Coalition for Responsible Waste Incineration

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Washington, DC 20460

Attn: Docket ID No. EPA-HQ-OAR-2009-0559

The Coalition for Responsible Waste Incineration (CRWI) appreciates the opportunity to submit comments on *Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Sewage Sludge Incineration Units; Proposed Rule*. 75 FR 63260 (October 14, 2010). CRWI is a trade association comprised of 27 members. Some of them own and operate incinerators that periodically feed sewage sludge and may be covered by this rule.

CRWI has been extensively involved in the development of rules under the MACT program. MACT rules regulating hazardous waste combusters (40 CFR Part 63, Subpart EEE), a source category covering most of our industrial members, have been at the forefront of many of the MACT's program legal and policy disputes over the past 12 years and were the subject of a decision by the DC Circuit Court of Appeals, *Cement Kiln Recycling Coalition v. EPA,* 255 F.3d 855, 862 (DC Cir. 2001). These rules, and others regulating our members, were also subject to numerous public notice and comment periods from 1996 – 2010, were extensively reviewed by the Agency in light of the *Brick MACT* court decision that plays a major role in this proposal. Consequently, CRWI has considerable expertise in MACT issues.

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CRWI has concerns about following issues.

1. EPA does not have sufficient data to use an "actual emission" methodology for setting the MACT standard's for existing sources.
2. EPA has not performed the requisite BDT analysis for setting New Source Performance Standards.
3. EPA's MACT floor methodologies are inconsistent with the statute, case law, and in some cases, EPA's own policies.
4. Existing case law does not require EPA setting floor standards based on lowest emissions.
5. EPA's pollutant-by-pollutant, lowest emission methodology for setting the CO and NOx standards is flawed because the Agency did not take into account the inherent conflict in complying with two standards.
6. EPA has proposed some emission limitations that are beyond the ability of the referenced test methods.
7. Facilities should be allowed to meet either a Total or a TEQ dioxin/furan standard but not both.
8. EPA is required to use the Multiple Hearth data to set the new source standards for that subcategory.
9. EPA should include the statutory exclusion from 129(g)(1) in this regulation.
10. EPA's proposed requirement that facilities meet steady-state standards during startup, shutdown, and malfunctions is neither logical nor lawful.
11. EPA should modify the affirmative defense provisions so that it is a "rebuttable presumption."
12. CRWI suggests that EPA clarify its affirmative defense provisions.
13. CRWI suggests a 5-year testing frequency, as opposed to annual. At a minimum, EPA should modify the regulatory language to allow annual testing and inspections to be 11-13 months.
14. CRWI suggests EPA remove the prescriptive requirements related to continuous monitoring systems.
15 EPA should allow 90 days to submit performance test reports.
16. EPA should drop the opacity standard.

Our specific comments on each of the issues above are attached.

Coalition for Responsible Waste Incineration

Thank you for the opportunity to comment on this proposed rule. If you have any questions, please contact me at (202-452-1241 or mel@crwi.org).

Sincerely yours,

Melvin E. Keener, Ph.D.
Executive Director

cc: CRWI members
A. Hambrick – EPA

Specific comments

1. EPA does not have sufficient data to use an "actual emission" methodology for setting the MACT standard's for existing sources.

Under CAA § 129(a)(2), EPA must set emission standards for existing sources that cannot be less stringent than "the average emissions limitation achieved by the best performing 12 percent of units in the category . . . ." Consequently, EPA must have information on a minimum of 12 percent of the units in the category in order to set existing source standards.

In the preamble to the proposed rule, EPA explains that its MACT analysis may be based on actual emissions data, or other information, "provided that the methods can be shown to provide reasonable estimates of the actual emissions performance of a source or sources." 75 FR 63267. In the past, EPA has used permit or other regulatory limits, emission levels, feedrate control, and other information to establish MACT standards. Despite this flexibility, the Agency is proposing to use an "actual emissions" method in the SSI rule, even though it does not have actual emissions for each of the regulated pollutants from at least 12% of the units. In order to justify their approach, EPA performed a "sample size calculation" attempting to demonstrate that it has sufficient data to represent the best performing 12% of the units in the source category.

While EPA's "sample size calculation" is flawed in many respects, the three most significant are that: (1) there is no evidence that the units for which EPA has data represent the best performing sources; (2) EPA's MACT analysis is based on "test runs," not tests, and (3) relying on multiple tests from fewer than the required 12% of the units results in a skewed floor calculation weighted toward the unit with multiple test results. As explained below, these flaws result in an invalid floor calculation.

A. There is no evidence that the units for which EPA has data represent the best performing sources.

In the preamble to the proposed rule, EPA highlights a difference between the MACT floor-setting provisions in § 112 and § 129. EPA notes that § 112 requires EPA to set the floor for existing sources based on the information they have about existing sources, which usually is less than all of the sources in the category. The floor-setting provision in § 129, however, requires them to set the existing floor standards "based on the best performing 12 percent of sources in the category" and not just based on the sources for which they have information.

75 FR 63270. In other words, the § 112 floor calculation is based on a subset of the source category while the § 129 floor calculation is based on *all* sources in the category.

Even so, EPA gathered information from only 9 sources and used the data from their 16 operating units (11 MH incinerators and 5 FB incinerators) supplemented by data from state agencies to set the § 129 MACT floor for existing sources. EPA attempts to explain that this dearth of data is nonetheless sufficient to utilize an "actual emissions" methodology, even though it did not have data from 12% of the facilities in either the MH (20 of 163) or FB (7 of 55) categories, let alone having data from all of the sources for all pollutants.

Not only is this insufficient to satisfy EPA's own stated criteria for setting standards based on the emissions from *all* units in the source category, there is no evidence that the sources for which EPA collected data are among the top 12%. Thus, EPA does not have sufficient data to use an actual emissions approach.

B. Basing a MACT Analysis on Test Runs, Instead of Tests, Is Improper.

Section 129 states that MACT standards for existing sources must be as stringent as the "emissions limitation achieved by the best performing 12 percent of units in the category." Assuming that EPA equates the term "emissions limitation" with concept of emission level (as often stated by the Agency), this clause means that EPA must use the emission levels that have been achieved to set the MACT floors. As EPA knows, under the MACT program, it takes a "minimum" of three test runs to make up a valid emissions level test. Consequently, a test run, in and of itself, does not constitute a valid test sufficient to accurately judge the emission level achieved by a particular unit. Consequently, a test run is not an accurate measure of the performance of the unit and should not be used as if it were. Instead, EPA should use the results of the test for each unit (comprised of at least 3 test runs) to represent what is being achieved by a unit. It is appropriate to use the test runs when calculating variability.

