Coalition for Responsible Waste Incineration

Comments of
the Coalition for Responsible Waste Incineration
on
EPA's Proposed Hazardous Waste MACT Rule,
National Emission Standards for Hazardous Air Pollutants: Proposed Standards for Hazardous Air Pollutants for Hazardous Waste Combustors (Phase I Final Replacement Standards and Phase II)
69 Fed. Reg. 21198 (April 20, 2004).

The Coalition for Responsible Waste Incineration (CRWI) appreciates the opportunity to submit comments on EPA's proposed hazardous waste combustion MACT regulation more formally entitled National Emission Standards for Hazardous Air Pollutants: Proposed Standards for Hazardous Air Pollutants for Hazardous Waste Combustors (Phase I Final Replacement Standards and Phase II), 69 Fed. Reg. 21198 (April 20, 2004). CRWI is a trade association comprised of 26 members with interests in hazardous waste combustion. CRWI's members operate incinerators, boilers, process heaters, hydrochloric acid production furnaces and cement kilns. CRWI has met with EPA staff several times regarding this rule and issues of interests to its members. We appreciate the effort EPA has put into promulgating this proposal and look forward to working with the Agency to develop an effective rule that is consistent with the requirements of the Clean Air Act and good science.

Executive Summary

In general, CRWI supports a majority of the proposed changes in this rule.

1. We believe that EPA chose the correct methods for developing standards to satisfy both the "maximum reduction" and the "achievable" requirements of the Clean Air Act. We urge the Agency to use these methods to set the final standards.
2. We support a risk-based chlorine standard in the proposed rule and encourage EPA to include it in the final rule.
3. We support EPA allowing twelve months for Phase I sources to initiate their comprehensive performance test for the permanent replacement standards.
4. We support EPA adding areas where a RCRA Class 1 with prior approval permit modification process can be used. We believe this will assist in making the transition from RCRA permits to Title V permits.
5. We support the use of chlorine as surrogates for PM, mercury, SVM, and LVM for hydrochloric acid production furnaces.

We also have concerns about a number of areas, including the following.

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1. We are concerned that the data from a number of facilities that are included in the top performers are not appropriate. Some of these concerns are:
   - Several facilities have closed or have been removed from RCRA service;
   - The design and operation of certain facilities (e.g., use of large amounts of natural gas fuel and small amounts of waste) are not representative of the general population of facilities in the subcategory; and
   - A number of facilities have already upgraded to meet the interim standards.
2. We are concerned that the chlorine and PM standards for incinerators were derived from data that are of questionable quality.
3. We are concerned that new facilities will not be able to demonstrate compliance with the PM and chlorine standards for new incinerators because these standards are below the practical quantification limits for the test methods.
4. We are concerned that the requirement for the risk-based chlorine standard must be approved before they take effect. Given the track record for the permitting authority on approving comprehensive performance test plans, we do not think the proposed approval scheme is workable.

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I. EPA Should Clarify the Rule's Applicability.

CRWI generally supports the Agency's proposed rule applicability approach. We offer two suggestions for clarifying the rule.

A. EPA's definition of "hazardous waste combustor" should include all units covered by the rule.

EPA did not revise its current definition of "hazardous waste combustor" to include solid fuel-fired boilers, liquid fuel-fired boilers, and hydrochloric acid production furnaces. Consequently, when EPA uses the term "hazardous waste combustor" in the rule (*e.g.*, §§ 63.1206(a)(1)(i)(B), 63.1206(a)(2)(ii)(B), 63.1210(c)(3)(ii), 63.1215(a)(1), 63.1215(b)(1) etc.), it will not include boilers and hydrochloric acid production furnaces. CRWI does not believe that was EPA's intention. CRWI suggests that EPA carefully check the entire text of EEE to make sure that the definitions are consistent and would be properly interpreted.

B. EPA should include appropriate rule language exempting small quantity burners.

In the preamble (69 Fed. Reg. at 21212), EPA proposes to exempt Small Quantity Burners that are exempt from BIF regulations under 40 CFR 266.108. CRWI agrees that this is an appropriate exemption since the amount of RCRA hazardous waste that these units burn is insignificant. However, we were unable to find the proposed regulatory language authorizing this exemption. We assume this was an oversight by the Agency and recommend that EPA add the following language to the final rule to exempt these Small Quantity Burners.

In Section 63.1200, add item (4) to "Table 1 to § 63.1200. Hazardous Waste Combustors Exempt From Subpart EEE." In the first column, the "If" column, add

(4) The only hazardous wastes you burn are exempt from regulation under 266.108 of this chapter.

In the third columns, the "Then" column, add

You are not subject to the requirements of this subpart (Subpart EEE).

C. EPA should use consistent language throughout the rule to avoid confusion.

In the proposed changes to § 63.1200, EPA uses the language "incinerators that burn hazardous waste..." etc. This language is not consistent with the § 63.1201 definitions. In § 63.1201, the definition applies to "hazardous waste incinerators," not "incinerators that burn hazardous waste." CRWI suggests that EPA use the defined term "hazardous waste incinerators" throughout the rule to avoid confusion.

II. CRWI's Supports EPA's Floor-setting Methodologies But Questions EPA Using Some of the Data In EPA's Database and Failing To Ensure that the Standards Are Simultaneously Achievable.

CRWI generally supports EPA's proposed methodologies for setting the emission standards. In particular, we believe that EPA has generally done a good job in using methodologies that result in standards that are achievable by other facilities within the source category. In the next section, CRWI first outlines its support for EPA's chosen methodologies, and concurs with EPA rejecting other methods. We then express our concerns regarding some of the data in the Agency's database and EPA's failure to assure that the standards for new sources are simultaneously achievable.

A. CRWI supports EPA's selected methodologies.

We agree with the use of the SRE/Feed approach for metals and chlorine. We also agree with the use of the technology approach where it is incorrect or inappropriate to use feed rates. Since dioxin/furan emissions are not principally caused by what is fed to the units, but rather are formed in either the combustion process or in the air pollution control equipment, it is not appropriate to use feed controls for these pollutants. Given the advantages and disadvantages of the various approaches, we believe that EPA has chosen the methodologies that are most appropriate for each hazardous air pollutant.

In addition to the preferred methods, EPA discusses several other methods to calculate the standards. These are discussed below.

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1. Alternative Option 1, Straight emissions for all HAPs (except PM), all categories (except total chlorine for HAF). For this option, the SRE/Feed method was not used to calculate any floors. The top performers in this approach will be dominated by low feeders and not be reflective of the way facilities actually control emissions. This is not appropriate and ignores the technology that is designed to remove larger amounts of pollutants when setting a technology-based standard as required by the Clean Air Act. It makes no sense to consistently rank facilities that have no air pollution control equipment, but feed no metals or chlorine, ahead of facilities that feed metals and have efficient air pollution control systems (as determined by high SRE). When EPA checked the standards developed from this methodology, they found that less than 6 percent of the sources could achieve the standard. Thus, this method is not reflective of what the best performers do. For these reasons, we believe EPA should not use this option to set the final standards.

2. Alternative Option 2, straight emissions for all HAPs, all categories. This methodology uses the straight emissions approach for all HAPs for all categories and suffers from the same deficiencies as does Alternative Option 1. When the Agency did their final check on this method, they found that no facilities could currently meet all the existing standards (see the draft technical support documents, Volume V, Appendix D, Table SUMM OPT3F). Thus, this method is not reflective of what the best performers do. For these reasons, we believe EPA should not use this option to set the final standards.

3. Alternative Option 3, simultaneous achievement of PM, SVM, and LVM. This method only considers how to simultaneously achieve emission limits for PM, SVM, and LVM. It does not consider chlorine and dioxins/furans. CRWI tried to incorporate PM, chlorine, and dioxin/furans into a simultaneous achievement methodology for all HAPs but was frustrated in this effort by a lack of complete data sets from enough sources to actually develop the complete set of standards. EPA discussed the lack of complete data when comparing PM, SVM, and LVM. The problem is even worse when data for chlorine and dioxin/furan are added. Thus, this method is not truly a simultaneous method for all HAPs and should not be used to determine the final standards.

4. Alternative Option 4, Modified ETC approach. The modified ETC approach used a low feed screen in combination with a straight emissions approach. The use of a low feeder screen does remove

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some of the concerns about facilities that do not feed certain HAPs setting the floor levels for those HAPs. However, the low feeder facilities are not similar to higher feeder facilities because they do not need the same air pollution control equipment. Thus, this method suffers from the same deficiencies as Options 1 and 2, in that it completely ignores what facilities actually do to reduce high levels of HAPs and should not be used to determine the final standards.

5. Alternative Option 5, SRE only. This method incorporates technology, but totally ignores feedrate. As such, it ignores the Court's admonition to examine all factors that effect emissions.

In summary, CRWI believes that EPA chose the appropriate methods when proposing the standards and urges the Agency to use these methods when developing the final standards.

B. CRWI has serious concerns about some of the data included in the development of the standards.

CRWI has formally and informally discussed the development and structure of EPA's database with the Agency on a number of occasions. CRWI has encouraged EPA to retain all data but to carefully choose which data are used to set individual standards. For the most part, the Agency has agreed with this approach. We now have several comments on the current database. We first look at the general principles associated with the setting of the standards, then look at the data for particular types of units.

1. In general, for the standards to be achievable, EPA must base them on appropriate and useable data from representative facilities.

The Agency asked for comments on the accuracy and completeness of the database used to derive the standards (69 Fed. Reg. at 21219). CRWI agrees that accuracy and completeness are important, but these concepts are only subsets of the overall quality assurance process for standards setting. A comprehensive quality assurance process is especially necessary in this situation, because the vast majority of the data in the database was created for a totally different purpose (RCRA compliance) than currently being employed (CAA standard setting). We believe that the Agency has an obligation to assess both "usability"[1] and "representativeness"[2] as part of the overall quality assurance process,

[1] The determination of whether or not a data set is sufficiently complete and of sufficient quality to support a decision or action, in terms of the specific objectives of a data collection activity.

[2] The qualitative term that expresses the extent by which data define an environmental condition

particularly for those sources that have a direct impact on the proposed standards.

But along with accuracy, usability and representativeness, in order for the resulting standards to be "achievable," the Agency must evaluate similar sources that are using controls capable of being duplicated by others in the source category.

Section 112(d)(2) of the Clean Air Act requires EPA to establish emission standards that are "achievable" for each source category. Section 112(d)(3) elaborates further on this duty by specifying that the "maximum degree of reduction in emissions that is deemed achievable for the source category shall not be less stringent than the emission control that is achieved in practice by the best *controlled similar* source." CAA § 112(d)(3) (emphasis supplied). This provision, commonly referred to as the "floor" provision because it establishes the minimum level of control, incorporates various concepts. First, the standards must be based on what "similar sources" are actually doing. This means that the facilities EPA evaluates to set the standard must be within the source category for which EPA is setting the standard.

Second, the standard must be based on controls that *similar* sources are actually employing. If the facilities upon which EPA relies for setting the standard are not typical of the source category or subcategory being evaluated, then EPA should place them in a different source subcategory.

Third, the data must be "useable," i.e., the determination of whether or not a data set is sufficiently complete and of sufficient quality to support a decision or action, in terms of the specific objectives of a data collection activity. In this way, EPA knows that it reflects the levels actually being achieved by the representative facilities.

These data use principles all aid the Agency in developing standards that are "duplicable." As the Agency knows, the whole purpose of the standard setting process is for EPA to discover what emission reductions the best performers are achieving so that other facilities, because they are similar sources, can duplicate this level of performance. *See* Boiler and Process Heater MACT at 83. Therefore, the data relied upon must not represent happenstance, or different operating characteristics that are not duplicable by other facilities in the source category. This helps to assure that the standards are achievable pursuant to Section 112(d)(2).

Finally, the standards that EPA develops must be simultaneously achievable by the top performers. Many different factors can affect the emission levels being achieved by sources. These include the composition of the material being combusted, the type of supplemental fuel being used, the design of the combustion unit and the type of air pollution control device being employed. Each of these factors can affect each other and the emission levels at that facility. For example, a facility might emit low amounts of metals if burning organic liquid wastes along with natural gas as a supplemental fuel despite not having PM control, or if it burns a relatively small amount of hazardous wastes along with their normal fuel. Since the statute requires that the standards must be based on what top performers are actually achieving in practice, the Agency must be able to point to facilities, or in the case of new sources, a single facility, that can meet the resulting standard. If not, then the standards are not being achieved in practice by the top performing facilities.

2. *CRWI suggests several modifications to the current database.*

a) *EPA should not consider data from incinerators that have closed since the 2002 database was published.*

Since the latest revision to the database was noticed (67 Fed. Reg. 44452, July 2, 2002), facility 3022 (Safety Kleen, Clarence, NY) has undergone a clean closure. The current owner (Clean Harbors) has indicated they have no intention of reopening that facility. As such, CRWI suggests that data from this facility not be used in setting any standards. Since this facility was included as one of the top performers for PM and SVM, removing the data from this facility will impact the final determination of these two standards. EPA has previously removed closed facilities form the database.

b) *EPA should not consider data from incinerators that have upgraded to meet the interim standards.*

In earlier comments, CRWI suggested that it was inappropriate to include sources that have already upgraded to meet the interim standard in the data used to calculate the replacement standard. The Agency acknowledged this in the preamble (69 Fed. Reg. at 21217) but pointed out that we had failed to identify facilities that were "consistently identified as a best performer when establishing the proposed MACT standards." The Agency is correct in pointing this out, but only because EPA had not yet established its preferred methodology for determining the standards.

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Now that EPA has identified its preferred methodologies, the top performers are known and each can easily be examined to determine if the data from those facilities should or should not be included in determining the floor for that HAP. Using the tables in the Appendices of Volume III of the draft technical support documents, CRWI developed a list of the top performers (see below) for the incinerator category with data newer than the promulgation date of the interim standards (September 30, 1999). The data from each of these facilities were examined to determine if they should be included in the MACT pool.

1) Facility 349 (Alliant Radford). The test was performed 6/00. As far as CRWI can determine from talking to the facility, there were no upgrades to APCD for this test. The test was a RCRA trial burn.

2) Facility 603 (Onyx Port Arthur). The test was performed 3/00. As far as CRWI can determine, no upgrades were made to the APCD prior to this test. This test was a RCRA trial burn.

3) Facility 3006 (Crompton OSI). The test was performed1/01. As far as CRWI can determine, no upgrades were made to the APCD prior to this test. The database states that this was a "worst case mini-burn to demo compliance with the HWC MACT stnds" (see the individual data sheets for unit 3006 under the "cond" tab). When CRWI talked to the company that did the test, they indicated that nothing in this test was actually used to comply with the interim standards but was more like a mini-burn to determine how close the unit was to meeting the interim standards. CRWI is not sure whether a mini-burn under these conditions qualifies as a compliance test or not.

4) Facility 338 (DuPont Sabine River). This test was performed 7/00. As far as CRWI can determine, there were no system upgrades for the HWC MACT in place prior to this test and none of the data from this test is being used to show compliance with the interim standards.

5) Facility 810 (Eastman Tennessee). This test was performed 6/00. The APCD at this facility had been upgraded to meet the interim standards when this test was run. The old waste heat boiler was removed and a completely new APCD train was installed. This test was the initial test for the new APCD configuration. CRWI does not

believe it is appropriate to use these data to determine the floor for SVM.

6) Facility 3016 (Kodak Rochester). This test was performed 12/01. There were no upgrades to APCD for this test. However, the operating conditions were modified to show compliance with the interim standards. The results from this test were submitted as data in lieu to show compliance with the interim standard. CRWI does not believe that it is appropriate to use these data to determine the floor for LVM and chlorine.

