The Agency is proposing to go beyond-the-floor for three pollutants for existing LWAKs: dioxin/furans, mercury, and total chlorine. The total national annualized compliance costs to meet the dioxin/furan, mercury and total chlorine BTF standards in addition to the MACT floor standards for the remaining HAPs are estimated to be $4 million with the cost per kiln averaging $670,000. These total compliance costs increase the cost per ton of hazardous waste burned to $56. EPA estimated that one LWAK facility may cease burning hazardous waste due to the compliance costs associated with this suite of floor and BTF standards.

B. MACT for New Sources

This section summarizes EPA's rationale for establishing MACT for new LWAKs for each HAP, HAP surrogate, or HAP group. Table V.5.B.1 summarizes the proposed MACT standards for new LWAKs, which were determined using the analytical process described in Part Three, Section VII and in "Draft Technical Support Document for HWC MACT Standards, Volume III: Selection of MACT Standards and Technologies".

TABLE IV.5.B.1.—PROPOSED EMISSION LEVELS FOR NEW LWAKS

HAP or HAP Surrogate	Proposed Standards [1]
Dioxin/furans	0.20 ng/dscm TEQ.
Particulate Matter	0.030 gr/dscf (69 mg/dscm).
Mercury	72 μg/dscm.
SVM [Cd, Pb]	5.2 μg/dscm [2].
LVM [As, Be, Cr, Sb]	55 μg/dscm [3].
$HCl + Cl_2$	62 ppmv.
CO	100 ppmv.
HC	14 ppmv.

[1] All emission levels are corrected to 7 percent O_2.

[2] An alternative standard of 60 μg/dscm would apply if the source elects to document compliance using a multi-metals CEM.

[3] An alternative standard of 80 μg/dscm would apply if the source elects to document compliance using a multi-metals CEM.

1. MACT New for Dioxin/Furan

a. MACT NEW Floor. EPA used the Agency's data on the performance of D/F control technology to identify MACT floor controls and the floor level for new facilities. The MACT floor level for D/F emissions from LWAKs is 0.20 ng/dscm (TEQ) or (temperature at the PM control device not to exceed) 418 °F.

b. Beyond-The-Floor Considerations. The BTF considerations for new LWAKs were the same as for CKs. Therefore, EPA is proposing a BTF standard for new LWAKs of 0.20 ng/dscm (TEQ) for the same reasons applicable to CKs.

2. MACT New for Particulate Matter

a. MACT New Floor. EPA's analysis of available PM data shows that the single best APCD for controlling particulate emissions is a fabric filter with an air-to-cloth ratio less than 1.5 acfm/ft ^{2} which represents MACT technology for new sources. An evaluation of all sources employing this technology shows that this technology can consistently achieve a PM emission of 0.054 gr/dscf.

b. Beyond-The-Floor Considerations. For the same reasons as discussed for existing LWAKs, the Agency is proposing a lower BTF standard for new LWAKs. Therefore, the Agency is proposing the MACT standard of 69 mg/dscm (0.03 gr/dscf) for new LWAKs.

As discussed above for existing LWAKs, EPA specifically invites comment on whether the final rule should establish an alternative BTF standard for PM of 35 mg/dscm (or 0.15 lb/ton of raw material (dry basis) feed into the kiln).

3. MACT New for Mercury

a. MACT New Floor. The MACT new floor analysis is the same as existing sources because the expanded pools for each, based on the single best performing source, are identical. As discussed earlier, LWAKs control their mercury input (and therefore much of their emissions) through the control of the mercury content in the hazardous waste. The Agency is defining the MACT floor technology as feedrate control with a hazardous waste MTEC less than 17 μg/dscm based on performance of the single best performing source. Analysis of all existing LWAK sources using this hazardous feedrate control resulted in a MACT floor level of 72 μg/dscm.

b. Beyond-the-Floor Consideration. The Agency is considering the same two BTF options for new LWAKs as discussed for existing sources—Option 1 is 6 μg/dscm, and Option 2 is 7.2 μg/dscm. The Option 1 mercury BTF level of 6 μg/dscm is achievable based on the use of some degree of hazardous waste feedrate control and/or add-on mercury control with injection of activated carbon, assuming a 90 percent reduction. The Option 2 level of 7.2 μg/dscm represents an achievable level based on both achievement of floor levels and use of carbon injection, assuming conservative 80 percent reduction.

Therefore, EPA is proposing a mercury MACT standard of 72 μg/dscm for existing LWAKs and requesting comments on possible BTF standard of 6 μg/dscm and 7.2 μg/dscm.

4. MACT New for Semivolatile Metals

a. MACT New Floor. EPA characterized the single best performing source with the lowest SVM emissions and determined that the best performing source used a fabric filter with an air-to-cloth ratio of 1.5 acfm/ft ^{2} or less for a kiln system with a hazardous waste (HW) MTEC of 270,000 μg/dscm or less. Analysis of all sources using this technology or better (i.e., expanded MACT pool of facilities) resulted in a floor level of 5.2 μg/dscm for new LWAKs.

The Agency recognizes that 5.2 μg/dscm is a low floor level and is concerned about potential problems in its approach to setting the MACT floor level. The expanded MACT pool included only one other test condition besides the single best source, and EPA is concerned that this low data set resulted in a low floor level. In addition, EPA is concerned that the single best performing source may have low SVM feedrates in the raw material, which could result in a floor level that is unachievable. EPA invites comment on how to address these potential issues.

The Agency is proposing an alternative compliance option for SVMs. Since the Agency anticipates the likelihood of development of a multi-metals continuous emissions monitor (CEM) in the near future, the Agency is proposing establishing a higher standard for sources using a properly designed and operated multi-metals CEM. This alternative compliance option would be based on the minimum detection limit of the device which is estimated to be 60 μg/dscm for SVMs combined.

b. Beyond-the-Floor Considerations. EPA has determined that proposing a BTF standard is not warranted for the same reasons that a more stringent level was not proposed for existing sources. Therefore, the Agency is proposing a semivolatile metals MACT standard of 5.2 μg/dscm for new LWAKs.

5. MACT New for Low-Volatile Metals

a. MACT New Floor. EPA characterized the best particulate control device and identified the floor technology as a fabric filter with an air-to-cloth ratio of 1.3 acfm/ft ^{2} or less with a hazardous waste (HW) MTEC less than 37,000 μg/dscm. Analysis of all existing LWAK sources employing either of these technologies resulted in a floor emissions level of 55 μg/dscm for new LWAKs.

The Agency is proposing an alternative compliance option for LVMs. Since the Agency anticipates the likelihood of development of a multi-metals continuous emissions monitor

(CEM) in the near future, the Agency is proposing establishing a higher standard for new sources using a properly designed and operated multi-metals CEM. This alternative compliance option would be based on the minimum detection limit of the device which is estimated to be 80 µg/dscm for these LVM metals combined.

b. Beyond-the-Floor Considerations. EPA has determined that proposing a BTF standard is not warranted for the same reasons that a more stringent level was not proposed for existing sources. Therefore, the Agency is proposing a low-volatile metals MACT standard of 55 µg/dscm for new LWAKs.

6. MACT New for Hydrochloric Acid and Chlorine

a. MACT New Floor. EPA characterized the single best performing source with the lowest HCl/Cl_2 (total chlorine) emissions and determined that the best performing source used a venturi scrubber with a hazardous waste (HW) MTEC of 14 g/dscm or less. Analysis of all sources using this technology or better (i.e., expanded MACT pool of facilities) resulted in a floor level of 62 ppmv for new LWAKs.

b. Beyond-the-Floor Considerations. The MACT floor is characterized by a technology that is able to achieve a 99 percent removal efficiency. A BTF level is not warranted because the floor level is based on a technology that is able to achieve the highest removal efficiency for HCl/Cl_2. Therefore, the Agency is proposing a HCl/Cl_2 MACT standard of 62 ppmv for new LWAKs.

7. MACT New for Carbon Monoxide and Hydrocarbons

a. MACT New Floor. The Agency believes that control of non-dioxin organic emissions can be achieved by establishing emissions limits on hydrocarbons and carbon monoxide. As discussed earlier for existing LWAKs, the Agency is proposing a MACT standard of 14 ppmv for HC and of 100 ppmv for CO, based on floor levels

b. Beyond-the-Floor Considerations. EPA considered control for organic HAP emissions based on the use of a combustion gas afterburner. Even though EPA believes that BTF levels for CO of 50 ppmv and for HC of 6 ppmv are achievable with an afterburner, using these values for a BTF standard is not appropriate and is not warranted at this time (see discussion for existing LWAKs). Therefore, EPA is proposing a MACT standard of 14 ppmv for HC and of 100 ppmv for CO for new LWAKs.

8. MACT New Cost Impacts

A detailed discussion of the costs and economic impacts for new LWAKs is presented in Part Seven of today's proposal and "Regulatory Impact Assessment for Proposed Hazardous Waste Combustion MACT Standards".

C. Evaluation of Protectiveness

In order to satisfy the Agency's mandate under the Resource Conservation and Recovery Act to establish standards for facilities that manage hazardous wastes and issue permits that are protective of human health and the environment, the Agency conducted an analysis to assess the extent to which potential risks from current emissions would be reduced through implementation of MACT standards. The analysis conducted for hazardous waste-burning LWAKs is similar to the one described above for hazardous waste incinerators and cement kilns. The procedures used in the Agency's risk analyses are discussed in detail in the background document for today's proposal.[124] In evaluating the MACT standards, the Agency used the design value which is the value the Agency expects a source would have to design to in order to be assured of meeting the standard on a daily basis and hence is always a lower value than the actual standard for all HAPs controlled by a variable control technology.[125]

The risk results for hazardous waste-burning lightweight aggregate kilns are summarized in Table V.5.C.1 for cancer effects and Table V.5.C.2 for non-cancer effects for the populations of greatest interest, namely subsistence farmers, subsistence fishers, recreational anglers, and home gardeners. The results are expressed as a range representing the variation in exposures across the example facilities (and example waterbodies for surface water pathways) for the high-end and central tendency exposure characterizations across the exposure scenarios of concern. For example, because dioxins bioaccumulate in both meat and fish, the subsistence farmer and subsistence fisher scenarios are used to determine the range.[126]

TABLE V.5.C.1.—INDIVIDUAL CANCER RISK ESTIMATES FOR LIGHTWEIGHT AGGREGATE KILNS [1]

	Dioxins	Semi-volatile metals [2]	Low volatile metals [3]
Existing Sources			
Baseline	2E–9 to 4E–7	1E–8 to 5E–7	9E–10 to 4E–7.
Floor	1E–8 to 2E–6 [4]	1E–8 to 6E–8	5E–7 to 1E–5.
BTF	1E–8 to 2E–6 [5]		
New Sources			
Floor	1E–8 to 2E–6 [4]	6E–9 to 3E–8	7E–8 to 2E–6.
BTF	1E–8 to 2E–6 [5]		
CEM Option [6]		6E–8 to 3E–7	2E–7 to 5E–6.

[1] Lifetime excess cancer risk.
[2] Carcinogenic metal: cadmium.
[3] Carcinogenic metals: arsenic, beryllium, and chromium (VI).
[4] Based on 0.2 ng/dscm TEQ as both a central tendency and high-end estimate.
[5] Based on 0.20 ng/dscm TEQ.
[6] Based on SVM standard of 60 µg/dscm and LVM standard of 80 µg/dscm (applicable only if the source elects to document compliance using a multimetals CEM).)

[124] "Risk Assessment Support to the Development of Technical Standards for Emissions from Combustion Units Burning Hazardous Wastes: Background Information Document", February 20, 1996.

[125] For the semi-volatile and low volatility metals categories, the Agency assumed the source could emit up to the design value for each metal in the category for the purpose of assessing protectiveness.

[126] For the semi-volatile and low volatility metals categories, the inhalation MEI scenarios are also

TABLE V.5.C.2—INDIVIDUAL NON-CANCER RISK ESTIMATES FOR LIGHTWEIGHT AGGREGATE KILNS [1]

	Semi-volatile metals [2]	Low volatile metals [3]	Hydrogen chloride	Chlorine
Existing Sources				
Baseline	<0.001 to 0.006	<0.001 to 0.007	0.1 to 4	0.03 to 0.3.
Floor	<0.001	<0.001 to 0.08	0.8 to 1 [4]	4 to 7 [5].
BTF			0.1 to 0.2 [4]	0.6 to 1 [5].
New Sources				
Floor	<0.001	<0.001 to 0.01	0.02 to 0.04 [4]	0.1 to 0.2 [5]
BTF			0.01 to 0.02 [4]	0.07 to 0.1 [5]
CEM Option [6]	<0.001 to 0.001	<0.001 to 0.03		

[1] Hazard quotient.
[2] Cadmium and lead.
[3] Antimony, arsenic, beryllium, and chromium.
[4] HCl + Cl_2 assuming 100 percent HCl.
[5] HCl + Cl_2 assuming 10 percent Cl_2.
[6] Based on SVM standard of 60 μg/dscm and LVM standard of 80 μg/dscm (applicable only if the source elects to document compliance using a multi-metals CEM).

The risk analysis indicates that for the semi-volatile and low volatility metals categories, the MACT standards for lightweight aggregate kilns are protective at the floor for both existing and new sources. The analysis indicates that the CEM compliance option for new sources is also protective. The analysis also indicates that for dioxins, both the floor levels and the proposed beyond the floor standards are protective. The analysis also indicates that for hydrogen chloride and chlorine (Cl_2), the proposed beyond-the-floor standards for existing sources, rather than the floor levels, are protective.

VI. Achievability of the Floor Levels

As discussed in sections III, IV, and V above, the MACT floor levels were selected for each source category by identifying the best performing sources for each individual HAP or HAP surrogate. This is the approach typically used by the Agency in establishing MACT standards.

Nonetheless, the Agency recognizes that this approach raises the question of whether the selected floor levels will be achievable simultaneously.

An alternative approach that would ensure simultaneous achievability of the floor levels would be to identify the best performing sources for a particular HAP or HAP surrogate (e.g., D/F or PM) and to consider emissions only from those sources [127] to establish floor levels for the other HAPs or HAP surrogates. EPA

To address concerns relating to the simultaneous achievability of the proposed standards, which are a combination of floor and BTF emissions levels, the Agency investigated whether sources could achieve the proposed standards without making any upgrades to existing equipment. It is important to note that, under the current approach used by the agency in establishing MACT standards (i.e. the HAP by HAP approach—utilizing the highest emitting source in the expanded MACT pool), approximately 5 to 8 percent of the facilities currently operating will meet all of the proposed standards. Furthermore, subject to the data caveats noted for certain HAPs and source categories (which the Agency believes can be resolved properly), it is the opinion of the Agency that 100 percent of the facilities who use MACT floor and beyond-the-floor technologies can meet all of the proposed standards simultaneously.

Specific information and data pertaining to the analysis of simultaneous achievability can be found in "Regulatory Impact Assessment for Proposed Hazardous Waste Combustion MACT Standards".

VII. Comparison of the Proposed Emission Standards With Emission Standards for Other Combustion Devices

Although not explicitly part of the MACT standard setting process, EPA believes, for perspective, it is appropriate to compare the proposed emissions standards to those of other waste-burning devices and similar devices. (In some cases, such a comparison may show that a particular technology or level of performance is demonstrated as well.) The standards used for comparison have either been proposed by EPA or are guidelines promulgated by the European Union (EU). The standards for these various type of devices will be different for reasons including: (1) Different statutory authorities and requirements; (2) different levels of emission control for existing sources; and (3) different potential to emit high levels of specific HAPs. Nonetheless, EPA believes a comparison of standards is instructive.

Tables VII.1 and VII.2 contain the standards for municipal waste combustors (MWCs), medical waste incinerators (MWIs), EU hazardous waste combustors, and the standards proposed here for existing and new facilities, respectively.

[127] Another option would be to consider emissions from other sources that employ equivalent or better control for the other HAPs or HAP surrogates. has not used this approach because it would result in establishing unreasonably high floor levels for most HAPs or HAP surrogates that arbitrarily reflect the control devices (and emission levels) that happen to be used by sources that are

TABLE VII.1.—COMPARISON OF STANDARDS FOR EXISTING SOURCES

	Large MWCs	Proposed MWIs	EU HWCs (1)	Proposed HW incinerators	Proposed HW cement kilns	Proposed HW LWAKs
Dioxin/Furan: ng/dscm TEQ and/or Total congeners.	30 Total (or 15 if testing less frequent).	1.9 TEQ or 80 Total.	0.19 TEQ	0.20 TEQ.		
PM, mg/dscm	27	30	13 24-hr avg 13-39 30-min avg (2).	69 2-hr avg		
Hg, μg/dscm	80 or 85% Reduct	470 or 85% Reduct..	130	50 10-hr avg		72 10-hr avg.
SVM, μg/dscm	Cd: 40 Pb: 49	Cd: 50 Pb: 100	Cd: 65 Tl: 65 Pb: 130 (3)	270	57	12.
LVM, μg/dscm	none	none	1170 (3)	210	130	340.
CO, ppmv	50 to 250 4 to 24 hr avg.	50 12-hr avg	52, 24 hr avg 104, 30 min avg (4). 156, 10 min avg (4).	100 1 hr avg.	Wet and Long, Dry Kilns None. Kilns with By-pass 100 in by-pass duct (or HC cannot exceed 6.7) 1 hr avg.	100 1 hr avg.
HC, ppmv	None	None	8, 24 hr avg 8–16, 30 min avg (2).	12 1 hr avg	Wet and Long, Dry Kilns 20 in main stack 1 hr avg. Kilns with By-pass 6.7 in by-pass (or CO cannot exceed 100) 1 hr avg.	14 1 hr avg.
HCl and Cl_2, ppmv as HCl equivalents (5).	31 or 95% Reduct	42 or 97% Reduct	8, 24-hr avg 8–48, 30 min avg (2).	280	630	450.

Notes: [1] The EU HWC guidelines have been corrected from the European basis of 11% O_2 and 0°C to the US basis of 7% O_2 and 20°C. Both are expressed on dry emissions.

[2] The EU HWC PM, HC, and HCl guidelines are based either 97 % compliance with the lower number or 100% compliance with the higher number on a 30-minute average over a year.

[3] The EU LVM guideline is 1300 μg/dscm and includes Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Sn. If all metals are emitted equally, their contribution is 130 $_2$g/dscm. Pb, a SVM, was subtracted from this group, resulting in the 1170 μg/dscm level.

[4] The EU HWC CO guideline is based on either 95% compliance with the 156 ppm level on a 10 minute average or 100% compliance with the 104 ppm level on a 30-minute average in any day.

[5] The proposed MWC and MWI and the EU MWC guideline are for HCl only.

TABLE VII.2.—COMPARISON OF STANDARDS FOR NEW SOURCES

	Large MWCs	MWIs	EU HWCs [1]	Proposed HW incinerators	Proposed HW cement kilns	Proposed HW LWAKs
Dioxin/Furan: ng/dscm TEQ, and/or Total congeners	13 Total (or 7 if testing less frequent)	1.9 TEQ or 80 Total	0.19 TEQ	0.20		
PM, mg/dscm	24	30	13 24-hr avg 13–39 30-min avg [2].	69 2-hr avg		
Hg, μg/dscm	80 or 85% Reduct	470 or 85% Reduct.	6.5	50 10-hr avg		72 10-hr avg.
SVM, μg/dscm	Cd: 20 Pb: 20	Cd: 50 Pb: 100	Cd: 3.25 Tl: 3.25 Pb: 65 [3]	62	55	5.2.
LVM, μg/dscm	None	None	585 [3]	60	44	55.
CO, ppmv	50 to 150 4 to 24 hr avg.	50 12-hr avg	52, 24-hr avg 104, 30 min avg [4] 156, 10 min avg [4]	100 1 hr avg	Wet and Long, Dry Kilns None Kilns with By-pass 100 in by-pass duct (or HC cannot exceed 6.7) 1 hr avg.	100 1 hr avg.

TABLE VII.2.—COMPARISON OF STANDARDS FOR NEW SOURCES—Continued

	Large MWCs	MWIs	EU HWCs [1]	Proposed HW incinerators	Proposed HW cement kilns	Proposed HW LWAKs
HC	None	None	8, 24 hr avg 8–16, 30 min avg [2].	12 1 hr avg	Wet and Long, Dry Kilns 20 in main stack 1 hr avg Kilns with By-pass 6.7 in by-pass (or CO cannot exceed 100) 1 hr avg	14 1 hr avg.
HCl and Cl_2, ppmv as HCl equivalents [5]	25 or 95% Reduct	42 or 97% Reduct	8, 24-hr avg 8–48, 30 min avg [2]	67		62.

Notes:
[1] The EU HWC guidelines have been corrected from the European basis of 11% O_2 and 0°C to the US basis of 7% O_2 and 20°C. Both are expressed on dry emissions.
[2] The EU HWC PM, HC, and HCl guidelines are based either 97 % compliance with the lower number or 100% compliance with the higher number on a 30-minute average over a year.
[3] The EU LVM guideline is 650 µg/dscm and includes Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V, Sn. If all metals are emitted equally, their contribution to the guideline is 65 µg/dscm. Pb, a SVM, was subtracted from this group, resulting in the 585 µg/dscm level.
[4] The EU HWC CO guideline is based on either 95% compliance with the 156 ppm level on a 10 minute average or 100% compliance with the 104 ppm level on a 30-minute average in any day.
[5] The proposed MWC and MWI standards and the EU HWC guideline are for HCl only.

VIII. Alternative Floor (12 Percent) Option Results and Option to Address Variability

As described in Part 3, Section 5, EPA considered another approach (termed the "12 percent approach") to establishing the MACT floor. In this approach, the Agency selected an emissions floor level based on the average emissions of the 12 percent MACT pool and the average variability within the pool. As in the other approaches, the standards are based on HW MTEC where appropriate, 3-run averages, and a 99th percentile confidence interval.

Through the evaluation of the emissions database using this 12 percent approach, it was determined that various sources equipped with floor controls would be unable to meet the floor emission limits. EPA believes that, if this approach is used to determine emission standards, a situation would be created that is arguably inconsistent with the spirit of the Act. Furthermore, it could subject the regulated community to an undue burden—one in which some facilities in the MACT floor pool must add control equipment in addition to the recognized floor controls in order to meet the floor levels. It could also place EPA in a position of defending a floor-based standard in which the identified floor control technology does not clearly achieve the specified floor emissions levels for all of the facilities in the MACT floor pool. Although we are inclined not to use this evaluation method due to these concerns, we invite comment on this approach versus other MACT floor approaches.

Additionally, information regarding the level of protection these standards provide can be found in U.S. EPA, "Risk Assessment Support to the Development of Technical Standards for Emissions from Combustion Units Burning Hazardous Wastes: Background Information Document", February 20, 1996.

A. Summary of Results of 12 Percent Analysis

Table VIII.1 shows the results of the 12 percent floor analysis for existing sources:

TABLE VIII.1.—12 PERCENT APPROACH MACT FLOOR RESULTS[1]

HAP	Units	Incinerators	Cement kilns	LWA kilns
		Stnd	Stnd	Stnd.
D/F	µg TEQ	0.25	0.23	0.23.
Hg	µg/dscm	13	32	32.
HCl/Cl_2	ppmv	23	25	1800.
SVM	µg/dscm	53	240	61.
LVM	µg/dscm	61	46	57.
PM	gr/dscf	0.024	0.03	0.012.
CO	ppmv	100	n/a	100.
HC	ppmv	12	Main [2]:20 by pass [3]:6.7 (or CO 100).	14.

[1] All emissions levels are corrected to 7 percent O_2.
[2] Applicable only to long wet and dry process cement kilns (i.e., not applicable to preheater and/or precalciner kilns).
[3] Emissions standards applicable only for cement kilns configured with a by-pass duct (typically preheater and/or precalciner kilns). Sources must comply with either the HC or CO standard in the by-pass stack.

Table VIII.2 shows the results of the 12 percent approach considering BTF analyses for select HAPs for existing sources:

TABLE VIII.2.—12 PERCENT APPROACH BTF OPTION[1]

HAP	Units	Incinerators	Cement kilns	LWA kilns
		Stnd	Stnd	Stnd
D/F	µg TEQ	0.25	0.23	0.23.
Hg.				
Hg	µg/dscm	13	8	8.
HCl/Cl_2	ppmv	23	25	67.
SVM	µg/dscm	53	240	61.
LVM	µg/dscm	61	46	57.
PM	gr/dscf	0.024	0.03	0.012.
CO	ppmv	100	n/a	100.
HC	ppmv	12	Main [2]:20 bypass [3]:6.7 (or CO 100).	14.

[1] All emissions are corrected to 7 percent O.
[2] Applicable only to long wet and dry kilns (i.e., not applicable to preheater and/or precalciner kilns).
[3] Emissions standard applicable only for cement kilns configured with a by-pass duct (typically preheater and/or precalciner kilns). Source must comply with either the HC or CO standard in the by-pass stack.

Information pertaining to the calculation of these floor emission levels can be found in U.S. EPA, "Draft Technical Support Document for HWC MACT Standards, Volume III: Selection of Proposed MACT Standards and Technologies".

B. Summary of MACT Floor Cost Impacts and Emissions Reductions.

Under the 12 percent approach, the total national annualized compliance costs for existing sources to meet the MACT floor levels are estimated to be: (1) for incinerators, $28 million, with the cost per facility averaging $971,000; (2) for cement kilns, $59 million, with the cost per facility averaging $879,000; and (3) for LWAKs, $3 million, with the cost per facility averaging $860,000. These total compliance costs equate to $49 per ton of hazardous waste burned for incinerators, $65 per ton of hazardous waste burned for cement kilns, and $52 per ton of hazardous waste burned for LWAKs. EPA estimates that up to four commercial incinerators will cease burning hazardous waste due to the compliance costs associated at the floor, in addition to three cement kilns and one lightweight aggregate kiln. However, we also believe that the these estimates are exaggerated because they are based on emissions levels determined during trial burns and compliance performance tests, which produce emissions far in excess of the emission levels most facilities achieve in day-to-day operation.

There would be substantial emissions reductions at the MACT floor level, compared to baseline emissions. Table VIII.3 summarizes the estimated national emissions for incinerators if the facilities were operating at a level to meet the 12 percent MACT floor level. Also, the estimated percent reduction of HAP emissions from baseline are shown. Tables VIII.4 and VIII.5 show similar results for cement and lightweight aggregate kilns.

TABLE VIII.3.—NATIONAL EMISSIONS ESTIMATES FOR INCINERATORS 12 PERCENT MACT APPROACH

HAP	Annual emissions at MACT floor level	Percent reduction from baseline emissions (percent)
Dioxin/Furans (TEQ)	3.0 grams TEQ/yr	96
Mercury	0.2 tons/year	96
SVM (Cd, Pb)	1.0 tons/year	98
LVM (As, Cr, Sb, Be)	0.8 tons/year	97
HCl/Cl_2	293 tons/year	83
Particulate Matter	650 tons/year	67

TABLE VIII.4.—NATIONAL EMISSIONS ESTIMATES FOR CEMENT KILNS 12 PERCENT MACT APPROACH

HAP	Annual emissions at MACT floor level	Percent reduction from baseline emissions (percent)
Dioxin/Furans (TEQ)	7.0 grams TEQ/yr	99
Mercury	1.7 tons/year	71
SVM (Cd, Pb)	4.0 tons/year	87
LVM (As, Cr, Sb, Be)	0.9 tons/year	73
HCl/Cl_2	761 tons/year	71
Particulate Matter	1877 tons/year	56

TABLE VIII.5.—NATIONAL EMISSIONS ESTIMATES FOR LWAKS 12 PERCENT MACT APPROACH

HAP	Annual emissions at MACT floor level	Percent reduction from baseline emissions
Dioxin/Furans (TEQ)	(not determined) [128]	(not determined)
Mercury	0.03 tons/year	91%.
SVM (Cd, Pb)	0.04 tons/year	94%.
LVM (As, Cr, Sb, Be)	0.07 tons/year	67%.
HCl/Cl_2	2760 tons/year	9%.
Particulate Matter	26 tons/year	45%.

C. Alternative Floor Option: Percent Reduction Refinement

The Agency is also considering whether to use a refinement technique in establishing the MACT floor that would modify either the 6 percent approach, used as the basis of today's proposal, or the 12 percent option discussed previously. This refinement attempts to address the unfavorable conditions (i.e. worst-case trial burn or COC testing) under which the emissions data was generated.

As discussed elsewhere, EPA is concerned that our hazardous waste emissions database is biased high due to the operating conditions that generated the data (e.g., metals and chlorine spiking, non-optimal APCD performance). Therefore, the analysis of this database results in floor levels that are artificially inflated and not adequately representative of day-to-day emissions levels. One simplified option to address this concern is to apply a "percent reduction" to the calculated floor levels derived from either the 6 percent or 12 percent approach. We invite comment on this approach particularly with respect to the appropriate percent reduction(s) to be applied. We also solicit information and data based on routine facility operations and emissions levels that could be used to calculate MACT floors that better reflect day-to-day operations and that would avoid the potential difficulties in attempting to determine the appropriate percent reduction(s) to be used.

IX. Additional Data for Comment

The Agency has received submissions from various stakeholders detailing alternative approaches to establish MACT floor and beyond-the-floor levels. The Agency has placed these submissions into the docket [129] for this rulemaking and specifically requests comment on the approaches used and the emission levels identified. This section provides some information on analyses conducted by the Cement Kiln Recycling Coalition and Waste Technologies Industries to determine MACT and MACT floor levels.

A. Data from Cement Kiln Recycling Coalition

The Cement Kiln Recycling Coalition (CKRC) is a trade association with a membership comprised of cement companies that burn hazardous waste fuel and related companies engaged in the processing and marketing of these fuels. CKRC conducted a technical analysis of the hazardous waste-burning cement kiln's emissions database, identified the best performing sources and MACT control technology, and determined MACT floor emission levels for dioxin and furans and six metal HAPs. CKRC's initial analysis specified separate MACT floor levels based on cement kiln process type (i.e., separate floors were developed for cement kilns employing dry production processes and wet production processes).[130] The MACT floor results are provided in Table IX.A.1 below.

TABLE IX.A.1.—CKRC'S PROPOSED MACT FLOOR EMISSION LEVELS FOR EXISTING CEMENT KILNS (BASED ON DRY AND WET PROCESS SUB-CATEGORIES)

HAP	Dry process CKs	Wet Process CKs
Arsenic	3 μg/dscm	32 μg/dscm.
Beryllium	0.3 μg/dscm	24 μg/dscm.
Cadmium	30 μg/dscm	62 μg/dscm.
Chromium	485 μg/dscm	125 μg/dscm.
Chromium (VI)	8 μg/dscm	29 μg/dscm.
Lead	143 μg/dscm	911 μg/dscm.
Mercury	NA	96 μg/dscm.
Dioxins/Furans	1.7 ng/dscm (TEQ)	2.0 ng/dscm (TEQ).

While CKRC states that sub-categorization is appropriate, they have analyzed recent data based on no sub-categorization and arrived at the floor levels and (generally) achievable beyond-the-floor (BTF) levels presented in Table IX.A.2.[131] Note that this subsequent re-analysis does not differentiate cement kilns by process type (i.e., wet and dry process). CKRC also emphasizes that the levels identified in Table IX.A.2 were derived assuming testing under normal facility operating conditions using hazardous waste as a fuel and does not reflect use

[128] The database is insufficient to make a realistic determination of the emissions at the baseline or for the 12 percent option.

[129] In addition to the submission discussed in this section, the petitions in the docket for this rulemaking include: (1) Hazardous Waste Treatment Council (now Environmental Technology Council), "Petition for Rulemaking under the Resource Conservation and Recovery Act to Establish Uniform National Performance Standards for all Combustion Facilities based on the Best Available Technology", May 18, 1994; and (2) Cement Kiln Recycling Coalition, "Petition for Rulemaking under the Resource Conservation and Recovery Act to Modify the Rules for the Burning of Hazardous Waste", January 18, 1994.

[130] Environmental Risk Sciences Incorporated (prepared for CKRC), "An Analysis of Technical Issues Pertaining to the Determination of MACT Standards for the Waste Recycling Segment of the Cement Industry" (Volumes I–III), May 3, 1995.

[131] Letter from Craig Campbell, CKRC, to James Berlow, U.S. EPA, undated but received February 20, 1996.

of continuous emissions monitors for PM or individual HAPs. In addition, CKRC emphasizes that, because of natural variations found in the cement industry (e.g., high levels of metals in some raw materials), not all kilns may be able to achieve these levels. CKRC believes this reinforces the need for the ability to make site-specific adjustments to the limits.