C. Relying On Multiple Tests from Fewer Than the Required 12% of the Units Results In A Skewed Floor Calculation Weighted Toward The Unit With Multiple Test Results.

Finally, the test run data EPA used came from a limited number of sources and some of it was data from multiple tests from one unit. In other cases, EPA only had one test (with 3 test runs) from one unit. For example, when calculating the

standard for CO, the EPA's database has one source with one test, one source with 13 tests, one source with 10 test, one source with 12 tests, and one source with two tests. EPA's method in the SSI rule proposal used all of the individual runs from each test and treats them as a valid data point for calculating the average emission level of the best performing 12% of units. This method works properly only if all the facilities have the same number of samples. If one source has more test runs than another, it will skew the average toward its performance thereby not giving EPA a true average of the emissions limitation from 12% of the sources. Doing the analysis as EPA did will skew the average toward the facilities with the most data points.

For all of these reasons, EPA's sample size calculation cannot be used to "expand" the amount of data available to the amount necessary to use an "actual emissions" methodology. Consequently, EPA must use a methodology to set the standards that is different than the "actual emissions" methodology.

2. EPA has not performed the requisite BDT analysis for setting New Source Performance Standards.

EPA's lowest emission approach to setting standards for SSIs is inconsistent with the Agency's authority. This rule is being promulgated under both section 129 and Section 111 which requires EPA to establish "new source performance standards." Section 111 defines NSPS as a standard of performance based on the "best system" of emission reduction achievable, taking into account cost and any nonair quality health and environmental impact and energy requirements, that has been "adequately demonstrated." CAA § 111(a)(1). This is commonly referred to as "BDT," or "best demonstrated technology." When setting NSPS EPA must conduct a BDT analysis that examines these statutory factors. EPA has not done so for this proposed rule.

EPA may believe that it need not perform a BDT analysis because it must set standards that comply with both § 111 *and* § 129. This is not correct. EPA must comply with both statutory provisions to the extent that they are not in conflict. Here they are compatible: both sections require EPA to set "achievable" standards. Section 129(a)(2) merely provides a minimum level of stringency resulting from the BDT analysis EPA is required to use. EPA can still perform a BDT analysis and then check to see if the resulting standard meets the level of stringency required by § 129.

In that regard, we note that EPA is not required to establish floors first. That was a process choice the Agency made a long time ago when it set the medical waste incinerator MACT standards under § 129, the same authority which

governs this rulemaking. *See Sierra Club v. EPA,* 167 F.3d. 658, 660 (D.C. Cir. 1999) ("*Sierra Club*). However, EPA could decide to first determine what standards are "achievable" as NSPS and then check to see if these standards are as stringent as the floor benchmarks for new and existing sources. This would mean that the standard setting process would be more like the process for setting new source performance standards and existing source guidelines the Agency follows under Section 111, than the process it normally uses to set MACT standards. This, of course, would be appropriate since § 129 MACT standards are to be established "pursuant to section 111" as well as section 129. CAA § 129(a)(1)(A).

Consequently, failing to perform the required BDT analysis violates § 111. There is nothing in § 129 that precludes the analysis required by § 111.

3. EPA's MACT floor methodologies are inconsistent with the statute, case law, and in some cases, EPA's own policies.

Besides EPA failing to perform the required BDT analysis and not having sufficient data to use an "actual emissions" methodology, EPA's floor-setting methodology is at odds with the statutory language because EPA does not consider whether the standards it sets can be achieved under the worst circumstances reasonably expected to occur, and the Agency's pollutant-by-pollutant approach is at odds with the statute and EPA's own interpretation of the standard setting provisions.

A. EPA must make sure that floor standards are achievable under the worst circumstances reasonably expected to occur.

Longstanding case law requires that, when setting § 111 standards, EPA must consider the achievability of those standards under the most adverse circumstances reasonably expected to recur. The floor provisions of section 129 do not conflict with that requirement. Hence, these provisions must both be implemented. Consequently, floor standards must be capable of being met under the most adverse circumstances reasonably expected to occur anywhere in the country. *National Lime Association v. EPA*, 627 F.2d 416, 433 (D.C. Cir. 1980). This means that EPA must analyze the floor standard to ensure that they are achievable under worst conditions, such as malfunctions. However, EPA refused to do so stating: "we believe it would be impracticable to take malfunctions into account in setting CAA section 129 standards for SSI." CRWI notes that while it may be impracticable to do so, case law states that EPA may not set floor standards based on assumption and belief. Instead, it must do so

based on evidence, not mere assertions. *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855, 866 (D.C. Cir. 2001).

B. EPA's method for setting the floor standards is flawed because none of the facilities in the database can simultaneously meet all proposed standards.

1) EPA's pollutant-by-pollutant basis violates the statute and its own views of the statute.

EPA is proposing to set MACT floor standards on a "pollutant-by-pollutant" basis. 75 FR 63273, footnote 15. This results in EPA setting a suite of standards that have not been "achieved" by the best performing sources. This violates the statute.

The provision for new sources states that MACT floor standards cannot be less stringent than the emission control "achieved in practice" by the "best controlled similar unit." Thus, EPA has a duty to find the single best unit. *Sierra Club v. EPA*, 167 F.3d. 658, 665 (D.C. Cir. 1999) (noting "use of the singular in the statutory language suggests" EPA look to the single "unit with the best observed performance").

For existing sources the floor standards cannot be less stringent than the average emissions limitation achieved by the best performing 12 percent of the existing units." CRWI asserts that this means all of the top 12 percent sources can meet the proposed standard.

That Congress expected EPA to base the MACT floor on a single source or technology is demonstrated in the legislative history by a colloquy in which Senator Dole asked Senator Durenberger about how EPA will select the best performing sources when confronted with differing technology that reduces different pollutants to different levels. This is a question that would not matter if EPA was allowed to set standards on a pollutant-by-pollutant basis.