7) Facility 327 (Aragonite Clean Harbors). This test was performed 6/01. Prior to this test run, Clean Harbors had installed a carbon injection system. During the 2001 test, the carbon injection system did not appear to function properly during the test. Because the test was not entirely successful, the decision on whether to include the data from this test becomes more difficult. The carbon injection system was installed to reduce the dioxin/furan emissions from the facility in order to meet MACT (previous data from the facility showed dioxin/furan emissions in the 0.807 to 1.442 ng TEQ/dscm range). It could be argued that because the test was not entirely successful, it should not be included. It could also be argued that even though the carbon injection mechanism was not functioning properly, there was some activated carbon in the system (in the cake on the fabric filters) based on the lower dioxin/mercury emissions (0.286 ng TEQ/dscm) obtained in the test. Given these uncertainties during this test, CRWI suggests that these data not be included in the floor determination for dioxin/furans and mercury.

8) Facility 3022 (Clarence Safety Kleen). This test was performed 6/01. As discussed earlier, this facility has closed. CRWI does not believe it is appropriate to include these data in developing the floor for PM and SVM.

9) Facility 3008 (Tooele Army Depot). This test was performed 7/00. CRWI has been unable to determine the reason for this test. As such, we will not make a recommendation on this facility at this time. We will continue to work on obtaining data and report that to the Agency as soon as it is available.

Based on this information, CRWI believes that the majority of new data from the top performers are appropriate to use in determining the floor. However, we believe that data from facility 3022 should not be used

because the facility has been closed. We also believe that the data from 810, and 3016 should not be used to determine their respective floor levels because these units had already upgraded to meet the interim standards. In addition, we believe that data from 327 and 3006 are suspect and should not be used to set standards.

In addition, at least one facility that is not a top performer also added equipment in order to meet the interim MACT standard. Facility 600 (Dow Chemical – Freeport) added a carbon bed on their rotary kiln in 1999 in order to meet the interim dioxin/furan standard. The test data from 2000 for dioxin/furans should be not be used in setting this standard.

c) *CRWI is concerned that some of the top performers are not typical of the incinerator source category.*

We have observed that many of the top performers (e.g. 3011, 3015, 3022, 349) dilute emissions concentrations in the stack as a result of burning natural gas to initiate reactive waste (e.g., explosives, inorganic hydrides) or to decontaminate inert material. We do not believe these units should be considered "typical" of the overall incinerator source category and should not be used to establish standards for incinerators combusting primarily toxic organic wastes.

CRWI also believes that source 341 is not sufficiently representative for establishing standards. Source 341 is a small (6.5 MM BTU/hr) laboratory waste burner that only processes 900 lbs/hr of waste. The stack is 18 inches in diameter and discharges approximately 16 feet above the roofline. This is significantly different from most rotary kiln stacks (e.g., unit 222 has a 6 foot diameter stack that is 178 feet tall, unit 603 has a 5.5 foot diameter stack that is 130 feet tall, and unit 809 has a ten foot diameter stack that is 200 feet tall). More than 80 percent of its waste profile is non-hazardous including packaging materials and animal bedding. This type of unit should not be considered representative of units combusting bulk quantities of organic wastes.

In addition to the representativeness issues discussed above, examination of the data for source 341 yields questions about its usability for establishing HWC MACT standards.

- There is an error in the reported beryllium emissions concentration for run number 1. The trial burn report summary pages indicate the equivalent of 1.15 ug/dscm as recorded in the HWC MACT

database, but the metals sampling train loadings yield only 0.115 ug/dscm. Thus, an order of magnitude error was made. The actual result is more in line with runs two and three.

- There is an error in the reported chromium emissions concentration for run number 1. Review of the ICP analytical report shows that the value should be <3.52 ug/dscm. This is more in line with runs two and three.
- Blank values for chromium are slightly higher than the reported non-detect values.
- During run 2, there was apparently a quality control problem with the cadmium result which is reported as "0.00" without an "nd" qualifier. Correspondingly, source 341 does not appear in Table SF-INC-SVM, which is used to establish the proposed SVM standard. This is appropriate. However, since the same sampling and analytical methods are used for arsenic, beryllium, lead and chromium, the same QC issue could have impacted these results. Therefore, inclusion in Table SF-INC-LVM is also questionable.
- The LVM emissions were non-detect for 7 of the 9 measurements and SVM emissions were non-detect for 2 of 6 measurements. Non-detects place an artificial low-level boundary on variability calculations, which could result in a lower UPL 99% emission rate than truly justified by the operation of the source. Similarly, the non-detects place a boundary on the variability calculations for SRE, which could result in higher ranking than otherwise warranted. The effect of this artificial boundary is evident in Table SF-INC-LVM because the standard deviations for source 341 emissions and SRE are the lowest amongst the MACT pool sources.

CRWI does not believe that it is appropriate to include this facility among the best performers because it is non-representative of the source category and the data from that facility appears to fail the usability criterion.

d) *CRWI is concerned that data from some of the top performers are not useable.*

CRWI believes that data from sources 3018 and 3019 are not usable for establishing standards for mercury. A CRWI member has obtained the trial burn plans for these sources. These trial burn plans explain the objectives for the testing program and the manner for meeting those objectives. We have found four key factors from the trial burn plans that indicate their data are not usable:

- The spiking rate for mercury was less than 1 percent of the BIF Tier I feed rate, an extremely low rate for a compliance test.
- The objective for mercury testing was to demonstrate 40 percent SRE, because that was the SRE assumed in the risk assessment. The test was not designed to maximize SRE by feeding worst case mercury feedrates. Therefore, its feedrate ranking is artificially low and should not qualify as worst case.
- The testing program did not use Method 29. Instead, the BIF method in Part 266 Appendix IX was used. The BIF method has a potential low-bias for mercury if precipitate forms in the KMnO4 impingers while Method 29 has a provision for recovering mercury from the precipitate. Use of the BIF method could have reduced measured mercury emissions and increased apparent SRE.
- The trial burn plan indicates that 5 cubic meters are to be collected over a two-hour period. This is not standard sampling technique for metal sampling trains. Standard practice would be to collect approximately 1 cubic meter per hour. Data taken from a non-standard sampling program should not be used to set standards.

Finally, the trial burn plan for source 3019 states that it is similar in design to source 3018. (The drawings appear identical.) The test programs appear to be the same. Thus the difference in results between these two sources could be attributable to source variability and should be assessed as such if the data are deemed usable at all.

Where top performers do not appear to represent the majority of the category, CRWI suggests that EPA remove these facilities from the top performers and carefully check all other top performers to make sure that they could be considered as "representative" of the category.

e) *EPA does not have sufficiently useable data to establish a chlorine standard less than 20 ppmv.*

We believe that the quality of the data EPA used to set the floor standard for total chlorine emissions is not sufficient to set a standard below 20 ppmv. Even if it was useable for that purpose, facilities would not be able to demonstrate compliance with the standard as proposed.

Method 0050, which is the method for determining chlorine emissions at RCRA facilities, clearly states that the method should not be used for chlorine concentrations below 20 ppmv. (www.epa.gov/epaoswer/hazwaste/test/pdfs/0050.pdf). There are 63 facilities in the chlorine

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database that are used to determine the floor. Of these 63 facilities, 37 report chlorine emissions less than 20 ppmv. Therefore, the majority of the chlorine emissions data in the database were collected using a method that EPA states is not valid below 20 ppmv. Until EPA can determine the quality of the data below 20 ppmv developed using Method 0050, none of that data should be used in setting the floor standard. EPA cannot set a standard based on a measurement method that is not valid in the data range selected.

In addition, since Method 0050 was used to collect the data to develop the standard, Method 0050 has to be used to show compliance. Because EPA states that this method should not be used below 20 ppmv, CRWI does not understand how facilities are to show compliance with any standard below 20 ppmv. However, even if EPA mandates the use of Method 26A, which is the Clean Air Act's equivalent to Method 0050, it also is not accurate below 20 ppmv and denotes that fact by stating that there is a possible bias below 20 ppmv.

CRWI and its member companies have commented on this in response to the 2002 NODA (67 Fed. Reg. 44452, July 2, 2002) as well as making a presentation to the Office of Management and Budget on this issue. The major points from these comments and discussions are as follows.

1) What evidence exists to suggest that the low values in the database may be biased and not be accurate?
   - Air Method 26A and its RCRA equivalent, SW-846 Method 0050, are 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.[3]
   - 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

[3] 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.

is supposed to be captured. This problem is even more serious at HCl concentrations in the low ppm range.[4]

- Most incinerators in the United States control chlorine emissions with wet scrubbing systems that operate at the quench adiabatic saturation temperature of approximately 180°F (+/- 20°F). At these temperatures, a quick look at a psychometric chart shows that the stack gas will contain approximately 50% moisture (water vapor). Many of these stacks also contain condensed water droplets or mist that are 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 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 study,[3] 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.[4]
- The majority of the data in the database was collected using RCRA SW-846 Method 0050 for the practical reasons that Method 0050 allows the simultaneous determination of both particulate matter and HCl/Cl_2, and because the data were being generated for use in the RCRA program. The required sampling temperature for Method 0050 is only 248° F +/- 25° F. This is far below the 392° F suggested by the EPA Methods Branch to eliminate negative bias. Therefore, it can be inferred that the database contains data that has a significant negative bias.

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.[3] This stack gas moisture is much less than the nominal 50% moisture contained in US wet air pollution control

[4] 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.

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 HWC MACT database?

- During the field validation of the stack sampling methods used to generate data in the HWC MACT database, EPA identified a concentration bias. For chlorine concentrations of approximately 5 ppmv, Method 26A/Method 0050 isokinetic type sampling had a negative bias of approximately 50% compared to non-isokinetic sampling or a continuous monitor. This bias did not exist at approximately 20 ppm. Data in the database was obtained primarily from Method 0050. The bias was not a significant issue at the time of the field validation because, at the 4 lbs/hr RCRA HCl limit, typical industry incinerators of 20–80 MM BTU/hr would have an HCl stack gas concentration of approximately 50 to 200 ppm.
- Alkaline particulate matter collecting on the filter upstream of the measurement impingers is also acknowledged to result in a negative bias, although the magnitude of the effect has not been quantified.[4] 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/Cl_2 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 1.5 and 0.18 ppm?

- EPA Method 0050, which was used to gather most of the data in the HWC MACT database, states in section 1.2 that "this method is not acceptable for demonstrating compliance with HCl emission standards less than 20 ppm." Paradoxically, EPA indicates in the Technical Support Document to the HWC MACT

that Method 0050 is appropriate for use in demonstrating compliance with the HWC MACT.[5]

- 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."[4]
- 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.

EPA responded to our discussion points in a memorandum to "The Docket" from H. Scott Rauenzahn dated March 25, 2004. However, they only partially responded to the documented issues embodied in the comments summarized above, and the response that is provided both misinterprets and ignores EPA's own research and conclusions on the issue. The comments below follow excerpts from the preamble (69 Fed. Reg. at 21312).

1) "Several industry stakeholders have brought several scientific papers to our attention that indicate that Method 26A, used for compliance with the hydrogen chloride and chlorine gas standards, may have a significant low bias at wet stacks with low hydrogen chloride concentrations."

   A key point that the Agency is apparently misinterpreting is that the issues with Method 26A and "wet stacks" includes two separate effects: stacks with high water vapor content and stacks with entrained water droplets.

2) "These stakeholders have asked us not to establish standards for hydrogen chloride and chlorine standard below 20 ppmv to address this substantial negative bias."

[5] Final Technical Support Document for the HWC MACT, Volume IV, Chapter 16, July 1999.

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Method 0050, which EPA has acknowledged was used to generate most of the data in the database states "this method is not acceptable for demonstrating compliance with HCl emission standards less than 20 ppm." According to the EPA Technology Transfer Network Emission Measurement Center, "Provided the temperature of the filter is maintained at greater than 248 degrees Fahrenheit during the entire sampling run, a method 0050 sample can be called a Method 26A sample with slightly enhanced quality assurance." So there is not much difference between method 0050 and 26A and, in fact, they are based on the same EPA validation study in 1989. Accordingly, CRWI is concerned about two things: 1) the usability and representativeness of the data in the database; and 2) the demonstration of compliance with the resulting standard using the prescribed compliance method. CRWI does not believe that HCl/Cl_2 results in the database below 20 ppmv should be used in setting the standards, and that the prescribed compliance method, 26A, has not been technically validated for compliance purposes below 20 ppmv.

3) "We agree that there was a concern early in the development and deployment of Method 26A that water droplets would not evaporate in the sampling train and would therefore dissolve hydrogen chloride in the sample train, before the hydrogen chloride can be caught by the impingers."

   The Agency's use of the phrase "early in the development and deployment" is perplexing. The validation work was completed EPA's Office of Research and Development (ORD) in April 1989. Method 0050 was part of the BIF Methods Manual in December of 1990 and remains substantively unchanged from that point forward. (The current version of Method 0050 is on EPA's testing web site (www.epa.gov/epaoswer/hazwaste/test/under.html) and is labeled as Revision 0, December 1996) As cited in our Office of Management and Budget (OMB) comments, Larry Johnson of EPA's Methods Branch addressed potential moisture bias, both from water droplets and water vapor, in his 1996 paper. Given that most of the data the Agency is using to establish the HWC MACT standards fall within this time frame, "early" would seem to be a misnomer.

4) "EPA determined that this potential problem can be precluded by providing enough heat to the sample train to evaporate all water droplets that might collect in the sample probe or filter."

This statement is partially true although actually the methods incorporate a cyclone and a post-sampling purge to address accumulated "water droplets." In fact, the research by Steger and the paper by Johnson, (see citations in the replicated OMB comments above) recommend a sampling train operating temperature of 200°C (392°F) to eliminate the substantial negative bias at low HCl/Cl_2 concentrations from the presence of moisture in both vapor and liquid form. Method 0050 and 26A operating temperature requirements are 248°F +/- 25°F and 248°F and above, respectively, and have been unchanged since the methods were made available for use by the regulated public. Thus, what EPA believes will solve the problem is not included in the method and may result in a substantial portion of low concentration data in the database to be biased low.

EPA could assert that its contractor, Steger, and its employee, Johnson, were "all wet" in their recommendation of an elevated sampling temperature to eliminate the bias. However, the Europeans, who have been measuring against lower emission standards for quite some time, use a similar method, EN 1911-1, which specifies an operating temperature of 150°C (302°F) or 20°C above the acid dew point of the stack gas. In addition, ORD and ASTM recently concluded development of a similar method for mineral calcining sources. ASTM Method 6735-01 specifies a sampling temperature of 350°F with an upfront preconditioning period before beginning sampling. The prescribed operating temperatures of both of these methods are substantially above what is allowed and practiced in employing either methods 0050 or 26A.

5) "Once the water is evaporated, the hydrogen chloride reenters the sample gas stream and is collected by the impingers."

This is likely unless, as is pointed out at Fed. Reg. 21304, that particulate matter on the filter absorbs hydrogen chloride. The Agency appears to believe that this only occurs on cement kilns. But, as pointed out in the OMB comments above, this situation can also occur with incinerators, albeit to a lesser extent, if entrained water droplets containing caustic are drawn into the sample train, evaporated, and the caustic deposited on the filter. Again, this issue is probably not significant at high concentrations (100 ppm), but for those sources emitting levels far below the RCRA

compliance level, caustic on the filter could bias already low emissions substantially lower. Interestingly, the Agency attempts to address this concern in footnote 184 that states:

> "Even though Method 26/26A may bias total chlorine emission measurements low for cement kilns for reasons discussed in the text, it is appropriate to allow compliance with the technology-based MACT emission standards for total chlorine using that method. Because the MACT standards are developed using data obtained using Method 26/26A, allowing that method for compliance will achieve reductions in total chlorine emissions. For the same reason, it would be inappropriate to require compliance with unbiased methods because the average of the best performing sources might not be able to achieve the standard."