TABLE IX.A.2.—CKRC'S ALTERNATE MACT FLOOR AND BEYOND-THE-FLOOR LEVELS FOR EXISTING CEMENT KILNS (NO SUB-CATEGORIZATION)

HAP	MACT floor level	BTF levels
Particulate matter	0.030 gr/dscf	0.025 gr/dscf.
Mercury	118 µg/dscm	80 µg/dscm.
Semivolatile metals	261 µg/dscm	150 µg/dscm.
Low-volatile metals	229 µg/dscm	130 µg/dscm.

We invite comment on CKRC's approach to identify MACT floor and BTF levels.

CKRC presented this re-analysis of MACT emissions levels in tandem with a recommendation that monitoring metals levels in collected cement kiln dust (CKD) is a more effective approach to ensure compliance with metals emission standards than monitoring the feedrate of metals in all feedstreams. CKRC suggested that CKD monitoring for metals should be used until CEM technologies become a workable alternative. Although CKD monitoring for metals is currently allowed under the BIF rule in lieu of feedstream monitoring and the same methodology is incorporated into today's proposal (see proposed § 63.1210(n)(2)), CKRC has suggested revisions to the methodology to make it more workable. See Part Five, Section II.C.4.c.v of this preamble for a discussion of CKRC's recommendations.

B. Data from Waste Technologies Industries

Waste Technologies Industries (WTI) has submitted data and information to the Agency pertaining to identification of MACT floor levels for incinerators.[132] WTI raises the following issues: (1) in determining MACT floor, the Agency has not considered all of WTI's emissions data that have been submitted to the Agency; and (2) the Agency should subdivide the incinerator source category to develop separate MACT standards for commercial versus on-site incinerators.

We have investigated WTI's concern about not considering its emissions data and, based on a preliminary analysis, determined that WTI's data would not affect the MACT floor levels that the Agency has identified for existing or new incinerators.[133]

WTI is recommending that the Agency subdivide incinerators to develop separate standards for commercial and on-site sources. WTI notes that its emissions levels are substantially lower than the standards that (it believes) EPA is considering for proposal. In addition, WTI presents what it believes are appropriate MACT limitations for existing commercial, off-site incinerators.[134] The table below compares WTI's suggested MACT limitations for commercial incinerators to the Agency's proposed standards:

Pollutant	WTI's recommended standard	EPA's proposed standard
PM (mg/dscm)	33 (0.01 gr/dscf)	69 (0.03 gr/dscf).
SVM (µg/dscm)	167	270.
LVM (µg/dscm)	72	210.

We invite comment on whether incinerators should be subdivided by commercial, off-site units versus on-site units. Commenters should consider the criteria EPA uses to determine whether to subdivide a source category as discussed above in Section I of Part Four of this preamble. We also invite comment on WTI's approach to identify MACT limitations for commercial, off-site incinerators.

PART FIVE: IMPLEMENTATION

I. Selection of Compliance Dates

Sections A and B below explain when existing and new facilities, respectively, would have to document compliance with the proposed MACT standards. Section C presents a proposal for a one year compliance extension in order to institute pollution prevention/waste minimization measures.

EPA is proposing a different definition of compliance date for HWCs than is provided by existing 40 CFR § 63.2. Although that section defines compliance date as the date when a source must be in compliance with the standards, 40 CFR § 63.7 requires performance testing to document compliance with the emission standards (and performance evaluations to document compliance with requirements for continuous monitoring systems) after the compliance date. This use of the term "compliance date" is not consistent with the current RCRA definition and regulatory requirements for HWCs.

To achieve more consistency and to avoid potential duplication and conflict, the Agency is proposing to define compliance date for HWCs in § 63.1201 as the date when a HWC must submit the initial notification of compliance. In addition, notification of compliance would be defined as a notification in which the owner and operator certify, *after completion of performance evaluations and tests,* that the HWC meets the emissions standards, CMS, and other requirements of Subpart EEE, Part 63, including establishing operating limits to meet standards for which compliance is not based on a CEM.

[132] Letter from Barry Direnfeld, Swidler & Berlin, to Michael Shapiro, dated January 23, 1996, with an attached letter from Fred Sigg, Von Roll/WTI, to Sally Katzen, Office of Management and Budget, dated January 19, 1996.

[133] See memorandum from Bruce Springsteen, EER, to Shiva Garg, EPA, dated February 26, 1996, entitled "Determination of the effects of the inclusion of new WTI test burn data on the MACT floors."

[134] See letter from Gary Liberson, Environmental Risk Sciences, to Michael Shapiro, EPA, dated February 21, 1996.

For HWCs, initial compliance would thus mean that a facility has: (1) completed all modifications necessary to meet the standards; (2) conducted all emissions tests to verify compliance and set operating limits; (3) installed and satisfactorily performance tested all continuous monitoring systems (CMS) including continuous emissions monitors (CEMS); and (4) postmarked a letter to the director that transmits the (successful) emission results of the initial comprehensive performance test, performance test results for CMS, and all operating limits, and that states the facility is in compliance. Requirements to ensure compliance after the initial compliance notification are discussed in the preamble in Section II of Part Five.

A. Existing Sources

EPA proposes that a facility be in compliance with these standards within three years after the date of publication of the final rule in the **Federal Register** (which is also the effective date of the rule). See proposed § 63.1206(a). EPA believes that the vast majority of sources (approximately 90 to 95 percent) would require substantial modifications to operating and/or emission control equipment to comply with the proposed standards. Three years is a reasonable estimate of the time it will take for a facility to: read and analyze the final rule; conduct tests to identify cost-effective approaches to comply with the standards; complete the engineering analysis and design; fabricate, install, start up and shake down the modified facility; conduct preliminary emissions tests; conduct formal compliance testing; analyze samples and evaluate test results; prepare the notification of compliance; and obtain management certification of the results.

Nonetheless, the Agency believes that some sources would be able to comply with the rule (i.e., submit a notification of compliance) before three years after the date of publication of the final rule. For example, some sources may require only minor modifications to emission control equipment and could comply substantially sooner than sources that need a major retrofit. Accordingly, we invite comment on how such sources could be identified and strategies that could be used to encourage or require them to comply at the earliest possible date.

We note that the CAAA allows a maximum compliance period of three years (see § 112(I)(3)(A)), unless a waiver is granted on a case-specific basis. Section 63.6(i)(4)(i)(A) provides for a one year time extension "if such additional time period is necessary for the installation of controls." If an owner or operator needs to modify the RCRA permit in order to allow modifications to the facility necessary to comply with the MACT standards, we believe inability to comply with the MACT standards within three years because of the need to modify the RCRA permit could constitute a valid reason for granting a time extension under § 63.6(i). See discussion below. That is, the modification to the RCRA permit would be needed "for the installation of controls."

Sources with RCRA permits can modify their facilities only after complying with the permit modification procedures of 40 CFR 270.42. If an owner and operator make a good faith effort to obtain the permit modification in time to submit a notification of compliance under today's proposed rule within three years of the effective date but cannot do so for reasons beyond their control (for example, the state in which the facility is located is in the process of receiving oversight authority, or the Agency is unable to respond in a timely manner to all permit modification requests), the Administrator may grant a one-year time extension.

Note also that, as discussed above, the one-year time extension provided by § 63.6(i) applies to a different definition of compliance than that proposed by today's rule for HWCs. By the date of compliance under this proposal, a HWC must have submitted a notification of compliance as defined above. Thus, although we are proposing a one-year time extension for initial compliance for HWCs using the procedures established in existing § 63.6(i), a HWC must submit a notification of compliance by the end of the time extension, if granted, while other MACT sources would continue under the current rules unamended (i.e., they would conduct their performance test after the end of the time extension). See existing § 63.7(a).

A special case for HWCs exists for an existing unit that would not be subject to regulation on the effective date of this rule because it does not burn a hazardous waste but which subsequently becomes subject to regulation under today's proposed MACT standards because one of its waste streams later becomes a newly identified or listed hazardous waste. In this case, we propose that the facility be considered an "existing source", since it would be inappropriate to apply new source MACT to a facility which has not altered its conduct, and which only becomes subject to this rule because of additional regulatory action taken by EPA (or an authorized state). Such a facility would have three years after the date of publication in the **Federal Register** of the final rule listing the waste as hazardous to come into compliance with these regulations.[135]

Finally, EPA wants to ensure that only those facilities that plan to comply with the new regulations are allowed to burn hazardous waste during the compliance period. Accordingly, the rule would provide that, if the owner or operator of an existing source did not submit a notification of compliance by the applicable date, the source must immediately stop burning hazardous waste when the owner or operator first determines that the notification will not be submitted by the applicable date (i.e., following the effective date, but well before the compliance deadline) and could not resume burning hazardous waste except under the requirements for new MACT sources. To comply with the deadline for the initial notification of compliance, a source will have had to begin making preparations well in advance of the deadline. We invite comment on strategies that could be used to determine when a source could realistically determine whether or not it will meet the notification deadline and comply with the new standards.

We note that there would also be substantial RCRA implications for a facility that does not comply with the applicable deadlines in a timely fashion. In particular, the source could not resume burning hazardous waste without being issued a RCRA operating permit. Further, if the source had already been issued a RCRA operating permit, hazardous waste could only be burned (after missing the deadline for submitting an initial notification of compliance) for a total of 720 hours and only for the purpose of pretesting or comprehensive performance testing. Finally, if a source with a RCRA operating permit failed to submit an initial notification of compliance by the deadline, the source must, within 90 days of missing the initial notification of compliance, either submit a notification of compliance with MACT new standards or begin RCRA closure procedures unless the Administrator grants an extension of time in writing prior to the 90-day deadline for good cause. Examples of good cause that the Agency would be willing to evaluate

[135] Note that in other cases, an existing source that begins to burn hazardous waste after the effective date of this rule (and therefore changes its conduct) is classified as a new source and would have to comply with today's rules when the hazardous waste is first burned. The source would also have to obtain a RCRA operating permit before commencing hazardous waste management activities since it would be ineligible for interim status (assuming it is conducting no other hazardous waste management activities).

are: the facility now must undergo significant modifications in order to comply with the more stringent MACT new standards that will take longer to complete than the deadline allows, or the facility must contract for substantial new services in order to show compliance with the new standards.

EPA believes that these requirements are necessary to ensure that owners and operators that elect not to comply with the standards do not continue to burn hazardous waste beyond the date on which the source determines that they will not comply with the promulgated standards.

B. New Sources

Section 63.6 states that new or reconstructed sources "shall comply with such standard[s] upon startup of the source." See also proposed § 63.1206(b). One exception, *available only to facilities which commence construction between proposal and promulgation,* is in the instance where a standard more stringent than the one proposed is promulgated. In this instance, three years can be granted for the new source to be in compliance with the standard which is more stringent. The new source shall be in compliance upon startup with all standards which are not more stringent than those proposed. Section 63.2 defines new source as "* * * any affected source the construction or reconstruction of which is commenced after the Administrator first proposes a relevant emission standard * * * ." For discussion on reconstruction, see section VII.C. of this part of this preamble.

C. One Year Extensions for Pollution Prevention/Waste Minimization

EPA is also seeking comment on a proposal to consider extension of compliance deadlines for up to one year beyond the three year deadline from the date of promulgation of this rule, on a case-by-case basis, for facilities which request an extension to implement pollution prevention/waste minimization measures that will enable the facility to meet MACT standards and that cannot practically be implemented within the three year compliance deadline.

During development of the Hazardous Waste Minimization National Plan (released in 1994), some companies pointed out that short compliance deadlines after the promulgation of some rules have precluded them from completing necessary pollution prevention planning and implementation that would facilitate meeting compliance requirements through source reduction and environmentally sound recycling. As a result, companies opt for installing often expensive "end-of-pipe" pollution controls in order to meet compliance deadlines. In addition, once capital has been sunk into end-of-pipe pollution controls which are large enough to handle current and future waste volumes, there is little incentive for companies to then spend money exploring pollution prevention/waste minimization options.

EPA believes that the three year compliance deadline for meeting the MACT standards in this rulemaking should in most cases be sufficient for a facility to complete the pollution prevention planning and implementation that might be necessary to meet MACT standards. In cases where facilities can provide information that shows that additional time is necessary to complete this process, EPA is proposing to grant up to a one year extension for facilities to complete pollution prevention planning and implementation, and to satisfy all of the procedures in this rule for demonstrating compliance. This proposed extension is consistent with other portions of today's proposal, including the section on permitting procedures which describes pollution prevention/waste minimization options during the permitting process.

II. Selection of Proposed Monitoring Requirements

Section 114(a) of the CAA requires monitoring to ensure compliance with the standards and the submission of periodic compliance certifications for all major stationary sources. Given that all HWCs are subject to regulation as major sources, the proposed compliance monitoring requirements discussed below would apply to all HWCs.

In this section we discuss the following: (a) the compliance monitoring hierarchy; (b) how operations during comprehensive performance testing would be used to establish limits for operating parameters; (c) for each emission standard, requirements for continuous emissions monitors (if any) and limits on operating parameters to ensure compliance; (d) compliance with controls on fugitive combustion emissions; (e) requirements for automatic waste feed cutoffs and emergency safety vent openings; (f) quality assurance requirements for continuous monitoring systems (CMS); and (g) protocols to ensure and document compliance.

A. Monitoring Hierarchy

The proposed compliance monitoring requirements were developed by examining the hierarchy of monitoring options available for specific processes, pollutants, and control equipment. The approach involves describing, on an emission standard specific basis, what monitoring is required for a source to be in compliance. This approach was also used for the secondary lead smelter MACT (59 FR at 29772, June 9, 1994), another rule where the sources process hazardous waste.

The monitoring hierarchy is three-tiered. The top tier of the monitoring hierarchy is the use of a continuous emissions monitor system (CEMS, also known as "CEM") for that HAP or standard. In the absence of a CEMS for that HAP or standard, the second tier is the use of a CEMS for a surrogate of that HAP or standard and, when necessary, setting some operating limits to account for the limitations of using surrogates. Lacking a CEMS for either, EPA sets appropriate feedstream and operating parameter limits to ensure compliance and requires periodic testing of the source. In developing this proposal each tier of the hierarchy was evaluated relative to its technical feasibility, cost, ease of implementation, and relevance to its underlying process emission limit or control device.

The proposed standards for hazardous waste combustors contain monitoring requirements for process stack emissions and combustion fugitive emissions. The proposed standards require either pollutant monitoring directly through the use of a CEMS, surrogate monitoring through the use of a CEMS, and/or parameter monitoring that indicates proper operation and maintenance of a control device. Recordkeeping is also required to ensure that specific work practices are being followed. Section VI of this part discusses recordkeeping.

B. Use of Comprehensive Performance Test Data to Establish Operating Limits

Limits on operating parameters (e.g., feedrate limits, temperature limits) would be based on levels that are achieved during the comprehensive performance test. See section III of this part for the discussion on comprehensive performance tests.

1. Averaging Periods for Limits on Operating Parameters

The Agency is proposing various averaging periods for the limits on operating parameters: a ten-minute rolling average; a one-hour rolling average; and a 12-hour rolling average.[136] To show compliance with any of these rolling averages with respect to operating parameters that are established based on levels achieved during the comprehensive performance test (rather than on manufacturer specifications), the monitor must make a measurement of the parameter at least once each 15 seconds, and four 15-second measurements must be averaged each minute to determine a one-minute average. Then, each one-minute average is considered along with the previous one-minute averages over the averaging period to calculate a new rolling average level each minute. Thus, irrespective of the averaging period, a new rolling average level is calculated each minute.

The duration of the averaging period affects the number of one-minute averages used to calculate the level. For example, if a limit is based on a 12-hour rolling average, each new one-minute average is added to the previous 719 one-minute average values to calculate a new 12-hour rolling average value each minute.

A ten-minute average is proposed when the Agency is concerned that short-term perturbations above the limit will result in high emissions that cannot be offset by lower emissions during periods of more appropriate operation.[137] Since the ten-minute average is used to control short-term perturbations and does not control average emissions, it will always be used with a one hour average designed to control average emissions. (An exception is when the 10-minute average is used to control a design specification of the APCD manufacturer. In this event, a ten-minute average may be used alone.) It could be argued that a short term averaging period other than ten minutes could be used. However, the Agency is concerned about setting the averaging period shorter than 10 minutes. Shorter averaging periods would result in more extreme (i.e., absolute maximum or minimum) limits and could lead to higher emissions. Conversely, EPA could set a short-term averaging period longer than ten minutes, but believes that ten minutes is an appropriate, achievable, conservative, and reasonable duration for the short averaging period.

A one-hour averaging period is proposed in instances where the Agency is less concerned about perturbations and/or wants to limit average emissions.[138] Hourly rolling averages are currently required under the BIF rule and are required for some incinerators. The value of one-hour averages will tend to be less extreme than 10-minute averages since perturbations are averaged out over more normal data and, thus, are better at controlling average emissions than 10-minute averages. It could be argued that an averaging period shorter than one hour would be appropriate, but EPA is selecting a ten-minute average to control perturbations and believes this is sufficient. It could be argued that averaging periods longer than one hour could also be appropriate, but setting limits on operating parameters is at the bottom of the monitoring hierarchy and, as such, a conservative approach is preferable.

The twelve-hour averages are being proposed in instances when the Agency wants to control average emissions and is concerned that the one-hour average may not be achievable or may be overly restrictive. Twelve-hour averages are proposed only for feedrates: metals and chlorine. For each of these, feedstream analysis is necessary to determine the concentration in each of the feedstreams and this makes using an averaging period shorter than twelve hours problematic. EPA could use an averaging period longer than twelve hours, but believes that twelve hours is achievable. EPA is concerned about this 12-hour average in that it may be inconsistent with averaging periods for CEMS; namely, it is longer than the metals, HCl, Cl_2, or PM averaging periods. A 12-hour average is inconsistent because, at the top of the monitoring hierarchy, CEMS averaging periods should be longer, i.e., less conservative, than feedstream monitoring, at the bottom of the hierarchy. EPA invites comment on this issue. Alternate averaging periods for chlorine and metals feedrates are discussed below in the appropriate sections.

As noted earlier, for compliance with these averaging periods, EPA proposes that averages be calculated every minute on a rolling-average basis. It is also proposed that the one-minute average be the average of the previous four measurements taken at 15-second intervals. This is the approach required by the BIF rule. All 15-second measurements would be used without smoothing, rounding, or data checks. No 15-second observations may be "thrown out" for any reason.

2. How Limits Would Be Established from Comprehensive Test Data

This section explains how operating limits for the averaging periods discussed above are established from the comprehensive test data. Note that all averages are rolling averages, based on a one-minute average.

Ten-minute rolling averages would be established as the average over all comprehensive test runs of the highest or lowest (as specified) ten-minute rolling average for each run.

One of two approaches would be specified to establish limits on an hourly rolling average basis: an average level or an average of the highest or lowest (as specified) hourly rolling average. In most cases, it is derived by averaging all of the one-minute averages during all the runs of the comprehensive performance test. In the few cases when an average of the maximum hourly rolling averages is specified, the limit is derived by taking the average of the highest hourly average for each run of the comprehensive performance test.

Twelve-hour rolling averages for feedstreams would be derived by averaging all of the one-minute averages during all the runs of the comprehensive performance test irrespective of the total duration of the test.[139] Separate twelve-hour averages would apply to all feed locations.

3. Example of How Limits Would Be Established

For example, if a facility were to have a fabric filter (FF), it might have a limit on maximum FF inlet temperature on a ten-minute average to ensure compliance with the dioxin and furan standard. If this is the case, during the comprehensive performance test, the facility would monitor FF inlet temperature. The facility would then take the highest single ten-minute rolling averages of FF inlet temperature from each of the three comprehensive test runs and average them together. If these single largest ten minute rolling averages from each of the three runs were 140, 150, and 160°C, then the maximum ten-minute rolling average for FF inlet temperature would be 150°C.

If the same parameter were also to have an hourly rolling average based on all data from all runs, the facility would

[136] We note that today's rule would establish an instantaneous limit, i.e., a limit where no averaging is allowed, to ensure that less than ambient pressure is maintained in the combustion system at all times to control fugitive combustion emissions.

[137] An example is for inlet temperature to dry PM APCDs to control dioxin. Dioxin increases exponentially with increasing temperature, so a short-term increase in temperature will not be offset by short-term decreases in dioxin emissions.

[138] An example is flue gas flowrate. This parameter is important, but slight increases in flow rate can be offset by proportionate decreases in flowrate. Therefore, average flowrate is important without regard to perturbations.

[139] Or, if the source elects to define different operating modes and conduct performance testing under each mode, the one-minute averages would be averaged for all runs for each test condition (representing each mode of operation).

sum up all one-minute averages occurring during the comprehensive performance test and average them together. This would become the hourly rolling average for this parameter.

Twelve-hour feedrate limits are calculated similarly. For SVM, the facility would sum the total feed from all runs of the comprehensive performance test and divide that sum by the number of minutes of all three runs of the comprehensive test. For this example, assume that both Cd and Pb are fed during the comprehensive performance test, that the feedrate for Cd was 5, 30, and 25 and for Pb was 100, 70, and 85 for each of the three runs of the comprehensive performance test and that the time duration of each run was 205, 230, and 195 minutes. The total amount of SVM fed would be 315 and the time duration of the test would be 630 minutes. Therefore, the SVM limit would be 315, divided by 630 minutes, or 0.50. During normal operation the SVM feedrate would be calculated every minute to ensure it does not exceed the 0.50 SVM limit by averaging the current and previous 719 one-minute averages.

C. Compliance Monitoring Requirements

Monitoring requirements are proposed to ensure compliance with the following emission standards: dioxin and furan (D/F), mercury (Hg), semivolatile metals (SVM), low-volatile metals (LVM), carbon monoxide (CO), hydrocarbons (HC), hydrochloric acid (HCl) and chlorine gas (Cl2) (combined and reported as HCl), and particulate matter (PM). See proposed § 63.1210. Monitoring requirements for combustion fugitive emissions are proposed as well.

Table V.2.1 summarizes today's proposed compliance monitoring requirements.

1. Continued Applicability of RCRA Omnibus Authority

When a RCRA operating permit is issued under Part 270 after a source has submitted its initial notification of compliance with the proposed MACT standards, a permit writer would continue to have the discretion currently provided by § 264.345(b)(6) of the incinerator standards and §§ 266.102(e) subparagraphs (2)(i)(G), (3)(i)(E), (4)(ii)(J), (4)(iii)(J), and (5)(i)(G) of the BIF standards to supplement these operating parameter limits as necessary to protect human health and the environment on a site-specific basis to ensure that today's proposed emission standards are being met. This means the RCRA permit writer's authority to use instantaneous limits or averaging periods other than those specified here, or require operating parameters in addition to those specified here, is maintained during the RCRA permitting process. See proposed §§ 264.340(b)(2)(iii) and 266.102(a)(2)(ii).

TABLE V.2.1.—SUMMARY TABLE OF PROPOSED MONITORING REQUIREMENTS

Device	Parameter	D/F	Hg	PM	SVM	LVM	CO & HC	HCl & Cl_2	Limits from	Avg period	Limits set as
Continuous Monitor.	Stack CEMS	....	✔	✔	(1)	(1)	✔	(1)	CEMS Stnds.	varies	Units of Standard.
	Max Inlet Temp to Dry PM APCD.	✔	(2)	....	✔	✔	....	....	Comp Test.	10 min 1 hour	Avg of Max 10 min RA. Avg over all runs.
Carbon Injection.	Min Carbon Injection Feedrate (Carbon Feed through Injector).	✔	(2)	....	....	....	....	....	Comp Test.	10 min 1 hour	Avg of Min 10 min RA. Avg over all runs.
	Min Carrier Fluid Flowrate or Nozzle Pressure Drop.	✔	(2)	....	....	....	....	....	Manuf Spec.	10 min	
	Carbon Specs	✔	(2)	....	....	....	....	....	Comp Test.	n/a	Same brand and type.
Carbon Bed.	Max Age of Carbon (Time in-use).	✔	(2)	....	....	....	....	....	Initial Comp Test.	n/a	Manuf specs (no C aging).
		....							Conf Tests.	n/a	Normal C Change-out Schedule.
		....							Sub. Comp. Tests.	n/a	Max C Age is the age during subsequent Comp Tests.
	Carbon Specs	✔	(2)	....	....	....	....	....	Comp Test.	n/a	Same brand and type.
Dioxin Inhibitor.	Min Inhibitor Feedrate.	✔	....	....	....	....	....	....	Comp Test.	10 min 1 hour	Avg of Min 10 min RA. Avg over all runs.
	Inhibitor Specifications.	✔	....	....	....	....	....	....	Comp Test.	n/a	Same brand and type.

TABLE V.2.1.—SUMMARY TABLE OF PROPOSED MONITORING REQUIREMENTS—Continued

Device	Parameter	D/F	Hg	PM	SVM	LVM	CO & HC	HCl & Cl_2	Limits from	Avg period	Limits set as
Catalytic Oxidizer.	Min Fine Gas Temp at Entrance.	✔	....	....	....	....	....	....	Comp Test.	10 min 1 hour	Avg of Min 10 min RA. Avg over all runs.
	Max Age (Time in-use).	✔	....	....	....	....	....	....	Manuf Spec.	As specified..	
	Catalyst Replacement Specs:. —Catalytic Metal Loading (each metal). —Space Time —Substrate Construction (mat'ls, pore size).	✔	....	....	....	....	....	....	Comp Test.	n/a	Same as used during previous Comp Test.
	Max Flue Gas Temp at Entrance.	✔	....	....	....	....	....	....	Manuf Spec.	10 min	As specified.
Good Combustion.	Maximun Batch Size, Feeding Frequency, and Minimum Oxygen Concentration.	✔	....	....	....	....	....	....	Comp Test.	n/a	Lightest batch fed. Least frequent feeding Highest O_2 level.
	Max Waste Feedrate.	✔	....	....	....	....	....	....	Comp Test.	1 hour	Avg of Max 1 hour RA.
	Min Comb Chamber Temp (Exit of Each Chamber).	✔	....	....	....	....	....	....	Comp Test.	10 min 1 hour	Avg of Min 10 min. RA Avg over all runs.
Good Combustion and APCD Efficiency.	Max Flue Gas Flowrate or Production Rage.	✔	(2)	(2)	(2)	(2)	....	✔	Comp Test.	1 hour	Avg of Max 1 hour RA.
Feed Control.	Max Total Metals Feedrate (all streams).	....	(2)	....	✔	✔	....	....	Comp Test.	12 hour	Avg over all runs.
	Max Pumpable Liquid Metals Feedrate.	....	....	....	....	✔	....	....			
	Max Total Ash Feedrate (all streams).	....	....	(2)	....	....	....	....	Comp Test.	12 hour	Avg over all runs.
	Max Total Chlorine Feedrate (all streams).	....	....	....	✔	✔	....	✔	Comp Test.	12 hour	Avg over all runs.
Wet Scrubber.	Min Press Drop Across Scrubber.	(2)	(2)	(2)	(2)	(2)	....	✔	Comp Test.	10 min 1 hour	Avg of Min 10 min RA Avg over all runs.
	Min Liquid Feed Press.	(2)	(2)	(2)	(2)	(2)	....	✔	Manuf Spec.	10 min	n/a
	Min Liquid pH	....	(2)	....	....	....	....	✔	Comp Test.	10 min 1 hour	Avg of Min 10 min RA Avg over all runs.
	Min Blowdown (Liq Flowrate) or Max Solid Content in Liq.	(2)	(2)	(2)	(2)	(2)	....	....	Comp Test.	10 min 1 hour	Avg of Min/Max 10 min RA Avg over all runs.

TABLE V.2.1.—SUMMARY TABLE OF PROPOSED MONITORING REQUIREMENTS—Continued

Device	Parameter	D/F	Hg	PM	SVM	LVM	CO & HC	HCl & Cl_2	Limits from	Avg period	Limits set as
	Min Liq Flow to Gas Flow Ratio.	(2)	(2)	(2)	(2)	(2)	....	✔	Comp Test.	10 min 1 hour	Avg of Min 10 min RA Avg over all runs.
Ionizing Wet Scrubber.	Min Press Drop Across Scrubber.	(2)	(2)	(2)	(2)	(2)	....	✔	Comp Test.	10 min 1 hour	Avg of Min 10 min RA Avg over all runs.
	Min Liquid Feed Pressure.	(2)	(2)	(2)	(2)	(2)	....	✔	Manuf Spec.	10 min	n/a
	Min Blowdown (Liq Flowrate) or Max Solid Content in Liq.	(2)	(2)	(2)	(2)	(2)	....	....	Comp Test.	10 min 1 hour	Avg of Min/Max 10 min RA Avg over all runs.
	Min Liq Flow to Gas Flow Ratio.	(2)	(2)	(2)	(2)	(2)	....	✔	Comp Test.	10 min 1 hour	Avg of Min 10 min RA Avg over all runs.
	Min Power Input (kVA: current and voltage).	(2)	(2)	(2)	(2)	(2)	....	....	Comp Test.	10 min 1 hour	Avg of Min 10 min RA Avg over all runs.
Dry Scrubber.	Min Sorbent Feedrate.	....	....	....	....	....	....	✔	Comp Test.	10 min 1 hour	Avg of Min 10 min RA. Avg over all runs.
	Min Carrier Fluid Flowrate or Nozzle Pressure Drop.	....	....	....	....	....	....	✔	Manuf Spec.	10 min	n/a
	Sorbent Specifications.	....	....	....	....	....	....	✔	Comp Test.	n/a	Same brand and type.
FF	Min Press Drop Across Device.	(2)	(2)	(2)	(2)	(2)	....	....	Comp Test.	10 min 1 hour	Avg of Min 10 min RA. Avg over all runs.
ESPs	Min Power Input (kVA: current and voltage).	(2)	(2)	(2)	(2)	(2)	....	....	Comp Test.	10 min 1 hour	Avg of Min 10 min RA. Avg over all runs.

Notes:
[1]=Stack CEMS is optional for the SVM, LVM, and HCl and Cl_2 standards. If a CEMS is used for compliance, none of the feedstream and operating parameters for that HAP would apply.
(2)=If CEMS are not required in the final rule for PM and/or Hg, the operating limits for these parameters would apply.
Definitions:
"Comp Test"=Comprehensive Performance Test.
"Conf Test"=Confirmatory Performance Test.

2. Dioxin and Furan (D/F)

EPA is proposing that sources comply with the D/F standard by establishing and complying with limits on operating parameters and performing D/F test every 18 months (or 30 months for small on-site facilities). Table V.2.2 summarizes these limits. See also proposed § 63.1210(j).

TABLE V.2.2.—SUMMARY OF PROPOSED DIOXIN AND FURAN MONITORING REQUIREMENTS

	Compliance using	Limits from	Avg. period	How limit is established from comp performance test
Particulate Matter (PM) Control.	PM CEMS	Comp Test	10 min	Avg of Max 10-min RAs.
			1 hour	Avg over all runs.
Good Combustion	CO and HC CEMS	MACT Std	1 hour	N/A.
	Min comb chamber tempt: CMS at exit of each chamber.	Comp Test	10 min	Avg of Max 10-min RAs.
			11 hour	Avg over all runs.
	Max waste feedrate CMS	Comp Test	1 hour	Avg of Max 1 hour RAs.