> Mr. DOLE. This section also requires the development of standards for a variety of pollutants. It is entirely possible that different technologies may reduce one pollutant better than another. For example, technology A may reduce heavy metals better than technology B while technology B may reduce particulates better than technology A; yet, one would not be compatible with the other. I would assume that EPA would have adequate discretion to balance environmental benefits to determine which technology on the whole represents a better MACT. I would appreciate

some discussion on this point as well from my distinguished colleague from Minnesota.

Mr. DURENBERGER. The Senator is correct. Where differing air pollution control technologies result in one technology producing better control of some pollutants and another producing better control of different pollutants but it is technically infeasible according to the MACT definition to use both, EPA should judge MACT to be the technology which best benefits human health and the environment on the whole."

Senate Comm. on Environment and Public Works, 103d Cong., *A Legislative History of the Clean Air Act Amendments of 1990* at 1118. We note that this discussion is similar to the longstanding view that EPA must make a comprehensive analysis of the NSPS rather establish it on a pollutant-by-pollutant basis. In *Portland Cement Assn. v. Ruckelshaus*, 486 F.2d 375, 386, n. 42 (D.C. Cir. 1973), a case decided under § 111, the court noted that "The standard of the "best system" is comprehensive, and we cannot imagine that Congress intended that "best" could apply to a system which did more damage to water than it prevented to air."

Ensuring that the requisite number of best performers can meet the standards avoids what EPA has called an "impermissible" result. As EPA noted in other rules, it is "impermissible" for its methodology to result in standards which would force the best performing source to install upgraded air pollution control equipment because that "amounts to a beyond the floor standard without consideration of the beyond the floor factors: the cost of achieving those reductions, as well as energy and non-air environmental impacts." 70 FR 59402, 59443 (October 12, 2005). Since EPA's "pollutant-by-pollutant" methodology can result in best performing sources taking actions to meet the standards, it is an unlawful floor setting mechanism.

2) None of the units In EPA's database simultaneously achieve all proposed standards.

CRWI used the data EPA supplied in the document entitled "MACT Floor Analysis for the Sewage Sludge Incinerator Source Category" (EPA Docket ID no. EPA-HQ-OAR-2009-0559-0006) for this analysis. It is not clear from the memo exactly how the data is organized. There are several different sets of 3 runs for a number of the facilities. Since compliance is judged based on three-run tests, CRWI is making the assumption that each of these three run sets constitutes one test. If this is a correct assumption, then the data presented for the fluidized bed category consists of at least one test from 5 different locations.

Three of the locations have as many as 13 different tests for certain pollutants. Based this data, we examined each test to see if it would meet the existing source (Table 1) and new source (Table 2) standards.

Table 1 – How often do the units achieve the existing source standards?

Site	NCTZOsborne	MNStPaul	MNStPaul	MNStPaul	MIYpsilanti
Unit		1	2	3	
Cd	1/1	4/4	4/4	2/2	2/2
CO	1/1	11/13	8/10	12/12	2/2
HCl	1/1	4/4	4/4	2/2	1/1
Pb	1/1	4/4	4/4	2/2	1/2
Hg	0/1	11/12	13/13	12/12	2/2
NOx	1/1	2/2	1/2	1/1	1/1
SO2	1/1	1/1	1/1	--	--
PM	1/1	4/4	4/4	2/2	1/1
D/F tot	--	1/1	1/1	--	1/1
D/F TEQ	--	0/1	0/1	--	0/1

Facilities are required to show compliance based on a single test. Thus, one would expect each of the top performers to be able to meet the proposed standards for each of the pollutants. They do not. The facility that is closest to meeting this objective is MNStPaul, Unit 3. It meets all the standards all the time except there is no data for SO_2 or dioxins. Without data, it cannot be determined if this unit would meet that standard or not. Osborne has data for all pollutants except dioxin but fails to meet the mercury standard. Others fail more often. Thus, none of the facilities in the top performers can meet all the standards all of the time. From this, CRWI concludes that EPA's method for developing the existing source standards is not a "reasonable estimate" of what these facilities are achieving in practice. EPA needs to find an alternative method for developing the existing source standards.

Table 2 – How often do the units achieve the new source standards?

Site	NCTZOsborne	MNStPaul	MNStPaul	MNStPaul	MIYpsilanti
Unit		1	2	3	
Cd	1/1	4/4	2/4	1/2	1/2
CO	0/1	3/13	2/10	1/12	2/2
HCl	1/1	1/4	2/4	0/2	0/1
Pb	1/1	1/4	1/4	1/2	1/2
Hg	0/1	9/12	9/13	11/12	2/2
NOx	1/1	1/2	1/2	1/1	0/1
SO2	0/1	1/1	1/1	--	--
PM	1/1	4/4	4/4	2/2	1/1
D/F tot	--	0/1	0/1	--	0/1
D/F TEQ	--	0/1	0/1	--	0/1

The same type of results are seen for new sources. Once again, the facility that comes the closest to meeting all of the new source standards all of the time is the Osborne unit (meeting 5 of the ten proposed new source standards). The rest only meet three (or fewer) of proposed new source standards all of the time. From this, CRWI concludes that EPA's method for developing the new source standards is not a "reasonable estimate" of what these facilities are achieving in practice. EPA needs to find an alternative method for developing the new source standards.

If EPA cannot demonstrate that the top performers can simultaneously meet all standards, CRWI believes that in effect, EPA has improperly circumvented the § 129 for establishing "beyond-the-floor" standards because the "floor standards would force industry-wide technological upgrades without consideration of the factors (cost and energy in particular) which Congress mandated for consideration when establishing beyond-the-floor standards." (75 FR 63275).

4. Existing case law does not require EPA setting floor standards based on lowest emissions.

It appears that EPA's use of a lowest emissions methodology not only prevented it from performing all the necessary studies required under Section 111, it also violates the mandates of case law. In *Cement Kiln Recycling Coalition v. EPA* , 255 F.3d 855 (D.C. Cir 2001) (*"CKRC")* the court considered Sierra Club's challenge that EPA could not set the floors based solely on the performance of one method: add-on technology. The court remanded the rule because EPA did not consider all ways facilities control emissions. *Id.* at 866. This requirement is consistent with doing a more fulsome study as required by § 111 and is

antithetical to a methodology based solely on emission levels since setting the floor in this fashion does not require the Agency to examine all methods of control. Consequently, EPA's performance data approach in this rule may violate *CKRC* because EPA did not check for all methods that sources use to reduce pollution.