So setting the standard from biased data is OK because the bias is consistent and reproducible. Ignoring the implications of this posture from a "good science" standpoint, the Agency fails to recognize that as sources upgrade to meet lower emission standards, stack characteristics may be changing and, as pointed out in the OMB comments above, significant negative biases may be reduced. Emissions of potentially caustic particulate matter are being reduced to meet lower standards with potential for less caustic on the Method 26A filter to bias measurements low. Also, many incinerators are reducing the operating temperatures of their wet scrubbers, with corresponding reduction in stack gas moisture that may lessen the documented moisture bias. Relying on biases to achieve standards puts sources in a precarious compliance position.

6) "EPA's Office of Research and Development (ORD) performed laboratory studies to document and fully understand this problem. We also monitored the application of Method 26A and it's SW-846 equivalent to determine how these concerns may impact hydrogen chloride measurements made on wet stacks. Our conclusion is that the situations encountered in ORD's laboratory studies are not encountered when making stack test measurements."

It is not clear if the Agency is referring to studies other than the subsequently cited Steger. If so, CRWI believes that EPA should make these documents available to interested parties and place them in the docket. CRWI is also confused by the term "monitored"

in this context. Maybe the Agency means "evaluated." In any event, the conclusion presented is directly opposite to that of EPA's expert Larry Johnson of the Methods Branch when reviewing Steger's work[4].

7) "The Coalition for Responsible Waste Incineration, CRWI, provided a paper authored by Joette Steger, et al., which illustrates this point. (See memorandum to docket for today's proposed rule from H. Scott Rauenzahn, U.S. EPA, entitled "Method 26A and CRWI's Concerns," dated March 25, 2004.) Steger found that Method 26A has a significant negative bias when 40 to 50 percent of the water in the sample is in the form of water droplets. Under similar sample conditions, with 60 percent of the water in the form of droplets, Steger found that providing more heat to the sample train corrected the negative bias concern."

Contrary to the statements above, Steger's research did not involve the introduction of "water droplets" into the sampling train. Steger introduced water vapor to the sampling train to evaluate the moisture bias of the sampling system. This is easily seen in Figure 2 of the 1994 paper.[3] The sample drawn into the sample probe nozzle consisted of steam from a beaker on a hot plate along with ambient air that was spiked with HCl gas from a cylinder. Given that Steger states that the "probe and filter hot box were heated to nominally 121° C (250° F) or 200° C (400° F) before starting the purge gas through the train," it is evident that formation of water droplets was not part of the experimental objective.

Table III of Steger's 1994 paper clearly shows that at 121° C and moisture contents of 7 to 9 percent in the sample gas, a substantial negative bias was present at low HCl concentrations (runs B10, B11, and B12). When the temperature was increased to 200° C, the bias was eliminated (runs C12, C13, and C14).

8) "We also checked our hydrogen chloride emissions data for hazardous waste combustors to see if water droplets could be present in the sample line. We found that water droplets could be present in three of our incinerator test conditions: 327C10 at 5 percent water droplets; 808C1 at 12.5 percent water droplets; and 3024C1 at 8 percent water droplets. None of these stack conditions approach the 40 to 50 percent water droplets observed to be a problem by Steger. These stack gas conditions most closely resemble Steger's run B-5, with 10% water droplets. No

negative bias was observed for Steger's run B-5. We conclude that this negative bias, while conceptually possible, is not encountered at hazardous waste combustors with wet stacks."

CRWI agrees that many sources have entrained water droplets in their stack discharge. However, as demonstrated above, Steger was not investigating the effects of water droplets, but instead water vapor. The highest water vapor content that Steger investigated was 9.26 percent at the prescribed Method 0050 and 26A operating temperature. This water vapor content pales in comparison to most wet scrubber stacks operating at adiabatic saturation temperatures where moisture contents can be nominally 50 percent. Even at the relatively modest 7 to 9 percent water vapor content in runs B10, B11 and B12, Steger found bias of 17 to 29 percent. Run B-5, mentioned by EPA above, as well as runs B-4 and B-6 are irrelevant because the spike HCl concentration is greater than 20 ppmv.

In summary, CRWI is concerned about two issues with the chlorine data: 1) the usability and representativeness of the data in the database; and 2) the achievability of the resulting standard using the prescribed compliance method. The Agency has yet to directly address these concerns. Given the known and suspected biases of Method 0050 and Method 26A, we do not believe that data in the database below 20 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). By the same token, 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 20 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 20 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. The Agency acknowledges as much in the preamble (69 Fed. Reg. at 21308) where it states that "the stack test methods for compliance must be the same as those used to generate the emissions data we used to calculate the standards."

f) *PM data in the database that falls below the recognized limitations of EPA's Method 5 fails the "usability" criterion and should not be used to calculate standards.*

One CRWI member has previously commented to the Agency that the database contains data that is below the capability of Method 5 (and 5i for that matter) to produce accurate and defensible data. (See Lilly comments on the 2002 NODA). Historically, sampling firms have based their Method 5 sampling train operation on achieving a 10 mg PM catch to minimize the impact of errors associated with, for example, isokinetics, dry gas measurement, blanks, humidity, electrostatic charges, and analytical balances. CRWI recently obtained a report from EPA OAQPS' Emission Measurement Center (EMC), entitled "Minimum Detection Limit for Method 5" dated September 30, 1996. The purpose of the work was "to develop and conduct a laboratory experiment to determine the minimum particulate catch that would be accurate to within +/- 10% so that sampling times can be shortened." The work concluded, "the minimum PM catch for a +/- 10% accuracy would be 7.2 mg." This conclusion validates the historical 10 mg target. Accordingly, we assert that test results where the PM catch was less than 7.2 mg fail the "usability" criterion for use in the standard setting process.

The information in the HWC MACT database is not detailed enough to explicitly determine which data have adequate PM catch to be unusable, but a reasonable process is to assume that a typical one standard cubic meter of stack gas was collected (i.e., 7.2 mg/dscm or 0.0032 gr/dscf) and back out the oxygen correction factor. When this is done, only the last 4 sources included in Table APCD-INC-PM, which was used to establish the standards, pass this usability criterion.

Table 1. The usability of the data from the top performers for the PM standard.

Source ID	Average PM Concentration (gr/dscf at 7% O2)	Average Oxygen Concentration (%)	Estimated Average PM Catch (mg)	Usable
3015/3011	0.0007	12.8	0.9	NO
338	0.0009	10.4	1.5	NO
3000	0.0010	9.5	1.9	NO
333/612	0.0012	11.0	1.9	NO
341	0.0013	14.1	1.5	NO

327	0.0013	9.5	2.4	NO
349	0.0026	11.3	4.1	NO
3010	0.0033	13.8	3.8	NO
3032	0.0034	14.9	3.4	NO
3022	0.0049	17.9	2.5	NO
3008	0.0051	14.8	5.1	NO
210/211/212	0.0115	15.0	11	YES
3012	0.0192	11.7	29	YES
359	0.0242	14.3	26	YES
503	0.0311	15.7	27	YES

CRWI believes that EPA should not use data to set the PM standard that falls below the minimum catch (7.2 mg). We encourage the Agency to re-examine the trial burn data to determine which data meet this additional criterion. Data that do not meet this minimum catch criterion should not be used to set a PM standard.

g) *CRWI supports EPA ensuring that all the emission standards are simultaneously achievable for existing sources.*

Section 112(d)(2) of the Clean Air Act requires EPA to establish technology-based emission standards that are achievable by the best performers within the category or subcategory being examined. This means that EPA must have data that demonstrates that the best performers can meet all of the standards at once. If not, then the standards are not achievable. This conclusion comes from the language in the Clean Air Act and the court decision in *CKRC v. EPA,* 255 F.3d 855 (D.C. Cir. 2001).

First, the Act states "Emission standards promulgated under this subsection and applicable to new or existing sources of hazardous air pollutants shall require the maximum degree of reduction in emissions . . . that the Administrator . . . determines is achievable by new or existing sources in the category or subcategory to which such emission standards applies . . .." 42 USC § 7412(d)(2) (emphasis added). In *CKRC*, the court explains that section 112(d)(3) was not merely a gloss on the Section 112(d)(2) mandate to establish "achievable" standards, but rather a way of determining what was achievable for that category or subcategory. *CKRC* at 861. That provision states,

> The maximum degree of reduction in emission that is deemed achievable for new sources in a category or subcategory shall

> not be less stringent than the emission control that is achieved in practice by the best controlled similar source, as determined by the Administrator. Emission standards promulgated under this subsection for existing sources in a category or subcategory may be less stringent than standards for new sources in the same category or subcategory, but shall not be less stringent, and may be more stringent than –
>
> > (A) the average emission limitation achieved by the best performing 12 percent of the existing sources . . . in the category or subcategory for categories or subcategories with 30 or more sources, or
> > (B) the average emission limitation achieved by the best performing 5 sources . . . in the category or subcategory for categories or subcategories with fewer than 30 sources.

Thus EPA has a duty to discover what the best performers are actually achieving in practice. As EPA knows, facilities in a diverse source category such as hazardous waste combustion will be low emitters of one HAP and not another based on the characteristics of the waste they combust. Thus, they may not be representative, or typical, of the facilities in the category. In that case, EPA should either subcategorize the source further, or adjust its standards so that the top performers are achieving the limits in practice. Since some facilities may be able to achieve one standard but not another, the Agency has a duty to discover if the top performers are actually achieving the standard they select. For new source, if at least one facility is not achieving all the emission standards, then those standards are not "achievable."

For existing sources, EPA has fulfilled that duty. From the results shown in Volume V, Appendix D, it appears that using the methods proposed, simultaneous achievability is accomplished for all source categories for existing source standards.

However, EPA makes no mention of any analysis done on simultaneously achievability for new sources. CRWI examined the top performers and how they compared to the proposed standards for new incinerators, new liquid fuel-fired boilers, and new solid fuel-fired boilers.

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Table 2. The ability of existing incinerators to meet new source standards. Numbers in Bold are higher than the new source standards.

Top Units	PM	LVM	SVM	Mercury	HCl/Cl_2
	mg/dscm	ug/dscm	ug/dscm	ug/dscm	ppmv
Standard	1.6	8.9	6.5	8.1	0.18
3011 (PM)	**2.5**	**15**	**25**	NA	**1.1**
3015 (PM)	0.45	NA	NA	NA	**0.5**
341 (LVM)	1.1	5.4	0.9	4.6	**153**
810 (SVM)	**6.8**	**43**	5.1	NA	**5.2**
3019 (Hg)	**48**	3.6	2.5	4.1	**1.0**
349(HCl/Cl2)	**8.1**	4.3	**578**	.16	.06

Table 3. The ability of existing liquid fuel-fired boilers to meet new source standards. Numbers in Bold are higher than the new source standards.

Top Units	PM	LVM	SVM	Mercury	HCl/Cl_2
	mg/dscm	lb/MM Btu	lb/MM Btu	lb/MM Btu	lb/MM Btu
Standard	17	3.8E-07	4.3E-06	3.6E-05	7.2E-04
738 (HCl/Cl_2)	**105**	NA	NA	NA	1.0E-04
776 (LVM)	**86**	NA	NA	3.9E-06	**3.9E-03**
814 (mercury)	**670**	2.9E-07	**7.3E-06**	2.6E-05	**1.5E-03**
843 (SVM)	**39**	**8.7E-06**	1.2E-06	9.2E-06	NA
901 (PM)	11	NA	2.7E-06	2.2E-06	**2.1E-03**
843 (SVM)	**39**	**8.7E-06**	1.2E-06	9.2E-06	NA
901 (PM)	11	NA	2.7E-06	2.2E-06	**2.1E-03**

Table 4. The ability of existing solid fuel-fired boilers to meet new source standards. Numbers in Bold are higher than the new source standards.

Top Units	PM	LVM	SVM	Mercury	HCl/Cl_2
	mg/dscm	ug/dscm	ug/dscm	ug/dscm	ppmv
Standard	34	10	170	190	73
719 (Mercury)	**61**	**10.6**	124.0	**214.0**	**113.8**
908 (LVM)	**83**		2.2	49.0	**172.4**
1012 (SVM, Chlorine)	**39**	9.0	69.0	61.0	48.8
1013 (PM)	**55**			7.4	1.3
1014 (PM)	**42**			4.3	

These tables demonstrate that not one of the top performers in any of the three subcategories can achieve the standards for new facilities. CRWI concludes that this renders these standards as unachievable. Therefore the new source standard fails to meet the statutory mandate that the standard be "achieved in practice by the best controlled similar source."

CRWI members dislike the idea of pointing out a problem without providing a solution. However, we have spent considerable time trying to come up with a method by which to create new source standards that are achievable. To date we have not been successful. We do not advocate EPA abandon the methodology currently being used to set the existing standards. In fact, we support the use of those methods. However, we believe that the new source standards for incinerators are not achievable unless at least one source can simultaneously achieve all the standards. CRWI urges EPA to find a way to adjust the new source standard for all hazardous waste combustors so that at least one facility per subcategory can meet all standards.

h) *CRWI is concerned that as currently proposed, there is not a sunset provision for the interim standards.*

While the permanent replacement standards for incinerators, cement kilns and lightweight aggregate kilns are clearly labeled as "replacement" standards in the headings, neither the regulatory language for the interim standards nor the replacement standards explicitly state that the interim standards no longer apply after a facility has complied with the replacement standards. We think this is simply an oversight on part of the Agency.

If the replacement standards were always equal to or more stringent than the interim standards, this would not be an issue. However, there have been sufficient changes in the manner some of these standards are expressed (e.g., use of thermal units for cement kilns, different subcategorization of incinerators for the dioxin/furan standards, etc.) that we believe it should be made clear that once a facility complies with the replacement standards, the interim standards no longer apply. This can be done in a number of ways.

- The Agency could add a paragraph to §§ 63.1203, 63.1204, and 63.1205 that makes it clear that these sections no longer apply after the facility has placed a Documentation of Compliance in its operating record for the replacement standards or has

submitted a Notification of Compliance. The Agency has already accomplished this for the overlap with RCRA (see the current language in § 264.340(b));

- The Agency could add a paragraph in §§ 63.1219, 63.1220, and 63.1221 that states that when a facility places its Documentation of Compliance for the replacement standards in the operating record or submits its Notification of Compliance, the provisions of §§ 63.1203, 63.1204, and 63.1205 no longer apply; or
- The Agency could modify §§ 63.1206(a)(1)(i)(A) and 63.1206(a)(1)(i)(B) to state that the requirement to comply with the §§ 63.1203, 63.1204, and 63.1205 interim standards ceases upon placing the Documentation of Compliance for 63.1219, 63,1220, or 63.1221 in the operating record or submitting a Notification of Compliance.

Any of these methods would work. CRWI urges the Agency to make at least one of these changes to ensure that there are no conflicts between the interim standards and the replacement standards.

C. CRWI's comments regarding specific emission standards

1. CRWI's comments on solid fuel-fired boiler standards (§63.1216)

a) CRWI does not support establishing an alternative dioxin/furan floor for existing solid fuel-fired boilers.

EPA requested comments (69 Fed. Reg. at 21275) on setting an alternative floor of 0.30 ng TEQ/dscm based on data from one solid fuel-fired boiler and using data from non-hazardous waste burning coal-fired boilers.