TABLE V.2.2.—SUMMARY OF PROPOSED DIOXIN AND FURAN MONITORING REQUIREMENTS—Continued

	Compliance using	Limits from	Avg. period	How limit is established from comp performance test
	For batch fed sources: limit on batch size, feeding frequency, and minimum oxygen.	Comp Test	None	N/A.
Max Inlet Temp to Dry PM APCD.	Temp CMS	Comp Test	10 min	Avg of Max 10 min RAs.
			1 hour	Avg over all runs.
Max Flue Gas Flowrate or Production Rate.	Flowrate CMS or Production Rate.	Comp Test	1 hour	Avg of Max 1 hour RAs.
Min Carbon Injection Feed	Feedrate CMS	Comp Test	10 min	Avg of Min 10 min RAs.
			1 hour	Avg over all runs.
Min Carrier Fluid Flowrate or Nozzle Pressure Drop.	same	Manuf Spec	10 min	N/A.
Carbon Specs	Brand and Type	Comp Test	N/A	Same brand and type.
Max Carbon Age, Carbon Bed.	Max Carbon Lifetime	Initial Comp Test	N/A	Manuf Specs (no C aging).
		Conf Tests	N/A	Normal C Change-out Schedule.
		Sub. Comp Tests	N/A	Max C Age is the age during sub. Comp Tests.
Min Flue Gas Temp, Catalytic Oxidizer.	Inlet to Catalyst	Comp Test	10 min	Avg of Min 10 min RAs.
			1 hour	Avg over all runs.
Max Age, Catalytic Oxidizer	Time in use	Manuf Spec	As specified..	
Catalyst Replacement Specs.	Catalytic Metal Loading	Comp Test	N/A	Same as used during comp test.
	Space Time			
	Substrate Construct: mat'ls, pore size.			
Max Flue Gas Temperature, Catalytic Oxidizer.	Inlet to Catalyst	Manuf Spec	10 min	As specified.
Min Inhibitor Feedrate	Feedrate CMS	Comp Test	10 min	Avg of Min 10 min RAs.
			1 hour	Avg over all runs.
Inhibitor Specs	None	Comp Test	N/A	Same brand and type.

a. Evaluation of Monitoring Options. D/F partitions into two phases in stack emissions: a portion is adsorbed onto particulate and a portion is emitted as a vapor (gas). Given that there is no CEMS for D/F, the Agency is proposing to require a combination of approaches to control D/F emissions: (1) compliance with a site-specific PM limit to control adsorbed D/F; (2) operation under good combustion conditions to minimize D/F precursors; (3) temperature control at the PM control device to limit D/F formation in the control device; and (4) compliance with operating limits on D/F control equipment (e.g., carbon injection) that a source may elect to use.

b. Operating Parameter Limits. Today's proposed rule would limit the following operating parameters to satisfy the combination of approaches discussed in the previous paragraph.

i. Control of PM Emissions: To control D/F and other PICs that are adsorbed to PM, the rule would require that sources limit PM emissions to the site-specific level that occurs when demonstrating compliance with the D/F (and SVM and LVM) emission standards. The site specific operating limit for PM would be capped at (i.e., could not exceed) the proposed national MACT standard of 69 mg/dscm. See section 7 of this section for a discussion on the control of PM emissions.

ii. Good Combustion: CO and HC Limits. EPA is proposing CO and HC standards to ensure good combustion to help minimize D/F precursors. See discussion below (section 5 of this section) for the explanation of the CO and HC emission standards.

iii. Good Combustion: Maximum Waste Feedrate. An increase in waste feedrate without a corresponding increase in combustion air can cause inefficient combustion that may produce (or incompletely destroy) D/F precursors. Therefore EPA proposes to limit waste feedrate. For incinerators, waste feedrate limits would be established for each combustion chamber to minimize combustion perturbations. For CKs and LWAKs waste feedrate limits would be established for each location where waste is fed (e.g., the hot end where product is discharged, mid-kiln, and at the cold end where raw material is fed.[140]

Feedrate limits would be established on an hourly rolling average basis as the average of the highest hourly rolling average for each run. We specifically invite comment on whether it would be more appropriate to establish the limit based on the average hourly rolling average over all runs. EPA is not proposing this more stringent approach because we consider waste feedrate to be a secondary control parameter that may not require such strict control.

See also the discussion in section II.F.2 below for other requirements to document compliance with feedrate limits.

iv. Good Combustion: Combustion Zone Temperature. As combustion zone temperatures decrease, combustion efficiency can decrease resulting in an increase in formation of (or incomplete destruction of) D/F precursors. For this reason, the Agency proposes limiting combustion zone temperature in each

[140] Waste feedrate limits would also be established for waste fed into a preheater or precalciner system of a cement kiln facility.

chamber to the minimum level occurring during the comprehensive performance test documenting compliance with the D/F standard.

BIFs and incinerators are already required to monitor combustion zone temperature for compliance with metals emissions standards and destruction and removal efficiency (DRE). Monitoring of combustion zone temperature has been problematic, however, because the actual burning zone temperature cannot be measured at many units (e.g., cement kilns). For this reason, the BIF rule requires measurement of the "combustion chamber temperature where the temperature measurement is as close to the combustion zone as possible." See § 266.103(c)(1)(vii).

In some cases, temperature is measured at a location quite removed from the combustion zone due to extreme temperatures and the harsh conditions at the combustion zone. We are concerned that monitoring at such remote locations may not accurately reflect changes in combustion zone temperatures. For example, a reduction in heat transfer chain in a wet cement kiln due to wear over time or decreasing raw material feedrate (at a fixed heat input) in a cement or lightweight aggregate kiln may increase temperature at the kiln outlet even if combustion conditions actually caused a decrease in combustion zone temperature.

We specifically invite comment on how to address this issue. For example, the final rule could require the owner or operator to identify a parameter that correlates with combustion zone temperature and to provide data or information to support the use of that parameter in the operating record. The final rule could also enable the Director on a case-specific basis to require the use of alternate parameters as deemed appropriate, or to determine that there is no practicable approach to ensure that minimum combustion chamber temperature is maintained. In that case, the Director may determine that the source could not comply with the regulations and, thus, could not burn hazardous waste.

Note also that, in the final rule, we would revise the existing BIF and incinerator rules to conform with the approach used in the final MACT rule. Those conforming revisions would become effective six months from the date of publication of the final rule in the **Federal Register** and would remain in effect until the MACT standards take effect.

The temperature limit(s) would apply to each combustion zone into which hazardous waste is fired. As examples, for incinerators with a primary and secondary chamber, separate limits would be established for the combustion zone in each chamber. For kilns, separate temperature limits would apply at each location where hazardous waste may be fired (e.g., the hot end where clinker is discharged; the mid-point of the kiln; and the cold end of the kiln where raw material is fed).

EPA proposes that a ten-minute average be used to control perturbations in combustion chamber temperature and that an hourly rolling average be used to control average combustion chamber temperature. The ten-minute average would be established as the average of the minimum ten-minute rolling average for each run of the comprehensive performance test. The hourly average would be established as the average over all runs.

v. Good Combustion: Maximum Flue Gas Rate or Production Rate. Flue gas flowrates in excess of those that occur during performance testing reduce the time that combustion gases are exposed to combustion chamber temperatures. Thus, combustion efficiency can decrease causing an increase in D/F precursors.[141] Accordingly, today's rule would limit flue gas flowrate based on levels that occur during the comprehensive performance test.

For CKs and LWAKs, the rule would allow the use of production rate as a surrogate for flue gas flowrate. This is the approach currently used for the BIF rule for these devices, given that flue gas flowrate correlates with production rate (e.g., feedrate of raw materials or rate of production of clinker or aggregate). However, production rate may not relate well to flue gas flowrate in situations where the moisture content of the feed to the combustor changes dramatically. Therefore, EPA invites comment on how to address moisture content in feeds.

The gas flowrate or production rate limit would be established as the average of the maximum hourly rolling average for each run of the comprehensive performance test.

vi. Good Combustion: Batch Size, Feeding Frequency, and Minimum Oxygen. Some HWCs burn waste or non-waste fuel in batches, such as metal drums or plastic containers. Some containerized waste can volatilize rapidly, causing a momentary oxygen-deficient condition that can result in an increase in D/F precursors.[142] To ensure that D/F precursors are not increased over levels that occur during the comprehensive performance test, the rule would establish site-specific limits on maximum batch size, batch feeding frequency, and minimum oxygen concentration at the end of the combustion chamber into which the batch is fed, at the time the batch is fed.[143]

This requirement would apply to all HWCs that burn any waste or non-waste fuel in batches (i.e., ram or equivalent feed systems) or containers. For example, incinerators that use a ram to charge batches of hazardous or nonhazardous waste would be subject to these requirements. Cement kilns that feed containers of fuel at mid-kiln or at the "cold", raw material feed end would also be subject to these requirements, as would hazardous waste-burning cement kilns that feed tires in batches.

The rule would provide a conditioned exemption from the (site-specific) oxygen limit, however, for cement kilns that feed up to 1-gallon containers into the "hot", clinker discharge of the kiln. We do not believe that it is necessary to control the oxygen content of combustion gases when these containers are fed into the hot end of the kiln given that the oxygen demand from waste in the containers would be insignificant compared to the oxygen demand from other (non-containerized) fuel burned at this location. The frequency of firing the containers would, however, be limited to the rate occurring during the performance test.

There would be no averaging period associated with the limits on these operating parameters. The maximum batch size a facility could burn during normal operations would be limited by mass and would be established based on the container or batch fired during the test having the lowest mass. The minimum batch feeding interval (i.e., the minimum period of time between batch feedings) a facility could burn

141 We note that an increase in gas flow rate can also adversely affect the performance of a D/F emission control device (e.g., carbon injection, catalytic oxidizer). Thus, gas flow rate is controlled for this reason as well.

142 The requirements would apply when either hazardous or non-hazardous waste fuels are batch fed because the potential for oxygen-deficient conditions and an increase in D/F precursors is present irrespective of whether the material fed is classified as a hazardous waste.

143 EPA considered whether it would be practical to establish a national minimum oxygen level for all HWCs in this proposed rule and believes it is not practical. A limit on minimum oxygen content would have to be established on a case-specific basis given that the minimum oxygen level necessary for good combustion will vary from source to source within a given source category, and will vary within a given source over time as the type or volume of waste or fuel varies. The Agency invites comment on whether the final rule should require a case-specific limit on minimum oxygen content for all HWCs rather than as proposed for only batch-fired HWCs. If so, the limits would be established on a ten-minute and an hourly rolling average as proposed for combustion chamber temperature.

during normal operations would be established as the longest interval of time between batch feedings during the comprehensive performance test. The minimum oxygen content at which a facility would charge a containerized waste into the burner during normal operations would be the highest instantaneous oxygen level observed when any batch was fed during the comprehensive performance test.

EPA specifically invites comment on whether the bases of these three parameters are overly conservative. Rather than basing maximum batch size on the smallest container fed during the comprehensive test, EPA could establish maximum batch size based on the average container mass. Feeding frequency could be based on the average time interval between batches during the comprehensive test. Oxygen concentration could be the average oxygen level occurring during the test. To address this issue, EPA needs to know whether the proposed requirements are overly conservative and why, or conversely, whether the options described in this paragraph are not restrictive enough.

EPA specifically invites comment on other approaches to establish limits for these parameters, and whether (and how) it would be necessary to limit maximum volatility of the batch-fired material.

vii. Dry PM Collection Device Inlet Temperature. Formation of D/F emissions on particulate matter increases with increasing temperature. Above 350°F and up to approximately 700°F, emissions of D/F can increase a factor of 10 for every 125°F increase in temperature.[144] Consequently, today's rule would limit temperature at the inlet to a dry PM control device to the maximum levels that occurred during the comprehensive performance test.

It is proposed that a ten-minute rolling average be used to control perturbations in temperatures and that a one-hour rolling average be used to control the average temperature. The ten-minute rolling average limit would be established as the average of the highest ten-minute average for each run. The hourly average would be established as the average of over all runs.

viii. Carbon Injection. Facilities may use carbon injection to meet the D/F standard. Today's rule would limit the following carbon injection parameters: minimum carbon injection rate; minimum carrier fluid flowrate or nozzle pressure drop, and adsorption characteristics of the carbon.

A minimum carbon feedrate limit is necessary to ensure that facilities maintain the same D/F removal efficiency as was demonstrated during the comprehensive performance test. It is proposed that minimum carbon injection rate be maintained on a ten-minute and one-hour average. The ten-minute average would be established as the average of the minimum 10-minute rolling average for each run, and the one-hour average would be established as the average over all runs.

A carrier fluid, gas or liquid, is necessary to transport and inject the carbon into the gas stream. EPA proposes that either minimum carrier gas flowrate or pressure drop across the nozzle be maintained to ensure good flow of the injected carbon into the flue gas stream. It is proposed that either limit be established on a 10-minute rolling average and that the limit be based on the carbon injection manufacturers specifications.

Finally, to ensure that D/F removal efficiency is maintained after the performance test, carbon used after the test must have the same or better adsorption properties as carbon used during the test. Thus, the rule would require that facilities continue to use the same brand and type of carbon that was used during the comprehensive test. The rule would allow a source to obtain a waiver from this requirement from the Director, however, if the owner or operator: (1) documents by data or information key characteristics of carbon which affect removal of D/F from combustion gas; (2) documents by data or information specification levels corresponding to those characteristics; and (3) complies with the specification.

ix. Carbon Bed. Some sources may elect to use a carbon bed to control D/F. Today's rule would limit the age of the carbon and the adsorption characteristics of the carbon to ensure that D/F control is maintained.

Since carbon beds work by adsorbing certain chemicals, e.g., dioxin and mercury, and the carbon in the bed becomes less effective as the active sites for adsorption become occupied, an appropriate control parameter for carbon beds is the amount of time the carbon in use. EPA is particularly concerned about a facility's ability to know when a carbon bed is spent, i.e., when enough active sites get occupied to make the device inadequate for removing dioxin or mercury, and knowing how often carbon must be replaced from the bed to ensure this does not occur. This cannot be determined during the initial comprehensive performance test. For that reason, the Agency proposes that facilities follow the carbon bed manufacturer's specifications for the initial comprehensive performance test.

No carbon aging would be required for this initial test. For confirmatory tests, facilities would be required to follow the normal change-out schedule specified by the manufacturer. For subsequent comprehensive tests, the Agency proposes that the D/F test be conducted at maximum carbon age, i.e., at the least frequent carbon change-out, and that this age be maximum age allowable under normal operation.

Alternately, the Agency could use some form of a breakthrough calculation and use this to assure compliance with the D/F standard. A breakthrough calculation would give a theoretical minimum carbon change-out schedule which the facility could use to ensure that breakthrough, i.e., the dramatic reduction in efficiency of the carbon bed due to too make active sites being occupied, does not happen. However a breakthrough calculation can only be done after experimentation determines the relationship between incoming adsorbed chemicals and the adsorption rate of the carbon. The adsorption rate of carbon can be determined experimentally, but the speciation of adsorbed chemicals in a flue gas stream is site-specific and may vary greatly within a given site over time. Therefore, EPA proposes using this alternative only for the initial comprehensive test, when site data is not available and the carbon bed is not aged. EPA believes that, for subsequent comprehensive tests, the proposed option is preferable, since it provides for the setting of the minimum carbon change-out on subsequent D/F tests. EPA does not believe it is appropriate to use breakthrough calculations for the second and subsequent comprehensive test(s) since they do not take into account facility specific characteristics, like the concentration of adsorbed chemicals in the flue gas. EPA invites comment on an approach which would use breakthrough calculations alone, to see if it can become workable in another form than the Agency has envisioned.

An issue that is difficult to address is that carbon age is dependant not only on time in service, but also the carbon bed inlet concentration of substances (e.g., metals, PM) which adsorb or absorb onto the carbon. There may be other factors that affect D/F removal efficiency of the bed. The Agency invites comment on how to address these issues.

[144] See Chapter 7.2 of "Draft Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the Proposed MACT Standards", February 1996.

Another issue is whether it is necessary to control temperature at the inlet to the carbon bed. EPA does not believe this is necessary since facilities will need a PM control device upstream of a carbon bed and temperature at the inlet to dry PM APCDs is proposed to be controlled. However, the consequences of a temperature spike at the carbon bed can be severe: a temperature spike may cause adsorbed D/F and Hg to de-adsorb and re-enter the gas stream, resulting in a significant amount of D/F and Hg being emitted at the stack at once. For this reason, the Agency invites comment on whether controlling temperature at the inlet to a carbon bed is necessary.

Finally, as the case with carbon injection, to ensure that D/F removal efficiency is maintained after the performance test, carbon used post-test must have the same or better adsorption properties as carbon used during the test. Thus, the rule would require that facilities continue to use the same brand and type of carbon as was used during the comprehensive test. The rule would allow a source to obtain a waiver from this requirement, however, as discussed above.

x. Catalytic Oxidizer. Some facilities may use a catalytic oxidizer to meet the D/F standard. Catalytic oxidizers used to control stack emissions are similar to those used in automotive and industrial applications. The flue gas passes over a catalytic metals, such as palladium and platinum, supported by an alumina washcoat on some metal or ceramic substrate. When the flue gas passes through the catalyst, a reaction takes place similar to combustion, converting hydrocarbons to carbon monoxide, then carbon dioxide. Catalytic oxidizers can also be "poisoned" by lead and other metals just as automotive and industrial catalysts are.

The rule would require sources to establish site-specific limits on the following operating parameters for catalytic oxidizers: minimum flue gas temperature at the inlet of the catalyst, maximum age in use, catalyst replacement specifications, and maximum flue gas temperature at the inlet of the catalyst. The rule would allow a waiver from these provisions if the owner documents to the Director that establishing limits on other operating parameters would be more appropriate to ensure that the D/F destruction efficiency of the oxidizer is maintained after the performance test. The owner or operator would provide such documentation, including how limits on the alternative operating parameters would be established and appropriate averaging periods, and a request for a waiver as part of the notification to conduct the comprehensive performance test and draft test protocol. The Director would grant the waiver in writing, if warranted.

Minimum flue gas temperature at the inlet of the catalyst is necessary to ensure that the catalyst is above light-off temperature. Light-off temperature is that minimum temperature at which the catalyst is hot enough to catalyze the reactions of hydrocarbons and carbon monoxide. EPA proposes that minimum flue gas temperature be maintained on both a ten-minute and one-hour average. The ten-minute average limit would be established as the average of the minimum ten-minute rolling average for each run during the comprehensive performance test. The hourly average limit would be established as the average hourly average over all runs.

Due to poisoning and general degradation of the catalyst, manufacturers often establish a maximum time in-use for the catalyst. EPA proposes that the manufacturer's specification for maximum age be used as maximum age of the catalyst.

When a catalyst is replaced, it must be of the same design of the previous catalyst to ensure that the replacement catalyst will work as efficiently as the previous one. Therefore, EPA proposes that the following design parameters be used in specifying replacement catalysts: loading of catalytic metals; space time; and monolith substrate construction.

Catalytic metal loading is important because, without sufficient catalytic metal on the catalyst, it would not properly function. Also, some catalytic metals are more efficient than others. Therefore, EPA proposes that replacement catalysts have at least the same catalytic metal loading for each catalytic metal as the catalyst used during the comprehensive performance test.

Space time, expressed in inverse seconds (s^{-1}), is defined as the maximum rated volumetric flow through the catalyst divided by the volume of the catalyst. This is important because it is a measure of the gas flow residence time and, hence, the amount of time the flue gas is in the catalyst. The longer the gas is in the catalyst, the more time the catalyst has to cause hydrocarbons and carbon monoxide to react. It is proposed that replacement catalysts have at the same or lower space time as the one used during the comprehensive performance test.

Substrate construction is also an important parameter. Substrates for industrial applications are typically monoliths, made of rippled metal plates banded together around the circumference of the catalyst. Ceramic monoliths and pellets can also be used. Because of the many types of substrates, EPA proposes that the same materials of construction, monolith or pellets and metal or ceramic, be used as was used during the comprehensive performance test. Monoliths also form a honeycomb like structure when viewed from one end. The pore density, i.e., number of pores per square inch, is critical because they must be small enough to ensure intimate contact between the flue gas and the catalyst, but large enough to allow unrestricted flow through the catalyst. Therefore, if a monolith substrate is used, EPA proposes that the same pore density as the one used during the comprehensive performance test. Finally, catalysts are supported by a washcoat, typically alumina. EPA proposes that replacement catalysts have the same type and loading of washcoat as was on the catalyst used during the comprehensive performance test.

Finally, EPA believes it is also important to control maximum flue gas temperature into the catalyst. This is because sustained high flue gas temperature can result in sintering of the catalyst, degrading its performance. The Agency proposes that maximum flue gas temperature into the catalyst be controlled and that it be a ten-minute rolling average, based on manufacturer specifications.

xi. D/F Inhibitor. Some facilities may use a D/F inhibitor (e.g., sulfur) to meet the D/F standard. In such cases, the rule would establish a minimum inhibitor feedrate. Limits would be established on both a ten-minute and one-hour average. The ten-minute average limit would be established as the average of the minimum ten-minute rolling average for each run, and the one-hour average limit would be established as the average over all runs. See also the discussion in section II.F.2 below for other requirements to document compliance with feedrate limits.

This minimum inhibitor feedrate pertains to additives to feedstreams, not naturally occurring inhibitors that may be found in fossil fuels or hazardous waste. It is conceivable that a facility would choose to burn high sulfur fuel or waste specially during the comprehensive test and switch back to low sulfur fuels or waste after the test, thus reducing D/F emissions during the comprehensive test to levels that would not be maintained after the test. EPA invites comment on whether and how to address this concern, including whether it would be appropriate to establish limits on the amount of naturally occurring inhibitor, either during performance testing or as an operating limit. Comments and documentation are also requested to help identify such inhibitors.

As was the case with carbon used in carbon injection and carbon beds, EPA is concerned that facilities may use a less effective, and presumably less expensive, D/F inhibitor during normal operation than was used during the comprehensive performance test. For this reason, the rule would require that facilities continue to use the same type and brand of inhibitor as was used during the comprehensive test. The rule would allow a source to obtain a waiver from this requirement from the Director, however, if the owner or operator: (1) documents by data or information key characteristics of the inhibitor which inhibit formation of D/F; (2) documents by data or information specification levels corresponding to those characteristics; and (3) complies with the specification.

xii. Rapid Quench. Some facilities may elect to use a rapid quench to lower flue gas temperature to meet the D/F standard. The rule would not establish limits on operating parameters for rapid quench systems because we believe that a maximum dry PM control device temperature is sufficient to ensure that the quench was adequate. We note, however, that a facility may use a rapid quench for control of D/F emissions yet not have a dry PM control device. One way to address this situation is to require that a maximum flue gas temperature be established at the stack.

EPA doubts, however, that there will be any facilities which use a rapid quench without a dry PM control device. Consequently, we invite comment on whether the final rule should establish a maximum flue gas temperature limit that would address such apparently hypothetical situations.

xiii. Consideration of Feed Restrictions on Metals, Halogens, and Dioxin Precursors. The rule would not establish feedrate limits on metals, halogens, or D/F precursors to ensure compliance with the D/F standard. Some research indicates that certain metals, copper for instance, in the feed may catalyze the formation of D/F. However, this research is inconclusive and there is not yet a consensus among the research community that catalytic metal in the feed necessarily causes increased D/F emissions.[145] Therefore, EPA proposes not limiting the feed of catalytic metals in the feed.

Research and common sense has also indicated that the presence of halogens, such as chlorine, in the feed may contribute to the production of halogenated D/F. While the presence of chlorine in the feed is necessary for the formation of chlorinated D/F, current science seems to support the view that there is not a clear correlation between the level of chlorine in the feed and the level of dioxin in the flue gas. In other words, increasing halogen feedrate above *de minimis* levels does not appear to cause increased emissions of chlorinated D/F.[146] Therefore, the rule would not limit the amount of chlorine fed to ensure compliance with the D/F standard, particularly in light of the suite of other compliance assurance measures.

Nonetheless, we believe that it is prudent to require that chlorine be fed at normal levels (or greater) during the D/F comprehensive performance test. This is because, while more chlorine does not necessarily form more dioxin, some chlorine is needed to form chlorinated D/F. We invite comment on how to ensure that normal levels of chlorine are fed during the comprehensive performance test. For sources that do not elect to use a CEMS for SVM, LVM, HCl and Cl_2 and, thus, must maximize chlorine feedrate during the test, this is not an issue. We believe that the vast majority of sources will be in this situation. For sources that elect to use such CEMS (assuming that multi-metal and Cl_2 CEMS become commercially available), defining normal chlorine feedrates is an issue.

Some arguments have been made that the presence of organic dioxin precursors in the feed would result in an increased level of D/F in the flue gas. EPA has briefly examined certain facilities which feed dioxin or known organic dioxin precursors (e.g., chlorophenol and chlorobenzene) to those which are known not to feed organic dioxin precursors. Although our limited study suggests that no strong correlation exists between the level of dioxins or organic dioxin precursors in the feed and D/F emissions, we do not believe the issue has been sufficiently examined in detail (indeed, other evidence suggests that a correlation might exist). EPA invites comment on whether feed restrictions on D/F and organic dioxin precursors are warranted and, if so, whether this should be an operating parameter or a feed requirement during the comprehensive test (such as proposed for chlorine).

3. Mercury (Hg)

Table V.2.3 Summarizes the proposed compliance monitoring requirements and other options being considered for Hg. See also proposed § 63.1210(k).

TABLE V.2.3.—PROPOSED HG MONITORING REQUIREMENTS AND OTHER OPTIONS BEING CONSIDERED

		Compliance using	Limits from	Avg. period	Operating limit avg pd basis
Proposed Requirement	CEMS	Total Hg or Multi-metal CEMS.	CEMS Std.	10 hour.	
Option 1: Elemental Hg CEMS.	Surrogate CEMS	Elemental Hg CEMS	Comp Test	10 hour	Avg over all runs.
	Max Flue Gas Flowrate or Production Rate.	Same	Comp Test	1 hour	Avg of Max 1 hour RAs.
	Min Press Drop, Wet Scrubber.	Pressure Drop Across Scrubber.	Comp Test	10 min	Avg of Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Liq Feed Press, Wet Scrubber.	Pressure	Manuf Spec	10 min.	
	Min Liq pH	pH	Comp Test	10 min	Avg of Min 10 min RAs.

[145] See Chapter 7.2 of USEPA, "Draft Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the Proposed MACT Standards", February 1996.

[146] See Chapter 7.3 of USEPA, "Draft Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the Proposed MACT Standards", February 1996.

TABLE V.2.3.—PROPOSED HG MONITORING REQUIREMENTS AND OTHER OPTIONS BEING CONSIDERED—Continued

		Compliance using	Limits from	Avg. period	Operating limit avg pd basis
				1 hour	Avg over all runs.
	Min Liq/Gas Ratio, Wet Scrubber.	Scrubber Liquid and Flue Gas Flowrate.	Comp Test	10 min	Avg of Min 10 min RAs.
				1 hour	Avg over all runs.
Option 2: No CEMS	Max Total Hg Feedrate, all streams.	Feedstream Analysis	Comp Test	12 hour	Avg over all runs.
	Max Inlet Temp to Dry PM APCD.	Temp	Comp Test	10 min	Avg of Max 10 min RAs.
				1 hour	Avg over all runs.
	Min Carbon Injection Rate.	Feedrate CMS	Comp Test	10 min	Avg of Min 10 min RAs.
				1 hour	Avg over all runs.
	Carbon Specs	Brand and Type	Comp Test	N/A	N/A.
	Min Carrier Fluid Flowrate or Nozzle.	Same	Manuf Spec	10 min	N/A
	Max Carbon Age	Max Carbon	Initia	N/A	Manuf Specs.
			Conf Tests	N/A	Normal C Change-out Schedule.
			Subsequent Comp Tests.	N/A	Max C Age is the age during subsequent Comp Tests.
	Max Flue Gas Flowrate of Production Rate.	Flowrate CMS or Production Rate.	Comp Test	1 hour	Avg of Max 1 hour RAs.
	Min Press Drop, Wet Scrubber.	Pressure Drop Across Scrubber.	Comp Test	10 min	Avg of Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Liq Feed Press, Wet Scrubber.	Pressure	Manuf Spec	10 min.	
	Min Liq pH, Wet Scrubber.	pH	Comp Test	10 min	Avg of Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Liq/Gas Ratio, Wet Scrubber.	Scrubber Liquid and Flue Gas Flowrate.	Comp Test	10 min	Avg of Min 10 min RAs.
				1 hour	Avg over all runs.

a. Evaluation of Monitoring Options. Several types of CEMS exist or are under development which measure Hg. Therefore, the rule proposes use of a Hg CEMS to document compliance with the Hg standard.[147]

The rule would allow two alternative CEMS approaches: the use of a multi-metal CEMS or the use of a total Hg CEMS. (In addition, we discuss below our concerns with allowing the use of an elemental Hg CEMS.) If a facility elects to use a multi-metal (MM) CEMS for compliance with the SVM and LVM standards, the MM CEMS can be used for compliance with the Hg standard as well. See the discussion below on SVMs and LVMs for discussion on MM CEMS. If a facility elects not to use a MM CEMS, the source may use a total Hg CEMS.

In case the final rule does not require compliance with the Hg standard using a CEMS, we also invite comment on ensuring compliance by establishing limits on operating parameters.

b. Total Mercury CEMS. The rule would require use of a CEMS to monitor Hg emissions (see below, small-on site sources could obtain a waiver from the CEMS requirement.) If a facility elects not to use a MM CEMS for compliance with all of the metals standards, EPA recommends that facilities use a total Hg CEMS.

An example of such a unit is a total Hg CEMS made by the German company Verewa and marketed in the US by Euramark. The device has recently been certified by TUV, a quasi-governmental German agency charged with approving compliance devices and methods. The CEMS uses wet chemistry techniques prior to an elemental Hg UV absorption analyzer to convert all species of Hg into elemental Hg. The analyzer then determines the total Hg in the flue gas.

The performance specification for a total Hg CEMS are proposed here as Part 60, Appendix B, Performance Specification 12. In addition, the appendix to Part 63, Subpart EEE, Quality Assurance for CEMS would require quarterly testing of the analyzer and relative accuracy testing of the total system every 3 years (or 5 years for small on-site facilities).

Also, EPA invites comments on allowing small on-site sources (defined in § 63.1208(b)(1)(ii) in the proposed regulations) to obtain a waiver from the requirement of installing Hg CEMS. If the waiver is promulgated and granted by the permitting authority, the facility would demonstrate compliance with the Hg standard by establishing operating parameter limits described in subsection d, "Alternative to a CEMS," below.

c. Elemental Mercury CEMS. EPA invites comment on another approach to continuously monitor Hg emissions, the use of an elemental Hg CEMS. Although the elemental Hg CEMS may be less expensive than a total Hg CEMS, EPA has several concerns with allowing the use of an elemental Hg CEMS.

An elemental Hg CEMS does not measure species other than elemental, or metallic Hg. It does not measure Hg

147 In February 1996, the Agency initiated a demonstration program to determine whether Hg (and PM) CEMS can comply with the performance specifications proposed today. The demonstration will also evaluate long-term durability (e.g., 6 months or longer) of the CEMS. Results of the demonstration will be made available for review and comment prior to promulgation of the final rule.

salts such as mercuric chloride ($HgCl_2$). Therefore, it would be necessary for the facility to measure elemental Hg using the CEMS and elemental and Hg salts separately using manual methods during the comprehensive performance test.

Data from the comprehensive test would be used to identify the elemental Hg emission level at which the facility is considered to be in compliance with the total Hg standard. However, following the comprehensive test a facility could have higher levels of undetectable Hg salt emissions than occurred during the comprehensive test. This could happen in one of two ways: the scrubber may not be working as effectively; or the Hg and halogen feed may have increased such that, at a fixed scrubber efficiency, more Hg salts are emitted as a result. Ensuring that the scrubber efficiency is maintained at performance test levels can be accomplished using the parameters described above. However, it is difficult to determine whether the same amount of Hg salts, relative to the amount of total Hg, is being emitted. One could correlate Hg and halogen feed with scrubber efficiency at various scrubber conditions, but this would require many data points and seems infeasible from a monetary and technical standpoint. Even if an approach can be developed, the Agency is inclined to believe it would require a lot of oversight to ensure it is done properly.

If the issue of correlating total Hg emissions to an elemental Hg CEMS can be successfully addressed, establishing the site-specific limit and the averaging period for the elemental Hg standard would then have to be addressed. Facilities would be able to use the mean of the results during the test, along with a variability factor, as their site-specific elemental Hg level. The averaging period could be the time duration of three runs of the comprehensive performance test, but manual methods tests do not end on the exact hour and there may be more than one comprehensive test with, likely, different sampling periods. So, a problem would arise as to what averaging period to use.