In the *Brick MACT* case, *Sierra Club v. EPA*, 479 F.3d 875, 884 (D.C. Cir 2007), the court alluded to the Agency having to set MACT standards under § 112 based on lowest emissions. Even so, *Brick MACT* does not require that EPA set a floor standard based on lowest emissions. In that case, EPA set the standard based on technology. However, the court vacated the final standards because they were based on the "second-best" technology. *Id.* at 879 - 880. Thus, *Brick MACT* also does not support floor standards based on lowest emissions.

In discussing its holding that EPA could not base the floor standard on "second best" technology, the court stated: "But EPA cannot circumvent *Cement Kiln's* holding that section 7412(d)(3) requires floors based on the emission level actually achieved by the best performers (those with the lowest emission levels), not the emission level achievable by all sources, simply by redefining "best performing" to mean those sources with emission levels achievable by all sources. *See* 255 F.3d at 861." *Brick MACT*, *supra* at 880 – 881.

This parenthetical reference to "lowest emissions" was not the court directing the Agency to use a performance data approach. The point of the court's statement, as evidenced by the text and the citation to the *CKRC* case at 861, was that EPA could not set floor standards that are achievable by all sources. Its reference to "lowest emissions" was simply a reference to the Agency's characterization of non-DLA technology as being the best. See *Brick MACT*, *supra* at 879. Consequently, the *Brick MACT* decision does not override EPA's responsibility to abide by *CKRC* and examine all methods facilities use to control emissions.

5. <u>EPA's pollutant-by-pollutant, lowest emission methodology for setting the CO and NOx standards is flawed because the Agency did not take into account the inherent conflict in complying with two standards</u>.

As indicated in Tables 1 and 2 above, it will be rare for a facility to meet the lowest emission levels for both CO and NOx. This is because the relationship between CO and NOx is complicated. As EPA notes "NOx and CO emissions are inversely proportional" and "[b]oth THC and CO emissions decrease with temperature, while NOx emissions increase." EPA-HQ-OAR-2009-0559-0032 at p. 2.

The reason for this complicated relationship is that as temperature increases, the CO concentration decreases. It is also well known that as combustion temperature increases, the amount of thermal NOx increases. However, NOx is formed during combustion from two processes: one by fixing the nitrogen in the air with the oxygen in the air in a high temperature environment (referred to as "thermal NOx") or from the direct oxidation of nitrogen contained in the fuels ("fuel NOx"). Obviously the presence of nitrogen in the fuels makes getting a low NOx value much more difficult.

Thus, EPA's current method of selecting the lowest emitter for CO to set the CO standard and the lowest emitter of NOx to set the NOx standards ignores the fundamental chemical processes that occur during combustion and does not represent a reasonable estimate of what these units are actually achieving. Consequently, EPA's lowest emission pollutant-by-pollutant methodology violates the science of combustion, and EPA must use some other method for determining best performers for CO and NOx.

6. EPA has proposed some emission limitations that are beyond the ability of the referenced test methods.

A. Dioxin/Furan standards

Analytical Perspectives (a CRWI Associate Member and one of the laboratories that analyze dioxin/furan samples), prefers to work at a level of quantification (LOQ) of 14.5 TEQ pg/dscm for dioxin and furan samples. This is based on a sample time of three hours drawing a cubic meter per hour. The proposed dioxin/furan standard for new sources is 2.2 pg/dscm. To meet the LOQ for these units, a new sewage sludge incinerator would have to sample approximately 20 hours (14.5 ÷ 2.2 x 3 hours). While this is technically possible to accomplish, it runs into two practical problems. One is the OSHA restrictions for working greater than 16 hours at a time. In addition, the time to complete 20 hours of sampling is actually longer than 20 hours, considering the time to reach steady state conditions. The second is that it would be very difficult to keep the unit at constant conditions for over the 60 or more hours (three test runs to make a valid test condition) required to show that a unit would meet this standard.

B. HCl standards

EPA has proposed new source standards for HCl of 0.12 ppmv and existing source standard of 0.49 ppmv and 1.0 ppmv for fluidized beds and multiple hearths, respectively. CRWI believes that the quality of the data EPA used to set

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the floor standard for total chlorine emissions is not sufficient to set standards at this level. Even if it was useable for that purpose, we do not believe facilities would be able to demonstrate compliance with the standard as proposed. Our reasons are as follows.

1) What evidence exists to suggest that the low values in the database may be biased and not be accurate?

   - Method 26A is acknowledged by EPA's Methods Branch to suffer from a negative bias at low concentrations (< 20 ppm) especially when used in stacks with significant moisture content.[1]
   - Any trace of moisture condensation or wetting of the filter will remove HCl from the gas stream and result in a low bias because the HCl does not reach the collecting impinger where it is supposed to be captured. This problem is even more serious at HCl concentrations in the low ppm range.[2]
   - A number of sewage sludge incinerators control chlorine emissions with wet scrubbing systems (see MACT Floor Analysis for the Sewage Sludge Incinerator Source Category, page 6 – Docket ID No. EPA-HQ-OAR-2009-0559-0006). Most of these units will operate at the quench adiabatic saturation temperature of approximately 180°F (+/- 20°F). At these temperatures the stack gas will contain approximately 50% moisture (water vapor). Many of these stacks also contain condensed water droplets or mist that is entrained by the velocity of the flow in the stack.
   - Sampling systems are heated in an attempt to prevent moisture from condensing before the collecting in the impinger and to evaporate any water droplets that are captured from the stack gas. The EPA Methods Branch has suggested, based on a controlled laboratory

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[1] Steger, J.L., Wagoner, D.E., Bursey, J.T. and Merril, R.G. of Radian Corporation; and Fuerst, R.G. and Johnson, L.D. of the Atmospheric Research and Exposure Assessment Laboratory, US EPA, "Laboratory Evaluation of Method 0050 for Hydrogen Chloride" in Proceedings of the 13th Annual International Incineration Conference, Houston, TX, May 1994, University of California, Irvine, CA, 1994. Copy attached as Appendix A.