CRWI does not support establishing an alternative dioxin/furan floor for existing solid fuel-fired boilers. EPA has only one dioxin/furan emission data point for existing solid fuel-fired boilers and the statute establishes a minimum of five sources for establishing the floor. Section 112(d)(3)(B). As EPA discusses in the preamble to the rule, there are several factors that may affect dioxin/furan emissions from these boilers and it is not possible to ascertain if this source is representative of the source category. Unfortunately, many of those factors (e.g., sulfur content, fly ash carbon content, etc.) are not readily controllable. Therefore, it is not apparent that other boilers could possibly meet the standard that would be established by the one available data point. As such, this standard would not be derived from a source that is controlling its emissions in a way that is duplicable.

b) *EPA should not set standards that are based on sources outside of the category.*

EPA asks for comment on setting an alternative floor level by utilizing data from boilers that do not burn hazardous waste. As a matter of principle, CRWI believes this is not appropriate since the standards would not be based on facilities within the same source category. Additionally, EPA has already evaluated whether numerical dioxin/furan emission standards were needed when it developed the MACT standards for industrial, commercial and institutional boilers and process heaters (Boiler and Process Heater MACT at 29). EPA concluded "For organic HAP, we chose to use carbon monoxide as a surrogate to represent the variety of organic compounds, including dioxins, emitted from the various fuels burned in boilers and process heaters. Because CO is a good indicator of incomplete combustion, there is a direct correlation between CO emissions and the formation of organic HAP emissions."

Consistent with the decision made in the Boiler and Process heater MACT rule, CRWI believes that EPA has appropriately proposed the use of CO (carbon monoxide) or total hydrocarbon (THC) as a surrogate for dioxin/furan emissions. CRWI sees no reason to adopt an alternative dioxin/furan standard.

c) *CRWI agrees that it is inappropriate to set beyond-the-floor SVM and LVM standards by controlling the feedrate of ash.*

EPA requested comments (69 Fed. Reg. at 21279) on whether sources can comply with a beyond-the-floor PM standard by controlling feedrate of ash.

CRWI agrees that it is inappropriate to set beyond-the-floor SVM and LVM standards based on the "No-cost Standard" approach (69 Fed. Reg. at 21278 – 21280). As the Agency discusses, it is conceivable that facilities may meet a beyond-the-floor PM standard by limiting ash feedrates. While this option may not be feasible for all units, there may be cases where units can achieve reduced PM emissions by eliminating the burning of high ash content wastes. While achieving a reduction in PM emissions, this approach may not necessarily reduce metals emissions (i.e., the selected high-ash stream may not contain high levels of metals). A beyond-the-floor SVM and LVM standard is not justified.

d) *CRWI believes that a beyond-the-floor total chlorine emission standard for existing sources is not warranted.*

EPA has proposed a floor level total chlorine emission standard for existing solid fuel-fired boilers of 440 ppmv. In the preamble (69 Fed. Reg. at 21281), EPA discusses its consideration of a beyond-the-floor (BTF) standard of 110 ppmv for this source subcategory. The BTF standard was based on dry scrubbing to achieve 75% removal efficiency. After considering costs and benefits associated with achieving the BTF standard, the Agency expressed concern that "... a cost of $ 4,700 per additional ton of hydrogen chloride removed is not warranted". Based on its analysis, EPA decided not to propose a BTF standard based on dry scrubbing. The Agency did ask for comment on whether a BTF standard is warranted.

Retrofitting costs are too high.

CRWI feels strongly that a BTF standard is not warranted. The cost of equipping existing boilers with dry scrubbers is too high. One of CRWI's member companies (Eastman Chemical Company) has had previous experience retrofitting two pulverized, non-hazardous waste coal-fired boilers with dry scrubbers (spray dryer/absorbers) for improved sulfur dioxide control. Prior to retrofitting, one boiler was equipped with an electrostatic precipitator (ESP) for particulate matter (PM) control. The other boiler was equipped with a fabric filter for PM control. In the retrofits, spray dryer/absorbers (SDA) were installed just upstream of the existing PM control devices. The existing PM control devices already had sufficient PM removal capacity to handle the additional particulate loading introduced by the SDAs. The retrofitted units have operated for a number of years.

Based on its previous experience with installing SDAs and updated equipment cost information, Eastman engineering personnel prepared a preliminary cost estimate for retrofitting its hazardous waste boilers with SDAs. A summary of this evaluation is attached in Appendix A (the detailed spreadsheet is available from CRWI upon request). The minimum estimated engineering, procurement, and installation cost to retrofit these two boilers with SDAs is estimated to be approximately $25 million ($12.5 million each). As discussed below, Eastman believes that the actual installed cost could be significantly higher. The following should be considered when reviewing this estimate.

1) This is a preliminary estimate. It is based on actual Eastman experience and current cost data from equipment vendors. As is the case with all estimates, there is uncertainty in the estimated cost. However, Eastman believes that this is a low-cost estimate and that actual installation costs could be significantly higher.

2) All of Eastman's hazardous waste boilers are currently equipped with ESPs for PM control. The attached estimate is based on leaving the existing ESPs in place and installing a SDA and fabric filter downstream of the existing ESPs. There is not physical space available to install SDAs upstream on the existing ESPs, as was done in the earlier retrofits discussed above, and these ESPs are not capable of handling the added PM loading that a SDA would provide. The estimate includes the addition of a second draft fan that would be required to overcome the additional pressure drop created by the dry scrubbing system. Eastman wishes to point out that it has not determined that this approach is totally feasible (it knows of no such similar equipment arrangement in operation today) or the most desired option. However, it does believe that it is the lowest available cost option. Other options would likely involve dismantling and replacing existing ESPs with SDAs and larger fabric filters. This, and other similar options, would bear greater dismantling costs, would require larger equipment (fabric filter, ash silos, etc.) and would require significantly greater expenditures than the option evaluated.

3) One complication often encountered with retrofitting existing equipment is a lack of space in which to fit additional equipment. This is the case with all of Eastman's Kingsport hazardous waste boilers. These boilers have been in operation for many years and are "land-locked" by surrounding production facilities. There is no vacant real estate adjacent to these boilers at grade level. Dismantling existing equipment and building demolition will be required to install a dry scrubbing system. The attached cost estimate is based on the pair of adjoining boilers that will involve the least dismantling and demolition. Eastman believes that much more work will be required to fit new scrubbing systems into the remaining boilers, likely involving removal of the existing PM removal devices. Accordingly, retrofit costs for the remaining five boilers would be significant higher than the attached estimate.

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Forcing companies to expend such large resources through the establishment of a BTF standard is not cost justified. By its own evaluation, EPA has determined that the cost justification, when evaluated on a per pound of pollutant basis, is marginal at best (69 Fed. Reg. at 21281).

BTF will not provide any environmental benefit

It is questionable that any significant environmental benefit would be gained, even if pounds of pollutant are reduced. EPA's HWC MACT database contains data from 7 units, representative of the 13 boilers in the solid fuel-fired boiler subcategory. Two of the seven units have emissions data based on normal operations and are located in simple terrain. The remaining five have data generated during worst-case performance tests and are located in complex terrain. CRWI has attempted to estimate the human health risk impact of HCl/Cl_2 emissions from six of these units, when operating at the proposed floor emission level (i.e., emission levels demonstrated during compliance tests were scaled to the floor level). Data from the HWC database and EPA's SCREEN3 air dispersion modeling were used for the two units located in simple terrain. Data from the HWC database and site-specific air dispersion modeling data supplied by member companies was used for the remaining four units. CRWI did not have adequate dispersion modeling data to perform a risk evaluation on the single remaining unit in this subcategory.

CRWI's evaluation showed that the projected Hazard Index (HI) for each of the six units evaluated (representing over 90% of the sources in this subcategory) was well below 1.0. The highest predicted HIs (approximately 0.37) were for the two boilers evaluated using the conservative SCREEN3 model. Actual total chlorine emissions from these two units were very low, approximately 1.0 ppmv. CRWI considers its estimates to be conservative in that it was assumed that no chlorine gas photolyzes in the atmosphere to chlorine ions (i.e., no conversion of Cl_2 to HCl). In addition, as EPA discusses in the "Draft Technical Support Document for HWC MACT" (section 2.1, Volume V: Emissions Estimates and Engineering Costs), facilities must generally operate well below the emission limit to account for inherent variability in measurement methods and source performance. EPA refers to this normal operating level as the "design" level. EPA states "The design level is the level that a source with typical variability is expected to design and operate at to confidently meet the full standard". For solid

fuel-fired boilers, EPA identified the floor design level for HCl/Cl_2 emissions to be 240 ppmv (Appendix A, Volume V, Draft Technical Support Document for HWC MACT Standards). Therefore, actual emissions from these boilers and resultant impact on human health and the environment are expected to be significantly lower than the scenario that CRWI evaluated.

Generally, EPA has concluded that HCl/Cl_2 emissions resulting in a HI of 1.0 or less will pose no significant chronic or acute human health threats or detrimental impact on terrestrial animals or on plants. In the preamble (69 Fed. Reg. at 21299), EPA concludes that "Assuming additivity, HI values less than 1.0 indicate that exposures to the mixtures are likely to be without appreciable risk of adverse effects in the exposed population". In addition, EPA concluded that acute exposure to HCl/Cl_2 emissions need not be evaluated as part of the 40 CFR 63.1215 alternative risk based standards for chlorine stating "We conclude that the chronic exposure Hazard Index (HI) for the hazardous waste combustor(s) would always exceed that acute exposure HI" (69 Fed. Reg. at 21299).

As part of its development of the § 63.1215 risk-based alternative standards, EPA also evaluated the potential impacts of HCL/Cl_2 emissions on terrestrial animals and on plants. At 69 Fed. Reg. 21300, EPA states that "We believe the RfC values for hydrogen chloride and chlorine gas should be generally protective for chronic effects in most, if not all, fauna. ... Although the AEGL-1 values for acute exposures are based on human data, we nonetheless expect that they too would be generally protective of most fauna, absent information to the contrary". In addition, at 69 Fed. Reg. 21300, EPA states "...we do not believe that ambient concentrations of hydrogen chloride and chlorine gas that meet the human health threshold values discussed above will pose adverse effects on plants".

Therefore, there is no appreciable benefit to be gained in driving units that are already operating below the health threshold to lower emissions. The high cost of doing so, through a BTF limit, simply is not justified.

e) *EPA should propose an alternative PM standard for solid fuel-fired boilers subcategory.*

In the preamble (69 Fed. Reg. at 21332), EPA states that they are proposing a simplified alternative to the PM standard for incinerators,

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solid fuel-fired boilers and the liquid fuel-fired boilers. The proposed alternatives for liquid fuel-fired boilers and incinerators are in §§ 63.1217(e) and 63.1219(e), respectively. However, in the proposed regulatory language for solid fuel-fired boilers (§ 63.1216) there is no comparable provision. CRWI believes this was an inadvertent error and suggests EPA include a comparable section (e) in § 63.1216 when the rule is finalized.

2. *CRWI's comments on liquid fuel-fired boilers (§63.1217)*

a) EPA should revise the proposed regulatory language in § 63.1217(a)(1) and (b)(1) so that it relates to liquid fuel-fired boilers and not incinerators.

The language in § 63.1217(a)(1) and (b)(1) uses the phrase "incinerators with waste heat boilers." CRWI assumes that this is simply a "cut and paste" error. We believe that the preamble discussion is correct and the proposed standard for existing and new liquid-fuel fired boilers for dioxins/furans in the table at 69 Fed. Reg. 21283 is correct. CRWI suggests that EPA modify the proposed language as follows:

> "63.1217(a)(1)(i) Dioxin and furan in excess of 0.40 ng TEQ/dscm corrected to 7 percent oxygen for ~~incinerators~~ liquid fuel-fired boilers equipped with ~~either~~ a ~~waste heat boiler or~~ dry air pollution control system; or
> (ii) Either carbon monoxide or hydrocarbon emissions in excess of the limits provided by paragraph (a)(5) of this section for ~~sources not~~ liquid fuel-fired boilers equipped with either a ~~waste heat boiler~~ wet air pollution control system or ~~dry~~ no air pollution control system;"

* * *

> "(b)(1)(i) Dioxin and furan in excess of 0.015 ng TEQ/dscm corrected to 7 percent oxygen for ~~incinerators~~ liquid fuel-fired boilers equipped with ~~either~~ a ~~waste heat boiler or~~ dry air pollution control system; or
> (ii) Either carbon monoxide or hydrocarbon emissions in excess of the limits provided by paragraph (a)(5) of this section for ~~sources not~~ liquid fuel-fired boilers equipped with either a ~~waste heat boiler~~ wet air pollution control system or ~~dry~~ no air pollution control system;"

b) *EPA should rely on the PM standard instead of establishing a separate limit for chromium.*

EPA requested comments on whether a chromium only standard for liquid fuel-fired boilers is appropriate (69 Fed. Reg. at 21289).

CRWI is concerned that the Agency does not have sufficient usable and representative data from the liquid fuel-fired boilers to set a metals emission standard. Data are available for only a few sources (compliance test data for 12 sources for LVM and normal data for 12 sources for SVM) out of more than 100 sources. The primary reason for this data gap is that most boilers control metals using the BIF Tier 1 or Adjusted Tier 1 metals feedrate limits, for which testing is not required. Additionally, most of the data available to EPA is "normal" data since it was collected during risk burns rather than during "capacity" burns.

As a result, CRWI does not believe EPA has sufficient data to set the thermal based metals emission limits for this subcategory and suggests that EPA propose compliance with the PM standard as a surrogate for the metals standards. EPA has done this on a number of other occasions in this rule (e.g., CO as a surrogate for dioxin/furan standard, chlorine as a surrogate for metals and PM) and other MACT rules.

If appropriate, EPA could also require a one-time test as means to gather data to determine if future controls under 112(f) are needed.

c) *EPA should reconcile the values for the PM standard.*

The preamble (69 Fed. Reg. at 21283) and the proposed rule language (69 Fed. Reg. at 21376) have different values for the proposed PM standard for liquid fuel-fired boilers. When CRWI examined the draft technical support documents, we found that the calculated floor values for PM in Volume III, Appendix F for existing sources matches the preamble value of 72 mg/dscm (0.032 gr/dscf). However, the 99% upper confidence limit for the highest ranking top performer does not match with either the new source standard for PM in either the preamble or the rule. The preamble has a value of 17 mg/dscm (0.0076 gr/dscf), the rule uses 9.8 mg/dscm, and the highest ranking performer in Appendix F shows a value of 0.0082 gr/dscf (19 mg/dscm).

Given all this conflicting information, CRWI does not know which values are the correct ones. We suggest that before publishing the final rule, EPA should check all calculations to determine which values are correct and then make sure that the correct values are incorporated into both the final preamble and the regulatory language. Since there are a number of other places where there are inconsistencies between the draft technical support documents, the preamble, and the proposed regulatory language, CRWI urges the Agency to check all values to make sure they are appropriate and publish the correct values in a supplemental notice of proposed rulemaking for comment.

d) *CRWI suggests alternative methods to calculate thermal emission standards when the limits are below the detection limit of the stack sampling methods*

At Fed. Reg. 21312, EPA suggests that the thermal emission standard may be below the detection limit for the stack gas test methods. Should this occur, EPA proposes three criteria that need to be met before a facility can show compliance: 1) sample runs of at least 3 hours; 2) laboratory reporting analytical detection limits less than or equal to Section 13.2 of Method 29; 3) and no HAP present in any run above the analytical detection limit. All three criteria must be met for the facility to demonstrate compliance.

CRWI concurs that this unfortunate situation may occur. However, we believe that the 3rd criterion suggested in the preamble is an overly strict criterion. The normal criterion for demonstrating compliance is that the *average* of three test runs exceed an emission standard. The preamble suggests a new and substantially stricter standard of no HAP present in *any run* above the detection limit that is unfair and inappropriate.

CRWI believes rulemaking that sets emission standards at levels below which there is no test method for measurement makes that standard unachievable. Furthermore, having substantially different criteria for demonstrating compliance is also inappropriate.