For these reasons, EPA believes the use of an elemental Hg CEMS is infeasible to implement under self-implemented MACT standards. Nonetheless, if these issues can be resolved, the final rule may allow some use of an elemental Hg CEMS.

d. Alternative to a CEMS. If the final rule does not require that Hg emissions be continuously monitored, the rule would ensure compliance with the Hg standard by establishing limits on operating parameters. Also if the provision allowing small on-site facilities (defined in § 63.1208(b)(1)(ii) of the proposed regulations) to waive the Hg CEMS requirement is promulgated and such a facility elects not to use an Hg CEMS, the facility would have to establish these operating parameter limits to document compliance with the Hg standard. The proposed operating limits are: maximum Hg feedrate, Hg scrubber operating parameters, maximum flue gas feedrate, minimum carbon injection rate, and carbon bed operating parameters.

i. Maximum Hg Feedrates. Absent a requirement to monitor Hg emissions with a CEMS, the final rule would establish a maximum Hg feedrate limit. This is because the amount of Hg fed into the combustor directly affects emissions and the ability of control equipment to remove Hg. This maximum feedrate pertains to all feeds into the combustor: hazardous waste, raw materials, additives, and fossil fuels. Feedrate sampling and analysis protocols would be described in the facility's waste analysis plan. The limit would be based on a twelve-hour average and established as twelve times the hourly average feedrate during all runs of the comprehensive performance test. See also the discussion in section II.F.2. below for other requirements to document compliance with feedrate limits.

As mentioned above in Subsection B, this twelve-hour average is inconsistent with the ten hour averaging period for metals CEMS. CEMS should have longer averaging periods than operating parameters such as feedrates. Therefore, EPA invites comment on whether the averaging period for Hg feedrate should be promulgated at six, instead of 12, hours. EPA believes a six-hour averaging period for Hg feedrate is sufficiently conservative, relative to the CEMS averaging period and achievable.

ii. Max Inlet Temp to Dry PM APCD. High inlet temperatures to dry PM APCDs can cause low recovery of Hg in the APCD. This is because Hg volatility increases with increasing temperature. Therefore, absent a requirement to monitor Hg emissions with a CEMS, the final rule would control inlet temperature to a dry PM APCD. Limits would be based on both a 10-minute and a one-hour average. The 10-minute average would be the average of the maximum PM APCD inlet temperatures experienced during each compliance test run and the one-hour average would be the average over all runs.

iii. Carbon Injection. Some facilities may need to use carbon injection as an aftertreatment to comply with the Hg standard. Absent a Hg CEMS requirement, the final rule would establish controls on the following carbon injection operating parameters: minimum carbon injection rate, carbon specifications, and minimum carrier flowrate or nozzle pressure drop. The controls would be established under the same approach as proposed for carbon injection used for D/F control. See the previous discussion.

iv. Carbon Bed. Rather than carbon injection, some facilities may elect to use a carbon bed to control Hg emissions. Absent a requirement to monitor Hg emissions with a CEMS, the final rule would establish controls on carbon bed operating parameters under the same approach as proposed for carbon beds used for D/F control. See the previous discussion.

v. Maximum Flue Gas Flowrate or Production Rate. As discussed above for compliance with the D/F standard, an increase in flue gas flowrate can decrease collection efficiency of the emission control device. Accordingly, absent a requirement to monitor Hg emissions continuously, the final rule would limit flue gas flowrate or production rate under the same approach as proposed for D/F compliance. See the previous discussion.

vi. Wet Scrubber Parameters. The efficiency of wet scrubbers directly affects the removal of Hg salts from flue gas. Key operating parameters would include: maximum flue gas flowrate or production rate, minimum pressure drop across the wet scrubber, minimum liquid feed pressure, minimum liquid pH, and minimum liquid to gas ratio. Refer to the section below on compliance requirements for the HCl and Cl_2 standard for discussion on these parameters. Absent a requirement to monitor Hg emissions continuously, the final rule would establish limits on these parameters under the same approach as proposed for compliance with the HCl and Cl_2 standard.

4. Semivolatile Metals (SVM) and Low Volatile Metals (LVM)

Table V.2.4 Summarizes the proposed compliance monitoring requirements and other options being considered. See also proposed § 63.1210 (l) and (m).

TABLE V.2.4.—SUMMARY OF PROPOSED SVM AND LVM COMPLIANCE MONITORING REQUIREMENTS AND OTHER OPTIONS BEING CONSIDERED

		Compliance using	Limit from	Avg period	Operating limit avg pd basis
Proposed Option 1 (Facility Choice).	CEMS	Multi-metal CEMS	CEMS Std	10 hour.	
Proposed Option 2 (Facility Choice).	Good PM Control	PM CEMS (see PM for Others).	Comp Test	10 min	Avg of Max 10 min RAs.
				1 hour	Avg over all runs.
	Max Inlet Temp to Dry PM APCD.	Same	Comp Test	10 min	Avg of Max 10 min RAs.
				1 hour	Avg over all runs.
	Max Total SVM and LVM Feedrates.	Feedstream Analysis	Comp Test	12 hour	Avg over all runs.
	Max Pumpable LVM Feedrate.	Feedstream Analysis	Comp Test	12 hour	Avg over all runs.
	Max Chlorine Feedrate.	Feedstream Analysis	Comp Test	12 hour	Avg over all runs.

a. Evaluation of Monitoring Options. EPA proposes two compliance options for the SVM and LVM standards: use of a multi-metal CEMS (MM CEMS) or compliance with limits on operating parameters. A facility would be allowed to use either of these options to demonstrate compliance. We are not proposing to require the use of a CEMS because a CEMS is not commercially available for LVMs and SVMs at this time, and the Agency is uncertain whether a CEMS that could meet the proposed performance specifications discussed below would be available at promulgation of the final rule.

b. Option 1: Use of a Multi-metal CEMS to Document Compliance. EPA is proposing to allow the use of a MM CEMS for compliance with the Hg, SVM, and LVM standards. If a facility elects to use a MM CEMS, limits on operating parameters would not be required.[148]

EPA is proposing to allow the use of a MM CEMS (and may require the use of MM CEMS if they would be commercially available by the promulgation date of the final rule) because it is difficult to ensure compliance with the emission standards by limiting operating parameters. Sampling and analysis of feedstreams to monitor metals feedrate has drawbacks in that representative sampling is sometimes difficult and expensive to achieve,[149] and the available analytical methods may not extract all metals from some feedstreams (and thus metal feedrates may be higher than indicated by analysis). In addition, it is often difficult to use limits on operating parameters of the metal emission control device to ensure that collection efficiency is maintained. It is also difficult to ensure that the other major factors that can affect metals emissions are adequately addressed by operating limits. For example, factors that affect metal volatility and subsequently metals emissions may include chlorine feedrates, combustion chamber temperature, and temperature at the inlet of the emission control device. Finally, the common process of spiking metals during compliance testing to ensure an adequate operating envelope is expensive, potentially dangerous to the testing crew that must handle the toxic metals, and causes higher than normal emission rates during compliance testing. If a MM CEMS were available, there would not be a need to spike metals during compliance testing.

i. How to Address Metals that a CEMS May Not Be Able to Measure. Several MM CEMS are currently under development, and not all of them will be able to measure all metals in the SVM (Pb and Cd) and LVM (As, Be, Cr, and Sb) groupings. Clearly, a MM CEMS cannot be used to document compliance for a metal it cannot measure. For metals a MM CEMS cannot measure, it is proposed that facilities assume that all of that metal fed is emitted at the stack and that this metal feedrate be used in calculating the emissions for the metal group. Alternately, EPA could decide that a MM CEMS which does not measure all the metals could not be used as CEMS for compliance with the SVM and LVM standards. EPA invites comment on this issue.

For example, x-ray fluorescence analyzers do not measure Be. If a facility chooses to use a MM CEMS which employs an x-ray fluorescence analyzer, it would take the MM CEMS results for As, Cr, and Sb, and the mass feedrate for Be (corrected to effluent concentrations by dividing by the average gas flowrate) and sum the four together. This would constitute the LVM emissions for the averaging period that would be used to determine compliance.

ii. Performance Specifications for a MM CEMS. The performance specification for a MM CEMS is proposed here as Part 60, Appendix B, Performance Specification (PS) 10. Lacking a commercially available MM CEMS to test prior to developing the performance specification created unique challenges to developing a MM CEMS PS. The Agency's approach to developing the PS was to base performance criteria as much as possible on existing performance specifications. The Agency also worked closely with MM CEMS developers, through the American Society of Mechanical Engineers, to ensure that the MM CEMS PS would be representative of the performance of commercially available devices. EPA specifically invites comment on the performance specification.

It is also proposed that special quality assurance (QA) requirements also pertain to MM CEMS. (See subsection F.1. of this section for more information on CEMS QA requirements.) We propose that the owner/operator perform a relative accuracy test audit (RATA) on the MM CEMS at least once every three years (five years for small on-site facilities). The RATA compares the output of the MM CEMS to the reference method. For the purposes of these source categories, the reference method for stack metals determinations is the current BIF Method 0012 (SW–846 Method 0060). The QA requirements also propose that an absolute calibration audit (ACA) be conducted in years the RATA is not

[148] Although a site-specific limit on PM would also not be required for compliance with the SVM and LVM emission standards, it would be needed to comply with the D/F standard.

[149] We note that several cement and light-weight aggregate kilns have been fined because of inadequate feedstream analysis plans.

conducted. The ACA would involve making nine measurements using an NIST traceable calibration standard at three levels for each metal the CEMS measures. NIST traceable solutions of metals are currently available which challenge the analyzer device only. EPA is currently developing the NIST traceable metal standard which will challenge the entire system, not just the analyzer.

c. Option 2: Use of Limits on Operating Parameters to Document Compliance. If a source elects not to use a MM CEMS (or a CEMS is not commercially available), the rule would require the source to establish a site-specific PM limit and comply with limits on metals feedrate, chlorine feedrate, and maximum temperature at the inlet to the PM control device. These limits would be established during the comprehensive performance test when the source demonstrates compliance with the emission limits by manual stack sampling.

i. PM Limit. SVM and LVM (and adsorbed D/F) are controlled by the PM control device. To ensure that the collection efficiency of the PM device is maintained after the comprehensive performance test, EPA is proposing to require that a PM limit be established as the lower of the level occurring during the SVM, LVM, and D/F performance testing or the MACT standard. For PM monitoring requirements see section 7, below.

ii. Maximum Inlet Temperature to Dry PM APCDs. High inlet temperatures to dry PM APCDs can cause low recovery of metals in the APCD because at higher temperatures a larger portion of some metals will be in the vapor phase. (Dry PM control devices do not control vapor phase metals.) This happens because metal volatility increases with increasing temperature. Therefore, EPA proposes that the inlet temperature to a dry PM APCD be maintained at a level no higher than that during the comprehensive performance test.

The Agency proposes that maximum inlet temperature to a dry PM APCD be maintained on both a 10-minute and a one-hour average. The 10-minute average would be the average of the maximum inlet temperatures experienced during each compliance test run and the one-hour average would be the average over all runs.

iii. Maximum SVM and LVM Feedrate Limits. Given the correlation between feedrate and emission rate, the rule would limit feedrate of SVM and LVM to levels fed during the comprehensive performance test. For LVM, feedrate limits would be set on both pumpable liquids and total feedstreams separately. A separate limit is proposed for pumpable feedstreams because metals present in pumpable feedstreams may partition between the combustion gas and bottom ash (or kiln product) at a higher rate than metals in nonpumpable feedstreams.

For SVM, the feedrate limit would apply to all feedstreams. Separate limits would not be established for pumpable versus total feedstreams. This is because partitioning between the combustion gas and bottom ash or product does not appear to be affected by the physical state of the feedstream. [150]

Sources would be required to perform sampling and analysis of all feedstreams (including hazardous waste, raw materials, and other fuels and additives) for SVM and LVM content to document compliance with the feedrate limits. See also the discussion in section II.F.2. below for other requirements to document compliance with feedrate limits.

The rule would base the feedrate limit for SVM and LVM on a twelve-hour average basis. The limit would be established as twelve times the average hourly feedrate during the comprehensive performance test. Also, facilities would be required to record not only the total feed at each individual feed location for SVM and LVM, but the total sum of the SVM feed and the LVM feed at the various locations.

As mentioned above in Subsection B, this twelve-hour average is inconsistent with the ten-hour averaging period for metals CEMS. CEMS should have longer averaging periods than operating parameters such as feedrates. Therefore, EPA invites comment on whether the averaging period for all SVM and LVM feedrates should be promulgated at six, instead of 12, hours. EPA believes a six-hour averaging period for all SVM and LVM feedrates is sufficiently conservative, relative to the CEMS averaging period and achievable.

The grouping of metals by volatility means that it is possible for one metal within the volatility group to be used during performance testing as a surrogate for other metals in that volatility group. For instance, As may be used as a surrogate during the comprehensive performance test for all LVMs. Similarly, lead could be used as a surrogate for Cd, the other SVM. In addition, either SVM could be used as a surrogate for any LVM. This will help alleviate concerns facilities have voiced regarding the need to spike each metal during BIF certification of compliance testing. Facilities would not need to spike each metal to comply with today's rule, but only one metal within the group (or potentially one SVM for both categories).

iv. Maximum Chlorine Feedrate. The rule would establish a maximum feedrate for total chlorine and chloride based on the level fed during the comprehensive performance test. A limit on maximum chlorine feed is necessary because most metals are more volatile in the chlorinated form. Although most of the volatilized SVM and LVM will condense to particulate form before entering the PM control device, the metals condense in a fine particulate fume that is more difficult for most PM control devices to collect than larger particulate.

The rule would require sampling and analysis of each feedstream for total chlorine and chloride to document compliance with the feedrate limit for total feedstreams. The maximum feedrate would be based on a twelve-hour average, and would be established as twelve times the hourly average feedrate during the comprehensive performance test. Note also the requirements for documenting compliance with feedrate limits discussed in section II.F.2.

Again, this twelve-hour average is inconsistent with the one-hour averaging period for HCl and Cl_2 CEMS. CEMS should have longer averaging periods than operating parameters such as feedrates. Therefore, EPA invites comment on whether the averaging period for chlorine feedrate should be promulgated at one, instead of 12, hours. EPA believes a twelve-hour averaging period for chlorine feedrate is not be sufficiently conservative, relative to the one-hour CEMS averaging period. However, EPA also believes that a shorter averaging period for feedrates may be difficult for some facilities, particularly those with diverse feedstreams, to achieve routinely. For this reason, the twelve-hour average is proposed and comment is sought on the one hour-average.

We note that if a facility uses a CEMS for compliance with the Hg, SVM, LVM, and HCl and Cl_2 standards, there would be no need for the facility to establish a total chlorine and chloride feedrate limit.

v. Special Requirements for Cement and Lightweight Aggregate Kilns that Recycle Collected Particulate Matter. Cement kilns and lightweight aggregate kilns that recycle collected particulate matter (which is primarily raw material that is entrained in kiln gas) pose a

[150] See USEPA, "Draft Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the Proposed MACT Standards", February 1996.

special problem to ensure compliance with metals emission standards. These sources (particularly cement kilns) feed a variety of feedstocks which makes feedstream analysis problematic. Also, when these sources spike metals in feedstreams for purposes of performance testing, it may take several hours or days to reach steady-state emissions.

Under the BIF rule, these sources must comply with one of three requirements: (1) Daily monitoring of collected PM to ensure that metals levels do not exceed limits that relate concentration of the metal in the collected PM to emitted PM; (2) daily stack sampling for metals; or (3) conditioning of the furnace system prior to performance testing to ensure that metals emissions are at equilibrium with metals feedrates. See 56 FR 7176–78 (February 21, 1991), existing § 266.103(c)(6), and proposed § 63.1210(n). We propose to continue to require that these sources comply with one of the three BIF alternative approaches for compliance with the MACT metals standards.

We understand, however, that the approach of daily monitoring collected PM to document compliance with the BIF metal standards (see Section 10 of Appendix IX to Part 266, "Alternative Methodology for Implementing Metals Controls") is not currently being used by any facility because it is too complicated and burdensome. (The methodology involves empirically relating the concentration of each metal in the emitted PM to the concentration of the metal in collected PM (i.e., the enrichment factor).) The Cement Kiln Recycling Coalition (CKRC) has suggested several revisions to the methodology [151] including: (1) Reduced testing frequency to establish and periodically confirm the enrichment factor; (2) assuming PM emissions [152] are at normal levels rather than maximum allowable levels; (3) a less conservative approach to estimate the enrichment factor for nondetect metals in collected PM (based on new sampling and analysis techniques and improved understanding of metals behavior); and (4) allowing all kilns to comply with a revised methodology, not just kilns that recycle collected PM. (The Agency believes the approach may, in fact, be appropriate for any HWC and invites comment on this matter.) In addition, CKRC raises several questions regarding the statistical foundations of the methodology.

The Agency invites comment on CKRC's recommendations to improve the collected PM monitoring methodology and on other approaches to make the methodology a more workable but effective compliance approach in lieu of monitoring feedrates of metals in feedstreams.

5. Carbon Monoxide (CO), Hydrocarbons (HC), and Oxygen (O_2)

EPA is proposing that facilities demonstrate compliance with the CO and HC standards by using CEMS. See proposed § 63.1210(p) and (q). EPA is not proposing a standard for O^2,[153] but all of the standards are based on correction to 7 percent O^2. Therefore, EPA proposes facilities monitor O_2 by using a CEMS. Many HWCs are already equipped with these monitors to comply with the existing incinerator or BIF regulations.

EPA proposes performance specifications for CO and O_2 CEMS in Performance Specification 4B of Appendix B, Part 60. EPA proposes a total hydrocarbon (THC) CEMS performance specifications based on the use of a heated flame ionization detector (i.e., heated FID). The HC PS will be Performance Specification 8A contained in Appendix B, Part 60. Both PSs are similar to those currently used for BIFs. The minor proposed changes are discussed below.

a. Averaging Period for CO and HC CEMS. The averaging period for CO and HC CEMS is proposed to be a one-hour rolling average. This is because this a one-hour rolling average is the same averaging period currently used in the BIF rule. Changing the averaging period would necessitate changing the emission standard (see Part Four, Section II) to maintain the same stringency for the different averaging period. EPA does not believe this is warranted, so the one-hour rolling average is proposed.

b. CO and HC CEMS Performance Specifications. Performance specifications for CO and O_2 CEMS are proposed here as Performance Specification 4B. This performance specification is essentially the same as the specification for BIFs provided in Appendix IX of Part 266. This performance specification is the very similar to existing Appendix B Performance Specifications 3 (for O_2) and 4A (for CO). It references many of the provisions of the two other specifications. What the proposed specification does do is describe how the current BIF CEMS performance specifications differ from performance specifications 3 and 4A and prescribes the BIF specifications in instances when differences occur. EPA is proposing specification 4B because it believes it is important to "grandfather" in the current performance specifications for administrative and cost reasons. Performance specification 4B does not differ substantially from the current Part 60 specifications. Therefore, EPA invites comment on whether to not propose performance specification 4B and instead rely on the existing specifications 3 and 4A.

Also, performance specifications 3 and 4A (which performance specification 4B refers to) requires a Relative Accuracy Test Audit (RATA) be performed on the CEMS. It also allows for a waiver of the RATA requirement if an acceptable substitute is used. The Agency is currently moving away from requiring RATAs for CEMS for which cylinder gases are available. Cylinder gases are available for both CO and O^2, so we invite comment on whether the RATA requirements not be included in performance specification 4B. EPA would still require facilities to perform quarterly absolute calibration audits (ACAs) using calibration error (CE) test procedures for these CEMS. EPA invites comment on whether the RATA requirement should not be promulgated and whether just a quarterly ACA is adequate without a RATA.

HC CEMS performance specifications are proposed here as Performance Specification 8A. It is identical to the performance specification contained in section 2.2 of Appendix IX of Part 266, except the quality assurance section has been deleted and placed in the appendix to Subpart EEE, Part 63, to be consistent with the Agency's approach to Part 60 performance specifications.

There is an existing performance specification, number 8, for a volatile organic compound (VOC) CEMS. Performance specification 8 does not rely on heated sampling lines and detector. A cold VOC monitor does not measure less volatile hydrocarbons which, due to heating, are measured by a heated FID but not a cold VOC monitor. (Heavy hydrocarbons would condense out in the sampling line and in the analyzer in a VOC CEMS and not be measured as hydrocarbon emissions. Therefore, a VOC CEMS measures a subset of what a heated FID measures.) Using the VOC performance specification would be problematic because the emission standard was

[151] See letter from Craig Campbell, CKRC, to James Berlow, EPA, undated but received on February 20, 1996.

[152] Note that PM emissions from CKs are comprised primarily of raw material entrained in the kiln off-gas. The material is known as cement kiln dust (CKD).

[153] Except that batch-fired HWCs would be required to comply with a minimum combustion chamber oxygen level prior to feeding a batch to maintain compliance with the D/F standard.

established using the results from heated FIDs, not cold VOC CEMS. EPA believes allowing compliance with a CEMS that measures only a subset of the pollutants represented by the standard is inappropriate. For this reason, we decided against proposing the use of performance specification 8. EPA believes it is appropriate to propose performance specification 8A to "grandfather" in the current specifications and keep compliance monitoring in agreement with how the standard was derived.

One issue that has arisen during the implementation of the BIF rule is that the stated span values for the CO CEMS may lead to high error in the facility's calculated emission value. For instance, a CK may analyze for CO emissions in the bypass duct, and analyses in bypass ducts can have very high oxygen correction factors, on the order of 10. At the low range CO span of 200 ppm with an acceptable calibration drift of 3 percent, or 6 ppm, this means that error in the standard due to calibration drift would be 60 ppm if the oxygen correction factor is ten. An absolute calibration drift of 60 ppm is more than half the CO standard of 100 ppm and many believe this is unacceptable.

Therefore, EPA wishes to clarify the ranges for CEMS, stating that the spans for low and high ranges are expressed at an oxygen correction factor of 1. Facilities which normally operate at oxygen correction factors more than 2 would have to use CEMS with spans proportionately lower than the stated values, relative to the oxygen correction factor at the sampling point.

In the example above, where the oxygen correction factor is 10, the suggested value of the low range span for the CO CEMS would be 200 divided by 10, or 20 ppm. If the low CO range is 20, the oxygen correction factor is 10, and the calibration drift is 3 percent of the span of the range, then the absolute calibration drift would be 6 ppm.

Because the span value is a suggested value, the facility could use a 25 ppm span value to satisfy this requirement. This modification is contained in the CEMS Quality Assurance section of the proposed rules and would apply to the other CEMS except the oxygen CEMS, where the oxygen correction factor does not apply. It is proposed that corresponding changes be made to the BIF rule as well.

An issue which also relates to the oxygen correction factor is that it grows exponentially as oxygen levels increase, particularly at oxygen concentrations above 15 to 17 percent. Some facilities experience high oxygen correction factors at times of start-up or shut-down because combustion has just commenced or is just completing and, as a result, there is very high levels of excess oxygen in the combustor. For this reason, EPA invites comment on whether it would be appropriate to cap the oxygen correction factor at some multiplier above the facility's normal operating correction factor for a specified period of time, on the order of minutes, after a start-up or prior to a shut-down.

6. Hydrochloric Acid (HCl) and Chlorine Gas (Cl_2)

Table V.2.5 summarizes the proposed HCl/Cl_2 compliance monitoring requirements and other options being considered. See also proposed § 63.1210(o).

TABLE V.2.5.—PROPOSED HCl/Cl_2 COMPLIANCE MONITORING REQUIREMENTS AND OTHER OPTIONS BEING CONSIDERED

		Compliance using	Limits from	Avg period	Operating limit avg pd basis
Proposed Option 1 (Facility Choice).	Max Flue Gas Flowrate or Production Rate.	Same	Comp Test	1 hour	Avg of Max 1 hour RAs.
	Max Chlorine Feedrate.	Feedstream Analysis	Comp Test	12 hour	Avg over all runs.
	Min Press Drop, Wet Scrubber.	Press drop across scrubber.	Comp Test	10 min	Avg of Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Liq Feed Pressure, Wet Scrubber.	Pressure	Manuf Spec	10 min.	
	Min Liq pH, Wet Scrubber.	pH	Comp Test	10 min	Avg Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Liq/Gas Ratio, Wet Scrubber.	Scrubber liquid and gas flowrates.	Comp Test	10 min	Avg Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Sorbent Feedrate, Dry Scrubber.	Sorbent Feedrate	Comp Test	10 min	Avg of Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Carrier Fluid Flowrate or Nozzle Pressure Drop, Dry Scrubber.	Carrier fluid flowrate or pressure drop.	Manuf Spec	10 min.	
	Sorbent Specs, Dry Scrubber.	Brand and Type	Comp Test	N/A	Same brand and type.
Proposed Option 2 (Facility Choice).	CEMS	HCl and Cl2 CEMS	CEMS Std.	2 hours.	
Additional Option	Surrogate CEMS	HCl CEMS	Comp Test	2 hours	Avg over all runs.
	Factors Affecting Cl_2 Formation.	TBD	Comp Test	TBD	TBD.

a. Evaluation of Monitoring Options. The rule would allow sources the option of using separate CEMS to monitor HCl and Cl^2 emissions or to comply with limits on operating parameters.

HCl CEMS are commercially available and have been used at permitted municipal waste combustor sources and some HWCs for many years. Cl_2 CEMS are currently being marketed by a European manufacturer. Although the Agency prefers the use of CEMS whenever they are available for compliance monitoring, we are concerned that the use of CEMS to monitor HCl and Cl_2 emissions may not be cost-effective. This is because facilities are likely to be required to monitor chlorine feed to demonstrate compliance with the SVM and LVM standards anyway, given that a multi-metal CEMS may not be commercially available for some time.[154] Accordingly, the rule would allow, but not require, the use of CEMS for HCl and Cl_2.

We note that we considered the feasibility of allowing the use of an HCl CEMS only, whereby the HCl CEMS would be used as a surrogate for the HCl/Cl^2 standard. As discussed below, we determined, however, that this approach would be more complicated, more costly, have technical problems, and/or provide less assurance of compliance. We nonetheless invite comment on whether the use of an HCl CEMS as a compliance parameter for the HCl and Cl_2 standard could be a workable approach.

b. Compliance Using Limits on Operating Parameters. If a source elects not to use separate HCl and Cl_2 CEMS to demonstrate compliance with the HCl/Cl_2 standard, the rule would require the source to establish limits on the following operating parameters based on operations during the comprehensive performance test to ensure it maintains compliance with the standard: maximum feedrate of total chlorine and chloride from all feedstreams, and limits on the acid gas APCD operating parameters discussed below.

i. Maximum Flue Gas Flowrate or Production Rate. If flue gas flowrates exceed those during the comprehensive performance test, the HCl/Cl_2 collection efficiency of the control device may not be maintained which may result in emissions that exceed the standard. Therefore, EPA proposes that maximum flue gas flowrate be controlled to levels that are no higher than those during the performance test. Alternatively, CKs and LWAKs may establish a maximum production rate (e.g., raw material feedrate or clinker or aggregate production rate) in lieu of a maximum gas flowrate given that production rate directly relates to flue gas flowrate. The limit would be based on a one-hour average and be established as the average of the maximum hourly rolling average for each run of the comprehensive performance test.

ii. Maximum Total Chlorine or Chloride Feedrate. The rule would limit the amount of total chlorine or chloride fed in all feedstreams to levels that were fed during the comprehensive performance test demonstrating compliance with the HCl/Cl_2 standard. Sources would be required to perform sampling and analysis of each feedstream for total chlorine and chloride content to document compliance with the feedrate limit for total feedstreams. See also the discussion in section II.F.2 for other requirements to document compliance with feedstream limits.

The total chlorine and chloride feedrate limit would be averaged over a twelve-hour period and would be established as twelve times the hourly feedrate during the comprehensive performance test.

We again note that there is an inconsistency between this twelve-hour feedrate average and the proposed one-hour averaging period for HCl and Cl_2 CEMS. EPA invites comment on whether the averaging period for chlorine feed should be promulgated at one, instead of twelve, hours.

Note that if a facility uses a CEMS for compliance with the HCl and Cl_2, Hg, SVM, and LVM standards, no chlorine feed monitoring would be required.

iii. Wet Scrubber Parameters. Wet scrubbers can be used to control HCl and Cl_2 emissions. To ensure that the control efficiency of a wet scrubber is maintained at levels achieved during the comprehensive performance test, the rule would require sources to establish limits on the following operating parameters: pressure drop across the scrubber; liquid feed pressure; liquid (blowdown) pH; and liquid to gas flow ratio.

Pressure drop across a wet scrubber is an important parameter because it is an indicator of good mixing of the two fluids, the scrubber liquid and the flue gas. A low pressure drop would indicate poor mixing and, hence, poor efficiency. A high pressure drop would indicate good removal efficiency. Therefore, EPA proposes that the pressure drop across the scrubber be limited to the minimum level during the comprehensive performance test. Limits would be based on both a ten-minute and a one-hour average. The ten-minute average limit would be established as the average of the lowest ten-minute rolling average for each run, and the hourly average limit would be established as the average over all runs.

Scrubber liquid feed pressure is important because it directly relates to the amount of scrubber liquid pumped into the scrubber and is easier to measure than scrubber liquid flow directly. The more scrubber liquid pumped into the scrubber, the better the removal efficiency. If liquid flow were to decrease, the removal efficiency would also decrease. EPA proposes that minimum liquid feed pressure be maintained on a ten-minute average and that the limit be the minimum value established by the scrubber manufacturer.

The pH of the scrubber liquid is also important because, at low pH, the scrubber solution is more acidic and removal efficiency of HCl decreases. We propose that the pH be determined from the blowdown liquid. This is because it is the best indicator of scrubber efficiency by measuring pH of scrubber liquid. EPA proposes that minimum pH of the scrubber water be controlled on both a ten-minute and a one-hour average. The ten-minute average limit would be established as the average of the lowest ten-minute rolling average for each run, and the hourly average limit would be the average over all runs.

EPA solicits comment on whether the alkaline reagent (such as lime) concentration in the scrubber should be a control parameter for alkaline wet-scrubbers. This parameter is closely related to the just mentioned pH since the concentration of alkaline reagent in the scrubber will keep the scrubber liquid pH high. EPA believes this parameter is important because the alkaline reagent is what removes Cl_2 and, to a lesser extent, HCl from the flue gas. pH is a secondary indicator of this parameter. EPA's concern is alkaline reagent concentrations can be low enough to lower the efficiency of wet scrubbers yet buffer the scrubber liquid enough to maintain pH. However, the concentration of alkaline reagent in the scrubber liquid can not be continuously monitored as easily as pH. We invite comment on whether the concentration of alkaline reagent in the scrubber liquid should be a control parameter for wet scrubbers, whether this parameter should be in addition to or in lieu of the pH parameter, and what averaging period(s) such a parameter should have.

In addition, EPA invites comment on whether a ten-minute average is appropriate for pH (and/or alkaline reagent concentration). Some facilities may not automate their wet scrubbers to add scrubbing solutions as needed to maintain scrubber efficiency. Such facilities make up batches of virgin scrubber solution and add it to the scrubber liquid. In this case, it might be

[154] If we determine that multi-metal CEMS are commercially available at promulgation and require their use in the final rule, we may also require the use of CEMS to monitor HCl and Cl_2 emissions.

more appropriate to establish a parameter ensuring that batches of new scrubber solution is added to the wet scrubber prior to the scrubber liquid pH (and/or possibly alkaline reagent) reaching a certain level.

Liquid to gas flow ratio is another important wet scrubber parameter. A high liquid to gas flow ratio indicates good scrubber removal, while a low liquid to gas flow ratio indicates less efficient removal. EPA proposes that the minimum scrubber liquid to flue gas flow ratio be controlled on both a ten-minute and a one-hour average. The ten-minute average limit would be established as the average of the lowest ten-minute rolling average for each run, and the hourly average limit would be established as the average over all runs.

iv. Dry Scrubber Parameters. A dry scrubber removes HCl from the flue gas by adsorbing the HCl onto some sorbent, normally an alkaline substance like limestone. To ensure that the collection efficiency of the scrubber is maintained at comprehensive performance test levels, the rule would require sources to establish limits on the following operating parameters: sorbent feedrate; carrier fluid flowrate or nozzle pressure drop; and sorbent specifications.

Sorbent feedrate is important because, when more sorbent is fed into the dry scrubber, removal efficiency for HCl and Cl_2 will increase.[155] Conversely, lower sorbent feedrates tend to cause removal efficiency to decrease. Therefore, EPA proposes that the minimum sorbent feedrate into the dry scrubber be controlled on both a ten-minute and a one-hour rolling average. The ten-minute average limit would be established as the average of the lowest ten-minute rolling average for each run, and the hourly average limit would be established as the average over all runs.