[2] Johnson, L.D. of the Air Methods Research Division, National Exposure Research Laboratory, US EPA, "Stack Sampling Methods for Halogens and Halogen Acids" presented at the EPA/A&WMA International Symposium, Measurement of Toxic and Related Air Pollutants, Research Triangle Park, NC, May 1996. Copy attached as Appendix B.

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study,[1] that a minimum sampling system temperature of 200° C (392° F) is necessary to eliminate the bias, but acknowledges that even this temperature might be insufficient if large amounts of water are present.[2]

2) How significant is this negative bias from moisture content of the stack gas?

   - EPA found in a controlled laboratory study that the bias is between 17 and 29 percent at stack gas moisture content of 7 to 9 percent.[1] This stack gas moisture is much less than the nominal 50% moisture contained in US wet air pollution control system stacks. It is logical to expect much greater bias in the presence of higher water vapor content and in the presence of water droplets or mist.

3) What other potential negative bias may exist in the sampling methods used to generate the data in the SSI database?

   - Alkaline particulate matter collecting on the filter upstream of the measurement impingers also results in a negative bias, although the magnitude of the effect has not been quantified.[2] Wet scrubbers in the United States typically use caustic to neutralize acid gases. Any droplets or mist from the scrubbing solution that carries over from the scrubber to the stack could be drawn into the sampling train, evaporated, and deposited on the filter as an alkaline salt. Therefore, HCl passing through the filter would be absorbed before the collecting impingers resulting in a negative bias.

4) Are the standards achievable? Can sources using EPA stack sampling methods reliably and defensibly determine compliance with standards set at 0.12, 0.49, and 1.0 ppmv?

   - EPA's Methods Branch has concluded "good precision and accuracy become difficult to achieve with these methods (Methods 26, 26A, 0050 and 0051) at concentrations below approximately 5 ppm."[2]
   - While Method 26A suggests a theoretical "detection limit" of 0.08 ppm for the combined HCl and Cl_2 based on the analytical measurement only, in practice, laboratories have found that actual defensible analytical reporting limits are approximately 5 to 10 times higher (*i.e.*, 0.4 to 0.8 ppm). These values represent the lowest levels at which the laboratory can pass the accuracy and precision criteria in the analytical method due to the field sampling-induced matrix effects. It should be noted that these values only apply to the analytical portion of measurement and do not reflect any sampling bias.

In summary, CRWI is concerned about two issues with the chlorine data: 1) the usability and representativeness of the data in the database to set the standard; and 2) the achievability of the resulting standard using the prescribed compliance method. Given the known and suspected biases in Methods 26 and 26A, we do not believe that data in the database below 5 ppmv are usable and/or representative and are technically indefensible. The courts have recognized that test methods "are surely substantive: they impose duties and obligations on those who are regulated." *Appalachian Power Company v. EPA,* 208 F.3d 1015 (D.C. Cir. 2000). EPA is bound by the stated limitations of its own test methods. We believe that the Agency has two choices: 1) discard the data from sources reporting emissions below 5 ppmv when developing a numeric standard; or 2) find some way to compensate for the known negative bias in the data.

If the Agency persists in setting a standard below 5 ppmv, the Agency has an obligation to develop and validate a compliance method and demonstrate that that method generates data comparable to that currently in the database.

C. Method imprecision.

EPA states that measurement imprecision at or near the method detection level is about 40 to 50% and that the imprecision decreases to about 10-15% at about 3 times the method detection level (75 FR 63273). This conclusion was based on the work done by the American Society of Mechanical Engineers ReMAP study. EPA describes a two step process to address this issue. The first step is to identify the highest test-specific method detection level reported in the data set that is at or less than the floor limit. The second step would be to determine a level three times the representative method detection level and then compare it to the floor limit. If three times the method detection limit is less than the floor, they would conclude that measurement variability is adequately accounted for. If not, EPA could use three times the method detection level as the floor.

We agree that an adjustment to data near the detection limit may be warranted. However, to do this properly, the Agency should start with the Reporting Limit. This is the lowest value at which a laboratory analytical instrument is calibrated. Anything below the Reporting Limit is extrapolation and may not be reliable or defensible. Before we discuss that concern, a common understanding of what "detection limits" means is needed.

EPA has addressed detection level issues in the past. A 1995 paper written by EPA's Engineering and Analysis Division (*Development of Compliance Levels from Analytical Detection and Quantification Levels*) explores the different ways

to describe the limits of analytical methods and concludes that the Minimum Level (ML) was the appropriate quantification level for both setting standards and showing compliance. A copy is attached (Appendix C).

The lowest level at which an analyte can be detected is generally termed the "detection limit." EPA's commonly used term for the detection limit is the Minimum Detection Limit (MDL). 40 CFR 136, Appendix B defines MDL as "the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte." EPA's Appendix B contains the procedure for determining the MDL.

Quantification limits are the levels above the detection level where reliable quantification measurements can be made. The Practical Quantification Limit (PQL), the Reliable Detection Limit (RDL) and Reliable Quantification Levels (RQL) are all calculated by multiplying the MDL by various factors. However, none include using a calibration point. The ML, on the other hand, is a quantification level that corresponds to the lowest level at which the entire analytical system gives reliable signals and includes an acceptable calibration point. This use of an acceptable calibration point is critical in showing that this number is real and not just an extrapolation of statistics from a "detection limit." Most laboratories now use the term Reporting Limit (RL) instead of ML. The meaning of the two terms is the same. CRWI believes that the lowest number that can be used for developing standards and showing compliance with those standards is the ML or RL.

The first thing CRWI suggests is that EPA re-examine the data used to set the standards to make sure that all reported data is either reported as ML or RL. If it is, then, the discussion of adding analytical variability because the data is at or near the detection limit goes away because all numbers would be real numbers and not some undefined number between the detection limit and zero. However, there will still be a need to address operational variability of the source and sampling variability. Any number below the RL is not reliable and statistical methods should not be used on that data.

- If the data reported is not based on an RL, CRWI suggests that the quality of the data is not adequate to set standards and other data must be used. To do anything different would be in violation of EPA's own guidelines (*Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity, of Information Disseminated by the Environmental Protection Agency* EPA/260R-02-008 October 2002). CRWI believes that the entire basis for setting standards and showing compliance with those standards is reliable and quantifiable data.