CRWI suggests two alternatives to alleviate this issue. First, EPA should eliminate the proposed emission standards that are expressed as a function of thermal load of hazardous waste fired and replace them with emission standards based upon concentration in ug/dscm corrected to 7% oxygen. Second, if the

standards expressed as thermal load of hazardous waste must remain, then the unmeasurable limits issue could be addressed by the addition of a minimum measurable stack concentration standard. The owner/operator would be required to demonstrate compliance with the greater of the thermal load of hazardous waste based emission standard or the minimum measurable stack concentration standard.

e) *EPA should allow facilities to set more conservative averaging periods.*

The annual averaging periods proposed for standards based on "normal" emissions data may present more operational issues than benefits. CRWI suggests that facilities be allowed the option of setting a more conservative averaging time in lieu of the annual average (e.g., a 12-HRA or a 30 day rolling average). This would provide operational flexibility for data management and still remain protective.

f) *CRWI believes that the thermal-based emissions approach is not viable for all liquid fired boilers and recommends adopting an SRE/feed emissions based stack gas concentration limit as an optional standard.*

CRWI is concerned that the thermal emissions format for the liquid fuel-fired boiler standards may be problematic for some units, specifically low BTU burners. These standards may preclude the ability to combust some low BTU wastes, even at very low feedrates. This is especially true for captive units that do not have the higher BTU hazardous wastes with which to create blended fuels.

Although these low BTU wastes may not provide as much steam generation or heat recovery as higher BTU wastes, they are still being used as an alternative to virgin fuels to make the steam. EPA's intent with the thermal-based approach was to remove the bias against energy recovery units and to normalize emissions across energy recovery units with different hazardous waste firing rates. CRWI believes that EPA did not intend to penalize efforts by low BTU facilities to use these wastes as a fuel.

On page 21220 EPA states:

> "We prefer not to discourage energy recovery from hazardous waste as opposed to potentially establishing standards that effectively restrict the hazardous waste firing rate in an energy recovery combustor."

CRWI believes that EPA should not discourage energy recovery from low BTU fired units as well. For example, one CRWI member could be particularly penalized since their fuels are chlorinated hydrocarbons that have a lower BTU value. Another facility's fuel-fired boilers have total heat loads that range from 3MM BTU/hr up to 86MM BTU/hr. Such a wide variation points out the inequity in ability to comply for certain units.

A unit with a very low emission rate can still fail the emission standards if the BTU value of the feed is low, while a similar unit with the same emission rate but a higher BTU value would pass the standard. The actual amount of mass emissions would be the same, but the lower BTU feeder might have to install emission controls, or worse yet, shut down and send the waste off-site to an incinerator since reducing feed rate would not help meet the limit. The facility may still need to produce steam and continue to operate the boiler using fossil fuel. This seems to defeat the purpose of encouraging energy recovery.

A potential solution to this issue is for EPA to give facilities an alternative standard and finalize the liquid fuel-fired boiler standards as either a thermal based emission limit or as a concentration based emission limit. CRWI suggests that the SRE/Feed method would be an appropriate method to set the concentration based emission limits for this subcategory.

3. CRWI's Comments on hydrochloric acid production furnaces (§63.1218)

a) CRWI supports the use of total chlorine as a surrogate for PM and metals.

EPA is proposing that total chlorine can be used as a surrogate for particulate matter, mercury, semi-volatile metals, and low-volatile metals standards for this subcategory for both existing and new sources. CRWI agrees with this approach. Most hydrochloric acid production furnaces use wet scrubbers to recover HCl as a product. These scrubbers also remove the very small amounts of metals

and particulate that may be present in the waste feeds. We agree that use of MACT wet scrubbers to comply with the proposed total chlorine standard will also ensure MACT control of metal HAP and particulates.

b) *EPA should reconsider its beyond-the-floor standard for dioxin/furans.*

In the preamble (69 Fed. Reg. at 21293), EPA determines that they cannot identify a dioxin/furan control mechanism for this source category. As a result, they set the floor at the RCRA CO/THC standard. EPA then proposes a beyond-the-floor standard for dioxins/furans of 0.40 ng TEQ/DSCM.

There have been a number of changes to the facilities in the database since the 2002 NODA (67 Fed. Reg. at 44452, July 2, 2002). Dow Chemical Company has taken units 786, 842, 844, and 848 out of RCRA service and the RCRA closure process has been initiated. Dow Chemical Company plans to take unit 2017 out of RCRA service before the end of the year and will initiate RCRA closure soon after it is taken out of service. This significantly reduces the number of hydrochloric acid production furnaces in the database. More significantly, this represents the units with the highest dioxin/furan emissions in the 2002 database. In the preamble (69 Fed. Reg. at 21293), EPA states that the dioxin/furan emissions range from 0.02 ng TEQ/dscm to 6.8 ng TEQ/dscm. If the data from the units that have closed or will close by the end of the year are removed, the range of dioxin/furan emissions changes to 0.02 ng TEQ/dscm to 0.53 ng TEQ/dscm.

CRWI has not attempted to calculate how this would impact the cost effectiveness of a beyond-the-floor determination for this subcategory. However, we believe it will make a substantial difference. CRWI suggests that EPA remove the units that are already taken out of RCRA service and the ones that will soon be taken out of RCRA service and recalculate the cost-effectiveness of a beyond-the-floor standard for dioxin/furans for hydrochloric acid production furnaces. Should the costs no longer be justified, EPA should finalize the dioxin/furan standard at the floor.

c) *EPA should reconsider its chlorine standard.*

As pointed out in the previous paragraph, a number of the hydrochloric acid production furnaces that are in the top performers

for the chlorine standard have been closed. In addition, it is our understanding that unit 2020 has been improperly classified as a hydrochloric acid production furnace when it should be classified as a liquid fuel-fired boiler. CRWI suggest that data from this unit be removed from the database for hydrochloric acid production furnaces and the chlorine standard be recalculated for this subcategory.

4. CRWI's comments on EPA's proposed incinerator standards (§63.1219).

a) CRWI has serious concerns about the ability to show compliance with the PM standards (0.0019 gr/dscf or 4.3 mg/dscm) for new incinerators.

EPA developed Method 5i to improve the accuracy and precision of results for sources with PM concentrations below 0.02 gr/dscf. In Section 2.3 of Method 5i, the Agency states that the practical quantification limit is 3 mg of PM (64 Fed. Reg. at 53028). It does not appear that the Agency has taken into account the measurement limitations of Method 5i in setting the new PM standard for incinerators. Method 5i states a practical quantification limit of 3 mg, but does not take into account accuracy for taking a one cubic meter sample. The Diagnostic Instrumentation and Analysis Laboratory (DIAL) at Mississippi State University recently did a study on the accuracy of Method 5i and reported its findings.[6] DIAL calculated three uncertainties at the 95 percent confidence level:

- 11.93% due to isokinetics and stack velocity measurement
- 2% uncertainty in measuring gas sample volume
- 32% uncertainty for a 3mg/dscm sample (.952mg/Vm(std)) due to PM catch weighing

Thus, a measured value of 3 mg/dscm means that there is a 95 percent confidence that the true value is between 2 and 4 mg/dscm. A 99 percent confidence band would be even broader. Thus, the Agency's proposal for the new source standard for PM is untenable from a compliance standpoint.

[6] Arunkumar, R., J. Etheridge, K. Hogancamp, J. C. Luthe, B. A. Nagel, O. P. Norton, M. Parsons, D. Rogers, and C. A. Wagner. "An Evaluation of EPA Reference Method 5i Accuracy," WM'04 Conference, February 29 – March 4, 2004, Tucson, AZ, WM Symposia, Inc.

b) *CRWI supports EPA removing the feedrate restrictions and the SRE requirements in the alternative PM standard.*

CRWI agrees with the Agency's proposal (69 Fed. Reg. at 21332) to eliminate the requirements for feed control and a 90 percent systems removal efficiency to be able to use the alternative PM standard for incinerators, liquid fuel-fired boilers, and solid fuel-fired boilers. We agree with the Agency that these two components are not necessary to ensure a facility is controlling metals below the emission limits primarily because the emission limits remain in place. Since the standards for SVM and LVM remain in place, these are sufficient to ensure that the facility remains in compliance with those standards.

c) *CRWI supports EPA including additional alternative PM standards.*

In the preamble (69 Fed. Reg. at 21333), EPA discusses a second alternative PM standard where facilities can set site-specific SVM and LVM limits based on 3 years of data and system removal efficiencies.

While this idea is intriguing, CRWI does not believe it will be widely utilized because of the large amount of data needed and the complicated scheme to develop a site-specific emissions limitation. CRWI does not see a problem if this method is finalized as another alternative PM standard but would not support replacing the currently proposed method with this site-specific method.

d) *CRWI suggests that the mercury standard be based on compliance rather than "normal" data.*

EPA specifically requested comments on whether normal data should be used to set the mercury standard for incinerators (69 Fed. Reg. at 21243). CRWI believes that compliance test data should be used, since the standard must be achievable. Normal data should never be used unless compliance test data are unavailable and EPA can develop a verified method to convert normal data to compliance data.

e) *CRWI suggests EPA check all methods for mathematical errors.*

When CRWI was checking EPA's methods for developing the standards, we discovered an error in the SRE rankings for facility 3001 (chlorine database for incinerators). When the units were

ranked correctly, the revised floor standard was significantly different. CRWI has informally pointed this out to Agency staff. We also suggest that EPA carefully look at all mathematical calculations to make sure they are correct when developing the final standards.

5. CRWI supports the proposed risk based chlorine exemption and offers suggestions on how to improve its implementation (§ 63.1215)

CRWI supports the Agency's proposed alternate risk-based standard for chlorine as a lawful and appropriate alternative to the technology-based standard. CRWI notes, however, that the Agency should not require approval of a facility's eligibility demonstration as a condition for its use. Instead, the risk-based standard should be implemented in the same manner as a technology-based standard, *i.e.*, a facility must demonstrate compliance with it through its documentation and notification of compliance.

a) *CRWI supports the Agency's proposed alternate risk-based standard for chlorine as a lawful and appropriate alternative to the technology-based standard.*

Over the past several years, EPA has been proposing, and in some cases, promulgating MACT rules that allow facilities to comply with risk-based emission limitations in lieu of the technology-based standard. See e.g., Brick MACT proposal, 67 Fed. Reg. 47893 (July 22, 2002); Combustion Turbine MACT proposal, 68 Fed. Reg. 1888 (January 14, 2003); Industrial Boiler and Process Heater MACT final rule, signed February 26, 2004; and Lime Manufacturing MACT final rule, 69 Fed. Reg. 394, (January 5, 2004. In the current rulemaking, EPA is proposing a risk-based emission standard for total chlorine that would control hydrogen chloride and chlorine gas. Facilities have been doing something similar in the RCRA program for many years when demonstrating compliance with the Tier I standards for boilers and industrial furnaces in Part 266.

CRWI supports the alternative risk-based standard as being lawful and consistent with the Agency's mandate under the Clean Air Act to protect human health and the environment.

1) *EPA has authority to establish risk-based limits under Section 112(d).*

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Under § 112(d)(2), EPA is required to establish emission standards that represent the "maximum degree of reduction" attainable by facilities in the source category. This authority is generally viewed as requiring technology-based emission standards. However, under Section 112(d)(4), Congress authorized EPA to establish risk-based standards in lieu of technology-based limits. Section 112(d)(4) states,

> With respect to pollutants for which a health threshold has been established, the Administrator may consider such threshold level, with an ample margin of safety, when establishing emission standards under this subsection.

While this provision is ambiguous regarding Congressional intent, any uncertainty regarding EPA's authority is clarified by legislative history.

According to the Committee Reports accompanying this provision, EPA could use the authority in Section 112(d)(4), to establish a "cap" on the technology-based emission standard EPA might otherwise promulgate, if EPA made a risk-based determination that the technology-based standard was more stringent than necessary to protect human health, with an ample margin of safety. The Senate Report states:

> To avoid expenditures by regulated entities that secure no public health or environmental benefit, the Administrator is given discretionary authority to consider the evidence for a health threshold higher than MACT at the time the standard is under review. The Administrator is not required to take such factors into account; that would jeopardize the standard-setting schedule imposed under this section with the kind of lengthy study and debate that has crippled the current program. But where health thresholds are well established, for instance in the case of ammonia, and the pollutant presents no risk of other adverse health effects, the Administrator may use the threshold with an ample margin of safety (and not considering cost) to set emissions limitations for sources in the category or subcategory.

S. Rep. No. 228, 101st Cong. Sess. 171 (1990).

Consequently, EPA has authority to set risk-based limits that are less stringent than technology-based MACT standards. This authority is consistent with the Court's decision in the "fast-track" MACT case that despite § 112(d) being a technology-based provision, the ultimate goal of the air toxics program is to protect human health and the environment. CMA v. EPA, 217 F.3d 861, 866 (D.C. Cir. 2000).

2) EPA has the authority to establish an exposure-based emission limit.

One issue that often arises when considering risk-based standards is whether EPA has authority under Section 112 to establish an exposure based emission limit. The concern seems to be that some stakeholders construe the Act's statutory provisions as requiring uniform emission limitations at all facilities, rather than emissions that are measured at places away from the source and that vary from facility to facility. CRWI does not see any legal impediment to establishing exposure based limits.

First, under Section 112, EPA has authority to establish "emission standards." Emission standards are defined to be

> a requirement established by the State or the Administrator which limits the quantity, rate or concentration of emissions of air pollutants on a continuous basis . . . to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under this chapter.

EPA's alternate risk-based emission standard will limit the quantity, rate or concentration of the emissions. There is no requirement in the definition that specifies where the emission standard is to be measured. Nor is there such a requirement anywhere in the statute.

Second, EPA's proposed exposure based limit will result in facilities establishing operating parameter limitations, or OPLs. *See* proposed Section 63.1215(e)(3). These qualify as emission limitations because they are "operational standards"

being promulgated under this chapter. They will be measured at the facility, not at the point of exposure.

Finally, the limitations that EPA is establishing are uniform. They uniformly protect the individual most exposed to emission levels no higher than a hazard index of 1.0.

Consequently, there is nothing in the statute that prevents the Agency from promulgating exposure based emission standards.

b) *CRWI believes that emission limits based on health threshold values will produce an ample margin of safety.*

EPA specifically seeks comment on whether emission limits based on health threshold values such as an RfC represent an "ample margin of safety" (69 Fed. Reg. at 21300). CRWI responds by saying yes, and notes that in some circumstances it may represent levels that are *more* stringent than necessary to provide an ample margin of safety.

First, Congress specifically authorized using health threshold values. In the Senate Report accompanying this provision, the Senate stated:

> Finally, there are the pollutants for which there are health and environmental effects (other than carcinogenicity or other no threshold effects) for which a "safe" level of exposure can be determined. In this case, the Administrator has two options to use in assuring that low priority regulation will not be required. * * * In the second case, where some sources do emit more than the threshold amount, the Administrator is authorized by section 112(d)(4) to use the no observable effects level or NOEL (again with an ample margin of safety) as the emission limitation in lieu of more stringent "best technology" requirements.

S. Rep. No. 228, 101st Cong. Sess. 175-176 (1989). Consequently, under Section 112(d)(4), EPA is to set the "acceptable" level at the no observable effects level and then lower it to provide an ample margin of safety. This is the process EPA uses to establish the RfC.