Carrier fluid is some liquid or gas (normally air or water) which transports the sorbent into the dry scrubber. Without proper carrier flow to the dry scrubber the sorbent flow into the dry scrubber will decrease, and efficiency will also decrease. Nozzle pressure drop is also an indicator of carrier gas flow into the scrubber. At a relatively high pressure drop, more sorbent is carried to the dry scrubber. At lower pressure drop, less sorbent is carried to the scrubber. Therefore, the rule would require that carrier fluid flowrate or nozzle pressure drop be maintained to the minimum levels occurring during the comprehensive performance test. Limits would be established on both a ten-minute and a one-hour rolling average. The ten-minute average limit would be established as the average of the lowest ten-minute rolling average for each run, and the hourly average limit would be established as the average over all runs.

As was the case with maintaining the quality of carbon used in carbon injection and carbon bed systems for control of D/F and Hg, the rule would require that the quality of sorbent be maintained after the comprehensive performance test. Therefore, the rule would require sources to continue to use the same sorbent brand and type as they used during the comprehensive performance test. The rule would allow a source to obtain a waiver from this requirement from the Director, however, if the owner or operator: (1) documents by data or information key characteristics of the sorbent which controls HCl and Cl_2; (2) documents by data or information specification levels corresponding to those characteristics; and (3) complies with the specification.

As was the case for pH in wet scrubbers, EPA invites comment on whether a ten-minute average is appropriate for sorbent feedrate. Some facilities may not automate their dry scrubbers to add sorbent solutions as needed to maintain scrubber efficiency. Such facilities make up batches of virgin sorbent solution and add it to a dry scrubber feed tank containing the sorbent. In this case, it might be more appropriate to establish a parameter ensuring that batches of new scrubber sorbent is added to the dry scrubber prior to the sorbent concentration in the dry scrubber reaching a certain level.

c. Compliance Using Separate HCl and Cl_2 CEMS. The rule would allow sources to use separate HCl and Cl_2 CEMS to demonstrate compliance with the HCl/Cl_2 standard. This option would allow for the direct measurement of the standard, at the top of the monitoring hierarchy, but does so at a higher cost relative to the previous option of compliance with limits on operating parameters. EPA seeks comment on whether the use of separate HCl and Cl_2 CEMS is in fact cost-effective and should be required in the final rule in lieu of allowing compliance with operating limits.

Under this option, compliance would be demonstrated by measuring HCl emissions (in ppmv) with the HCl CEMS and measuring Cl_2 emissions (in ppmv) with a Cl_2 monitor. Since the HCl and Cl_2 standard is based on equivalents of HCl, the ppmv emissions of Cl_2 must be multiplied by two and added to the HCl emissions to determine the combined emission level. If this result is lower than the emission standard, then the facility is in compliance with the HCl/Cl_2 standard.

i. HCl CEMS. HCl CEMS are proven technologies, available worldwide, and are currently required in the permits of many MWCs. Several HWCs also use HCl CEMS. HCl CEMS are not expensive; the purchase cost are \$12,000 to \$55,000.[156]

Performance specifications for a HCl CEMS are proposed today as Performance Specification 13 of Appendix B, Part 60. The proposed appendix to Part 63, Subpart EEE, also proposes certain RATA and ACA requirements.

ii. Cl_2 CEMS. Cl_2-specific CEMS are currently being marketed by Opsis, a European CEMS manufacturer. These devices have been certified for use in Germany and can also be used to monitor for HCl, CO, NO_X, SO_X, and NH_3. This device would likely be a cost-effective option for new facilities or existing facilities purchasing a suite of new CEMS.

Performance specifications for Cl_2 analyzers are proposed here as Performance Specification 14 of Part 60, Appendix B. The proposed appendix to Part 63, Subpart EEE, also proposes certain RATA and ACA requirements.

d. Consideration of Using an HCl CEMS Only. EPA requests comment on whether the use solely of an HCl monitor for compliance with the HCl/Cl_2 standard could be workable. If so, this approach could be allowed as an option in the final rule.

This approach would provide direct monitoring of the HCl portion of the standard and act as a surrogate monitor for the Cl_2 portion. However, EPA is concerned that poor correlation between HCl and Cl_2 emissions may result in HCl being a poor surrogate for Cl_2. For an HCl CEMS alone to be a feasible surrogate monitor for the HCl/Cl_2 standard, this and other issues discussed below must be addressed.

Cl_2 and HCl form a post-combustion equilibrium. At temperatures above 1000°F the equilibrium is quite stable and correlation is good. At lower temperatures, though, formation of Cl_2 is favored over HCl and the equilibrium no longer holds. All HWCs experience temperatures lower than 1000°F, so the HCl/Cl_2 equilibrium does not hold. The formation of Cl_2 under these circumstances is dependent on a

[155] EPA notes that sorbent to a dry scrubber should be fed in excess of the stoichiometric requirements for neutralizing the anion component in the flue gas. Lower concentration of sorbent, even above stoichiometric requirements, would limit the removal of acid gasses.

[156] See Chapter 2.6 of USEPA, "Draft Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the Proposed MACT Standards", February 1996.

number of site-specific conditions, such as the post-combustion temperature profile and hence the rate of conversion to Cl_2, and residence time from the point where Cl_2 formation is favored to the stack. In fact, these conditions may vary at any given facility depending on the circumstances at any time after combustion. Given that HCl appears to be a poor indicator of Cl_2 emissions, direct measurement of Cl_2 is desired.

If this issue can be adequately addressed, the use of only a HCl CEMS to demonstrate compliance with the standard would involve determining a site-specific HCl limit representative of the combined HCl/Cl_2 emissions. This would involve a comprehensive performance test at maximum chlorine feed and under conditions which are worst-case for Cl_2 formation and emissions and optimal for HCl removal. The resulting HCl level would become the site-specific limit to demonstrate compliance with the HCl/Cl_2 standard.

Limits on operating conditions would also be necessary to ensure that the ratio of Cl_2 to HCl emissions is not higher than experienced during the comprehensive performance test, and that HCl control equipment is *not operated more efficiently* (note emphasis) after the performance test. Otherwise, the HCl emissions during normal operations may under-predict combined HCl and Cl_2 emissions.

7. Particulate Matter (PM)

As discussed above in the sections on operating limits for compliance with the D/F, SVM, and LVM standards, a PM limit would be established as the lower of either the levels that occurred during the comprehensive performance test to demonstrate compliance with the D/F, SVM, and LVM emission standards (as a compliance parameter for those standards) or the national PM standard. Table V.2.6 below summarizes the proposed monitoring requirements and options being considered.

TABLE V.2.6.— PROPOSED PM MONITORING REQUIREMENTS AND OTHER OPTIONS BEING CONSIDERED

		Compliance using	Limits from	Avg. period	Operating limit avg. pd basis
Proposed Requirement	CEMS	PM CEMS	CEMS Std	2 hours.	
			D/F or SVM/LVM Comp Test.	10 Min	Lowest Avg Min 10 min RAs.
				1 hour	Lowest Avg over all runs.
Option: Feedstream and Operating Parameter Limits.	Max Flue Gas Flowrate or Production Rate.	Same	Comp Test	1 hour	Avg of Max 1 hour RAs.
	Max Ash Feedrate	Feedstream Analysis	Comp Test	12 hour	Avg over all runs.
	Min Press Drop, Wet Scrubber including Ionizing Wet Scrubber.	Press drop across scrubber.	Comp Test	10 min	Avg of Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Scrubber Feed Press, Wet Scrubber including Ionizing Wet Scrubber.	Pressure	Manuf Specs	10 min	N/A.
	Min Blowdown or Max Solid Content in Liq, Wet Scrubber including Ionizing Wet Scrubber.	Liquid Flowrate or Solid Content.	Comp Test	10 min	Avg of Min/Max 10 min RAs.
				1 hour	Avg over all runs.
	Min Liq/Gas Ratio, Wet Scrubber including Ionizing Wet Scrubber.	Scrubber Liquid and Gas Flowrates.	Comp Test	10 min	Avg Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Pressure Drop, Fabric Filter.	Pressure Drop Across Fabric Filter.	Comp Test	10 min	Avg Min 10 min RAs.
				1 hour	Avg over all runs.
	Min Power Input	Voltage	Comp	10 min	Avg Min 10.
				1 hour	Avg over all runs.

a. Evaluation of Monitoring Options. Continuous PM CEMS are commercially available and installed on stacks worldwide. EPA proposes that facilities maintain continuous compliance with the PM standard through the use of a PM CEMS. PM CEMS are installed for compliance purposes in the European Union (EU) with the EU hazardous waste combustor PM standard of 13 mg/dscm. Germany has been in the forefront in the development, certification, and application of PM CEMS.

i. Evaluation of PM CEMS feasibility and use. EPA in the past has relied on opacity monitors to indicate compliance with a PM standard. Opacity CEMS used in accordance with performance specification 1 have been a valid tool to indicate PM APCD failures and the necessity for corrective action as a result. However, opacity monitors are not, relatively speaking, very sensitive. They are typically useful down to about 45 mg/dscm. Today's proposed regulation will limit PM emissions to 69 mg/dscm. Opacity monitors would not be sufficient because to maintain compliance with 69 mg/dscm, facilities would generally need to operate around 35 mg/dscm. Thus, emissions will typically be below the detection limit of opacity monitors most of the time. While normal emission levels below the detection limits of CEMS are acceptable, facilities often desire the detection limit to be below one-tenth of the emission limit, or 7 mg/dscm for the proposed standard. This gives one sufficient warning of how emissions are changing before the emission limit is approached, and allows the facility, based on CEMS readings, to change operations as necessary to be in compliance with the applicable standard. EPA has relied on opacity CEMS because there has not been available an acceptable quantitative monitor for continuous mass PM emissions. Opacity CEMS standards are established at a given percent opacity limit (generally 5–10 percent) over a 6-minute averaging period and, as stated, cannot distinguish particulate concentrations below 45 mg/dscm. In other words, opacity CEMS as they are currently used can be used to ensure PM APCD efficiency but not to determine mass emissions in real time.

If possible, EPA desires a quantitative, continuous measure of PM mass concentration rather than opacity. EPA has recently determined that CEMS do exist that do this: beta gauges and light scattering based CEMS. These CEMS rely on calibration of the device to manual gravimetric measurements. Therefore, EPA is proposing use of CEMS based on the availability of these newer technology PM CEMS and a related PM CEMS Performance Specification for monitoring PM mass concentration. This PS does not specify the type of CEMS used and allows the use of opacity monitors, which can also be calibrated to relate opacity to mass concentration. However, opacity is more sensitive to PM size distribution and physical properties, and has high detection limitations relative to the newer PM CEMS. As a result the calibration will be less stable for an opacity CEMS calibrated according to the proposed performance specification than one of the newer technology instruments.

EPA believes that mass emission monitoring is feasible, and opacity monitoring has borderline sensitivity relative to today's proposed PM emission limit. The newer technology PM CEMS can give a real-time quantitative measure of PM mass emissions while opacity CEMS cannot. From a cost standpoint opacity monitoring is no less expensive than the alternative proposed here. As a result, EPA proposes to require mass emission monitoring rather than opacity monitoring.

The German approach to using CEMS for PM compliance monitoring is based on the application of a practical engineering philosophy. PM CEMS are used despite the known sensitivities to various factors such as particle composition and size distribution since these devices are designed to minimize the impacts of these changes on the accurate measure of PM mass concentrations. The German experience on PM CEMS is that at controlled sources, i.e., those with low loading or equipped with PM control devices such as baghouses or ESPs, these sensitivities are not as important as they are at facilities with no control or high and/or highly varying grain loadings. The Germans have found that PM CEMS can be calibrated to manual methods to achieve a statistically reliable and enforceable calibration curve at controlled sources.[157]

At periods when the particle composition and size changes dramatically, the PM CEMS calibration is not valid. However, this occurs when fuel is changed or the PM control device fails and causes very high grain loadings to occur. To account for the PM CEMS' sensitivity to fuel type, the Germans mandate a new calibration be made whenever the fuel is changed. During times of high grain loading the PM CEMS cannot accurately determine how high the PM emissions were. But at controlled devices, this only occurs when the PM control device fails and/or otherwise exceeds the PM standard. Therefore, PM CEMS remain a reliable indicator of compliance with a PM standard.

In Germany, calibration of the PM CEMS defines a statistically derived site-specific calibration of the PM CEMS' response to various PM loadings. This is done by installing a plate in lieu of a bag in the baghouse or by varying the ESP voltage to allow various grain loadings to flow through the control device to the stack. The PM CEMS and manual methods are run simultaneously at various PM loadings to determine emissions. These PM CEMS outputs and manual methods results are used to statistically define the calibration curve for the PM CEMS.

EPA has tested several of these devices at a hazardous waste incinerator and a cement kiln and has found that PM CEMS maintain calibration, even in a water saturated flue gas.

ii. Types of PM CEMS available. The many types of PM CEMS fall into three broad categories: accumulated mass, impaction, and light scattering.

For accumulated mass PM CEMS, stack gas is extracted isokinetically and particles are deposited on a sensing surface for mass measurement. Two types of accumulated mass devices are β-radiation attenuators, commonly referred to as "β-gauge" devices, and loaded oscillators. EPA has tested a stack-type β-gauge but testing was inconclusive.[158] EPA knows of no available stack-type loaded oscillator device.

For impaction devices, particles impact upon a sensor surface due to the inertia imparted by the approaching gas stream. Two types of impaction PM CEMS are contact electrification, commonly referred to as "triboelectric", and acoustic energy. Stack-type triboelectric devices are commercially available and in widespread use in France. However, EPA has concern about triboelectric PM CEMS since the physical property of PM which they work on, contact electrification, can vary the most from particle to particle even at controlled sources. For this reason, facilities should be aware that triboelectric PM CEMS may not be quantitative enough to be used for compliance with the PM standard. Acoustic energy PM CEMS are not in widespread use.

Light scattering CEMS are preferred in Germany and are believed to be the PM CEMS most suitable for making measurements at low particulate levels typical of a well controlled source. Light scattering PM CEMS operate by sending a light beam across a path and measuring the light reflected back to a sensor at some angle from the source light. Several hundred of these devices have been certified for stack-use in the EU. EPA has also tested a time-dependant optical transmission device. Under certain circumstances, it can give results comparable to those of the light scattering device.

To be in compliance with the PM limit, facilities would comply with the performance specifications and operating practices for the CEMS proposed here. If a PM CEMS is used at a facility, no feedstream or operating parameter limits will be necessary to document compliance with the PM limit. If a PM CEMS is not used, compliance with limits on feedstream and operating parameters will be necessary.

iii. Control of PM Emissions. We are proposing to use a PM CEMS as a compliance parameter to ensure: (1) compliance with the national MACT PM standard; and (2) that the collection efficiency of the PM control device is maintained at performance test levels achieved when documenting compliance with the SVM, LVM, and D/F standards. Thus, it is necessary to

[157] See Chapter 2.1 of USEPA, "Draft Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the Proposed MACT Standards", February 1996.

[158] See Chapter 2.1 of USEPA, "Draft Technical Support Document for HWC MACT Standards, Volume IV: Compliance with the Proposed MACT Standards", February 1996.

establish the PM limit as the lower of the level that occurs during the SVM, LVM, and D/F performance tests or the MACT standard. This is because a source could be operating well below the national PM standard during the performance test and, after the test, operate the PM control device at lower collection efficiency (e.g., to reduce operating costs, or because of reduced efficiency from "wear and tear"). In this case, the source could continue to be in compliance with the national PM standard, yet exceed the D/F, LVM, and SVM emission limits because of increased emissions of adsorbed D/F, LVM, and SVM.

To ensure that the collection efficiency is maintained while meeting the site-specific PM limit, the rule would require that feedstocks with normal levels of ash, i.e., those levels which the facility routinely experiences during normal operations, be fed during the performance test. This would preclude a source from artificially increasing the PM loading during the performance test using high ash feedstocks to obtain a high site-specific PM limit. If this were the case, the source could meet the PM limit during normal operations when feeding feedstocks with normal ash content while operating the PM control device under less efficient conditions. This could result in an increase in emissions of metals and D/F adsorbed onto PM. We invite comments on how to ensure that feedstocks with normal ash content are fed during the comprehensive performance test.

The comprehensive performance tests would be conducted as follows. During the D/F, SVM, and LVM comprehensive performance tests, the facility would make manual measurements of D/F and metals and CEMS measurements of PM. Emissions of PM would be limited to the national standard of 69 mg/dscm during the tests. Following the tests the facility would establish two site-specific limits for PM: a ten-minute limit to control perturbations and a one-hour limit to control average emissions. The ten-minute average would be based on the highest ten-minute rolling averages occurring during each comprehensive test. The hourly average would be the average of all one-minute averages occurring during each comprehensive test. (Note that, if the facility were to perform separate D/F and metals tests, the lowest of the two PM averages would be the applicable PM limit.)

The facility need not determine or record two-hour averages to document compliance with the MACT PM standard during normal operation, only during the comprehensive test. Since the one-hour average is the average of all one-minute averages during the comprehensive performance test and the time duration of the test is longer than two hours, the one-hour average would have a numerical value lower than the two hour national standard. Demonstration of compliance with a lower numerical limit over a shorter averaging period proves compliance with a higher number over a longer averaging period.

In lieu of a site-specific PM limit, EPA could limit key operating parameters for the PM control device to ensure that the device's collection efficiency is maintained at performance test level. We are concerned, however, that limiting key operating parameters (e.g., pressure drop across a fabric filter) may not be adequate because there are many complex operating and maintenance factors that affect collection efficiency of a PM control device. We believe that continuous monitoring of a surrogate emission (i.e., PM) is far preferable to continuous monitoring of operating parameters that less effectively relate to collection efficiency. (We note, however, that if the use of a PM CEMS is not required in the final rule, the rule would establish limits on the PM control device operating parameters as the next preferable approach.)

Also, EPA invites comment on allowing small on-site sources (defined in § 63.1208(b)(1)(ii) in the proposed regulations) to obtain a waiver from the requirement of installing a PM CEMS. If the waiver is promulgated and allowed by the permitting authority, the facility would demonstrate compliance with PM by establishing operating parameter limits described in subsection b, "Operating Parameter Limits," below.

iv. Proposed PM CEMS Performance and Calibration Specifications. There are existing performance specifications (PS) developed by the International Standards Organization (ISO) for PM CEMS. The ISO specifications have been modified slightly to account for the US regulatory environment. This PM CEMS PS is proposed here as Part 60, Appendix B, Performance Specification 11. EPA invites comment on this specification.

It is proposed that HWCs follow the German approach to using PM CEMS. This approach involves deriving a site-specific statistically derived calibration curve of PM CEMS response to manual methods results for each fuel type. When the facility changes fuel type or supplier, a new PM CEMS calibration would be performed.

It is proposed that PM CEMS be calibrated to the reference method, 40 CFR 60, Appendix A, Method 5. Performance specification 11 requires that at least 15 measurements be made at least three grain loadings. During calibration, Method 5 and the CEMS will be run simultaneously during each of the 15 measurements. The average output response from the CEMS is then compared to the results of each of the 15 measurements. Two calibration procedures are possible for PM CEMS: linear and quadratic. The performance specification proposes that facilities first calculate the calibration using the linear relationship, then the quadratic. If the quadratic relationship proves to be a better fit to the data, it is used. Otherwise the linear relationship is used.

The quality assurance (QA) requirements for HWC CEMS propose that an absolute calibrations audit (ACA) be performed quarterly (every three months) and a relative calibration audit (RCA) be performed every 18 months (30 months for small on-site facilities). If the calibration has drifted, a new calibration shall be performed. An absolute calibration audit would not be required during quarters when a response calibration audit is conducted.

Also, there is a concern that the suitability of a calibration curve for a PM CEMS is dependant on the type of fuel used. For the purposes of this source category it is proposed that fuel type be defined by the physical state of the fuel: gas, liquid, or solid. Therefore, a facility that burns only gas, liquid, or solid fuel would need to generate only one calibration curve. Facilities which wish to burn a combination of fuel types would need to establish a single or multiple calibration curves which encompasses all combinations of fuel mix. Facilities which use multiple curves must describe in their quality assurance plan their methodology for deriving the curves and how the proper curves will be used during normal operation. See the TBD for more information on calibration due to fuel changes.

b. Operating Parameter Limits. If the final rule does not require the use of a PM CEMS, we would rely on limits on ash feedrate and key PM APCD operating parameters to ensure continued compliance with the PM emission standard. In addition, if the provision allowing small on-site facilities (defined in § 63.1208(b)(1)(ii) of the proposed regulations) to waiver the PM CEMS requirement is promulgated and the facility elects not to use a PM CEMS, the facility would have to establish these operating parameter limits to document compliance with the PM emission limit.

i. Maximum Flue Gas Flowrate or Production Rate. EPA is concerned that flue gas flowrates exceeding those of the performance test could decrease the collection efficiency of the PM control device. For that reason, EPA proposes limiting flue gas flowrate. Alternately, CKs and LWAKs could limit production rate (e.g., production rate of clinker or aggregate, or raw material feedrate) since production rate is proportional to flue gas flowrate. Either flue gas flowrate or production rate would be established as a one hour average. The one-hour average would be the average of the maximum hourly rolling averages occurring during the comprehensive performance tests.

ii. Maximum Ash Feedrate. A portion of the ash fed into a HWC is emitted as PM. To limit the amount of PM emitted at the stack, maximum ash feedrate would be used as a compliance parameter. As set out in the BIF rule, however, EPA does not believe that an ash feedrate limit is necessary for CKs or LWAKs because entrained raw materials comprise virtually all of their PM emissions. See 266.103(c)(1)(iv) and 56 FR at 7146. Thus, for a cement or lightweight aggregate kiln, variation in ash content of the hazardous waste is not likely to have a significant effect on PM loading at the inlet to the PM control device or PM emissions. Conceptually, however, the feedrate of ash in liquid feeds and the rate at which air pollution control dust (e.g., cement kiln dust) is returned to the kiln may have significant effect on the loading of *small* particles. Absent a CEMS, EPA seeks comment on addressing this issue.

It is proposed that the limit on ash feedrate be established on a one-hour average to coincide with the other control parameters for PM. This one-hour average for ash feed is also consistent with and conservative relative to the two-hour (national) averaging period for a PM CEMS.

iii. Wet Scrubber Parameters, including Venturi and Ionizing Wet Scrubbers. Venturi and other wet scrubbers remove PM by capturing particles in liquid droplets and separating the droplets from the gas stream. The wet scrubber parameters pertinent to PM control are minimum pressure drop across the wet scrubber, minimum liquid feed pressure to the wet scrubber, minimum blowdown or solids content of the scrubber liquid, and minimum liquid to gas ratio. Ionizing wet scrubbers have the additional parameter of minimum power input. Parameters for pressure drop, liquid feed pressure, and liquid to gas ratio are described, below, in the section dealing with HCl and Cl_2 standard. Parameters for blowdown or solids content and power input to an IWS are described in the next paragraphs.

Blowdown is the amount of scrubber liquid removed from the process and not recycled back into the wet scrubber. Blowdown is an important wet scrubber parameter because, as scrubber liquid is removed and not recycled, solids are removed as well and not recycled. Alternately, solids content can be used as a direct indicator of solids content in the scrubber liquid. When the scrubber liquid contains high solids, there is a lack of a driving force for more solids to go into solution. Conversely, when little or no solids are in the scrubber liquid, there is a strong driving force for liquids to go into solution. Therefore, establishing a maximum solids content for a wet scrubber is desirable.

If a PM CEMS is not required in the final rule, we propose that either a minimum blowdown or a maximum solids content limit be established. Both would be established on both a ten-minute and a one-hour average. The ten-minute average would be the average of the minimum, for blowdown, or maximum, for solids content, ten-minute averages occurring during each run of the comprehensive performance test. The one-hour average would be the average over all runs.

Power input to an IWS is important because IWSs charge the particulate prior to it entering a packed bed wet scrubber. The charging aids in the collection of the particulate onto the packing surface in the bed. The particulate is then washed off of the packing by the scrubber liquid. Therefore, power input to an IWS is a key parameter to the proper operation of an IWS and EPA proposes that facilities establish a limit on minimum power input to an IWS. This limit would be established on both a ten-minute and one-hour average. The ten-minute average would be the average of the minimum 10 minute averages occurring during each run of the comprehensive performance test and the one-hour average would be the average across all runs.

Facilities may obtain a waiver from these requirements for wet scrubbers from the Director if they can identify other key parameters which affect good control of PM through their use and use these parameter limits during normal operation.

iv. Fabric Filters. Fabric filters (FFs), also known as baghouses, are used to filter PM from stack flue gas prior to the stack. Performance of a fabric filter directly affects PM emissions. Filter failure is typically due to filter holes, bleed-through migration of particulate through the filter and cake, and small “pin holes” in the filter and cake. Since low pressure drop is an indicator of one of these types of failure, pressure drop across the fabric filter is the best indicator that the fabric filter has not failed.

If the final rule does not require the use of a PM CEMS, EPA proposes that a limit on minimum pressure drop across the fabric filter be established to ensure that collection efficiency is maintained. EPA proposes that this limit be established on both a ten-minute and a one-hour average. The ten-minute average would be the average of the single lowest 10-minute rolling averages occurring during each run of the comprehensive performance test. The one-hour average would be the average over all runs.

EPA believes it would also be useful to establish other, potentially better parameters as measures of collection efficiency for the fabric filter. Collection efficiency from fabric filters is a function of filter type, face velocity (which in turn is a function of flue gas flowrate and filter material area), cake build-up on the filter, and particulate matter characteristics (primarily particulate size distribution). Unfortunately, the Agency is not aware of a way to establish parameters for these indicators of collection efficiency. Therefore, EPA invites comment on what type of parameters could be used as better indicators of collection efficiency and on what averaging period they should be established.

Facilities may obtain a waiver from these requirements for PM APCDs from the Director if they can identify key parameters which affect good control of PM through their use and use these parameter limits during normal operation.

v. Electrostatic Precipitators. Electrostatic precipitators (ESPs) capture PM by charging particulate in an electric field and collecting the charged particulate on an inversely charged collection plate. Electrical power is the product of the electrical voltage and the current. High voltage leads to high magnetic field strength which results in an increase in the saturation charge level the particle can obtain, which in turn causes an increase in charged particle migration to the collection plate. High current leads to an increased particle charging rate and increased electric field strength near the collection electrode due to a phenomena called “ionic space charge” and, thus, increased collection at the plate. High voltage is also important on the collection plates, since this will increase collection of the inversely charged particles on the plates. Therefore, maximizing both voltage and current is desirable for good collection. Therefore, power input to the ESP is a direct function of ESP efficiency since, the lower the power input, the lower the collection efficiency.

For these reasons, EPA proposes that facilities establish a limit on minimum power input to the ESP to ensure that collection efficiency is maintained at performance test levels if the final rule does not require the use of a PM CEMS. This limit would be established on both a ten-minute and one-hour average. The ten-minute average would be the average of the minimum 10-minute averages for power input which occurs during each run of the comprehensive performance test. The one-hour average would be the average over all runs.

Since very high power can be supplied to either the charging or collection parts of an ESP, EPA also invites comment on whether power input to each part of the ESP should be controlled.

Facilities may obtain a waiver from these requirements for ESPs from the Director if they can identify more appropriate parameters that would ensure that collection efficiency is maintained at performance test levels.

8. Waiver of Operating Limits

We believe that a provision to waive any or all of the operating limits discussed in this section is appropriate given that many sources will employ unique and innovative combinations of emission control devices. Fixed, national monitoring and compliance requirements may not be applicable or reasonable in some situations. Accordingly, the proposed rule would allow the Director to grant a waiver from any or all of the operating limits discussed in this section if a source documents in writing that other, more appropriate operating limits would ensure compliance with the pertinent emission standard. See proposed § 63.1210(s). The documentation must include recommended averaging periods for the alternative operating limits, and the basis for establishing the limits based on operations during the comprehensive performance test.

9. Request for Comment on Waiver of CEMS Requirements for Small, On-Site Sources

We specifically invite comment on whether the final rule should allow small, on-site sources the option of not having to use a mercury and PM CEMS. Under a waiver, the source would be required to comply with the operating limits discussed above in lieu of using a CEMS. As a separate issue, EPA is proposing less stringent RATA and RCA frequencies for the mercury and PM CEMS (and testing in general, see section III of this part) for these sources.

Sources with a gas flowrate less than 23,127 acfm would be considered small. See discussion in Part Four, Section I, for the rationale for that demarcation between small and large units. See also § 63.1208(b)(1)(ii) of the proposed rule. We believe that this waiver could be warranted because small, on-site sources may be better able to effectively sample and analyze feedstreams to ensure compliance with feedrate limits, and because their emission rates (i.e., environmental loading) would be less than from large sources.

We also invite comment on basing the definition of what is small on a gas flowrate and the value proposed for defining what is a small source.

D. Combustion Fugitive Emissions

Operating parameters on combustion fugitive emissions are necessary to ensure that these emissions do not leak from the combustion device, APCDs, or any ducting connecting them. The current BIF and incinerator rules establish provisions for controlling combustion fugitive emissions (see §§ 266.102(e)(7)(I) and 264.345(d)). Today's proposed rule would require sources to comply with those requirements, with minor clarifications. See proposed § 63.1207(b). Specifically, it is proposed that sources shall:

—keep the combustion chamber and all ducting and devices from the combustion chamber to the stack totally sealed against fugitive emissions; or
—maintain the maximum pressure on an instantaneous basis in the combustion chamber and in all ducting and devices from the combustion chamber to the stack at lower than ambient pressure at all times; [159] or
—use some other means of control demonstrated to provide equivalent control. Support for such demonstration shall be included in the operating record with prior written approval obtained from the Director.

In addition, the rule would require the owner or operator to specify in the operating record the method used for fugitive emission control.

EPA continues to believe this approach (already in effect for incinerators and BIFs) is appropriate and is proposing to retain it here. There are cases, however, particularly at munitions incinerators, where combustion fugitive emissions are a problem even when less than ambient pressure is apparently being maintained. In these cases, the Director may require in the RCRA operating permit continual video surveillance of the equipment to ensure there are no leaks. If leaks occur, each occurrence is a violation, and would require an automatic waste feed cut-off (AWFCO). In addition, as with all AWFCOs, the owner or operator must identify the cause of the leak and identify remedial action taken to minimize future occurrences.

We are also proposing to make conforming changes to the existing BIF and incinerator requirements for combustion fugitive emissions. See proposed §§ 264.347(e), 265.347(c), and 266.102(e). The effective date of these conforming requirements would be 6 months after publication of the final rule in the **Federal Register**, and so would take effect before the MACT standard compliance date.

E. Automatic Waste Feed Cutoff (AWFCO) Requirements and Emergency Safety Vent (ESV) Openings

We explain in this section that the source must be in compliance with the CEMS-monitored emission standards and the operating limits at all times. This would be ensured by requiring that all operating parameters for which limits would be established (as discussed above) must be interactive with an automatic waste feed cutoff (AWFCO) system. Further, we also describe the periodic reporting requirements that would apply if 10 AWFCOs that result in an exceedance of a CEMS-monitored emission standard or operating limit occur during any 60-day period. Finally we explain the consequences of, and reporting requirements for, emergency safety vent openings.

1. Automatic Waste Feed Cutoff System

Sources must be in compliance with the CEMS-monitored emission standards and operating limits at all times. See proposed § 63.1207 (a)(1) and (a)(2). If a facility exceeds a standard or operating limit, today's rule proposes that the hazardous waste feed be instantaneously and automatically cut off. This requirement now exists under current incinerator permits and the Agency's BIF rules (see § 266.102(e)(7)(ii)). After an AWFCO, the source must continue to monitor all AWFCO operating parameters (and

[159] That is, on an instantaneous basis, without an averaging period. The recording system must record the instantaneous values continuously.

CEMS-monitored emissions) and cannot begin feeding hazardous waste again until all parameters come within allowable levels. Further, to minimize emissions of regulated pollutants, including products of incomplete combustion that could result from the perturbation caused by the waste feed cutoff, combustion gases must continue to be routed through the air pollution control system after a cutoff, and minimum combustion temperature must be maintained for as long as hazardous waste remains in the combustion chamber.