Unless the current standards are developed on that foundation, the entire process is suspect. CRWI strongly recommends that EPA examine or re-examine their data base to ensure that all data reported meets these quality requirements.

7. Facilities should be allowed to meet either a Total or a TEQ dioxin/furan standard but not both.

For all source categories, EPA is proposing that facilities meet two dioxin/furan standards – one that is based on total mass and the second that is based on TEQ. CRWI does not see the need to meet both. For example, the hospital/medical/ infectious waste incinerator rule requires facilities to meet one or the other but not both. *See* Table 1A to Subpart Ec to Part 60 (74 FR 51414). CRWI suggests that the final rule allow facilities to meet either the Total standard or the TEQ standard but not both. In fact, requiring both may set up a circumstance where a facility might meet one of the two but fail the other simply because of the congener mix.

8. EPA is required to use the Multiple Hearth data to set the new source standards for that subcategory.

EPA has chosen to set up two subcategories for this source category. Once they do this, the Agency is not allowed to use the data from one subcategory to set standards for the other subcategory. This is equivalent to expanding the data pool outside the top performers. The court (see *CKRC*) has made it clear that the Agency must use data from the top performers of that category to set the standards for that subcategory. If EPA maintains two subcategories, they must use the data in each subcategory to set the standards for that subcategory. Thus, EPA cannot use the data from the fluidized bed subcategory to set the new source standards for multiple hearths. Just because a new multiple hearth facility has not been built in the past 20 years is not relevant. In fact, the new source standards for fluidized bed units may justify building a new multiple hearth instead.

9. EPA should include the statutory exclusion from 129(g)(1) in this regulation.

In the preamble to this proposed rule, EPA discussed the Section 129(g)(1) exclusions in general (75 FR 63263) and that they are excluded from the definition of "solid waste incineration unit." However, in the proposed regulation (40 CFR 60.4780 of Subpart LLLL and 40 CFR 60.5065 of Subpart MMMM), EPA did not include the four statutory exclusions, and particularly the exclusion for units which are required to have a permit under section 3005 of the Solid

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Waste Disposal Act. CRWI requests that EPA respect the exclusions that Congress intended in Section 129(g)(1) and include them in this rule when it is finalized. This clearly shows that these units would be regulated under only one MACT rule and would remove any confusion as to which regulation applies.

10. EPA's proposed requirement that facilities meet steady-state standards during startup, shutdown, and malfunctions is neither logical nor lawful.

EPA's proposal to require SSI units to comply with the same emission standards during periods of startup, shutdown, malfunction, and steady state conditions is neither logical nor lawful. In this regard, CRWI joins with the comments filed by the SSM Coalition. CRWI, however, also wishes to make the additional comments regarding startup, shutdowns and malfunctions.

A. EPA does not demonstrate that sources can meet standards during startup and shutdown.

MACT floor standards must be based on evidence that sources have already achieved them. However, EPA's statement that sources can meet the standards during startup and shutdown is not based on any data (at least there is no data in the record to show this). In fact, it is most likely wrong.

New sources will be required to install CO CEMs. While there is no data for this source category on CO levels during startup or shutdown, there is a large amount of data from other sources that do have CO data during these two events. For example, CO data from one hazardous waste combustor averaged 2.2 ppmv during normal operations but averaged 48.6 ppmv during startup, 40.5 ppmv during shutdown, and 815.5 during malfunctions. The 99% UL for these same data show 124 ppmv for normal operation, 647 ppmv for startup, 884 for shutdowns, and 3984 for malfunctions. One-minute data is used to calculate these values. It should be noted that this data is from one source and should not be used except to show that the CO measurements during startup, shutdown, malfunction, and normal operations will vary significantly. Since new sources will be required to install a CO CEMs, it is highly unlikely that any new source will be able to meet the CO standard during startup, shutdown, or malfunction. Thus, EPA is proposing a new source CO standard without any evidence that has it has been achieved during these events.

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B. EPA does not demonstrate that sources can meet standards during malfunction.

EPA did not include emissions data during malfunctions in the development of these standards because all data was collected under steady-state conditions. EPA includes variability but the variation in test data taken during steady state conditions only reflects the normal variations that occur during normal operations. It cannot take into account the variability that would be experienced during malfunctions. To do this would require having data on emissions during these events. EPA does not have that data. If EPA decides to require facilities to meet the same emission standards under both normal operations and during malfunctions, they must use data from both normal operations and malfunctions in developing those standards.

C. If EPA cannot develop emission-based standards that apply during periods of startup, shutdown, or malfunction, then it should adopt work practice standards.

CRWI does not believe that it is possible for EPA to develop valid floor standards for the periods of startup, shutdown, and malfunction. We note that EPA's own National Stack Testing Guidance precludes and possibly prohibits the development of such data ("Operations during periods of startup, shutdown, and malfunction do not constitute representative conditions for the purposes of a performance test." Section VII. 5 of the September 30, 2005 Final Clean Air Act National Stack Testing Guidance). So, even if a facility had such data, EPA would not have accepted it in a test report according to this guidance, much less have incorporated it into an emissions database based on compliance test reports. For example, if a facility ran a Method 5 test during startup, a single test would take 3 – 6 hours (each run takes at least an hour, three runs are required for a valid test, and the sampler must have time in between runs to change out the sampling trains). During those six to eight hours, the conditions would have changed so significantly that it would be virtually impossible to understand what that data meant or to extrapolate the results (which will be one hour averages) to other transient conditions.

In the absence of data and in the absence of a credible methodology to develop data (even if one can be developed which is not certain), CRWI believes EPA could use a work practice under § 111(h) to address this situation where a methodology to develop a standard of performance is not feasible due to technological constraints.

D. EPA should allow for an alternate oxygen correction during SSM events.

If EPA persists in applying numerical standards during periods of startup, shutdown, and malfunction, EPA should allow for an alternate oxygen correction during SSM events. During the first part of startup and the last part of shutdown, the oxygen concentrations will approach ambient concentrations. When it does that, the equation used to calculate the correction factor will approach infinity (dividing by zero). Under these conditions, it is not appropriate to apply the oxygen correction factor as proposed. The HWC MACT rule allows facilities to set up an alternate correction factor for these conditions. *See* 40 CFR 63.1206(c)(2)(iii). This is one example of how this problem can be addressed.