Secondly, this process of establishing an ample margin of safety comports with judicial interpretation. As EPA notes in the preamble to the proposal, the procedure for determining the ample margin of safety comes from the two-step process the Court first announced in the *Vinyl Chloride* decision (69 Fed. Reg. at 21300). In interpreting this phrase, the court initially noted:

> The statute nowhere defines "ample margin of safety." The Senate Report, however, in discussing a similar requirement in the context of setting ambient air standards under section 109 of the Act, explained the purpose of the "margin of safety" standard as one of affording "a *reasonable* degree of protection . . . against hazards which research has not yet identified." S. Rep. No. 1196, 91st Cong., 2d Sess. 10 (1970) (emphasis added). This view comports with the historical use of the term in engineering as "*a safety factor . . . meant to compensate for uncertainties and variabilities.*" [Emphasis added] *See* Hall, *The Control of Toxic Pollutants Under the Federal Water Pollution Control Act Amendments of 1972, 63 Iowa L. Rev. 609, 629 (1978).*

NRDC v. EPA, 824 F.2d 1146, 1152 (D.C. Cir. 1987). The court continued, explaining,

> Congress, however, recognized in section 112 that the determination of what is "safe" will always be marked by scientific uncertainty and thus exhorted the Administrator to set emission standards that will provide an "ample margin" of safety...In determining what is an "ample margin" the Administrator may, and perhaps must, take into account the inherent limitation of risk assessment and the limited scientific knowledge of the effects of exposure....

Id. at 1165. Thus, Congress intended the concept of an ample margin of safety to be a safety factor for addressing the scientific uncertainties and variability surrounding the selected health value.

This conclusion is confirmed by a footnote in the opinion whereby the court explained that the two-step approach to determining the proper level is not necessary if the first step of deciding what an

acceptable level is already contains sufficient consideration for uncertainty. The court stated,

> In response to the facts presented in this case we have analyzed this issue by using a two-step process. We do not mean to indicate that the Administrator is bound to employ this two-step process in setting every emission standard under section 112. If the Administrator finds that some statistical methodology removes sufficiently the scientific uncertainty present in this case, then the Administrator could conceivably find that a certain statistically determined level of emissions will provide an ample margin of safety. If the Administrator uses this methodology, he cannot consider cost and technological feasibility: these factors are no longer relevant because the Administrator has found another method to provide an "ample margin" of safety.

Id. at 1165, fn.11.

Consequently, the purpose of the ample margin of safety in Section 112 is to account for uncertainty and variability in the underlying health value.

CRWI believes that an ample margin of safety, consistent with the court's ruling, has already been built into the RfC for HCl. Based on the IRIS database (http://www.epa.gov/ iris/subst/0396.htm) the RfC for HCl has an uncertainty factor of 300. This uncertainty factor includes a factor of 3 for interspecies differences, 10 for intraspecies extrapolations, and 10 to extrapolate from a LOAEL to a NOAEL. Because of the expected portal-of-entry effect of HCl, an uncertainty factor to account for the lack of both a second-species chronic bioassay and a reproductive bioassay was not considered necessary. Thus, we believe that the RfC for HCl already has a more than adequate margin of safety built into it.

Therefore, EPA's process for deriving the RfC already takes into account the uncertainties associated with the science surrounding establishing the safe level. No more added safety is needed.

In conclusion, based on the legislative history and consistent with judicial interpretation, the process for deriving the regulatory limit under Section 112(d)(4) should start with the NOAEL and then

include appropriate safety factors to account for scientific uncertainty. Since the RfC value already does this, no more is needed. EPA could, however, choose to not apply all of the uncertainty factors and use a value lower than the NOAEL but higher than the RfC, and still comply with the mandate to protect human health with an ample margin of safety.

EPA, however, does not have an RfC readily available for chlorine gas. Instead the Agency intends to rely on the Reference Exposure Level (REL) developed by California's Office of Environmental Health Hazard Assessment. CRWI supports that proposal. As noted by the Senate Report, as long as a health value such as REL is "well-established," then EPA can base its risk-based emission level on it. S. Rep. No. 228, 101st Cong. Sess. 171 (1990).

c) *CRWI concurs that EPA should not consider background concentrations when deciding what constitutes an ample margin of safety.*

During the past several years, there has been significant debate over whether EPA should consider background concentrations of the air pollutants when deciding what levels constitute an ample margin of safety. In the HWC MACT proposal, EPA states that it will not consider background levels. Instead, background levels will be addressed "through other CAA programs such as the urban air toxics program" (69 Fed. Reg. at 21299). CRWI concurs that this is the correct decision, not only based on fairness, but for legal reasons as well.

In previous proposals, EPA relies on two precedents for considering background sources when considering what constitutes an ample margin of safety. The first is the statement by Senator Durenberger relating to co-located facilities as the basis for supporting consideration of background. See *e.g.*, Brick MACT proposal, 67 Fed. Reg. 47893 (July 22, 2002). This statement, as EPA now recognizes in this proposal (69 Fed. Reg. at 21299), only deals with emissions from co-located HAP sources and not HAP levels in the ambient air.

The second source is the Benzene NESHAP rule (54 Fed. Reg. at 38044, 38045, and 38059) which should provide guidance for this policy decision. *See* CAA § 112(f)(2)(B). In that rule, EPA received several comments about the role that background concentrations

play in making an acceptable risk and ample margin of safety decision. EPA noted,

> Three commenters said that if levels of exposure are within the bounds of variation in ambient background levels, the activity should not be regulated. Another commenter cautioned that background concentrations considered for comparison of acceptable risk should be natural benzene levels in clean air, not levels in already polluted urban air. One commenter stated that EPA must consider other sources of risk from benzene exposure and determine whether the acceptable risk level is to represent total risks from all exposures to a substance or just incremental risks to ambient risks.
>
> *Response:* The EPA believes that comparison of estimated MIR levels to natural background risk levels is appropriate to help characterize the overall magnitude of the risk that remains after making the acceptable risk decision. However, EPA also agrees that comparison of acceptable risk should not be associated with levels in polluted urban air. With respect to considering other sources of risk from benzene exposure and determining the acceptable risk level for all exposures to benzene, *EPA considers this inappropriate because only the risks associated with the emissions under consideration are relevant to the regulation being established and, consequently, the decision being made.*

(54 Fed. Reg. at 38061, emphasis supplied). Consequently, EPA should consider the risks from only the sources in the category under consideration, and not the risks from background sources as well.

d) *CRWI supports EPA deferring consideration of emissions from co-located sources within the same source category to the residual risk program.*

In its proposal, EPA announces that it will defer consideration of risks from co-located facilities to the residual risk program (69 Fed. Reg. at 21299). As EPA notes, Congress expected EPA to consider the effect of co-located facilities during the residual risk program so that, by the time EPA has promulgated residual risk

standards for all source categories, risks from co-located sources will be adequately addressed. As indicated by Senator Durenberger's comments during the debate of the Clean Air Act Amendments of 1990, EPA should consider residual risk in the context of *different* HAP source categories that might be co-located at the same site. *See* Brick MACT proposal, 67 Fed. Reg. 47894, 47905, fn. 5 (July 22, 2002) citing Senate Debate On Conference Report (October 27, 1990) reprinted in "A Legislative History of the Clean Air Act Amendments of 1990," Comm. Print S. Prt. 103-38 (1993) at 868.

CRWI concurs that EPA should defer consideration of co-located sources to the residual risk program. Under § 112(d), the targets of regulation are new or existing sources of hazardous air pollutants within the specified source category (or subcategories) under consideration. EPA sets these standards by considering the emission levels achieved by the best performers in their respective category or subcategory. CAA § 112(d)(3).

Congress carried this concept into § 112(d)(4) as well. The legislative history explains that the focus of the Agency's authority under section 112(d)(4) is preventing risks from the sources themselves. As the Committee on Environment and Public Works explained,

> In the second case, where some sources do emit more than the threshold amount, the Administrator is authorized by section 112(d)(4) to use the no observable effects level of NOEL (again with an ample margin of safety) as the emission limitation in lieu of more stringent "best technology" requirements. Following this scenario, *only those sources in the category which present* a risk to public health (those emitting in amounts greater than the threshold) would be required to install controls, even though the general policy is "maximum achievable technology" everywhere.

S. Rep. No. 228, 101st Cong. Sess. 175-176 (1989) (emphasis supplied).

In addition, there is no prior EPA precedent for considering co-located facilities from a different source category during the same rulemaking. In the Benzene NESHAP, where EPA noted that it

should consider "effects due to co-location of facilities" *id.* at 54 Fed. Reg. 38045, EPA was only considering sources from the same category. In a section of the preamble labeled "Application of Policy to Benzene Source Categories" EPA explained how it derived the regulatory level: EPA based its risk determinations on "model plants" to represent the sources being regulated. For Benzene Storage Vessels, EPA said,

> In estimating these risk levels, EPA has not found that co-location of plants significantly influences the magnitude of the MIR or other risk levels. Where two or more of the model plants used for the analysis might occur at one site (e.g., both a producer and a consumer of benzene), the risks were calculated from their total emissions.

Id., at 38,050-01. Consequently, EPA examined the effects of co-location only from the "model plants" EPA was evaluating — and not from emissions sources outside the source category it was evaluating.

In summary, consideration of sources outside the source category is antithetical to the concept of MACT standards for individual source categories and CRWI concurs with EPA's decision to limit the §112(d)(4) standard to only those sources within the source category.

Thus, EPA's decision to limit the provision's focus to "all on-site hazardous waste combustors subject to subpart EEE, part 63" (60 Fed. Reg. 21299), is supported by Congressional intent and prior precedent.

e) *EPA Is not required to establish the ample margin of safety levels based on acute threshold levels of air pollutants.*

EPA proposes that sources need not evaluate the potential for acute exposure to chlorine. We believe this is an appropriate decision because the chronic HI will always be more stringent than the limit based on acute exposure.

f) *CRWI concurs that EPA is not required to control HAPs other than chlorine gas and HCl.*

EPA has decided that sources need not control emissions of other HAPs in order to be eligible for the alternative standard for total chlorine. Even though EPA has determined that there are 40 other HAPs that have a common mechanism of action, the Agency believes that only 9 of them are emitted by sources in the HWC source category. 69 Fed. Reg. at 21299, Fn. 171. Not only does the Agency believe that these 9 HAPs will be emitted in trace quantities that will not significantly affect the calculation of the risk based emission limit, the Agency is promulgating limits, namely PM and organic destruction, that will control these other pollutants. Consequently, CRWI concurs that EPA need not require control of HAPs other than chlorine gas and HCl.

In conclusion, CRWI supports the Agency's proposed alternate risk-based standard for chlorine as a lawful and appropriate alternative to the technology-based standard.

g) *CRWI agrees that a facility should not be able to use the look-up tables if it is located in complex terrain.*

The proposed regulations (§63.1215(c)(3)(iv) – 69 Fed. Reg. at 21372) state that a facility is not eligible to use the look up tables if it is located in complex terrain.

CRWI agrees with that provision. We believe that it would be inappropriate to use a screening model (such as SCREEN3) in complex terrain. Thus, it also would not be appropriate to use a lookup table based on a SCREEN3 type of analysis for facilities in complex terrain. CRWI believes that this provision should be retained in the final rule.

h) *CRWI agrees that a facility should be able to use "any scientifically-accepted peer-reviewed risk assessment methodology.*

The proposed regulations state that "any scientifically-accepted peer-reviewed risk assessment methodology" may be used when using the site-specific eligibility demonstration (§ 63.1215(c)(4) – 69 Fed. Reg. at 21373).

CRWI agrees with this provision. We believe that the extensive experience with air dispersion modeling and the large number of

guidance documents on risk assessment makes this the proper way to handle this provision. It would not be appropriate to specify any one model in that these models are continuously being updated. CRWI believes this provision should be retained in the final rule.

i) CRWI believes that the HCl-equivalent emission rates in the look-up table are very conservative and will have limited utility

EPA specifically requested comments on whether the HCl-equivalent emission rates in the look-up table are too conservative and will have limited utility (69 Fed. Reg. at 21301). They also requested comments on whether look-up tables should be developed for each class of hazardous waste combustors.

CRWI agrees with the Agency that the values in the look-up table are very conservative. We believe that most facilities will choose to use the site-specific option rather than use the look-up tables. However, there may be a few units with low chlorine feed that can use this table and we suggest that the Agency retain this option in the final rule. We do not believe that the look-up tables are appropriate for all classes of hazardous waste combustors for the same reasons that EPA chose not to apply the look-up tables for industrial boilers to incinerators – significantly different stack characteristics (e.g., stack height, gas flow rates, etc.). We do not suggest that EPA develop look-up tables for each class of hazardous waste combustors. However, we do suggest that since look-up tables have already been developed for industrial boilers, solid fuel-fired boilers and liquid fuel-fired boilers, facilities should be allowed to use those look-up tables instead of the look-up tables designed for incinerators.

j) EPA should not require facilities to assess acute exposure to be eligible for the alternative risk-based chlorine standards.

EPA determined that acute exposures need not be assessed to determine eligibility for the alternative risk-based standard for total chlorine (69 Fed. Reg. at 21299).

EPA made this determination based on data presented to the Agency on chronic and acute risks for cement kilns that burn hazardous waste. In this data, all chronic risk hazard indices (HI) exceeded the acute HI. CRWI has had the same experience when

looking at the HI for incinerators and solid-fuel fired boilers and agrees with this decision.

k) *CRWI Recommends That EPA Allow Facilities To Achieve The Alternate Risk-Based Standards For Total Chlorine Without Prior Approval.*

EPA proposes that before a facility may comply with the alternate risk-based standards for total chlorine, the permitting authority must approve a risk-based eligibility demonstration that the facility must submit no later than 12 months prior to the compliance date (69 Fed. Reg. at 21303 and 21373 proposed to be codified *at* § 63.1215(d)(1)). The permitting authority is supposed to notify the facility of its approval, or intention to disapprove the demonstration, within 6 months after receipt of the original demonstration and within 3 months of receiving any supplemental information. Should the permitting authority fail to act on the eligibility demonstration, the facility would have to meet the standards in §§ 63.1216, 63.1217, 63.1219, 63.1220, and 63.1221 on the compliance date.

CRWI believes this regulatory scheme is entirely unworkable and unnecessary.

1) *Prior Approval of a Facility's Eligibility Demonstration Is Unnecessary.*

The only reason EPA gives for requiring approval before implementation is

> "because hazardous waste combustor [sic] may feed chlorine at high feedrates which may result in emissions of hydrogen chloride and chlorine gas that approach or exceed the RfC (*i.e.*, absent compliance with either the MACT standards or the section 112(d)(4) risk-based standards). Thus, prior approval of alternative HCl-equivalent emission rate limits is warranted to ensure that emissions are protective with an ample margin of safety."

69 Fed. Reg. at 21303. This is not a valid concern for two reasons.

First, EPA's announced fear is that facilities will feed chlorine at levels that approach or exceed the RfC *absent* regulation. That, of course, is not the case here. The whole purpose of this rule is to

regulate emissions to levels lower than the RfC so that facilities comply with governmentally-established limits. Facilities will have to demonstrate that their emissions are lower than the RfC to be eligible for this option. In addition, any risk demonstration will be capped by the interim standards which will often be sufficient to protect human health and the environment. Thus, at most, facilities will have to continue complying with the interim standards. Consequently, facilities will not be unregulated and EPA's reason for requiring prior approval of the eligibility demonstration is misplaced.

Second, EPA's concern that facilities may feed chlorine at feedrates that approach or exceed the emission limits is not sufficient to justify a different regulatory scheme for risk-based limits. The same concern can apply equally to compliance with technology-based limits. Facilities will demonstrate compliance with technology-based limits by performing their compliance tests using "worst-case" scenarios. Should they exceed their operating limits established during the comprehensive performance test, they will be out of compliance irrespective of whether the emission standards are technology-based or risk-based.

