the annual air pollution control device inspection, any required

maintenance, and any repairs not completed within 10 days of an inspection or the timeframe established by the Administrator.

(10) For affected facilities using a bag leak detection system, records of each alarm, the time of the alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken.

(11) For affected facilities under § 60.50c(a)(3) and (a)(4), concentrations of CO as determined by the continuous emission monitoring system.

\* \* \* \* \*

(g) The owner or operator of an affected facility that uses the results of previous emissions tests to demonstrate compliance with the emission limits shall submit the information specified in paragraphs (g)(1) through (g)(4) of this

section no later than [DATE 30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE]. All reports shall have been signed by the facility's manager.

(1) The previous emissions test results as recorded using the methods and procedures in § 60.56c(b)(1) through (12), as applicable. Previous emissions test results recorded using EPA-accepted voluntary consensus standards are also acceptable.

(2) Certification that the test results are representative of current operations.

(3) The values for the site-specific operating parameters established pursuant to § 60.56c(d) or (i), as applicable.

(4) The waste management plan as specified in § 60.55c.

16. Table 1 to subpart Ec is revised to read as follows:

TABLE 1 TO SUBPART EC OF PART 60.—EMISSION LIMITS FOR SMALL, MEDIUM, AND LARGE HMIWI

Pollutant	Units (7 percent oxygen dry basis)	Emission limits HMIWI size		
		Small	Medium	Large
1. Units for which construction is commenced after June 20, 1996 but no later than February 6, 2007 or for which modification is commenced on or after March 16, 1998 but no later than [THE DATE 6 MONTHS AFTER PROMULGATION OF THE FINAL RULE]				
Particulate matter .....	Milligrams per dry standard cubic meter (grains per dry standard cubic foot).	41 (0.018) .....	21 (0.0090) .....	21 (0.0090).
Carbon monoxide .....	Parts per million by volume .....	32 <sup>1</sup> .....	32 <sup>1</sup> .....	32 <sup>1</sup> .
Dioxins/furans .....	Nanograms per dry standard cubic meter total dioxins/furans (grains per billion dry standard cubic feet) or nanograms per dry standard cubic meter TEQ (grains per billion dry standard cubic feet).	111 (49) or 2.1 (0.92)	20 (8.7) or 0.53 (0.23)	20 (8.7) or 0.53 (0.23).
Hydrogen chloride .....	Parts per million by volume or percent reduction.	15 or 99% .....	15 or 99% .....	15 or 99%.
Sulfur dioxide .....	Parts per million by volume .....	46 <sup>1</sup> .....	46 <sup>1</sup> .....	46 <sup>1</sup> .
Nitrogen oxides .....	Parts per million by volume .....	225 <sup>1</sup> .....	225 <sup>1</sup> .....	225 <sup>1</sup> .
Lead .....	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction.	0.78 <sup>1</sup> (0.34) or 71% ..	0.060 (0.026) or 98%	0.060 (0.026) or 98%.
Cadmium .....	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction.	0.11 <sup>1</sup> (0.048) or 66%	0.030 (0.013) or 93%	0.030 (0.013) or 93%.
Mercury .....	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction.	0.47 <sup>1</sup> (0.21) or 87% ..	0.45 <sup>1</sup> (0.20) or 87% ..	0.45 <sup>1</sup> (0.20) or 87%.

2. Units for which construction is commenced after February 6, 2007 or for which modification is commenced after [THE DATE 6 MONTHS AFTER PROMULGATION OF THE FINAL RULE]

Particulate matter .....	Milligrams per dry standard cubic meter (grains per dry standard cubic foot).	41 (0.018) .....	21 (0.0090) .....	21 (0.0090).
Carbon monoxide .....	Parts per million by volume .....	25 .....	25 .....	25.
Dioxins/furans .....	Nanograms per dry standard cubic meter total dioxins/furans (grains per billion dry standard cubic feet) or nanograms per dry standard cubic meter TEQ (grains per billion dry standard cubic feet).	111 (49) or 2.0 (0.87)	16 (7.0) or 0.21 (0.092).	16 (7.0) or 0.21 (0.092).
Hydrogen chloride .....	Parts per million by volume or percent reduction.	15 or 99% .....	15 or 99% .....	15 or 99%.
Sulfur dioxide .....	Parts per million by volume .....	28 .....	21 .....	21.
Nitrogen oxides .....	Parts per million by volume .....	212 .....	212 .....	212.
Lead .....	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction.	0.64 (0.28) or 71% ..	0.060 (0.026) or 99%	0.060 (0.026) or 99%.

TABLE 1 TO SUBPART EC OF PART 60.—EMISSION LIMITS FOR SMALL, MEDIUM, AND LARGE HMIWI—Continued

Pollutant	Units (7 percent oxygen dry basis)	Emission limits HMIWI size		
		Small	Medium	Large
Cadmium .....	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction.	0.060 (0.026) or 74%	0.0050 (0.0022) or 99%.	0.0050 (0.0022) or 99%.
Mercury .....	Milligrams per dry standard cubic meter (grains per thousand dry standard cubic feet) or percent reduction.	0.33 (0.14) or 96% .....	0.19 (0.083) or 96% ...	0.19 (0.083) or 96%.

<sup>1</sup> Emission limit is less stringent than the corresponding limit for existing sources contained in subpart Ce. Sources that would be subject to the emission limits in this table also would be subject to regulation under State plans or Federal plans that would implement subpart Ce and would be subject to limits at least as stringent as those in subpart Ce.

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