As currently required under the BIF rule, all AWFCO parameters must continue to be monitored after an AWFCO, and hazardous waste firing cannot resume until all parameters are within allowable levels. Thus, all rolling averages must continue to be calculated even when hazardous waste is not being burned.[160]

Today's proposed rule would require the following parameters to be AWFCO parameters:[161]

—CEMS-monitored emission standards
—All applicable feedrate limits (e.g., hazardous waste, pumpable LVM metals, total SVM and LVM metals)
—Minimum combustion chamber temperature (each chamber)
—Maximum combustion chamber temperature
—Maximum temperature at the inlet to the initial dry PM control device
—Maximum combustion chamber pressure (if used to control combustion fugitive emissions)
—Maximum flue gas flowrate (or production rate)
—Minimum flue gas flowrate (where required (e.g., under § 63.1208(h)(1)) (or production rate)
—Limits on operating parameters of the emission control equipment (e.g., carbon injection rate)
—Failure of the Automatic Waste Feed Cut-off system.
—Whenever continuous monitoring systems (CMS) or the measurement component of the CMS registers a value beyond its rated scale.

We note that the current requirements for BIFs and incinerators do not require a AWFCO whenever a measurement component of the CMS registers a value beyond its rated scale or when the AWFCO system fails. To ensure that those standards conform with today's proposal, we are proposing to add this requirement to those rules. The effective date of these conforming requirements would be six months after publication of the final rule in the **Federal Register**, and thus would precede the MACT standard compliance date.

If an operating limit or CEMS-monitored emission standard is exceeded after the hazardous waste feed has ceased but while hazardous waste remains in the combustion chamber, it is a violation of the relevant emission standard.[162]

As currently required for BIFs, the AWFCO system and associated alarms must be tested at least once every seven days when hazardous waste is burned to verify operability, unless the owner or operator documents in the operating record that weekly inspections will unduly restrict or upset operations and that less frequent inspections will be adequate. At a minimum, operational testing must be conducted at least once every 30 days.

Under today's proposed rule, owners and operators would be required to document in the operating log the cause of each AWFCO that is associated with an exceedance of an operating limit or CEMS-monitored emission standard[163] and document the preventive measures taken to minimize future AWFCOs. Also, we are proposing a reporting requirement for excessive AWFCOs caused by violations to alert regulatory officials that a source is having operational problems. Thus, regulatory officials can increase frequency of inspections and review the sources operating plan. In addition, the Director may specify requirements through the RCRA permit beyond recordkeeping and reporting for addressing AWFCOs (i.e., approval to restart hazardous waste feed, etc.)

Owners or operators would be required to submit an "Excessive AWFCO Report" to the Administrator if more than 10 AWFCOs associated with an exceedance of an operating limit or CEMS-monitored emission standard occur during any 60 calendar-day period. After 10 such cutoffs occur, the 60 calendar-day clock would begin anew. The report would have to be postmarked within five calendar days of the tenth AWFCO associated with an exceedance, and would have to document the cause of each such cutoff and preventive measures taken to minimize future cutoffs.

We invite comments on alternative exceedance frequencies that would trigger the need to submit an Excessive AWFCO Report, such as incurring 5 cutoffs in any 30 calendar-day period. A shorter accounting period would enable enforcement officials to better identify problem facilities.

2. Emergency Safety Vent (ESV) Openings

Today's rule would require that combustion gases always pass through the emission control system in place during the comprehensive performance test. Thus, opening an emergency safety vent (ESV) (including emergency vent stacks, bypass stacks, thermal relief valves, and pressure relief valves) to bypass any part of the emission control system would be a violation of that requirement and the emission standard the by-passed control device is designed to control. See proposed § 63.1207(a)(3). We are also proposing to make conforming changes to the RCRA incinerator standards of Part 264, Subpart O, to provide consistency. While this section specifically addresses ESVs, the requirements apply to any type of air pollution control bypass stack while hazardous waste remains in the combustion chamber.

ESVs are safety devices which are designed to allow combustion gases to bypass the air pollution control equipment in order to: (1) Prevent ground-level releases which could endanger workers, in the event of an overpressure, or (2) prevent damage to the air pollution control equipment in the event of excessively high temperatures. An ESV opening allows uncontrolled emissions to directly enter the atmosphere. Some ESVs are situated prior to the secondary combustion chamber. This chamber is important for organics destruction in an incinerator. Further, since incinerators normally demonstrate compliance with the regulatory performance standards while

[160] This requirement that all parameters must continue to be monitored after a AWFCO assumes that the operator intends to begin burning hazardous waste as soon as the operating parameters return to allowable levels. If not, however, it may not be practicable to require monitoring of AWFCO parameters when hazardous waste is not burned. We specifically request comment on a reasonable interval of time after a AWFCO and before hazardous waste firing could be resumed during which the operator would not be required to monitor the AWFCO parameters. For example, if the operator did not intend to begin burning hazardous waste for 8 hours after the AWFCO, it may not be appropriate to require monitoring of AWFCO parameters during that period.

[161] We note that during the RCRA permitting process, permit writers may identify additional operating parameters they determine to be necessary on a case-specific basis in order for the source to comply with the standards. See subsection C.1. of this part, "Continued Applicability of RCRA Omnibus Authority," for more information on this.

[162] If an operating limit is exceeded (when hazardous waste is in the combustion chamber), the source has violated the emission standard for which the operating limit is used to ensure compliance.

[163] Not all AWFCOs are the result of an exceedance of an emission standard or operating limit. AWFCOs which are not associated with a violation must be recorded in the operating log but need not be reported.

using their secondary combustion chambers and air pollution control devices, emissions from ESVs are expected to be in excess of levels set by the performance standards for the respective devices.

There are situations where the alternative to opening an ESV (e.g., fugitive emissions at ground level, or even an explosion) are worse from a health and environmental standpoint. Thus, EPA would like to emphasize that simply eliminating an ESV itself is one solution, but not appropriate in some cases. Rather, EPA believes that emergency (or other) situations which would cause either an ESV opening or fugitive emissions from the combustor can, and should be, prevented to the greatest extent possible.

EPA believes that most facilities can readily make changes in their operations which can reduce ESV openings. To minimize ESV openings, facilities may need to repair or replace unreliable equipment, better control the feeding of waste, or add redundant systems where necessary.

In the preamble to the proposed amendments for hazardous waste incinerators (55 FR 17890, April 27, 1990), EPA proposed to clarify the regulatory status of ESV openings. The Agency proposed that no ESV openings be allowed while hazardous waste is in the unit. In this case any ESV opening while hazardous waste remains in the unit would be a permit violation and subject to enforcement action. This is being reproposed today.

Also in the proposed rule for hazardous waste incinerators (55 FR at 17891), EPA proposed to amend § 264.345(a) to clarify that an incinerator must operate in accordance with the operating requirements specified in their permit whenever there is hazardous waste in the incinerator. Today's rule is again proposing to amend § 264.345(a) to clarify that an incinerator must be operated in accordance with the conditions specified in the permit and meet the applicable emission standards at all times that hazardous waste or hazardous waste residues remain in the chamber. (This is a conforming change.)

For BIFs, the regulations state that they must be operated in accordance with the operating limits and the applicable emission standards at all times when there is waste in the unit. § 266.103(c)(1). Further, § 266.102(e)(7)(ii)(B) requires that combustion gases must be routed through the air pollution control system as long as waste remains in the unit. The BIF final rule discusses that a BIF must be in compliance at all times that there is hazardous waste in the unit, regardless of whether an automatic waste feed cutoff has occurred. See 56 FR at 7160. The activation of the automatic waste feed cutoff system does not relieve the facility from its obligation to comply with the permit conditions while waste remains in the unit. Today's rule does not propose any changes to this regime.

Finally, today's proposed rule would require the owner or operator to record in the operating log the ESV opening, the reason for the opening, and corrective measures taken to minimize the frequency of openings. Further, the owner or operator would have to submit a written report to the Administrator within 5 calendar days of each ESV opening documenting the information provided in the operating log.

While it is understood that there can be mitigating circumstances which require the use of ESVs, these instances should be minimized. Therefore, it is proposed that the owner or operator prepare an ESV Operating Plan in which the owner or operator shall address what they will do to prevent the use of the ESV and release uncontrolled emissions into the air and what they will do to minimize the hazard from such releases (such as back-up systems, maintaining flame temperature, and combustion air to combustion organics.) This plan is analogous to the "Preparedness and Prevention and Contingency Plan" discussed in the 1990 proposed revisions to the hazardous waste incinerator rule (55 FR at 17890). A corresponding change to the current hazardous waste incinerator rules are proposed as well.

F. Quality Assurance for Continuous Monitoring Systems

EPA proposes specific quality assurance (QA) requirements for continuous monitoring systems (CMS). These systems can be classified as: continuous emissions monitoring systems (CEMS); analysis of feedstreams; and continuous monitoring systems to comply with limits on other operating parameters.

1. Continuous Emissions Monitoring Systems (CEMS)

The rule would require HWCs to comply with the general monitoring requirements under § 63.8 for all MACT sources except as discussed below. In addition, the rule would establish in the appendix to Part 63, Subpart EEE, specific quality assurance (QA) and quality control (QC) requirements for CEMS used by HWCs. These requirements would supersede the requirements in Appendix F of Part 60 for these sources. We are proposing an appendix to Subpart EEE in lieu of the requirements of Appendix F because the proposed appendix to Subpart EEE would incorporate various issues particularly relating to HWCs (e.g., requirements for specific CEMS not addressed by Appendix F; out-of-control periods and data reporting are not relevant to HWCs because HWCs cannot burn hazardous waste if the CEMS is not meeting performance specifications).

a. Applicability of § 63.8 Requirements. Most of the § 63.8 monitoring requirements for MACT sources would apply to HWCs including requirements for the owner and operator to develop and implement a quality control program (§ 63.8(d)(2)) and conduct a performance evaluation test in conjunction with the performance test to demonstration compliance with the emission standards (§ 63.8(d)(2) and (e)(4)). Section 63.8(f) also provides for approval of an alternative monitoring method.

Several provisions of § 63.8, however, would not apply to HWCs. They are as follows:

i. § 63.8 (c)(1)(I)–(iii), (c)(4), (c)(7), (c)(8), and (g)(5) would not apply because these paragraphs address requirements relating to operations when the CEMS is out of compliance with the relevant performance specifications. Hazardous waste cannot be fed (or remain in the combustion chamber) if the CEMS is not in compliance with performance specifications.

ii. § 63.8 (c)(4)(ii) and (g)(2) would not apply because these paragraphs define continuous operation and data reduction inconsistently with today's proposed rule. Under today's rule, the performance specifications in Appendix B to Part 60 and the data quality objectives in the appendix to Part 63, Subpart EEE, define continuous operation specific to the CEMS.

b. Quality Assurance Procedures. The proposed appendix to Part 63, Subpart EEE, defines quality assurance procedures for CEMS at HWCs. If a CEMS component is not in compliance with applicable quality assurance procedures or performance specifications (provided in Appendix B, Part 60), hazardous waste burning must cease immediately and cannot be resumed until the owner or operator documents that the CEMS meets the performance specifications.

The appendix would require owners and operators to develop and implement a quality assurance and quality control (QA/QC) program. It would define requirements for determining compliance with calibration and zero drift specifications provided in Appendix B. It would also define requirements for performance evaluations, that is, performance audits including relative accuracy tests and absolute calibration audits.

The appendix also deals with issues specific to these source categories. It establishes specific testing intervals for CEMS for HWCs. It defines the one minute and rolling averages, the oxygen correction factor, CEMS span values, and provides a provision to allow the use of alternative span values. It provides procedures for reestablishing a rolling average after short term interruptions such as calibration and maintenance and long-term interruptions such as periodic downtime for kiln maintenance or for weekends and holidays when the facility is not being operated. It also allows up to 20 minutes of CEMS downtime for calibration purposes.

c. Conforming changes to the BIF and incinerator rules. Conforming changes are also proposed to the BIF and incinerator rules: deleting the current Part 266, Appendix IX, CEMS requirements; and, instead, requiring the use of the Part 60, Appendix B, performance specifications and the data quality specifications in the appendix to Subpart EEE.

d. Zero Drift and Zero Gas Requirements. The Agency specifically invites comment on two other issues which affect all CEMS: whether the zero drift requirements contained in the appendix to Subpart EEE (and the various performance specifications) should be promulgated, or whether the zero gas requirements should be changed from the current 0–20 percent levels to a 0–0.1 ppm level.

Many of the performance specifications require that zero gas, or zero level gas, contain between 0 to 20 per cent of the measured constituent. However, facilities often use just one zero grade gas for all their CEMS, one of "zero-grade nitrogen." Therefore, EPA invites comment on whether this requirement should be changed from 0 to 20 percent to 0 to 0.1 ppm of the measured constituent.

e. EPA certification of CEMS. EPA invites comment on whether a process should be established whereby CEMS manufacturers could certify that their CEMS meet the established performance specifications. If this were promulgated, a CEMS would not be allowed for use on a hazardous waste combustor unless it has been certified by EPA. The CEMS certification would be similar to the certifications used for TUV approval in Germany and for CEMS used for compliance with EPA's acid rain program.

Issues EPA needs to address in order to promulgate such a process include: what benefits the regulated community and industry would incur as a result of such a certification; how the program would work; and whether a nongovernment agency could do this task.

vi. Correcting CEMS Readings for Moisture Content. One quality assurance issue that must be considered is how often facilities need to measure the moisture content of their flue gas. All the standards proposed today are on a dry basis, so knowing the flue gas moisture content to correct CEMS outputs to a dry basis is necessary. EPA is considering two alternative approaches to obtain the moisture content of the flue gas. One involves making periodic measurements of the moisture content of the flue gas using Method 4, found in Part 60, Appendix A. Under this scheme, a facility would take flue gas moisture measurements quarterly, while conducting the ACA. This moisture level would then be used to correct CEMS outputs for moisture throughout the next quarter.

Another alternative is that facilities make instantaneous measurements of the flue gas temperature at the CEMS sampling point. The temperature would then be used to determine the saturation water concentration of the flue gas. The saturation water concentration would then be used to correct the CEMS output for moisture.

EPA favors using the saturation water concentration as a surrogate for flue gas moisture because it is continuous, frequently conservative, and cost-effective compared to running a manual method. One issue with this approach is that facilities with wet APCS may have a water concentration higher than the saturated water concentration due to entrained water droplets in the flue gas. However, we do not have data on the amount of entrained water droplets in the flue gas and, thus, cannot determine at this point how important this issue is.

The Agency requests data and information from facilities with a wet APCS regarding the total water concentration (including water droplets) in the flue gas compared with the saturated water concentration. The Agency will evaluate data and recommendations of commenters on these or other approaches in making a determination on the best approach for the final rule.

2. Analysis of Feedstreams

In this section, we discuss the following proposed requirements for analysis of feedstreams: (1) required analysis plan; (2) requirement to submit the plan for review and approval the Director's request; (3) frequency of analysis; and (4) information that must be determined and recorded to document compliance. (We note that HWCs are already subject to these requirements under 40 CFR Parts 261, 264, 265, 266, and 270.) We also request comment on analysis of gaseous feedstreams, including natural gas. We also propose making a conforming change to the BIF and incinerator rules to clarify that constituent monitoring is required for all feedstreams.

a. Feedstream Analysis Plan. The rule would require (in § 63.1210(c)) an owner or operator to obtain an analysis of each feedstream that is sufficient to document compliance with the applicable feedrate limits. The owner or operator must obtain the analyses for each feedstream prior to feeding into the combustor. This is done in order to document compliance with the applicable feedrate limits at all times.

To ensure that the owner or operator will obtain an adequate analysis, the owner or operator would be required to develop and implement a feedstream analysis plan and record it in the operating record. The operating plan must specify at a minimum: (1) the parameters for which each feedstream will be analyzed to ensure compliance with proposed § 63.1210; (2) whether the owner or operator will obtain the analysis by performing sampling and analysis, or by other methods such as using analytical information obtained from others [164] or using other published or documented data or information; (3) how the analysis will be used to document compliance with applicable feedrate limits (e.g., if hazardous wastes are blended and analyses are obtained of the wastes prior to blending but not of the blended, as-fired, waste, the plan must describe how the owner and operator will determine the pertinent parameters of the blended waste); (4) the test methods which will be used to obtain the analyses; [165] (5) the sampling method which will be used to obtain a representative sample of each feedstream to be analyzed using sampling methods described in Appendix I, Part 261, or an equivalent method; and (6) the frequency with which the initial analysis of the feedstream will be reviewed or repeated

[164] When analytical information is provided by others, the analysis plan must document how the owner or operator will ensure it is complete and accurate.

[165] The information must be provided whether the owner or operator conducts the analyses or the analyses are obtained from others.

to ensure that the analysis is accurate and up to date.[166]

We note that guidance on developing a feedstream analysis plan is provided in *Waste Analysis At Facilities That Generate, Treat, and Dispose of Hazardous Waste*, (OSWER [Office of Solid Waste and Emergency Response] #9938.4–03, April 1994). The document is available from the National Technical Information Services (NTIS), publication # PB94–963–603. In addition, in April 1995, EPA published a Notice of Availability for public comment on *Waste Analysis Guidance for Facilities That Burn Hazardous Wastes-Draft* (Office of Enforcement and Compliance Assurance # EPA 530–R–94–019) (see 60 FR 18402). This guidance document provides assistance in developing waste analysis plans specifically for HWCs. The comment period for this document closed on June 2, 1995, and EPA is currently reviewing and evaluating the comments received.

b. Review and Approval of Analysis Plan. Under today's proposed rule, the Director could require the owner or operator to submit the analysis plan for review and approval at any time. Given that feedstream analysis is a primary compliance approach for the SVM, LVM, and HCl/Cl_2 emission standards, it is imperative that the source develop and implement an adequate analysis plan. Consequently, the Agency would like to review and approve analysis plans for each existing source at the time of initial compliance (i.e., initial notification of compliance).[167]

Because of resource constraints, however, the Agency will review analysis plans on a priority basis, considering factors such as whether the source accepts off-site waste, volume of waste burned, and compliance history.[168] Therefore, the Agency wishes to preserve flexibility on whether to require a source to submit its analysis plan for review and approval.

c. How to Comply with Feedrate Limits. To comply with the feedrate limits, the source must: (1) know the concentration of the limited parameter (e.g., SVM) in the feedstream at all times; (2) know the feedrate of the feedstream at all times; and (3) record the feedrate (the product of the concentration times the feedstream rate) in the operating record. The source would know the concentration of the parameter in the feedstream by implementing the analysis plan discussed above.

The source would know the feedrate of the feedstream by using a continuous monitor of the volumetric or mass flowrate.[169] If a volumetric flowrate monitor is used, the source must know the density of the feedstream at all times if it is necessary to know the mass per unit time feedrate.

In order for a facility to know the concentration of the parameters at all times, the source must record the feedrate in the operating record. It would be preferable to reduce the burden on regulatory inspectors to continuously record all of the parameters used to calculate the feedrate (e.g., concentration of metal, volumetric flowrate, density) as well as the feedrate itself. Other approaches may be acceptable, however, such as continuously recording only volumetric flowrate, but clearly noting in the record the concentration and density associated with that volumetric flowrate so that the inspector could readily confirm that the feedrate was not exceeded at the recorded flowrates. If a source prefers the second approach, we recommend that it informally notify the Director for concurrence.

d. Request for Comment on Monitoring Gaseous Feedstreams. We request comment here on how to address the difficulty of continuously sampling gaseous feedstreams—both natural gas and process gas—for nonvapor constituents (metals, chloride salts).

Natural gas is a primary fuel for several HWCs. Under today's rule (as well as the BIF regulations), this feedstream, like all other feedstreams, would be subject to the continuous monitoring and recording provisions, including feedstream sampling and analysis for metal and chlorine constituents.

Facilities have questioned whether it is necessary to sample and analyze natural gas for constituents they feel are not reasonably expected to be present. Therefore, the Agency is soliciting data and information on whether (and at what concentrations) the seven metals that would be regulated in today's rule are likely to be present in natural gas. Based on the information submitted by commenters, the final rule could incorporate a number of options including: (1) determine that natural gas feedstreams need not be considered in feedrate determinations because levels of metals and chlorine and chloride are not likely to be significant; (2) allow sources to make a one-time, site-specific determination of metals and chlorine levels that could be used for feedrate determinations provided that the natural gas supplier does not change; or (3) establish generic concentration levels for metals and chlorine and chloride that could be assumed to be present. We also invite comment on these or other approaches to address this issue.

Process gas feedstreams pose a similar problem. One approach for these feedstreams would be to allow sources to make a one-time determination of metals and chlorine levels (by sampling and analysis, process knowledge, or other information) that could be used for feedrate determinations until process changes or other factors occurred that could change the composition of the gas. We invite comments on this or alternative approaches to address this issue.

3. Quality Assurance for Continuous Monitoring Systems Other Than CEMS

Continuous monitoring systems (CMS) other than CEMS include the systems associated with monitors such as thermocouples, pressure transducers, stress/strain gages, flow meters, and pH meters. In addition to the requirements discussed below, we are proposing to require compliance with the general quality assurance procedures for continuous monitoring systems (CMS) provided by existing § 63.8(c)(4). See proposed § 63.1210(d). That paragraph requires owners and operators to verify the operational status of CMS by, at a minimum, complying with the manufacturer's written specifications or recommendations for installation, operation, and calibration of the system. To make current rules consistent with the ones which will be promulgated here, EPA proposes making conforming changes to the BIF and incinerator rules to incorporate quality assurance requirements for CMS.

a. Sampling and Detection Frequency. We are proposing to require that CMS (other than CEMS)[170] sample the regulated parameter without interruption, and evaluate the detector response at least once each 15 seconds, and compute and record the average values at least every 60 seconds.

b. Exceeding CMS Span Would Trigger a AWFCO. The rule would also

[166] The analysis must be repeated as necessary to ensure that it is accurate and up to date. At a minimum, the analysis must be repeated when the owner or operator is notified or has reason to believe that the process or operation generating or producing the feedstream has changed.

[167] Analysis plans would be reviewed and approved for new sources during the RCRA permitting process (i.e., prior to commencement of construction).

[168] Note that the analysis plan will be reviewed during facility inspections as well.

[169] Quality assurance for the flowrate monitor is discussed below in the text.

[170] The proposed CEM performance specifications and data quality objectives define acceptable sampling and detection frequency.

require that the automatic waste feed cutoff (AWFCO) system be engaged if the span of any CMS (other than a CEMS) is exceeded. This is because it is not practicable to establish span values for each CMS as we have proposed for each CEMS.

The issue arises because facilities have the discretion of purchasing equipment with any span. For CMS, the span is defined as the range between the highest certifiable reading a CMS can make (the "upper span") and its corresponding minimum (the "lower span.") If a CMS were to have an upper span which is too low, say a thermocouple with a upper span of 630°C, there would be no way to document accurately a temperature higher than 630°C. This is a problem if the facility routinely operates at a temperature of, say, 750°C. For this reason, it is important to ensure that CMS are operated within their certified span.

III. MACT Performance Testing and Related Issues

Today's rule would require performance testing to demonstrate compliance with the proposed MACT emission standards. The requirements and procedures for MACT performance testing are discussed here. In addition, HWCs would continue to be subject to the existing trial burn requirements during the RCRA permitting process. The interaction between the RCRA trial burn and the MACT performance test is also discussed here. In addition, we discuss in this section the waiver for performance testing for Hg, SVM, LVM, and HCl/Cl_2 that would be provided for sources that feed de minimis levels of these metals or chlorine. Finally, we discuss in this section requirements for relative accuracy tests for CEMS.

A. MACT Performance Testing

Two types of performance testing would be required to demonstrate compliance with the proposed MACT emission standards: comprehensive performance testing and confirmatory performance testing. See proposed § 63.1208.

1. Comprehensive Performance Testing

The purpose of the comprehensive performance test is to initially and periodically thereafter: (1) demonstrate that the source is in compliance with the CEMS-monitored emission standards (e.g., PM, Hg, CO, HC); (2) conduct manual stack sampling to demonstrate compliance with the emission standards for pollutants that are not monitored with a CEMS (e.g., D/F, SVM, LVM, HCl/Cl_2); (3) establish limits on the applicable operating parameters provided by proposed § 63.1210 (Monitoring Requirements) to ensure that compliance is maintained with those emission standards for which a CEMS is not used for compliance monitoring; and (4) demonstrate performance of CMS is consistent with the requirements and quality assurance plan. Thus, the comprehensive performance test has purposes similar to the RCRA trial burn and BIF interim status compliance test. It would be more like a BIF interim status compliance test, however, because of the low level of Agency oversight and high degree of facility self-implementation, as discussed below.

a. Operations During Comprehensive Performance Testing. Given that limits will be established on operating parameters during the comprehensive performance test, sources will likely want to operate during the test at the edge of the operating envelope that they believe is both necessary to operate efficiently and comply with the emission standards. Accordingly, sources may elect to spike feedstreams with metals or chlorine, for example, to ensure that the feedrate limits are high enough to accommodate normal operations while allowing some flexibility to feed higher rates at times.

In addition, sources may identify two or more modes of operation for which separate performance tests would be conducted and for which separate limits on operating conditions would be established. In this situation, the source would be required to note in the operating record under which mode of operation it was operating at all times. An example of when two modes of operation must be identified would be a cement kiln that routes its kiln off-gas through the raw meal mill to help dry the raw meal. When the raw meal mill is not operating (perhaps one third of the time), the kiln gas bypasses the raw meal mill. Emissions of PM and other HAPs or HAP surrogates may vary substantially depending on whether the kiln gas bypasses the raw meal mill.

When conducting the comprehensive performance test, sources must also operate under representative conditions for the following parameters to ensure that emissions are representative of normal operating conditions: (1) types of organic compounds in the waste (e.g., aromatics, aliphatics, nitrogen content, halogen/carbon ratio, oxygen/carbon ratio) and volatility of wastes, when demonstrating compliance with the D/F emission standard; and (2) cleaning cycle of the PM control device (e.g., ESP rapping cycle) when demonstrating compliance with the SVM and LVM emission standard when using manual stack sampling and the D/F emission standard.

b. Frequency of Testing. The rule would require that the comprehensive performance test be performed periodically because the Agency is concerned that long-term wear-and-tear on critical components (e.g., firing systems, emission control equipment) could adversely affect emissions. Large sources (i.e., those with a stack gas flow rate greater than 23,127 acfm) and sources that accept waste from off-site would be required to perform comprehensive performance testing every three years.

Small, on-site sources would be required to perform testing every five years, unless the Director determines otherwise on a case-specific basis. The proposed testing frequency would be less for small, on-site sources because of cost-effectiveness concerns. In addition, we note that, from the RCRA perspective, small, on-site sources are more familiar with the wastes they burn, the waste may be more homogeneous and less complex, and they burn smaller volumes of waste. Thus, their emissions may not pose the same hazard as emissions from large or commercial facilities. We invite comment on this approach.

The Director may determine, however, that a small, on-site source may pose the same potential hazard as a large or off-site source because of the factors listed above, compliance history, or other reasons. Accordingly, the rule would allow discretion for the Director to require a three-year testing frequency for such small, on-site sources as warranted.

c. Agency Oversight. The proposed rule would require the owner or operator to submit a "notification of performance test" to the Administrator 60 days prior to the planned test date. The notification must be accompanied by a site-specific test plan for review and approval by the Administrator. This is consistent with the general provisions for MACT sources provided by § 63.7 (b) and (c). See those paragraphs for provisions regarding: (1) Agency approval of the test plan; (2) 30-day period for the Agency to approve or disapprove the test plan;[171] and (3) notwithstanding Agency approval or disapproval, or failure to approve or disapprove, the test plan, the owner or operator must comply with the applicable requirements, including the

[171] Generally, § 63.7(c)(3) provides that the source can assume the test plan is approved if the Agency does not take action within 30 days of receiving the original plan or any supplementary information.

deadline for submitting the initial and subsequent notifications of compliance.

In addition, the Agency has the option of observing the performance test.

d. Operating Conditions During Subsequent Tests. Although the rule would allow the burning of hazardous waste only under the operating limits established during the previous comprehensive performance test (to ensure compliance with emission standards not monitored with a CEMS), two types of waivers from this requirement would be provided during subsequent comprehensive performance tests: (1) an automatic waiver to exceed current operating limits up to 5 percent; and (2) a waiver that the Director may grant if warranted to allow the source to exceed the current operating limits without restriction. The rationale and implementation of these waivers is discussed below.

The rule would provide an automatic waiver because, without the waiver, the operating limits would become more and more stringent with subsequent comprehensive performance tests. This is because sources would be required to operate within the more stringent conditions to ensure that they did not exceed a current operating limit. This would result in a shrinking operating envelope over time.

Accordingly, EPA is proposing to allow sources to operate under the "same" operating conditions as the previous comprehensive performance test in order to duplicate the current operating limits. It is not practicable to require a source to operate under the exact same operating conditions as the previous comprehensive performance test, however. Therefore, the rule would allow sources to deviate during comprehensive performance testing by up to 5 percent from the current operating limits provided that the source accept operating limits based on the new performance test levels that are the more stringent of the current operating limits or levels achieved during the new performance test. We invite comment on whether this provision would meet our objective of ensuring that the operating envelope does not shrink over time as subsequent comprehensive performance tests are conducted. For example, an additional approach would be to provide for a site-specific waiver of the 5 percent deviation limit to allow deviations from current operating limits as warranted to ensure that the operating envelope does not shrink.

The rule also proposes a waiver that the Administrator may grant if warranted to allow the source to exceed the current operating limits without restriction. This is because the source may want to operate under less restrictive limits and believes that it can still comply with the emission standards under the less restrictive limits. For example, a source may want to burn a waste with higher metal or chlorine content, and/or the source may want to install an improved emission control device.

To accommodate such situations, the rule would allow the Administrator to grant a site-specific waiver of the operating limits if the source provides supporting documentation that it is likely to be able to meet the emission standards under less restrictive operating limits. The documentation must be submitted prior to or at the time of submittal of the notification of performance test, and must include empirical data or other data and information to support the request. If the waiver request is submitted with the notification of performance test (which must be accompanied by the test plan), the Director will approve or disapprove the waiver request under the procedures for approving or disapproving the test plan.

e. Testing Schedule and Notification of Compliance. The owner or operator must submit to the Administrator a notification of compliance under proposed § 63.1211(c) documenting compliance with the emission standards and CMS requirements, and identifying applicable operating limits. (This provision is similar to § 63.7(g).) The notification must be postmarked by the 90th day following the completion of performance testing and CMS performance evaluation.

The initial notification of compliance must be postmarked within 36 months after the date of publication of the final rule. Subsequent notifications must be submitted within 90 days after the completion of subsequent performance testing. Subsequent comprehensive performance testing must be initiated 36 months for large and off-site sources or 60 months for small, on-site sources, respectively, after initiation of the initial performance test.

Given the complexity of comprehensive performance testing and to allow for unforeseen events, however, the rule would allow the subsequent test to be initiated within a range of 30 days before or after the 36 or 60-month anniversary. The rule would require that the anniversary date remain based on the initial comprehensive performance test. This would simplify recordkeeping and preclude a source from intentionally scheduling the test toward the end of the 30-day grace period and thus effectively obtaining a 37 or 61-month testing frequency.

The rule would give a source the option of performing a comprehensive performance test at any time before the 36 or 60-month anniversary. A source may want to retrofit or add a new emission control device prior to a test anniversary date. To do so, the source would be required to conduct a new comprehensive performance test to document compliance with emission standards and to establish new operating limits. The rule would require the source to follow the same procedures for this comprehensive performance test as discussed above (e.g., submittal of notification of performance testing and test plan; review and approval of test plan). Note that conducting a comprehensive performance test prior to the normal anniversary date would establish a new anniversary date.

f. Time Extensions for Subsequent Performance Tests. The rule would allow the Administrator to grant up to a 1 year time extension for any performance test subsequent to the initial comprehensive performance test.[172] This would enable the source to consolidate, into one test, both the MACT-related performance testing and the RCRA trial burn testing, which are both required for issuance and reissuance of RCRA operating permits.[173] (Trial burn testing requirements are discussed below.)

For example, if the comprehensive performance test anniversary were a date proximate to the date scheduled for the trial burn, we believe it is reasonable to allow the source to conduct only one test to satisfy both requirements (i.e., the MACT-related performance test and the RCRA trial burn). To address this situation, the rule would allow up to a one-year time extension for the performance test.[174]

When the trial burn and performance tests are consolidated, the anniversary dates for subsequent performance tests would be correspondingly adjusted. For example, if the anniversary date for a

[172] Note that we discuss in Part Five, Section I (Selection of Compliance Dates) of the preamble that the rule would provide up to a 1-year time extension to submit the initial notification of compliance.

[173] In addition, the source may experience a major outage whereby the performance test could not be conducted within the 2-month window around the anniversary date. This time extension provision could address this situation as well.