In the risk-based situation facilities may emit at levels that approach the risk-based standard. However, based on the RfC derivation process, that level is 300 times lower than the LOAEL! Thus there is a huge ample margin of safety against any ill effects of approaching the regulatory limit. Therefore, there is no need for prior approval and facilities choosing to comply with the risk-based limits should be treated the same as those complying with the technology-based limits.

Finally, by requiring prior approval, the Agency is placing greater administrative burden on facilities that demonstrate protection of human health and the environment than on facilities that are merely complying with technology-based limits.

2) *Prior approval of a facility's eligibility demonstration is unworkable.*

The primary reason EPA's approval process is unworkable is that facilities will have to comply with more stringent standards if the permitting authority does not act on the eligibility demonstration. One only has to look at the number of comprehensive performance

test plans that were not approved on time to see that the proposed scheme will not work.

While the rule for existing sources states that the permitting authority will notify the facility ". . . within 6 months after receipt of the original demonstration" there is no way for the facility to avoid imposition of costly controls if the permitting authority fails to act within that time frame.

Failing timely action by the permitting authority, many facilities that are already protective of human health and the environment could be forced to make major modifications to their facilities to comply with the numerical standard, often at significant expense. This expenditure of effort and resources is not justified simply based on inaction by the permitting authority.

The same result may be true for new sources as well. Under EPA's proposed rule, new sources must also comply with technology-based limits unless the permitting authority approves their eligibility demonstration for the alternate risk-based limit. Thus, facilities could submit their demonstrations and permitting authorities may not review them.

Another reason the EPA approval process is unworkable is because of the time frames for approval. Even if the permitting authority is willing to devote resources to reviewing eligibility demonstrations, EPA's proposed time frames for existing sources are too tight. Existing sources are required to submit their eligibility demonstrations not later than 12 months before the compliance date. The permitting authority must review it and provide a decision on its acceptability within 6 months. If the permitting authority issues a notice of intent to disapprove, it must identify incomplete or inaccurate information or noncompliance with prescribed procedures. Once the supplemental information is submitted, the permitting authority must then act within 90 days. This means that nine of the 12 months immediately prior to compliance are taken by governmental review, with the facility given only 90 days to respond to supplemental information requests. A facility could conceivably need the entire 90 days to provide the additional information. Even if the additional information could be provided in a shorter timeframe, the facility could be left on the eve of compliance without knowing which limits govern and no time left to install emission

control equipment to meet the technology-based standard if necessary. This is unworkable.

The proposed numerical standard is so low that sources will likely not be able to meet it without significant modifications. It could require a significant amount of time to conduct engineering, budget capital, obtain equipment and to install and checkout equipment required to meet the numerical standard. The proposed regulatory scheme simply does not provide adequate time for such an effort.

3) The eligible demonstration should be self-implementing

CRWI members have spent a considerable amount of time trying to develop implementation schemes for this provision. The key element in each seems to be the comprehensive performance test plan. Before a comprehensive performance test plan can be developed and submitted, the facility must know the target emission limits. Thus all eligibility demonstrations must be completed prior to submission of the comprehensive performance test plan. Below are three possible implementation schemes for the eligibility demonstration.

i. CRWI believes that the best option for the risk based chlorine exemption is to make it self-implementing. Similar risk demonstrations have been administered on a self-implementing basis under the BIF rule (40 CFR 266.103) for a number of years without apparent problems. Here, facilities used modeling to determine their site-specific metal and chlorine emission limits based on Tier 1 or adjusted Tier 1 limits in Certifications of Precompliance. After conducting emissions testing, facilities prepared a Certification of Compliance that was submitted within 60 days after completion of performance testing. No prior approval of the modeling and risk evaluations were required. Under § 63.1215, facilities should be allowed select the emissions level of chlorine based on their eligibility demonstrations (as capped by the interim standards), place these limits in their Document of Compliance (DOC), and write their comprehensive performance test plan around showing compliance with the selected limits. Facilities would submit their eligibility demonstration as a part of the test plan and the permitting authority would have the opportunity to review the eligibility demonstration and modify the test plan. Most of the

time, differences between the permitting authority and the facility are worked out during the approval process.

ii. Another option is to require submission of the eligibility demonstration one year prior to the compliance date (same as proposed) but not require approval. On the compliance date, the facility would place their limits in their DOC and submit their comprehensive performance test plan (assuming the test is to be initiated within one year of the compliance date). The only difference between Option 1 and Option 2 is the timing of the submittal of the eligibility demonstration. While we would prefer Option 1, Option 2 would also work.

iii. The third option would require submittal of the eligibility demonstration one year prior to the compliance date for review and approval. The only way for this option to work is that the eligibility demonstration is considered as approved until denied. If denied, the facility will need additional time to install equipment. Prior to the compliance date, there is a mechanism to request additional time. However, after the compliance date, there is no mechanism for requesting additional time to come into compliance. EPA would have to develop a mechanism similar to what is in § 63.1215(f)(2)(ii) where up to three years are allowed to come into compliance if there are changes over which the facility has no control. Since the facility does not have control over when the permitting authority acts on the eligibility demonstration, this may already apply.

As we stated earlier, the third option is the least desirable. Either of the first two options can be made to work. CRWI suggests that for the risk-based chlorine standard to work, one of the first two options must be used. EPA must provide a workable mechanism that sources can rely upon. CRWI urges the Agency to make the risk-based chlorine standard self-implementing.

l) EPA needs to modify when a performance test is required if the facility makes changes to the risk-based chlorine standard.

CRWI is concerned about the requirements associated with changes that might affect the chlorine risk demonstration. Section 63.1215(f)(1)(A) applies to changes that would decrease the allowable HCl-equivalent emission rate limit. It states:

> If you plan to make a change that would decrease the allowable HCl-equivalent emission rate limit documented in your eligibility demonstration, you must comply with 63.1206(b)(5)(i)(A)-(C).

Section 63.1206(b)(5)(i)(A)-(C) mandates that a comprehensive performance test be conducted. CRWI believes that a test is only necessary if the revised HCl-equivalent emission rate limit is less than what was demonstrated during the previous comprehensive performance test. If you lower the risk-based emission limit, but you have already demonstrated compliance with the revised limit during your previous test, there is no need for a new test. EPA needs to modify this paragraph to refer to 63.1206(b)(5) only. This established procedure allows the facility to make a determination whether a change necessitates a new test or whether documentation in the operating record is sufficient.

Likewise in § 63.1215(f)(1)(B)(2),

> If the change would increase your allowable HCl-equivalent emission rate limit and you elect to establish a higher HCl-equivalent limit, you must submit a revised eligibility demonstration for review and approval. Upon approval of the revised eligibility demonstration, you must comply with 63.1206(b)(5)(i)(A)(2)(B) and (C).

The previous comment regarding creating a self-implementing process applies to this paragraph as well. Additionally, this paragraph also calls for conducting a comprehensive performance test. Again, a comprehensive performance test should not be needed unless the facility wants to also increase the chlorine feed rate limit above what was demonstrated during the performance test. Again, EPA needs to modify this paragraph as well to refer to only § 63.1206(b)(5).

m) *EPA does not need to set short-term limits for chlorine emissions under § 63.1215.*

CRWI does not believe there is a need to set short-term limits for chlorine feed rates. In addition to the annual feed rate limits, facilities will be subject to many different operating parameter limits on their scrubbers. These will be monitored as hourly rolling averages. CRWI believes that these operating parameter limits are sufficient to control short-term emissions (especially considering the

short-term risk limit will be an order of magnitude higher than the allowable long-term values). For example, if a facility that operates a wet scrubber tried to feed excessive amounts of chlorine, the pH of the scrubber water would rapidly decrease, making it difficult to maintain this operating parameter. CRWI believes that the requirement to meet existing hourly operating parameter limits are adequate for facilities with acid gas control mechanisms to prevent facilities from feeding excessive chlorine and that additional limits are not needed.

Facilities that do not have acid gas controls, do not have them for a reason – they do not feed large amounts of chlorine. Only the systems that feed significant amounts of chlorine have acid gas control systems in place. This is the logic used by EPA for industrial boilers. CRWI believes the same logic would hold here.

However, if EPA insists on setting short-term feed limits for chlorine, this could be done in a number of ways. Some suggestions are as follows.

1) Cap it at interim standard (77 ppmv – back calculated from a site-specific SRE)
2) If the facility uses the site-specific option to set emission limits, that model can easily be used to set a one-hour (or longer) limit using AEGL-1 values.
3) If the facility uses the look up table, a short-term limit can be set based on a multiplier of the annual limit (see discussion below).

n) *If EPA decides to set short-term feedrate limits on chlorine to address acute health effects, it should be 10 times the annual limit.*

EPA requested comment on setting short-term feedrate limits on chlorine to address acute health effect concerns.

As stated above, CRWI does not believe that a short-term limit is necessary. However, if EPA believes it is, they have already developed a fairly simple approach to establish short-term limits. In section 6.2.1 "Model Inputs" of EPA's Air Toxics Risk Assessment Reference Library, Vol. 2 "Facility-Specific Assessment" (see http://www.epa.gov/ttn/fera/data/risk, select vol_2, then select volume_2_april_2004), there is a discussion of chronic and acute exposure assessments using the SCREEN3 model. On page 50

the following statements are made:

> "For chronic exposures, the approach uses the average hourly emissions rate for the high-production year. For acute exposures, the approach uses the greater of (a) the maximum hourly rate, or (b) ten times the average hourly rate".

Also on the same page, a table of factors is presented to convert 1-hour maximum concentrations (what SCREEN3 generates) to 3-hour, 8-hour, 24-hour or annual concentrations. For annual, the factor is 0.08. So, the conversion factor for annual to 1-hour would be 12.5.

If one looks at how to calculate allowable emission rates (and resulting feedrates) based on either acute or chronic exposures, the dominant factors between the two are differences in dispersion coefficients (i.e., predicted exposure at a given emission rate) and differences in the health values that are used to calculate the HI (i.e., the difference between the RfC and the AEGL-1 values). Using the EPA factor of .08 for 1-hr to annual conversion and the ratio of the RfC to the AEGL-1 value, the allowable feedrates (i.e., maximum feedrates that yield a HI of 1.0 assuming a specified removal efficiency) based on 1-hour exposures should be 10.8 times the allowable feedrate based on annual exposure.

Based on these calculations and EPA's statement in the reference document, CRWI suggests that if the Agency believes that a short term limit should be set for facilities that use the look-up table, the look-up table limit should be set at 10 times the annual limit. Facilities that use site-specific modeling to set their long-term chlorine emissions standard should be allowed to also use short term modeling to set their short-term chlorine emissions limit.

o) *EPA must revise the additional sampling and analysis procedures for hydrogen chloride and chlorine gas for incinerators, boilers, and lightweight aggregate kilns that comply with the risk-based limits under § 63.1215.*

In § 63.1208(b)(5)(ii) the Agency proposes additional sampling and analysis for hydrogen chloride and chlorine gas for units complying with the risk-based limits under § 63.1215. In § 63.1208(b)(5)(ii)(B) the proposed rule states that incinerators, boilers, and lightweight aggregate kilns must use Methods 320 or 321, or ASTM D6735-01

to measure hydrogen chloride and Method 26/26A to measure total chlorine, and calculate the chlorine gas by difference, if:

1) The bromine/chlorine ratio in feedstreams is greater than 5 percent; or
2) The sulfur/chlorine ratio in feedstreams is greater than 50 percent.

In the preamble (69 Fed. Reg. at 21304-21305), the Agency states that the presence of bromine and/or sulfur dioxide in the stack gas can cause a low bias for chlorine and a high bias for hydrogen chloride when using Method 26/26A. The Agency specifically requests comments on the proposed approach or other approaches to minimize the bromine and sulfur dioxide bias.

CRWI does not challenge the technical basis of the Agency's statements that bromine or sulfur dioxide in the stack gas can bias the hydrogen chloride high and the chlorine low for Method 26/26A. However, the approach proposed by the Agency could lead to collection of total chlorine, hydrogen chloride and chlorine gas data that is contradictory and difficult to apply in a compliance situation.

Organic chlorine is almost always quantitatively converted by combustion processes to hydrogen chloride[7]. Therefore, combustion systems that are not equipped with acid gas control systems would expect the predominant form of chlorine in the stack gas to be in the form of hydrogen chloride. We have reviewed emission data from sources that do not have an acid gas control device and found that the ratio of chlorine gas to total chlorine in the stack gas based on Method 26/26A data can range from <1 percent up to 8 percent.

Based on the approach proposed in § 63.1208(b)(5)(ii)(B), the precision and accuracy for two different stack sampling methods will be applied to determine the chlorine gas emissions which in theory should constitute a minor part of the total chlorine emissions. The total chlorine emissions for the applicable sources generally will be < 100 ppmdv. For the purposes of this discussion, assume a stack gas concentration of total chlorine of 50 ppmdv measured by Method 26/26A. Based on the relative concentrations discussed

[7] Niessen, Walter R., Combustion and Incineration Processes: Application in Environmental Processes, 2nd Edition, Marcel Dekker, Inc., 270 Madison Ave., New York, NY 10016, 1995.

previously, the theoretical chlorine gas emissions should range from < 0.5 ppmdv to 4 ppmdv. Therefore, Methods 320 or 321 or ASTM D6735-01 would need to measure a hydrogen chloride concentration in the stack gas of 46 ppmdv to 49.5 ppmdv.

When the precision and bias for each sampling method are considered, the proposed approach will not provide statistically valid results for chlorine gas at the low concentrations. Furthermore, the use of two relatively high measurements (total chlorine and hydrogen chloride) to determine a relatively low constituent (chlorine gas) is not a sound scientific approach.

In section 14.1.1 of ASTM D6735-01 it states that the method is able to achieve a relative standard deviation (RSD) of from 15 to 38 percent for HCl for effluent (stack gas) concentrations of less than 10 ppm (v) dry. Furthermore, in section 14.2.1 of this method it states that the bias is statistically insignificant and the accuracy of the method is 20% or better. Based on the proposed approach it is entirely possible to obtain a hydrogen chloride concentration (measured by Methods 320 or 321 or ASTM D6735-01) that is higher than the total chlorine concentration from Method 26/26A.

The proposed approach will also provide questionable results for units equipped with wet acid gas scrubbing systems. The total chlorine emissions for these units will predominantly be < 20 ppmdv. For these units chlorine gas concentration may be within the same order of magnitude as the hydrogen chloride concentration since the wet scrubber removes a significant amount of the hydrogen chloride. At this level (< 20 ppmdv) the ability of the sampling and analysis method to accurately measure hydrogen chloride and chlorine gas is in question (see CRWI comment at II.B.1.e). The proposed approach will result in subtracting two numbers with high uncertainty to yield a chlorine gas value that may be substantially important in the overall compliance strategy for a facility.

The proposed approach in § 63.1208(b)(5)(ii)(B) for determining chlorine gas emissions from incinerators, boilers and lightweight aggregate kilns that are complying with the risk-based limits under § 63.1215 does not appear to be statistically valid. CRWI proposes that utilizing the Method 26/26A results for sources with bromine and sulfur dioxide, while recognizing that there is bias in the sampling method, will result in a valid compliance approach.

Theoretically, hydrogen chloride will comprise the majority of the chlorine in the stack gas, which is supported by data collected from sources with bromine and high sulfur dioxide concentrations. The chlorine gas emission rate will be utilized in a risk model that provides a conservative estimate of exposure. Utilization of the chlorine gas emissions measured with the Method 26/26A sampling train will provide a compliance scenario that is clear for the regulated community and be protective of human health and the environment.

III. Implementation

A. EPA should make suggested modifications to the compliance provision in § 63.1206.

1. *EPA should clarify the provisions relating to sources commencing construction or reconstruction after April 20, 2004*

The revised definition of new source in § 63.1206(a) is convoluted but for most parts it seems to be workable. There are two areas where CRWI believes the addition of a word or phrase would better clarify EPA's intent. These are as follows.