E. EPA should allow facilities to by-pass air pollution control devices during startup and shutdown when they are not charging sewage sludge.

EPA makes a distinction in the provisions of § 60.4860 and § 60.5180 relating to the applicability of emission and standard and operating limits during periods of startup, shutdown and malfunction. Under these provisions, the operating limits apply at all times when sewage sludge is being charged to the unit. This means that OPLs will not apply during periods of startup and shutdown when sewage sludge is not being charged. CRWI supports that concept. For example, a unit with a baghouse will need to bypass the bags until the gas temperature is above the condensation point. Otherwise, moisture will condense in the bags, significantly reducing their useful life. In addition, if there is any hydrochloric acid in the gas stream, it will further degrade the structure of the bags. There are similar issues for other air pollution control devices. EPA should allow units to use by-pass these devices during startup and shutdown.

11. EPA should modify the affirmative defense provisions so that it is a "rebuttable presumption."

As EPA knows, malfunctions will occur. Even the best run facilities will have circumstances where events out of their control (*e.g.*, power failures) will occur. So, while CRWI believes that EPA must take into account the conditions that occur during SSM events and establish limits that consider these circumstances, CRWI also agrees that some form of enforcement discretion is needed for malfunctions. As such, we support EPA maintaining a regulatory provision for malfunctions such as an affirmative defense. However, we are concerned that an affirmative defense implies that the facility is guilty until proven innocent. We believe that the proposed language improperly puts the burden of proof on the facility rather than on the Agency. Therefore, CRWI suggests that EPA establish a rebuttable presumption (rather than affirmative defense) where it is presumed

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that they did everything in their power to minimize emissions during these events, unless the Agency proves certain facts that are enumerated in the rules. If the Agency wants to challenge these activities, the burden of proof would be on them to show that the facility did not undertake reasonable actions to minimize emissions.

12. CRWI suggests that EPA clarify its affirmative defense provisions.

CRWI understands that most of the provisions EPA has proposed for the affirmative defense came from earlier guidance memos. While they were in guidance, the Agency did not need to be careful how certain things were worded since they were only guidance and did not have the weight of regulation. However, if the Agency wants to codify this guidance into regulatory language, they need to make several changes. For instance, the requirements in 60.4861(a)(1)(ii) and (iii) are impossible to meet due to the use of ambiguous terms such as "careful," "proper," or "better." Until these are defined, it is impossible to determine whether the criteria in (ii) have been met. EPA should also drop the reference to "any" activity in (iii). There are also several references to "All" that would make it difficult to ever satisfy the affirmative defense (or rebuttable presumption).

In addition, the requirements in (9) to do a root cause analysis jumps to the final step without considering that there may be many steps in determining causality. For most malfunctions, the cause is immediately obvious. There is no need to go into a detailed root cause analysis to determine the cause. Hazardous waste combustors have a similar requirement in the provision relating to automatic waste feed cutoffs. When one of these events occur, the facility immediately shuts off waste feed, investigates the cause, takes appropriate measures to minimize future events, and complete a report. The report contains a detailed explanation of what caused the event, describe any immediate corrective actions taken to clear the combustion zone of waste, any corrective action taken to mitigate the impacts of the event, and corrective actions taken to prevent recurrence. A root cause analysis is typically limited to very significant events or repeat events. For example, if a thermocouple in a combustion chamber fails, the most likely cause is a bad thermocouple. The first response is to simply replace the thermocouple. However, if that same thermocouple fails again within a short period of time, then something else is causing that event to happen and a more detailed analysis may be needed. It may take several failures before the real cause is identified. Here a root cause analysis may be needed, but it certainly is not needed to replace the first failed thermocouple. The proposed language assumes that all malfunctions are equally significant and need an identical degree of investigation. For example, a missing recorded data point

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because of a malfunction in a data acquisition system is not as significant as a power failure or a catastrophic event such as fire or explosion. CRWI believes that a root cause analysis should only be used as a last resort when other reasonable methods fail to show what caused the malfunction or when the serious nature of an event might make such an analysis necessary. The facility needs to have some discretion in making that determination.

If it is necessary to do a root cause analysis, it may not be possible for that to be completed in 30 days. It is reasonable to develop a simple report of the cause and whatever corrective action was taken within 30 days. However, if the event were significant and a root cause analysis were required, a facility would need more time, such as 90 days to complete that report. It should also be noted that it is impossible to eliminate the causes for certain malfunctions (e.g., lightning strikes). Finally, faxing is an obsolete technology. EPA should allow notification by e-mail or other electronic forms.

CRWI suggests the following modifications to the regulatory language.

§60.4861 How do I establish ~~an affirmative defense~~ rebuttable presumption for exceedance of an emission limit or standard during malfunction?

In response to an action to enforce the standards set forth in paragraph §60.4845 a facility has a ~~you may assert an affirmative defense~~ rebuttable presumption in ~~to~~ a claim for civil penalties for exceedances of such standards that are caused by malfunction, as defined in §60.2. Appropriate penalties may be assessed; however, if the agency demonstrates that the excess emissions resulted from conditions or failure to perform ~~respondent fails to meet its burden of proving~~ all of the requirements in the ~~affirmative defense~~ rebuttable presumption under paragraph (a) below. ~~then the affirmative defense shall not be available for claims for injunctive relief.~~

(a) To receive a ~~establish the affirmative defense~~ rebuttable presumption that a facility acted appropriately during a malfunction ~~in any action to enforce such a limit~~, you must timely meet the notification requirements in paragraph (b) of this section. The Agency~~, and~~ must prove by a preponderance of evidence that the conditions in paragraphs (a)(1) through (a)(9) of this section were ~~are~~ met.

(1) The excess emissions ~~meet the conditions in paragraphs (a)(1)(i) through (a)(1)(iv) of this section~~.

(i) Were not caused by a sudden, short, infrequent, and unavoidable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner.

(ii) Could ~~not~~ have been reasonably prevented through careful planning, proper design or better operation and maintenance practices.

(iii) ~~Did not~~ Stemmed from any activity or event that could have been reasonably foreseen and avoided, or planned for.