[174] Note that, if the trial burn were scheduled before, rather than after, the performance test anniversary date, there would not be a problem because the source can conduct a comprehensive performance test at any time prior to the anniversary date. If so, the anniversary date is simply moved up.

confirmatory performance test for a large or off-site source is January 1 and the trial burn is scheduled for September 1 of that year, the source may adjust the anniversary date of the confirmatory performance test to September 1. This would also delay the anniversary date for subsequent comprehensive performance tests by 9 months. As noted above, under the proposal a maximum of 12 months delay could be granted.

The procedure for granting or denying a time extension would be the same as those for existing § 63.6(i) which allows the Administrator to grant MACT sources up to 1 additional year (in addition to the 3 years beginning with publication of applicable standards (e.g., MACT standards for HWCs) in the **Federal Register**) to comply with the standard.[175] (These are also the same procedures that would apply to a request for a time extension for the initial notification of compliance.)

We invite comment on alternative maximum time periods for the extension to allow sources to reasonably consolidate performance and trial burn testing, and whether the time extension should be automatic or require prior approval by the Administrator.

vi. Failure to Submit a Timely Notification of Compliance. If the owner or operator does not submit a notification of compliance by the required date, the rule would require the source to immediately stop burning hazardous waste (the same manner as applied to BIFs certifying compliance under RCRA § 266.103 in 1991). If the source wanted to burn hazardous waste in the future, it would be required to comply with the standards and permit requirements for new MACT and RCRA sources. For example, if the source were operating under RCRA interim status, it would need to obtain a RCRA operating permit and meet MACT standards for new facilities before hazardous waste burning could resume. Moreover, the rule would require the source to obtain written approval from the Administrator before hazardous waste burning could resume. (For RCRA interim status sources, issuance of a RCRA operating permit would constitute such written approval.)

g. Failure of a Comprehensive Performance Test. When a source determines (e.g., based on CEMS recordings, results of analysis of samples taken during manual stack sampling, or results of the CMS performance evaluation) that it has failed any emission standard during the performance test, it would be required to immediately stop burning hazardous waste. If, however, a source conducts the comprehensive performance test under two or more modes of operation and meets the emission standards when operating under one or more modes of operation, it would be allowed to continue burning under the modes of operation for which it has met the standards.

For sources that fail one or more emission standards during all modes of operation tested, the rule would enable the source to burn hazardous waste only for a total of 720 hours and only for the purposes of pretesting (i.e., informal testing to determine if it could meet the standards operating under modified conditions) or comprehensive performance testing under modified conditions.

Finally, failure to comply with an emission standard after initial notification of compliance would be a violation of the rule.

We note that HWCs are currently subject to virtually these same requirements under RCRA rules.

h. Applicability of Existing Part 63 General Requirements for MACT Sources. Part 63 establishes requirements for performance testing in § 63.7 and requirements for extension of compliance dates in § 63.6(i). Some of these provisions would be directly applicable to HWCs, some would be applicable in modified form, some would be superseded by today's rule, and others are not applicable.

The following § 63.7 requirements would be applicable to HWCs:

(1) Paragraph (a)(1) (Applicability) and (a)(3)

(2) Paragraphs (b) (Notification of performance test) and (c) (Quality Assurance Program), except that all sources would be required to submit the test plan for review and approval

(3) Paragraph (d) (Performance testing facilities)

(4) Paragraph (e) (Conduct of performance tests), except that operating conditions during comprehensive performance testing would be as discussed above (i.e., not normal operating conditions), and operating conditions during confirmatory performance testing discussed below would be under normal conditions as defined in that discussion. Also, emissions during startup and shutdown would be included in the performance tests, if the sources wishes to have the authority to burn hazardous waste during those periods.

(5) Paragraph (f) (Use of an alternative test method)

(6) Paragraph (g) (Data analysis, recordkeeping, and reporting), except that the test results would have to be reported 90 days after completion of the test, rather than 60 days.

The following § 63.7 requirements would not be applicable to HWCs:

(1) Paragraph (a)(2) (establishing deadlines for performance testing) because new HWCs would be required to obtain a RCRA operating permit before commencing construction. The RCRA operating permit would specify allowable periods of operation and operating conditions prior to (and following) performance testing. Existing HWCs would be required to submit a notification of compliance within 3-years of the date of publication of the final rule in the **Federal Register**.

(2) Paragraph (h) (Waiver of performance tests), because the bases for the waiver are not relevant to HWCs as follows: (1) the rule would allow the Administrator to grant a time extension to submit a notification of compliance; and (2) the purpose of periodic testing is to determine whether sources are meeting the standards on a continuous basis.

2. Confirmatory Performance Testing

Confirmatory performance testing for D/F would be required mid-way between the cycle required for comprehensive performance testing to determine if the source is continuing to meet the emission standard. The Agency is proposing such testing only for D/F given: (1) the health risk posed by D/F; (2) there is no CEMS for D/F; (3) there is no feedrate limit of a material that directly and unambiguously relates to D/F emissions (as opposed to, for example, metals feedrates, which directly relate to metals emissions); and (4) wear and tear on the equipment, including any emission control equipment, which over time could result in an increase in D/F emissions even though the source stays in compliance with applicable operating limits.

Confirmatory testing differs from comprehensive testing, however, in that the source would be required to operate under normal, representative conditions during confirmatory testing. This would reduce the cost of the test while providing the essential information because the source would not have to establish new operating limits based on the confirmatory test.

a. Definition of Normal Operating Conditions. Normal operating conditions would be defined as operations during which: (1) the CEMS

[175] Note, however, that § 63.6(i) applies to an entirely different situation: extension of time for initial compliance with the standard whereby performance testing is conducted after the date of compliance.

that measure parameters that could relate to D/F emissions—PM, CO, HC—are recording emission levels within the range of the average value for each CEMS (the sum of all one-minute averages, divided by the number of one minute averages) over the previous 12 months to the maximum allowed; and (2) each operating limit established to maintain compliance with the D/F emission standard (see discussion in Part Five, section II.C.1) is held within the range of the average values over the previous 12 months and the maximum or minimums, as appropriate, that are allowed. The Agency believes it is necessary to define normal operating conditions in this manner because, otherwise, sources could elect to limit levels of the regulated D/F operating parameters (e.g., hazardous waste feedrate, combustion chamber temperature, temperature at the inlet to the dry PM control device) to ensure minimum emissions. Thus, without specifying what constitutes normal conditions, EPA believes the confirmatory test could be meaningless. On the other hand, the proposed definition of normal conditions is broad enough to allow the source flexibility in operations during the test.

When conducting the confirmatory performance test for D/F, sources must also operate under representative conditions for the following parameters to ensure that emissions are representative of normal operating conditions: (1) types of organic compounds in the waste (e.g., aromatics, aliphatics, nitrogen content, halogen/carbon ratio, oxygen/carbon ratio) and volatility of wastes, when demonstrating compliance with the D/F emission standard; and (2) cleaning cycle of the PM control device (e.g., ESP rapping cycle).

Finally, when conducting the confirmatory test for D/F, the source would also be required to conduct a performance evaluation of the CMS that are required to maintain compliance with the D/F emission standard.

b. Frequency of Testing. Large and off-site sources would be required to conduct confirmatory performance testing 18 months after the previous comprehensive performance test. Small, on-site sources would be required to conduct the testing 30 months after the previous comprehensive performance test. The same 2-month testing window applicable for comprehensive tests would also apply to confirmatory tests.

c. Agency Oversight, Notification of Performance Test, Notification of Compliance, Time Extensions, and Failure to Submit a Timely Notice of Compliance. The requirements that would apply to comprehensive tests would also apply to confirmatory tests.

d. Failure of a Confirmatory Performance Test. When a source determines (e.g., based results of analysis of samples taken during manual stack sampling) that it has failed the D/F emission standard, it would have violated the rule. The source would be required to immediately stop burning hazardous waste. If, however, a source had conducted the comprehensive performance test under two or more modes of operation and met the D/F emission standards during confirmatory testing when operating under one or more modes of operation, it would be allowed to continue burning under the modes of operation for which it has met the standards.

For sources that fail one or more emission standard during all modes of operation tested, the rule would require the source to modify design or operation of the unit and conduct a new comprehensive performance test to demonstrate compliance with the D/F emission standard and establish new operating limits. Further, prior to submitting a notification of compliance based on the new comprehensive performance test, the source could burn hazardous waste only for a total of 720 hours, and only for purposes of informal pretesting or comprehensive performance testing.

B. RCRA Trial Burns

HWCs are also subject to the existing permit requirements under RCRA that are established at 40 CFR Parts 264, 266, and 270. Those rules require HWCs (among other things) to conduct a trial burn to demonstrate compliance with applicable emission standards. Operating conditions are included in the permit to ensure that compliance is maintained.

We are proposing to amend those rules today to refer to the proposed MACT requirements. Thus, the existing RCRA emission standards and ancillary requirements would be superseded by the proposed MACT standards, with one exception: destruction and removal efficiency (DRE).

1. The RCRA DRE Requirement Would Be Implemented Under RCRA Authority

The destruction and removal efficiency (DRE) requirement under the RCRA standards would continue to apply to all HWCs. Although the DRE requirement, which is statutory for incinerators, RCRA § 3004(o)(1)(B), could be proposed as a MACT surrogate parameter to minimize organic HAPs by ensuring good combustion, we are not doing so. This is because the DRE standard is complex and impracticable to self-implement.[176] Consequently, the Agency would continue to apply the DRE standard under RCRA authority alone.

2. Coordinating Trial Burns and MACT Performance Tests

As discussed above, the rule would allow a source to consolidate a trial burn test with a comprehensive or confirmatory test if the trial burn test were conducted within a year after the anniversary date for the MACT performance test.[177] If the tests are consolidated, however, the unified test must of course satisfy the objectives of both tests.

We note that the level of Agency oversight for trial burns is substantially greater than the oversight that might be provided for MACT performance tests. Accordingly, as current practice, the Agency's implementation procedures for trial burns will deviate from those proposed for the MACT performance tests. As examples, the Agency will require that the test plan be submitted more than 60 days in advance of the planned trial burn test, and extensive public participation will be provided for review of the test plan, test results, and determination of operating limits.

C. Waiver of MACT Performance Testing for HWCs Feeding De Minimis Levels of Metals or Chlorine

Today's rule would provide a waiver of performance testing requirements for Hg, SVM, LVM, or HCl/Cl_2 for HWCs that feed *de minimis* levels of these metals or chlorine.[178]. Under the waiver, a source would be required to assume that all Hg, SVM, LVM, or chlorine fed in each feedstream is emitted from the stack and to document that resulting emission concentrations do not exceed the emission standards, considering stack gas flow rate. Thus, the source would be required to: (1) establish and comply with maximum feedrate limits for total feedstreams for Hg, SVM, LVM, or chlorine; and (2) establish and comply with, as a minimum stack gas flow rate, the flow rate used to document compliance (by calculation

[176] We note that, for this reason, the Agency chose not to require BIFs operating under interim status to comply with the DRE standard even though they were subject to all other emission standards that would be applicable under a operating permit.

[177] If the trial burn were scheduled prior to the performance test, the source could elect to consolidate the tests and, thus, move up the anniversary date for the performance test.

[178] Note that the term *de minimis* means simply low concentration of metals or chlorine. It does not denote or imply low risk.

rather than emissions testing) with the emission standard.

To accommodate sources that may operate under a wide range of gas flow rates, the rule would allow a source to establish different modes of operation with corresponding minimum stack gas flow rate limits and maximum feedrates for metals or chlorine. If a source uses this approach, the operating record must clearly identify which operating mode is in effect at all times.

Sources claiming the waiver would be required to do so in the initial notification of performance test and would not be required to establish or comply with operating limits for the performance test (i.e., Hg, SVM, LVM, or HCl/Cl_2) for which the waiver is claimed. Sources eligible for a waiver from the Hg standard would not be required to install a Hg CEMS.

D. Relative Accuracy Tests for CEMS

This section describes the testing requirements for CEMS proposed today. Note that CEMS for multi-metals, HCl, and Cl_2 are proposed to be optional. Facilities need not perform tests described below for CEMS they elect not to use.

A relative accuracy test audit (RATA) for Hg and multi-metal CEMS would be required every three years (or five years for small on-site facilities). RATAs for CO and O_2 CEMS would be required annually.[179] RATAs for Hg and multi-metals involve comparing the output of the CEM to the results of manual method tests in order to determine the overall accuracy of the CEM and would be conducted in conjunction with a comprehensive test. RATAs for CO and O_2 would be conducted during a comprehensive test or on the anniversary date of the previous comprehensive test.

A relative calibration audit (RCA) for PM CEMS would be required every 18 months (30 months for small on-site facilities). These are similar to a RATA in that they involve comparing the output of the CEM to the results of manual method tests in order to verify the validity of the CEM and its calibration, and would be conducted whenever a comprehensive or confirmatory test is performed.

An absolute calibration audit (ACA) is a test which determines the calibration error (CE) associated with a CEM. These audits do so by challenging the analyzer using gas bottles or solutions of metals or particulate with known concentrations of the compound being analyzed. ACA's are conducted quarterly for all CEMS except for multi-metals, which are conducted annually.

Calibration drift (CD) and zero drift (ZD)[180] tests are conducted daily using cylinder gas bottles, filters, or internal (to the CEMS) calibration standards.

IV. Selection of Manual Stack Sampling Methods

This section discusses the manual emission test methods that would be required for emission tests and calibration of CEMS and relies heavily on the BIF methods currently in Part 266, Appendix IX. EPA previously proposed incorporating many of these methods in SW–846, *Test Methods for Evaluating Solid Wastes* (60 FR 37974, July 25, 1995). Accordingly, both the BIF and proposed SW–846 numbers are given.

The emission test method for D/F would be the proposed SW–846 Method 0023A (60 FR 37974, July 25, 1995). It is identical to the BIF Method 23 in Appendix IX of Part 266 except Method 0023A requires that collection efficiencies be determined for both the particulate and sorbent. BIF Method 23 is the same as the Air Method 23 in Part 60, Appendix A. Method 23 determines the efficiency off the sorbent only and assumes the same recovery off the particulate as from the sorbent. We are also proposing today to make a conforming change to the BIF rule to require use of Method 0023A rather than Method 23.

It is proposed that BIF Method 0012 (SW–846 method 0060) be used as the manual method test for Hg. The proposed manual emission test method for the SVM and LVM standards is BIF Method 0012 contained in section 3.1 of Appendix IX, Part 266 (SW–846 method 0060). This method is also commonly known as Air Method 29.

For compliance with the HCl/Cl_2 standard, the rule would use BIF Methods 0050, 0051, and 9057 contained in section 3.3 of Appendix IX, Part 266, as the manual test method (SW–846 would retain the same numbering). These methods are commonly known as Air Method 26A, found in Appendix A of Part 60.

Existing § 63.7 describes procedures for allowing the use of alternative test methods for MACT sources. This procedure involves using Method 301 of Part 60, Appendix A, to validate the proposed method. The data from the Method 301 validation is submitted to EPA. EPA then decides if the proposed method is acceptable. Absent this approval under § 63.7 procedures, alternate methods cannot be used.

V. Notification, Recordkeeping, Reporting, and Operator Certification Requirements

Today's proposed rule would establish several notification, recordkeeping, and reporting requirements for HWCs. This section discusses the applicability to HWCs of existing requirements in §§ 63.9 and 63.10 and Parts 264, 265, 266, and 270. In addition, we discuss in this section new requirements that would apply specifically to HWCs. Finally, we discuss whether operator certification requirements should be promulgated.

A. Notification Requirements

HWCs would be required to submit the following notifications:

- Initial notification. The initial notification requirements of existing § 63.9(b) would apply. These notifications are intended to alert regulatory officials that a source is subject to the regulations. Even though all existing HWCs have already notified the Administrator of their hazardous waste activities under RCRA requirements, and new HWCs must notify the Administrator and obtain an operating permit before commencing construction, these RCRA-required notifications will not always be received by the same regulatory officials implementing the MACT standards. For example, when a state is authorized for Title V permitting, various state regulatory authorities, including local air boards, could be the implementing authority. In contrast, RCRA regulations are implemented by Agency and state officials. Accordingly, to ensure that all appropriate regulatory officials are apprised that a HWC is subject to the MACT and RCRA regulations, we are proposing to retain the initial notification requirement under § 63.9(b).
- Notification of performance test and CMS performance evaluation. This notification includes the planned test date, performance test plan (to demonstrate compliance with emissions), CMS performance evaluation plan, and quality assurance plan. It is required by existing § 63.9(c), except that all sources must submit their test plan and CMS performance evaluation plan for review and approval.
- Notification of compliance. This notification includes results of performance test and CMS performance evaluation and certification by the owner and operator that the source is in compliance with the applicable

[179] Note that EPA invites comment on waiving the RATA requirements for CO and O_2, instead relying on quarterly calibration error tests using cylinder gasses.

[180] Note that EPA invites comment on whether the ZD requirements should be deleted.

standards. It is similar to that required by existing § 63.9(h) with several important differences. Under today's rule, a source must notify that it is actually in compliance with all applicable standards, not merely identify its status with respect to compliance as allowed by § 63.9(h). In addition, paragraphs (h)(2) (D) and (E) requiring the source to identify the type and quantity of pollutants emitted and an analysis of whether the source is a major or area source are not applicable to HWCs. This is because today's proposed rule would apply to all HWCs irrespective of whether it meets the definition of a major source. Finally, today's rule would require the notification to be submitted 90 days after completion of testing, rather than 60 days as now required by paragraph (h)(2)(ii).

- Request for extension of time to submit a notification of compliance. A notification for a time extension for initial compliance is provided by § 63.9(c). Today's rule would require sources to submit a notification of compliance after each performance test (both comprehensive and confirmatory) and allow requests for time extensions to submit those notifications.
- Request for a time extension to consolidate a performance test with a trial burn. Today's rule would allow a source to request to consolidate a trial burn with a performance test if the trial burn test date is no later than 12 months after the performance test anniversary date.

To summarize applicability of existing § 63.9 notification requirements and to assist the regulated community in understanding the applicable requirements, the following list is provided as guidance:

- Paragraph (a) (Applicability and general information) applies.
- Paragraph (b) (Initial notifications) applies as discussed above.
- Paragraph (c) (Request for extension of compliance) applies for the purposes discussed above.
- Paragraph (d) (Notification that source is subject to special compliance requirements) applies.
- Paragraph (e) (Notification of performance test) applies as discussed above.
- Paragraph (f) (Notification of opacity and visible emission observations) is not applicable because the rule would establish a PM emission standard and other compliance/monitoring requirements in lieu of opacity and visible emission standards.
- Paragraph (g) (Additional notification requirements for sources with CMS) applies.
- Paragraph (h) (Notification of compliance status) applies with the caveats discussed above.
- Paragraph (i) (Adjustments to time periods or postmark deadlines for submittal and review of required communications) applies.
- Paragraph (j) (Change in information already provided) applies.

The rule would require the following additional notification requirements:

- Small quantity on-site burner exemption. See discussion in Part Six, Section II.A.1.
- Pre-trial burn period (shakedown). See discussion in Part Six, Section II.F.1.

B. Reporting Requirements

HWCs would be required to submit the following reports:

- Excessive AWFCO report. See discussion in Part Five, Section II.E.1.
- ESV opening report. See discussion in Part Five, Section II.E.1.

For guidance to the regulated community, the applicability of the existing reporting requirements under §§ 63.10(d) (General reporting requirements), 63.10(e) (Additional reporting requirements for sources with CMS), and 63.10(f) (Waiver of recordkeeping or reporting requirements) would be as follows:

- Paragraph (d)(1) applies. This paragraph references the reporting requirements in the specific standards for a source category, in this case proposed Subpart EEE.
- Paragraph (d)(2) (Reporting results of performance tests) applies, except that the report may be submitted up to 90 days after completion of the test.
- Paragraph (d)(3) (Reporting results of opacity or visible emission observations) does not apply because the rule would not regulate opacity or visible emissions.
- Paragraph (d)(4) (Progress reports) applies.
- Paragraph (d)(5) (Periodic startup, shutdown, and malfunction reports; and immediate startup, shutdown, and malfunction reports) does not apply. Given that HWCs could not burn hazardous waste under the proposed rule except in compliance with all applicable emission standards, operating limits, and CMS performance specifications, the rule would not require a startup, shutdown, and malfunction plan as required by § 63.6(e)(3) for other MACT sources. There will be no excess hazardous waste emissions during these periods (unless the HWC violates the standards) and the Agency does not need information about how quickly a HWC is able to correct a malfunction or come back into compliance again so that it may resume hazardous waste burning.[181]
- Paragraph (e)(1) (General) applies.
- Paragraph (e)(2) (Reporting results of CMS performance evaluations) applies.
- Paragraph (e)(3) (Excess emissions and CMS performance report and summary report) does not apply because HWCs cannot burn hazardous waste except in compliance with all applicable standards.
- Paragraph (e)(4) (Reporting continuous opacity monitoring system data produced during a performance test) does not apply because COMs are not required in this proposal.
- Paragraph (f) (Waiver of recordkeeping or reporting requirements) would not apply because the bases for considering the waiver are not relevant to HWCs as follows: (1) Recordkeeping and reporting should not be waived because "the source is achieving the relevant standards" because recordkeeping and reporting would be the primary means of compliance assurance for the HWC rules; (2) recordkeeping and reporting should not be waived during a time extension because the requirements would not apply until a HWC submitted the initial notification of compliance irrespective of whether a time extension were granted; and (3) recordkeeping and reporting should not be waived if a time extension is granted for a subsequent notification of compliance (because the source will be burning hazardous waste under the standards).

C. Recordkeeping Requirements

Existing § 63.10(b)(1) requires MACT sources to keep the records discussed below for at least five years from the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent two years of data must be retained off-site. The remaining three years of data may be retained on site. Such files may be maintained on: microfilm, a computer, computer floppy disks, optical disk, magnetic tape, or microfiche.

[181] One exception to this is the operation of cement kilns when the hazardous waste feed has been cut off and there is no hazardous waste remaining in the combustion chamber. In this situation, the HWC emission standards, operating limits, and CMS performance specifications would not apply. Given that the Agency plans to propose MACT standards for cement kilns that do not burn hazardous waste, however, a cement kiln that is temporarily not subject to today's proposed standards because the waste feed has been cutoff (and there is no hazardous waste remaining in the combustion chamber) would nonetheless remain (or become) subject to any MACT standards the Agency may promulgate.

1. Information Required in the Operating Record

The rule would require HWCs to record the following in the operating record:

- Comprehensive test results used to determine operating limits. See discussion in Part Five, Section II.B.
- All operating parameter limits established. See discussion in Part Five, Section II.C.
- Operating data which substantiates compliance, including minute-by-minute operating parameter data, including feedstream; and minute-by-minute CEM data. See discussion in Part Five, Section II.B.
- Documentation for performance test waiver. See discussion in Part Five, Section III.C.
- Description of and operating data substantiating compliance with provisions to limit combustion fugitive emissions. See discussion in Part Five, Section II.D.
- For each occurrence of an exceedance of a CEM or operating parameter limit, including what operating parameter of CEM limit was violated: the cause of the violation, and what corrective action was taken to ensure the violation will be prevented in the future. See discussion in Part Five, Section II.E.1.
- For each ESV opening: documentation that the ESV opened, the reason for the opening, and corrective measures taken to minimize the frequency of openings. See discussion Part Five, Section II.E.2.
- ESV operating plan. See discussion Part Five, Section II.E.2.
- CEM quality assurance document, including: definition of compliance with the calibration and zero drift specifications, and how relative accuracy and absolute calibration audits will be performed. See discussion Part Five, Section II.F.1.
- Feedstream Analysis Plan, including: the parameters for which each feedstream will be analyzed to ensure compliance; whether the owner or operator will obtain the analyses by performing sampling and analysis or by other methods; how the analysis will be used to document compliance; the test methods used; the sampling method used; and the frequency of testing. See discussion in Part Five, Section II.F.2.
- Other Continuous Monitoring Systems (CMS), including: manufacturer's written specifications for installation, operation, and calibration of a CMS; and technical specifications of CMS, such as spans and percent error. See discussion in Part Five, Section II.F.3.

In addition, HWCs would be required to develop and keep in the operating record a feedstream management plan that enables the source to maintain compliance with CEM-monitored emission standards. Although a facility using a CEM for compliance would not be required to comply with feedrate limits, the owner and operator would be required to develop a feedstream management plan (and include it in the operating record) that will enable the source to know the feedrate in all feedstreams of Hg (as well as other metals and chlorine if the source elects to use a CEM for compliance monitoring) at all times to minimize automatic waste feed cutoffs and exceedances of the emission standard. Knowledge of Hg (and other metals and chlorine) concentration of feedstreams can come from the waste generator, supplier, or other information, and need not be obtained by sampling and analysis by the burner. If the source experiences frequent AWFCOs or exceedances, enforcement officials will determine if a feedstream management plan is in place. If the plan is determined to be inadequate, the Director may require that it be upgraded, taking into account whether a good faith effort has been made to develop a plan, even if the plan is determined to be inadequate.

Note that RCRA/HSWA already requires the facility owner to certify no less than annually, that the facility has a waste minimization program in place, and the certification must be maintained in the facility's operating record. The facility owner is encouraged to coordinate the development of the feedstream analysis plan and the feedstream management plan with the facility's waste minimization program. EPA published Interim Final "Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program in Place," (1993) and the "Pollution Prevention Facility Planning Guide" (1993), which provide information to facility owners on how to prepare analyses of waste streams and options for reducing wastestreams using alternative pollution prevention/waste minimization measures. Information on these documents can be requested by calling the RCRA hotline at 1–800–424–9346.

Many states provide free pollution prevention/waste minimization technical assistance that may aid facilities in the development of pollution prevention/waste minimization plans. At least 20 states have requirements for certain facilities to prepare pollution prevention/waste minimization plans. As noted elsewhere in today's rule, facilities can get further information on available technical assistance by contacting the National Pollution Prevention Roundtable in Washington, D.C. at (202) 466–7272, or from Enviro$ense, an electronic library of information on pollution prevention, technical assistance, and environmental compliance, that can be accessed by contacting a system operator at (703) 908–2007, via modem at (703) 908–2092, or on the Internet at http://wastenot.inel.gov/enviro-sense.

2. Applicability of § 63.10 Recordkeeping Requirements

The applicability of the existing recordkeeping requirements of § 63.10 would be as follows:

- Paragraph (a) (Applicability and general information) applies, except for (a)(2) that exempts sources that are operating under a compliance extension. This is because sources that receive a time extension to submit the initial notification of compliance would not be subject to any of the proposed standards. Further, sources that receive an extension for a subsequent notification of compliance need to comply with recordkeeping and reporting requirements to provide compliance assurance given that they are burning hazardous waste during the extension.
- Paragraph (b) (General recordkeeping requirements) applies, except for (b)(2) (iv)–(vi) that pertain to actions during malfunctions, and (b)(3) regarding recordkeeping for applicability determinations.
- Paragraph (c) (Additional recordkeeping requirements for sources with CMS) would apply, except for (c)(6)–(8), (c)(13), and (c)(15) that pertain to malfunctions.

3. New Recordkeeping Requirements

The rule will also require recordkeeping requirements for the following:

- Comparable fuels. Sampling and analysis plan, including revisions; and certifications from burners. Under § 261.4 records will be kept for as long as the generator manages a comparable fuel, plus five years. See discussion in Part 6, Section I.E.6.
- Comparable fuels. Results of sampling and analysis; and records of off-site shipments for five years. See discussion in Part 6, Section II.E.6.
- Small quantity on-site burner exemption. Under § 266.108, records will be kept for 3 years. See discussion in Part Six, Section II.D.
- Regulation of residues. Under § 266.112, records will be kept until

closure. See discussion in Part Six, Section II.D.

D. Operator Certification

The Agency notes that section 129 of the Clean Air Act requires EPA to develop and promulgate a model program for the training and certification of municipal waste combustor (MWC) and medical waste combustor (MWI) operators. Accordingly, the Agency has promulgated operator certification and training requirements for MWCs and has proposed requirements for MWIs. The Agency is today requesting comment on whether similar requirements are necessary and appropriate for operators of HWCs.

The MWC and MWI requirements call for (in part) full operator certification of all shift supervisors and chief facility operators by the American Society of Mechanical Engineers (ASME) or a State certification program. In addition, a least one of the following persons is required to be on duty at all times during which the unit is combusting waste: a fully certified chief facility operator; a fully certified shift supervisor; or a provisionally certified control room operator.

We note that the ASME has recently established a Standard for the Qualification and Certification of Hazardous Waste Incinerator Operators (ASME QHO–1–1994, January 31, 1995). We request comment on whether: (1) operator certification requirements are necessary for HWCs; and (2) the ASME standard, or an equivalent State certification program) is appropriate and sufficient

The ASME standard has been developed specifically for hazardous waste incinerators. We are not aware of an equivalent standard for operators of cement kilns and lightweight aggregate kilns that burn hazardous waste. We note, however, that the Cement Kiln Recycling Coalition has stated that it is committed to the development of an operating training and certification program for its member facilities.[182] We invite comment and information from owners and operators of waste-burning kilns regarding the need for a certification standard and the status of development of a standard for such combustors.

VI. Permit Requirements

The rulemaking approach in today's proposal, to promulgate final standards under joint RCRA/CAA authority, raises some challenging implementation questions. In this section, permitting strategies are discussed. EPA requests comment on how these strategies can be further simplified while retaining basic environmental protection goals.

A. Coordination of RCRA and CAA Permitting Processes

The rulemaking approach chosen for today's proposal is to promulgate the final standards for hazardous waste combustors under joint RCRA/CAA authority. However, the standards will only appear under 40 CFR Part 63 (Clean Air Act section). The RCRA regulations in 40 CFR Parts 264 and 266 will make reference to these Part 63 standards, thereby incorporating them as RCRA standards as well. Thus, legally, the new standards will be part of both the RCRA and CAA regulations and both regulatory programs (RCRA & CAA) will have an obligation to address these standards in permits issued under their authority.

Although the Agency believes that a single permit would be ideal to implement these two programs, today's proposed approach does not always eliminate the need for two separate permits. However, it does provide a variety of options for State implementation. By using both the CAA and RCRA authorities, today's approach provides maximum flexibility for permitting authorities at the Regional, State, and/or local levels to coordinate the issuance of permits and enforcement activities in the way which most effectively addresses their particular situation.

Currently, combustion facilities are required to obtain two permits; a RCRA permit and a CAA permit. Although it is EPA's long term goal is to have one permit that would address both RCRA and CAA requirements, it is difficult because (1) different pieces of the rule rely on different authorities, and (2) significant coordination is needed between Regional, State, and local authorities. After careful consideration, EPA's goal in today's proposal is to coordinate as much as possible between the two permitting programs to avoid duplication of effort, inconsistent requirements, and redundant procedures.

EPA explored the possibility of requiring combustion facilities to have only one EPA permit issued under either RCRA authority or CAA authority. Promulgating these standards in the CAA regulations and requiring only a CAA permit looked promising because RCRA allows EPA to defer RCRA regulation to other authorities administered by EPA, if RCRA core values are covered by the other federal requirements (RCRA Section 1006(b)(1)), in this case, the CAA. However, EPA believes that several RCRA core requirements (e.g., corrective action, omnibus conditions, DRE, etc.) cannot be addressed in a CAA permit, since the CAA does not provide the legal authority to address them.

Promulgating these requirements under RCRA authority and issuing only a RCRA permit is not possible because the CAA does not allow permits for major sources to be waived. As previously discussed, all facilities covered by this rulemaking will be considered major sources. Also, CAA specific concerns (e.g., acid rain, criteria pollutants, etc.) would not be addressed in a RCRA permit.

EPA considered placing the revised air emission standards in the CAA regulations and including a RCRA permit-by-rule provision that would defer to the CAA permit. Under this option, the CAA regulations would contain the air emission requirements and the CAA permit would contain the emission standards. In addition, a separate RCRA permit would address RCRA-specific concerns (e.g., corrective action, omnibus conditions, DRE, storage, etc.). This approach would avoid duplicating air emission requirements in both permits. EPA is not proposing regulatory language that would require this approach because there is concern that it might limit the permitting flexibility of the implementing agencies by specifying which program would be required to address air emissions. Some states have expressed concerns about this approach. Many states—for example, those that regulate air emission standards under their hazardous waste program—may find it difficult to implement this option; also, some states were concerned about the ability of local permitting programs being solely responsible for the air emissions permitting for these facilities. On the other hand, the flexibility EPA is suggesting in today's proposal would not preclude states from using this permitting approach.