(iv) Were ~~not~~ part of a recurring pattern indicative of inadequate design, operation, or maintenance.

(2) If the applicable emission limits were exceeded, ~~R~~repairs ~~must be~~ were not made as expeditiously as possible ~~when the applicable emission limitations were being exceeded.~~ including using ~~O~~offshift and overtime labor ~~were used~~, to the extent practicable ~~to make these repairs~~.

(3) The frequency, amount and duration of the excess emissions (including any bypass) were not minimized to the maximum extent practicable during periods of such emissions.

(4) If the excess emissions resulted from a bypass of control equipment or a process, then the bypass was not needed ~~unavoidable~~ to prevent loss of life, severe personal injury, or severe property damage.

(5) ~~All possible~~ Reasonable steps were not taken to minimize the impact of the excess emissions on ambient air quality, the environment and human health.

(6) ~~All e~~Emissions monitoring and control systems were not kept in operation during the malfunction if ~~at all~~ possible.

(7) Your actions in response to the excess emissions were not documented by properly signed~~, contemporaneous~~ operating logs.

(8) ~~At all times~~ During malfunctions, the ~~facility~~ unit was not operated in a manner consistent with good practices for minimizing emissions.

(9) You have not prepared a written report ~~root cause analysis~~ to determine~~, correct,~~ and ~~eliminate~~ mitigate the primary causes of the malfunction and the excess emissions resulting from the malfunction event at issue. A root cause analysis may be required only if the cause of the malfunction is difficult to determine or if the serious nature of the event indicates one is needed. Facility personnel will have the discretion to make this determination. The analysis shall also specify, using best monitoring methods and engineering judgment, the amount of excess emissions that were the result of the malfunction.

(b) If your SSI unit experiences an exceedance of its emission limit(s) during a malfunction, you must notify the Administrator by telephone or facsimile (fax), or electronic means as soon as possible, but no later than 2 business days after the initial occurrence of the malfunction, if you

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wish to avail yourself of ~~an affirmative defense to civil penalties~~ the rebuttable presumption for that malfunction. If you seek to assert ~~an affirmative defense~~ rebuttable presumption, you must also submit a written report to the Administrator within 30 days of the initial occurrence of the exceedance of the standard in §60.4845 to demonstrate, with ~~all~~ the necessary supporting documentation, that you have met the requirements set forth in paragraph (a) of this section. If the report requires a root cause analysis, the report must be submitted within 90 days of the initial occurrence of the event.

13. CRWI suggests a 5-year testing frequency, as opposed to annual. At a minimum, EPA should modify the regulatory language to allow annual testing and inspections to be 11-13 months.

§§ 60.4885 and 60.5205 requires annual testing 10-12 months after the initial test. CRWI believes that annual performance testing is too frequent. We suggest expanding this to performance testing every 5 years. § 60.4895(a) and § 60.5215 require the same time interval for conducting annual inspections. If EPA chooses to retain the annual performance testing requirements, CRWI is concerned that making the requirements to re-test or for an annual inspection every 10-12 months essentially shortens the year by a month every year. CRWI suggests that the language in each of these provisions be changed to 11-13 months. This would keep the testing on an annual basis.

14. CRWI suggests EPA remove the prescriptive requirements related to continuous monitoring systems.

On October 9, 2008, EPA proposed *Performance Specification and Quality Assurance Requirements for Continuous Parameter Monitoring Systems and Amendments to Standards of Performance for New Stationary Sources; National Emission Standards for Hazardous Air Pollutants; and National Emission Standards for Hazardous Air Pollutants for Source Categories* or the "CPMS Rule." CRWI and a number of others commented on the prescriptive nature of these requirements and the erroneous cost estimates that were made for implementation of these requirements. (Please refer to CRWI's comments on this proposal entered into the docket, EPA-HQ-OAR-2006-0640.) Ultimately, EPA withdrew this proposed rule for further study and modification. It is improper to propose continuous monitoring system requirements in the SSI proposal (§60.4509 of Subpart LLLL and §60.5225 of Subpart MMMM) while continuing to work on a new CPMS proposal. Of particular concern are the site specific calibration requirements for pH meters. As proposed, EPA would require all pH meters to have a two point calibration every 8 hours. CRWI members have

extensive experience with pH meters and consider this level of attention to be unnecessary. The length of time between checking the calibration of a pH meter is site-specific and the unit should have flexibility to determine a frequency of calibration based on the historical experience without EPA prescribing a one-size-fits-all frequency. A set frequency for all instruments regardless of the sophistication of the instrument and regardless of the service environment for the instrument is not appropriate. In other words, one size does not fit all. Companies that have gone to the expense of using sophisticated instruments such as smart transmitters and other instruments with self-diagnostics as opposed to continuing to use older, less sophisticated systems would not benefit from upgrading their systems. It is the facility's responsibility to develop and implement an adequate monitoring program. This is already required as a part of their site-specific monitoring plan. Putting this level of detail in a regulation does not help; it only creates unnecessary work under most circumstances. CRWI requests that the prescriptive requirements be removed especially since EPA is still studying and modifying its earlier proposed CPMS performance specification.

15. EPA should allow 90 days to submit performance test reports.

As proposed, EPA requires reporting of test results within 60 days of completing each performance test (§§60.4915(c) and 60.5235(c)). It will be difficult to get certain results back and reviewed within that time frame and close to impossible for dioxin samples without paying a premium. EPA's current methods have the following hold times for Method 23: 21 days to extraction and 40 days from extraction to analysis. Recently, many laboratories have struggled to meet these holding times simply because of the large number of samples to be analyzed. Adding the test results from all the units in this rule will further strain the system and may cause even longer delays. CRWI suggests that this requirement be changed to 90 days. CRWI also requests that a provision be added for requesting additional reporting time.

16. EPA should drop the opacity standard.

Section 129(a)(4) of the Clean Air Act lists the substances or mixtures for which EPA must develop numerical emissions limitations. Opacity is listed but Congress included a parenthetical "as appropriate" for this substance. This gives EPA the option of not setting numerical emission limits for opacity. CRWI does not see any reason for having both a PM and an opacity standard, especially at the PM levels proposed. CRWI suggests that EPA drop the opacity requirements when the final rule is promulgated.