More broadly, EPA has not specified any one permitting approach in today's proposal. The flexibility the Agency is proposing would allow states to decide which permitting approach to take. The important things are that all substantive requirements are met and that a timely and full opportunity for public involvement is provided during the permitting process.

EPA has identified a range of possible permitting scenarios under today's proposed approach. Some examples of

[182] Letter from Craig Campbell, CKRC, to Ronald Bastian, Chairman, ASME QHO, dated January 5, 1994.

coordinated efforts between the RCRA and CAA programs include: (1) issuing a single permit using both (or either) RCRA and CAA authority, and (2) issuing two separate permits with close coordination between the two programs.

In the first example, the two permitting programs would work together to issue one permit that meets all the requirements of both programs. This joint permit would include CAA-specific items (e.g., acid rain, criteria pollutants, etc.), RCRA-specific items (e.g., corrective action, omnibus conditions, DRE, etc.), and items common to both programs (e.g., air emission standards, etc.). The permit would be issued under joint authority and signed by the Director(s) of both programs. This scenario is likely to be most appropriate where a State has authority for both programs and the two programs have experience working together. This approach could also be implemented by using the CAA in combination with the RCRA permit-by-rule provision as discussed above.

In the second example, the two permitting programs (one responsible for RCRA, and one responsible for CAA) would coordinate their permitting efforts. Each program would issue a permit. The requirements common to both programs (e.g., stack emission standards, etc.) would be included in one permit and the other permit would incorporate the common requirements by reference. This approach would avoid duplicative and conflicting requirements. In this example, each permit would go through the applicable procedures for issuance. To coordinate permit issuance, all public participation requirements (notices, comments, hearings, etc.) could be combined. Under this approach permits would be subject to applicable appeal procedures and enforcement provisions under each program; however, EPA would not expect to enforce under both permits. The appropriate enforcement response will be determined on a case-by-case basis. We invite comment on this point in particular.

EPA will work with the States to identify issues relating to streamlining the permitting programs and to develop any needed guidance materials or model processes. Additionally, EPA will continue to pursue a mechanism to issue one permit that would address both RCRA and CAA requirements.

An Agency-wide initiative led by the Permits Improvement Team (PIT) has recommended ways to improve permitting activities for all environmental programs. Under this initiative EPA continues to seek the best ways to permit facilities throughout its various media programs. The approach in today's proposal is consistent with the current direction of the PIT, which suggests avoiding duplication of effort by incorporating the air emission standards into one permitting program. EPA is committed to harmonizing these two permitting processes as much as possible for the implementation of today's proposal.

B. Permit Application Requirements

EPA reviewed information required for permit applications under both the CAA (§ 70.5) and RCRA (Part 270) to identify any duplication that could be eliminated and to determine whether any CAA or RCRA permit application requirements for hazardous waste combustors could be combined. Historically, determinations for permit approval for facilities regulated under the CAA generally focused solely on the efficiency of the air pollution control device (APCD). Conversely, the basis for permit approval under RCRA has traditionally been more specific and related to details of the combustion unit and process (for example, design characteristics of the unit, variability of the waste burned, information on the type of waste to determine the effect it may have on the quality of the operation of the unit over time, etc.). Specific information requirements are listed in §§ 270.15–270.26 (see specific technical information requirements in § 270.19 for incinerators and § 270.22 for BIFs). For these reasons, EPA has concluded that the current Part B information requirements and the information requirements in the CAA regulations are not duplicative and is proposing that both be retained under the existing regulations to assure that all RCRA and CAA concerns are addressed.

Although some of the general information required under § 270.13, Contents of Part A of the RCRA permit application, is also requested in § 70.5 of the CAA permit application requirements, EPA believes that because this information is so minimal, it would not be a burden for the applicant to duplicate it on two separate applications. Section 270.13 requires further information under the Part A, such as a scale drawing of the facility showing the location of all past, present, and future TSD areas, specifications of the hazardous waste listed or designated under 40 CFR Part 261 to be handled at the facility and a list of all permits or construction approvals received or applied for under other programs, to list a few. In addition, standards relating to the overall operation of the facility are listed under Part B (§ 270.14). These standards include, but are not limited to, chemical and physical analyses of the hazardous waste and hazardous debris to be handled at the facility, description of the security procedures, contingency plans, closure and post-closure plans (including cost estimates) and a description of the continuing training programs. Such standards are not required in the application for a CAA permit. EPA has therefore concluded that it would be reasonable to keep the application requirements where they now exist and cross-reference them where appropriate.

C. Clarifications on Definitions and Permit Process Issues

Because of the incorporation of the technical standards into both the RCRA and CAA regulations, as described previously, both RCRA and CAA permitting procedures are applicable. For issues such as the meaning of the term "construction", there could be confusion since the definitions and interpretations under one Act differ from those under the other. Our intent is not to reconcile these issues on a national basis but to continue to let both apply. As in the past, sources regulated under both Acts will need to coordinate with both RCRA and CAA permitting authorities to see how these procedures apply to them. We note in passing that this approach means that the most restrictive limitations or processes will generally govern.

The Agency requests comment on whether these issues should be addressed at the national level. EPA's current preference is not to do so, but to leave flexibility for the states and EPA Regions to address these issues.

1. Prior Approval

RCRA and CAA are similar in that both require EPA approval before construction or reconstruction of a facility (generally) (Sections 61.07, 63.5, 270.10(f)). Both programs use hypothetical emissions data to make the construction approval decision. If a facility is existing before the effective date of the final regulation, both RCRA and CAA require notification of operation but do not require approval of the construction that has already occurred (Sections 60.7, 266.103(a)(1)(ii)). (Modification of a permitted facility also requires prior approval.)

2. 50 Percent Benchmark

RCRA and CAA both classify a modification of a facility that costs more than 50 percent of the replacement cost of the facility as "reconstruction". However, the significance of this term is different under the two statutes. Under

RCRA, the issue of reconstruction is relevant to interim status facilities. An interim status facility planning modifications which constitute reconstruction must receive a RCRA permit prior to construction of the modifications and operation (§ 270.72(b)). Under the CAA, reconstruction subjects the facility to standards applicable to new facilities (§§ 60.15, 60.488, and 63.5).

3. Facility Definition

RCRA and CAA define "facility" differently. This definition has bearing in determining the value of the facility with respect to the 50 percent rule on modifications just discussed. CAA defines facility as the entire industrial process at the site (profit making productive process and pollution control devices), while RCRA for purposes of reconstruction refers to a "comparable entirely new hazardous waste facility" (Section 270.72) excluding other industrial processes at the site from consideration in the cost of the existing facility. For a site where the only activities are RCRA hazardous waste activities, the two definitions are identical. However, sites with non-RCRA industrial activities will have differing cost figures for each rule. Therefore, the two programs have differing determinations of how much reconstruction can occur before the 50 percent benchmark is exceeded. However, EPA believes this difference should not constitute a problem, since the reconstruction determination has different applications under each Act. The RCRA definition should be used for the RCRA application to changes during interim status, and the CAA definition should be used when determining applicability of new versus existing MACT standards.

4. No New Eligibility for Interim Status

This joint CAA/RCRA proposed rulemaking revises emission standards for incinerators and BIFs and hence amends the original incinerator and industrial furnace rules that were finalized in 1981 and 1991, respectively. Because these rules established the date on which incinerators and BIFs were first subject to a permit requirement, the effective dates of those rules created the only opportunity for interim status eligibility. § 270.10(e)(1)(A)(ii). The interim status windows that occurred in 1981 and 1991 thus will not and legally cannot be modified by this rule. Of course, facilities currently burning wastes that become newly listed under other, future rules would still be able under existing law to qualify for interim status (§ 270.42(g)).

To avoid the possibility that readers of Part 63 might be unaware of their obligations under RCRA, EPA has inserted a note into Section written Section 63.1206 to alert them to this point. This note states: "an owner or operator wishing to commence construction of a HWI or hazardous waste-burning equipment for a cement kiln or lightweight aggregate kiln must first obtain some type of RCRA authorization, whether it be a RCRA permit, a modification to an existing RCRA permit, or a change under already existing interim status. Please see 40 CFR Part 270."

5. What Constitutes Construction Requiring Approval

RCRA and CAA both have restrictions requiring approval prior to construction. The definition of construction under the RCRA regulations and associated interpretations differ from the CAA approach to defining construction (case-specific call, see Sections 60.5, 61.06) Facilities need to comply with both and should be consulting with applicable permitting authorities to assure appropriate site-specific interpretations. We believe the RCRA construction definition is generally broader (more restrictive) and thus will govern in most cases. The Agency believes retaining the two differing definitions will not cause problems since they are already being applied concurrently. Also, the Agency feels that creating a third construction definition for this small subset of the RCRA and CAA facilities would create more confusion than it would eliminate.

D. Pollution Prevention/Waste Minimization Options

EPA believes pollution prevention/waste minimization measures may provide facilities additional flexibility in meeting MACT standards. Pollution prevention/waste minimization measures have been used by many companies to modify processes and install new or improved technologies which reduce or eliminate the volume and/or toxicity of hazardous wastes generation that would otherwise enter combustion unit feedstreams, or be treated or disposed of in some other fashion. EPA is soliciting comment on two pollution prevention/waste minimization options for reducing or eliminating hazardous constituents that enter on-site as well as commercial combustor feedstreams, and that can be considered in the definitions of changes in facility operating parameters and/or new or improved control technologies for meeting MACT standards.

The first option would require all facilities to provide adequate information on alternative pollution prevention/waste minimization measures that reduce hazardous constituents entering the feedstream, particularly the most persistent, bioaccumulative, and toxic constituents, in all permit applications. EPA believes this approach is consistent with the national policies of the Pollution Prevention Act of 1990, CAA, RCRA, and over 20 states who encourage or require pollution prevention plans. Facilities are encouraged to reference existing EPA documents, such as the Interim Final "Guidance to Hazardous Waste Generators on the Elements of a Waste Minimization Program in Place," (May 1993), which provides a guide for developing pollution prevention/waste minimization programs. Facilities are also encouraged to reference EPA's "Pollution Prevention Facility Planning Guide" (May 1992), "An Introduction to Environmental Accounting As A Business Management Tool" (June 1995), and "Setting Priorities for Minimization of Combusted Hazardous Waste" (November 1995), and to contact the National Pollution Prevention Roundtable, and state pollution prevention technical assistance programs for additional pollution prevention resources. These documents were published as aides to facility owners in preparing analyses of pollution prevention/waste minimization measures. EPA believes this approach provides maximum flexibility to facilities for identifying controls through the application of processes, or systems (including pollution prevention/waste minimization measures) for reducing emissions.[183]

EPA believes in many cases, facilities may already be required or encouraged to prepare this information in the more than 20 States which have pollution prevention facility planning requirements already in place. EPA believes this approach will promote consistency in States which are requiring facilities to develop pollution prevention/waste minimization plans as a basis for developing multi-media permits. This approach will enhance, without duplicating, the requirements in this proposal for facilities to prepare a feedstream analysis plan and a feedstream management plan. In cases where this information has been already developed by the facility in accord with State requirements within 18 months prior to the date of application, no

183 Under the Clean Air Act Section 112(d)(2), MACT standards include, among other things, process changes, substitution of materials or other modifications.

additional pollution prevention/waste minimization information will be required as part of the permit application.

In the second option, EPA proposes to give EPA Regions and States discretion to make case by case determinations regarding whether a facility must provide adequate information for reducing measures, including pollution prevention/waste minimization measures, that will minimize hazardous constituents entering the feedstream. EPA believes this determination should be made based on the facility's ability to verify that they have a waste minimization program in place as required under RCRA, the extent to which the facility has reported pollution prevention information in annual Toxic Release Inventory reports (for facilities subject to TRI reporting requirements), and the extent to which information has already been prepared under existing state pollution prevention planning requirements, or in conjunction with State or local pollution prevention technical assistance programs.

EPA believes this option provides the regulated community and States broad flexibility to integrate existing pollution prevention/waste minimization programs into the objectives of this rulemaking. States, universities and local governments operate over 200 technical assistance programs that work cooperatively with companies to identify waste minimization options to reduce waste generation and management. Some states combine this approach with compliance assistance, and a few have in place enforceable waste minimization requirements ranging from mandatory waste minimization plans to incorporating waste minimization opportunities into permitting, inspection and/or enforcement activities. As noted elsewhere, facilities can contact the National Pollution Prevention Roundtable in Washington, D.C. at (202) 466–7272 for further information on technical assistance opportunities, or Enviro$ense, an electronic library of information on pollution prevention, technical assistance, and environmental compliance. Enviro$ense can be accessed by contacting a system operator at (703) 908–2007, via modem at (703) 908–2092, or on the Internet at http://wastenot.inel.gov/enviro-sense.

E. Permit Modifications Necessary To Come Into Compliance With MACT Standards

This Notice of Proposed Rulemaking would require facilities to come into compliance with a number of new MACT emission standards within three years following final promulgation of this rule. Some facilities would need to perform facility modifications to come into compliance with the MACT standards through changing operating parameters or adding new or improved control technology(ies) to reduce emissions. For example, incinerators that currently operate above the MACT PM emissions standards would potentially need to add or modify electrostatic precipitators (ESP) or baghouses to reduce emissions. Incinerators with a need to reduce dioxin emissions may need to look into establishing better controls on temperature or the use of carbon injection. LWAKs with potential exceedances in acid gas emissions may need to add control technology such as wet scrubbers. These facility changes may need to be added to a facility's existing RCRA permit through a permit modification. The facility, in this case, would need to apply for and receive approval for a permit modification (unless it is a class 1 modification) before commencing with its proposed change(s).

This rule is being proposed under both RCRA and the Clean Air Act Amendments. With regard to coming into compliance with these proposed standards, the Clean Air Act creates a mandatory compliance deadline of three years for facilities subject to these regulations (with a one year allowance for an extension granted on a case-by-case basis). The MACT standards are self-implementing in that they take effect in the absence of a CAA permit. As mentioned earlier in this notice, the Agency is also taking comment on whether it would be appropriate to move up the compliance date of this rulemaking from the proposed three year timeframe following promulgation to a timeframe closer to many RCRA-based regulations, that of six months to a year. The Agency is taking comment, as well, on any other timeframes which can be considered both technically and legally feasible.

However, these sources also hold RCRA permits (or operate under interim status) which likely would have to be modified as a result of efforts to comply with the MACT emission standards. With respect to facilities with RCRA permits, EPA is concerned that these facilities could submit a high number of Class 2 or Class 3 permit modification requests within the three year window before MACT compliance begins. This large influx could potentially lead to difficulties in timely processing of modification requests by EPA or State agencies. As a result, facilities potentially would not have conformed their RCRA permits to reflect the changes needed to meet the MACT standards. The Agency anticipates that many of the permit modification requests will contain either identical or similar proposed changes, given the similarities in incinerator, cement kiln, and LWAK design and operation. Given the large number and the potential for duplication of modification requests, and the desire to achieve timely emissions reductions, the Agency is considering options that will streamline the RCRA permit modification process to ensure that necessary modifications are made expeditiously, particularly in light of the fact that these standards could potentially become effective in a shorter period of time, depending on comments received from the public on this proposed rulemaking.

In today's proposal, we are seeking comment on five main options (referred to as modification options 1–5) which propose various mechanisms to expeditiously authorize changes made to comply with this rule. Also, the Agency is seeking comment on three approaches to address whether EPA or a state would process necessary permit modifications (referred to as implementation approaches 1–3) where a state is authorized to issue RCRA incineration and BIF permits but is not authorized to implement the new combustion rule. This situation should arise only where a state does not adopt the necessary provisions of the new rule within the time required by 40 CFR Part 271.21. EPA strongly urges states to adopt this rule, once finalized, expeditiously in order to streamline the processing of necessary modifications.

This notice seeks comment on which modification option or combination of modification options would be the most viable. The Agency is also taking comment on any combination of the above implementation approaches and options if an intermediate option and implementation approach combination seems more appropriate. Under the current RCRA permit modification scheme, a permitted facility would refer to Appendix I of 40 CFR 270.42 to determine if its proposed modification is classified in the modifications table. A modification may rank as Class 1, 2, or 3 (see 53 FR 37912 (Sept. 28, 1988)). A higher modification class signifies an increased significance of the facility change which is accompanied with a commensurate increase in the level of public participation. Facilities can proceed with most Class 1 changes without notifying the Agency, though some Class 1 modifications require prior Agency approval. Owners and operators must, in all cases, notify the public and the authorized Agency once they have made a Class 1 modification. For cause, the Agency may reject any Class 1 modification.

Class 2 modifications provide for considerably more participation by both the facility and the public including an informational meeting between the owner and the public regarding the owner's request prior to the Agency decision. Class 3 modifications substantially alter the facility or its operations. As a result, they require the most Agency review and are subject to more public participation requirements than a Class 1 or 2 modification, including the full part 124 procedures for processing draft permit decisions.

1. Proposed Options Regarding Modifications

To provide a procedural framework that allows these facilities to make the necessary changes in RCRA permits, the Agency proposes to amend the interim status and permit modification requirements.

a. Modifications During Interim Status. Interim status facilities can make certain facility alterations with fewer procedural hurdles than apply to permitted facilities. However, many changes do require Agency approval. In addition, interim status facilities must adhere to all reconstruction requirements found in 40 CFR Part 270.72 and must revise their Part A permit applications. To ensure that facilities making changes to come into compliance with today's proposed MACT standards are not constrained by the reconstruction limits under § 270.72, the Agency is proposing to add a new sub-section as (b)(8) that would exempt those facilities from the reconstruction limitation. The Agency does not expect that the costs to come into compliance would exceed the 50 percent limit for reconstruction—defined as 50 percent of the cost of a new, comparable hazardous waste management facility. However, since the limit is cumulative for all changes at the interim status facility, there could be cases where this provision could pose problems (e.g., where the facility had invested in a number of prior changes).

b. Permit Modifications. For permitted facilities, EPA's goal is to implement a procedural system which is as streamlined as possible, but still allows for a satisfactory level of public input. The Agency believes that a streamlined process can result in earlier achievement of the more stringent MACT requirements by facilities, leading to more environmentally protective operations. The approach is consistent with general efforts within the Agency to improve environmental permits by focusing on performance standards, rather than on a detailed review of the technology requirements.

The Agency's first, most streamlined option is that the facility would be given overall self-implementing authority (as it has under the CAA) to perform all necessary facility modifications to comply with the new standards without having to obtain a permit modification from either the state or the Agency. This option provides the facility with the greatest latitude and authority since it would allow the facility the opportunity to make changes to its waste management process and to operate under conditions which are different than those which are specified in either the HSWA or base portion of its existing RCRA permit. Under this option, there would be no immediate need for the facility to request a permit modification to incorporate these operating changes into the existing permit. These changes, provided they enable the facility to meet the new CAA standards, would be incorporated into the permit at some later date (e.g. during the permit renewal process). It should be noted that this option does not provide for public participation at the time the facility is altering its process to comply with the new standards. Public involvement would instead occur as part of a later permit action, such as permit reissuance. It would also not provide for State or Federal agency oversight prior to design or operating changes. This option is based on the theory that, so long as the facility is meeting the applicable performance standards, there may be no need to review how it comes into compliance.

The Agency's second modification option would consider all modification requests due to the MACT standards to be Class 1 modifications requiring no prior approval. The basis for this option would be to ensure that facilities are capable of meeting the new standards within the three year compliance window because like Option 1, it relieves the facility of possible delays associated with obtaining prior approval for modifications needed to come into compliance. It also puts substantial compliance responsibility on the facility to make the correct changes within the allotted time.

The Agency's third option, for which rule language has been proposed, would revise Appendix I of 40 CFR 270.42 to designate as Class 1 modifications with prior Agency approval all initial requests for permit modifications made by facilities in order to comply with today's MACT standards. Appendix I of 40 CFR 270.42 would be revised to reflect this classification by adding item L(9) entitled “Initial Technology Changes Needed to Meet MACT Standards under 40 CFR Part 63 (National Emission Standards for Hazardous Air Pollutants From Hazardous Waste Combustors)”. The prior approval under this option would provide for an Agency review of the proposed physical and operational changes to the facility before they are implemented in order to ensure that these changes do not lead to other undesirable consequences.

Experience suggests that steps intended to reduce emissions may not, in all cases, lead to enhanced environmental protection. On the other hand, it could be argued that it should be the responsibility of the facility, not the permitting Agency, to assure that the regulated unit meets the required performance standards. EPA requests comment on the need for Agency oversight.

The abbreviated procedures in options 1 through 3 would be limited to facilities making initial changes to existing permits in order to come into compliance with § 112 standards. The procedures would not apply to general retrofitting changes outside the framework of meeting MACT related technology changes or to subsequent changes relating to maintaining compliance with § 112 standards. The Agency is aware that the criteria for deciding on the classification of a modification request deviate from past decision making criteria used to differentiate among modification classifications in Appendix I of Part 270. Many of the changes facilities might make to conform to the new standards would likely be Class 2 or 3 modifications under the current scheme. However, the Agency believes that a streamlined approach may be justified because EPA did not consider newer, more stringent standards becoming effective under shorter timeframes when it developed the current permit modification table. Also, these changes are mandated under a different regulatory scheme for which the modification tables were not designed to account. This streamlining of the modifications process has been addressed in the past by the Agency to ensure that changes made at facilities needed to meet LDR levels for newly listed or newly identified hazardous waste could be met (see 54 FR 9596, March 7, 1989). These previous modifications needed to meet the LDR levels for newly identified wastes were redesignated as Class 1 modifications. These MACT standards impose more stringent operating standards than current requirements; the Agency anticipates that the public will be receptive to these improvements and upgrades. Also, the Agency would still have control over the modification process under option 3 since it would still be reviewing the details of proposed new equipment or fixes to existing equipment.

The Agency's fourth modification option, like modification option 3, would consider all initial modification requests to existing permits to be Class 1 modifications requiring prior approval by the Director, but would give the Director the authority to elevate this modification to a Class 2 modification if the Director believes that additional public participation is warranted. This option to elevate a Class 1 modification requiring prior approval to a Class 2 modification would apply only to facilities requesting modifications to comply with today's proposed MACT standards. It would not apply to other class 1 modifications.

The fifth modification option represents a "no change" option. Most modifications requested would likely be handled as Class 2 or 3 modifications given the types of facility changes we expect in response to the MACT standards. Under this option, facilities would be urged to submit their permit modification requests as soon as possible in order to maximize the chances of completing the modification procedures, including administrative appeals, prior to the compliance deadline. EPA believes this alternative could thwart the Agency's chief objective of minimizing RCRA/CAA interface problems, and would be difficult to implement within the CAA compliance deadlines. Therefore, EPA does not favor this alternative.

Finally, the Agency realizes that many states have not yet adopted the modification table in Appendix I of 40 CFR 270.42. It hopes that states will, at a minimum, adopt the modification scheme that is promulgated in the final rule to ensure expeditious implementation of the new MACT standards. Alternatively, if option 2 or 3 is selected in the final rule, States that rely on a two-tiered system of major and minor modifications could classify these changes as "minor modifications".

In light of these proposed options for facilities attempting to comply with the MACT standards proposed in this notice, the Agency is, under a separate process, investigating ways to streamline the entire RCRA permit modification and renewal process for all industry categories to further reduce redundancies and inefficiencies in the process, while making sure that the public has adequate notice and involvement in the process. The Agency is in the early stages of this effort and wishes to solicit comment from the public on ways to achieve a more effective and efficient overall RCRA permit modification and renewal system.

2. Proposed Approaches To Address Potential Implementation Conflict

As mentioned earlier, the Agency is also taking comment on three companion approaches to deal with possible permit implementation conflicts which may occur in the event that a state does not become authorized to carry out the provisions of this rulemaking in time to handle necessary modifications. These approaches are relevant to modification options 2 through 5; if option 1 is chosen, no permit modification will be necessary, so the issues discussed in this section would not arise. It is important to remember that the standards in this rule would take effect automatically under the CAA. Therefore, the facility would be obligated under that statute to make the necessary changes to achieve compliance. The issue discussed herein relates to the respective roles of EPA and authorized states in processing RCRA permit modification requests.

The Agency's first approach provides a narrow interpretation of the scope of this rulemaking. Under this approach, only the numerical standards imposed by this rulemaking would be viewed as within the scope of this rule, and so, within the scope of HSWA. The manner in which facility changes are performed would be interpreted to be beyond the scope of the rule. Therefore, for those facilities needing a RCRA permit modification to reflect changes in permit conditions, the facility would be required to request the modification through the agency(ies) that implement the portion(s) of the permit to be modified.

Under the Agency's second approach, both the proposed MACT standards as well as the modification(s) needed to come into compliance with these standards would be interpreted to fall within the scope of today's HSWA rulemaking. Accordingly, the Agency would make the modifications under HSWA for facilities in states that have not yet become authorized for this rule. Although this approach would facilitate changes, the Agency does recognize that it could potentially create a possibility for conflict between state and federal permit portions. In areas where these modifications would be inconsistent with currently existing state-issued portions of the facility's permit, the State would need to perform parallel modification procedures to correct the inconsistencies. In the event that a State could not do this (e.g. there is no "cause for modification" under the State regulations to cover the type of change that would be necessary), EPA would attempt to secure agreement from the state that the new HSWA conditions are more stringent than any inconsistent state permit conditions and take precedence over such conditions. The state might memorialize this agreement through memorandum or letter to the facility or to the rulemaking record. This approach might require an extensive amount of communication between the State and the Agency, e.g. to come to agreement that the HSWA change is an improvement over any conflicting conditions in the state portion of the permit.

Under the Agency's third approach, in states that have not yet become authorized under RCRA for this rule, the Agency would not only modify the permit by adding conditions necessary for facilities to come into compliance with these MACT standards, but would also delete or modify conditions of the state portion of a permit if conflicts exist between the state-administered base program portion of a permit and the federally-administered HSWA portion. This approach is similar to the second approach, except that all modifications to any portion of a RCRA permit would be viewed as an integral part of EPA's role in carrying out the new HSWA requirements.

VII. State Authorization

A. Authority for Today's Rule

Today's rule is being proposed under the joint authority of the Clean Air Act (42 U.S.C. 7401 et seq.) and RCRA (42 U.S.C. 6924(o) and 6924(q)). The proposed approach would apply the new standards to both regulatory programs. Although the proposed standards would be located in 40 CFR Part 63, which addresses Clean Air Act requirements, the RCRA regulations in 40 CFR Parts 264 and 266 would incorporate these standards by reference. States may also promulgate these standards under their CAA program, and then incorporate them by reference into their RCRA regulations. Alternatively, States may promulgate these standards in both the RCRA and CAA sections of their State code for several reasons. Also, States without an approved CAA Title V permit program may promulgate these standards under their RCRA program only. Note however, that EPA strongly encourages States to adopt and apply for authorization or delegation under both regulatory programs for today's proposed standards when finalized. (In the implementation of RCRA and the CAA by States, there is no functional distinction between the authorization of a State to implement RCRA in lieu of EPA, and the delegation to a State to administer the CAA. See the discussion below.) EPA believes that State implementation of this rule will facilitate the coordination between the RCRA and CAA regulatory programs.

B. Program Delegation Under the Clean Air Act

Section 112(l) of the Clean Air Act allows EPA to approve State rules or programs for the implementation and enforcement of emission standards and other requirements for air pollutants subject to section 112. Under this authority, EPA has developed delegation procedures and requirements located at 40 CFR Part 63, Subpart E, for NESHAPS under Title III of the CAA (See 57 FR 32250, July 21, 1992). Related requirements for permit programs under Title V are located at 40 CFR Part 70 (See 58 FR 62262, November 26, 1993).

Under 40 CFR 70.4(a) and § 502(d) of the CAA, States were required to submit to EPA a proposed Part 70 (Title V) permitting program by November 15, 1993. If a State CAA Title V program does not receive EPA approval by November 15, 1995, the Title V program must be implemented by EPA for that State.

Submission of rules or programs by States under 40 CFR Part 63 is voluntary. Once a State receives approval from EPA for a standard under section 112(l) of the CAA, the State is delegated the authority to implement and enforce the approved State rules or programs in lieu of the otherwise applicable federal rules (the approved State standard would be federally enforceable). States may also apply for a partial Title III program, such that the State is not required to adopt all rules promulgated in 40 CFR Part 63. EPA will administer any rules federally promulgated under section 112 of the CAA that have not been delegated to the State.

The section 112(l) rule for delegation under Title III (see 58 FR 62262, November 26, 1993), is currently the subject of litigation. (See *Louisiana Environmental Network* v. *Environmental Protection Agency,* No. 94–1042 (D.C. Cir., filed January 21, 1994).) The outcome of this case could severely limit the ability of States to receive delegation for air toxics standards that differ from the comparable federal standards. A decision is expected in early 1996.

C. RCRA State Authorization

1. Applicability of Rules in Authorized States

Under section 3006 of RCRA, EPA may authorize qualified States to administer and enforce the RCRA program within the State. Following authorization, EPA retains enforcement authority under sections 3008, 3013, and 7003 of RCRA, although authorized States have primary enforcement responsibility. The standards and requirements for authorization are found in 40 CFR Part 271.

Prior to HSWA, a State with final authorization administered its hazardous waste program in lieu of EPA administering the Federal program in that State. The Federal requirements no longer applied in the authorized State, and EPA could not issue permits for any facilities that the State was authorized to permit. When new, more stringent Federal requirements were promulgated or enacted, the State was obliged to enact equivalent authority within specified time frames. New Federal requirements did not take effect in an authorized State until the State adopted the requirements as State law.

In contrast, under RCRA section 3006(g) (42 U.S.C. 6926(g)), new requirements and prohibitions imposed by HSWA take effect in authorized States at the same time that they take effect in unauthorized States. EPA is directed to carry out these requirements and prohibitions in authorized States, including the issuance of permits, until the State is granted authorization to do so.

Today's rule is being proposed pursuant to sections 3004(o) and 3004(q), of RCRA (42 U.S.C. 6924(o) and 6924(q)), which are HSWA provisions. The rule would be added to Table 1 in 40 CFR 271.1(j), which identifies the Federal program requirements that are promulgated pursuant to HSWA. States may apply for final authorization for the HSWA provisions in Table 1, as discussed in the following section of this preamble.

2. Effect on State Authorization

Today's proposed rule is considered to be more stringent than the existing standards in 40 CFR Parts 264 and 266. Thus, because today's revised technical standards for hazardous waste combustors are being proposed under HSWA authority, when finalized, this rule would be implemented by EPA in authorized States until their programs are modified to adopt this rule and the modification is approved by EPA. Note that these standards would also apply to all covered facilities under CAA authority, regardless of whether a State has been delegated the provisions of the final rule because these standards would be largely self-implementing.

Because today's rule is proposed pursuant to HSWA, a State submitting a program modification may apply to receive interim or final authorization under RCRA section 3006(g)(2) or 3006(b), respectively, on the basis of requirements that are substantially equivalent or equivalent to EPA's. The procedures and schedule for State program modifications for final authorization are described in 40 CFR 271.21. It should be noted that all HSWA interim authorizations will expire January 1, 2003. (See § 271.24(c) and 57 FR 60132, December 18, 1992.) In addition, note that 40 CFR Part 63, Subpart E provides for interim approvals under the CAA only in limited circumstances.

Section 271.21(e)(2) requires that States with final authorization must modify their programs to reflect Federal program changes and to subsequently submit the modification to EPA for approval. The deadline by which the State would have to modify its program to adopt these regulations is specified in section 271.21(e). This deadline can be extended in certain cases (see section 271.21(e)(3)). Once EPA approves the modification, the State requirements become Subtitle C RCRA requirements.

States with authorized RCRA programs may already have requirements similar to those in today's proposed rule. These State regulations have not been assessed against the Federal regulations being proposed today to determine whether they meet the tests for authorization. Thus, a State is not authorized to implement these requirements in lieu of EPA until the State program modifications are approved. Of course, states with existing standards could continue to administer and enforce their standards as a matter of State law pending authorization for revised standards. In implementing the Federal program, EPA will work with States under agreements to minimize duplication of efforts. In most cases, EPA expects that it will be able to defer to the States in their efforts to implement their programs rather than take separate actions under Federal authority.

States that submit official applications for final RCRA authorization less than 12 months after the effective date of these regulations are not required to include standards equivalent to these regulations in their application.