> 63.1206(a)(1)(ii)(B) *New or reconstructed sources.* (1) If you commence construction or reconstruction of your hazardous waste combustor after April 20, 2004, you must comply with the new source emission standards...

> 63.1206(a)(2)(ii). *New or reconstructed sources.* If you commence construction or reconstruction of your hazardous waste combustor after April 20, 2004, you must comply with the new source emission standards of this subpart...

2. *EPA should correct typographical errors in § 63.1206(c)(7)(ii)(A).*

When looking at the proposed changes for § 63.1206(c)(7)(ii)(A), CRWI discovered what appears to be a typographic error from the February 14, 2002 amendments. The regulations allow facilities to request an alternative method of detecting bag leaks "pursuant to the procedures in §63.1209(a)(1)..." CRWI believes that this reference should be to §63.1209(g)(1). We suggest that EPA verify that this reference is incorrect and make the appropriate corrections in the final rule.

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3. *CRWI supports using a PM detection system instead of OPLs for ESPs, WESPs, and IWS and suggests two improvements.*

CRWI believes the proposed option to use a PM detection system instead of OPLs for ESPs, WESPs, and IWSs has real merit and congratulates the Agency on proposing the idea (1206(c)(7)(iii)). We believe that this option may well provide some of the incentives needed for facilities to move to more continuous stack monitoring. There are two areas where we believe that the concept can be improved.

a) *EPA should require that the waste feed be shut off rather than shutting down the combustor when alleviating the cause of the alarm.*

In §1206(c)(7)(iii)(B)(2), EPA proposes that the facility must alleviate the cause of the alarm by taking necessary corrective action that may include shutting down the combustor. CRWI agrees with the Agency that corrective action should be taken. However, we believe that it would be more appropriate to shut off waste feed than to shut down the combustor. We suggest that EPA change the language to the following:

> (2) You must alleviate the cause of the alarm by taking the necessary corrective measure(s) which may include shutting ~~down the combustor~~ off waste feed.

b) *EPA should allow flexibility in setting the alarm points for PM detectors.*

The other place where we believe the proposed rule needs modification is in the method of determining the alarm point. EPA has considerable experience at setting the alarm point for fabric filters. These ideas are incorporated into a guidance document. This guidance gives several options on how operators of fabric filters can set the alarm point for bag leak detectors, depending on the characteristics of that particular unit. However, there is little experience in setting alarm points for PM detectors. CRWI is very concerned that dictating that the alarm point be set at the average of the test run averages would remove most of the incentives for using these devices. We believe it is to everyone's advantage to promote the use of PM detectors and suggest the following alternative ways to set the alarm points. Some of these ideas are:

1) Use the 2 times the maximum peak height or 3 times the baseline concepts developed in the bag leak detection guidance documents;
2) Allow spiking to set the alarm point (PS 11 allows for spiking as a way to calibrate PM CEMs);
3) Use the 99% upper confidence limit instead of the average;
4) Allow upward extrapolation from the average of the test run averages to some percentage of the PM emissions standard (that fraction could be variable depending upon how close to the standard the facility is during the compliance test); or
5) Set the alarm point at the maximum test run.

As we stated earlier, there is very little experience in setting alarm levels for these types of air pollution control devices. In addition, there are no guidance documents to help in making these determinations. CRWI suggests that one way to accomplish the goal of promoting the installation of PM detectors would be to write the regulations to allow and encourage facilities to purchase these devices, operate them for a period to time prior to showing compliance, develop an understanding of how these units work and respond under normal operation, and develop a site-specific plan to develop an alarm point. This could be included in the comprehensive performance test plan and reviewed by the permitting authority. Facilities would have to develop site-specific data and show that the method of setting the alarm point would ensure compliance with the PM standard and would be protective. To accomplish this, CRWI suggests the following modifications to the regulatory language.

> 1206(c)(7)(iii)(A)(5). You must establish the alarm set-point ~~as the average detector response of the test run averages achieved~~ during the comprehensive performance test demonstrating compliance...

Alternate language

> 1206(c)(7)(iii)(A)(5). You must establish the alarm set-point ~~as the average detector response of the test run averages achieved~~ during the comprehensive performance test demonstrating compliance with the particulate matter emission standard. <u>You may use any method to set the alarm point as long as appropriate documentation or reasonable assurance is provided that the alarm level does not exceed the appropriate</u>

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particulate matter emission standard. You must include the method of setting the alarm set-point in your comprehensive performance test plan....

and by adding a paragraph to §63.1207(f) to read

(xxviii) If you propose to use a PM detector for electrostatic precipitators or ionizing wet scrubbers under §63.1206(c)(7)(iii) for monitoring particulate matter emissions, you must documents your method of setting the alarm set-point in your comprehensive performance test plan.

B. EPA should make revisions to the performance testing requirements in § 63.1207.

1. EPA should require dioxin/furan testing under conditions likely to represent normal or above normal emissions.

For boilers that are not subject to a numerical emissions standard for dioxin/furan, EPA is proposing that these units conduct a one-time test before or during the initial comprehensive performance test (§63.1207(b)(3) and (b)(3)(ii)(A). EPA stated that this data gathering exercise could be used if there is a need to address residual risk. For units that already have data on dioxin/furan emissions, EPA stated that data from previous testing could be used if the test had been conducted in a manner to maximize emissions. CRWI supports the one-time dioxin/furan test for these units but questions the need to maximize emissions.

At 69 Fed. Reg. 21308, EPA describes what it considers to be appropriate operating conditions for the one-time dioxin/furan test for boilers. CRWI is concerned that these conditions are not representative of normal emissions. We believe the proper approach to determining dioxin/furan emissions from boilers for residual risk purposes is to run the unit at normal conditions rather than under some artificially created sub-optimal test. Since dioxin/furan emissions are considered a chronic exposure risk, the use of normal conditions is more appropriate for a residual risk determination than is maximum emissions.

To address this concern, CRWI suggests that EPA modify § 63.1207(b)(3) in the following manner:

One-Time Dioxin/Furan Test for Boilers Not Subject to a Numerical Dioxin/Furan Standard. For boilers that are not subject to a numerical dioxin/furan emission standard under §§63.1216 and 63.1217 – solid fuel-fired boilers, and those liquid fuel-fired boilers that are not equipped with a dry particulate matter control device – you must conduct a one-time emission test under feed and operating conditions that are most likely to represent normal or above normal dioxin/furan emissions.

2. ***CRWI supports EPA allowing facilities to initiate their comprehensive performance test within one year after the compliance date.***

In § 63.1207(c)(3), EPA proposes to allow incinerators, cement kilns, and lightweight aggregate kilns to initiate the comprehensive performance test for the revised standard one year after the compliance date.

CRWI supports this concept. When the interim standards were promulgated in February 2002, the compliance date for the interim standard was September 30, 2003. The initial comprehensive performance test was to be initiated by March 30, 2004, if there were no extension requests. Given a court deadline to sign a final rule in June 2005, and a three year compliance date, the compliance date for the revised standard will be June 2008. With one year to start the comprehensive performance test for the revised standards, facilities will have to initiate their comprehensive performance test for the revised standards in June 2009, approximately five years after the initial comprehensive performance test for the interim standards. Thus, facilities will perform their initial comprehensive performance test for the revised standard about the same time they would be required to perform the second comprehensive performance test for the interim standards, if required. We believe that this timing makes good sense and conforms approximately to the 5 year testing schedule as outlined in the original rule.

3. ***EPA should revise its requirement to make approved test plans available to the public.***

The proposed requirement in § 63.1207(e)(2) to make an approved test plan available to the public 60 days prior to test date may make it more difficult to schedule test dates because permitting authorities often use the deadline for the test date as an incentive to finish reviewing and approve the test plan. Thus, approvals that are made

with less than 60 days before the test date would prompt postponement of the test. Test dates are scheduled well in advance, especially if outside contractors are used. It is not easy to move a test date (availability of test crew, unit availability, weather, etc.). Adding an additional 60 day notification requirement will make an already complicated scheduling process even more complicated.

In addition, this provision may put a facility in a position where they have conflicting requirements. If a facility has submitted their test plan on time and exhausted all extensions, they still have to run their comprehensive performance test. However, this proposed requirement to make an approved test plan available to the public cannot be accomplished if the facility does not have an approved plan. In this case, how would a facility handle this requirement? Should they make an un-approved plan available and plan to test with that un-approved plan? What happens if the permitting authority approves the plan after an un-approved plan has been shared? If they send the newly approved plan to the public, it will be sent with less than the 60 day minimum requirement (since all extensions have been exhausted and the facility still has to test on the scheduled date). Does this constitute a violation over which the facility has no control?

CRWI agrees with the principle of informing the public of what tests are being conducted. In an ideal world where approvals come in the time allotted, this requirement does not present any real problems. However, we can envision times where the scheme as proposed will not work. We believe that EPA needs to consider facilities that make a good faith effort to comply with the regulations are not put in a position where compliance is jeopardized by a lack of timely agency action. Below are some suggested solutions:

a) Modify the testing provisions so that facilities are not required to test until they have an approved plan that can be made available to the public.
b) Make the failure to approve the test plan an automatic extension of the test date.
c) Shorten the time period for public review of the approved plan to 30 days. (This does not really address the fundamental problem, only decreases the probability of occurrence.)
d) Leave the current language as is to make the approved plan available to the public, but do not have a requirement to have a 60 day review period before any testing can be done.

e) Make the draft plan available to the public when it is submitted for agency review, and not require notice of the approved plan prior to the test date.

C. CRWI supports EPA's proposed revisions to the test methods for measuring dioxin/furans in § 63.1208.

CRWI supports the proposed changes in § 63.1208(b)(1) to allow using either Method 23 or 0023A to measure dioxin and furans. CRWI believes that either method is adequate to show compliance with the dioxin and furan standards.

D. CRWI agrees with several of EPA's proposed changes to the monitoring requirements in § 63.1209 and offers suggestions regarding mercury monitoring.

1. CRWI supports EPA allowing states with approved Title V programs to approve alternative monitoring requests.

CRWI supports the proposed change in § 63.1209(g)(1) that allows states with an approved Title V program to approve alternative monitoring requests under this provision. We agree that the Agency should delegate as much responsibility to the states as possible.

2. CRWI agrees that EPA should exempt cement kilns from monitoring combustion zone temperature.

CRWI agrees with the proposed change to § 63.1209(k)(2) to exempt cement kilns burning hazardous waste from monitoring combustion zone temperature. The combustion zone temperature for cement kilns is dictated by the requirements to make cement. This requires temperatures in the range of 2600°F. This is much higher than is needed to destroy organic wastes. Since there is no incentive to make inferior cement, monitoring combustion zone temperature in cement kiln is not needed.

3. CRWI suggests several revisions and clarifications to the proposed compliance and operating parameters for mercury.

CRWI has several concerns about the proposed changes to § 63.1209(l).

First, the rule language indicates that the mercury standard for incinerators is based on an annual average. However, the preamble states that it is based on a 12 hour rolling average. Since the mercury

standard was developed from compliance data, we believe that the correct averaging period is 12 hours.

Second, there are a couple of computational errors in § 63.1209(l)(1). The proposed rule requires that a facility calculate their annual feed limits in sections (ii)(B) and (iii)(B) by dividing the mercury emission standard by the SRE. The correct calculation would be to divide the mercury emission standard by (1-SRE). The error can easily be seen by assuming a systems removal efficiency of zero. Using the proposed calculation, the facility would have an infinite feed rate. Using (1-SRE) would yield the feed rate equal to the emission standard. EPA should modify the language in (ii)(B) and (iii)(B) to correct this.

In addition, there are inconsistencies between the units in paragraphs (ii)(C) and (iii)(C). Section (ii)(B) requires a facility to calculate the annual feedrate as ug/m^3. In (ii)(C), the proposed equation would yield a 60-minute average emission concentration-based feedrate in g/m^3. The conversion from grams to micrograms was left out of this equation. Similarly, in (iii)(B), the limit is expressed as lb/mm BTU. In (iii)(C), the proposed equation would yield g/mm BTU. The conversion factor was also left out of this equation. EPA needs to make these corrections in the final rule.

We are also concerned about how non-detect values in the feed and stack gas emissions would be used to calculate an SRE. Would detection limits be used to calculate a SRE? Would a facility be able to claim a SRE or would the facility have to state that they do not have reliable controls? This may be the situation for a number of units. CRWI suggests that it would help implementation of this rule if EPA would supply some clarification on these issues.

The current proposed language in § 1209(ii)(A) and (iii)(A) requires that if "your source is not equipped with a control system that consistently and reproducibly controls mercury emissions, you must assume zero system removal efficiency." CRWI believes assuming zero system removal efficiency is not appropriate, because the standard is based on data which includes all removal. Since EPA did not adjust the data to exclude removal that is not consistent and reproducible, it cannot arbitrarily exclude emissions removal from the showing of compliance from the sites individual compliance tests. Additionally, EPA has provided no clear definition or guidance on deciding how to determine if removal efficiency is consistent and

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reproducible, so it appears that these decisions would be essentially arbitrary.

All other OPLs in this rule are based on the average of the test run averages. If a facility shows removal of mercury during the test runs, they should not be punished by having to assume an SRE of zero. The compliance data should be used as measured and not adjusted by arbitrarily removing removal efficiency to increase the calculated emissions of Hg.

4. ***EPA needs to correct a cross-reference to the General Provisions in § 63.1209(n)(2)(vii).***

CRWI believes that there is a typographical error in the language proposed for § 63.1209(n)(2)(vii). The language refers to 63.6(b) and (c). CRWI believes it should point to 63.7(b) and (c).

5. ***EPA should allow for extrapolation of feedrates for chlorine and ash.***

The current regulations allow for extrapolation of metal feedrates for mercury, SVM and LVM (§§ 63.1209(l)(1)(i) and (n)(2)(ii)). There is not, however, a corresponding provision for the ash feedrate required to be established by 63.1209(m)(3) or chlorine feedrate to be established by 63.1209(o)(1). The logic providing for extrapolation of metals feedrates is equally sound for ash and chlorine. We recommend that 63.1209(m)(3) and (o)(1) be revised to explicitly allow upward extrapolation of ash and chlorine feedrates. The absence of a provision allowing extrapolation of ash and chlorine feedrates will result in increased ash and chlorine spiking to establish the necessary operating envelope and increased emissions during testing.

E. CRWI supports the notification requirements in § 63.1210 with one change.

CRWI supports the concept of a Notification of Intent to Comply (NIC) as proposed in § 63.1210(b). CRWI believes that all facilities should communicate their intentions to the public and the regulatory agencies. We have supported these concepts in earlier comments and continue to support them now. CRWI does suggest one change. Some facilities will not need to make additional changes to meet the revised standards. If those facilities submitted a NIC for the interim standard, there does not seem to be a purpose for submitting a second NIC that is the same as the first. CRWI suggests that EPA either remove the NIC requirement for

these facilities or create a streamlined process to minimize duplicate efforts.

F. CRWI opposes the provisions in § 63.1211 relating to the progress report.

CRWI members do not really see the need for a progress report as proposed in § 63.1211(c). Normally, there are a significant number of discussions and negotiations with the permitting authority during the three years from promulgation until the compliance date (e.g., permit modifications and requests for a Change under Interim Status). Given all the interaction, there is little reason for a formal progress report. The permitting authority will already have a good idea of the progress being made by the facility. We see little practical use of this report and suggest that EPA drop this provision in the final rule.

G. EPA needs to revise the provisions in § 63.1212 relating to certifications by "responsible officials" so that it comports to previous rules.

The proposed language for § 63.1212 appears to have been copied from the original final rule (September 30, 1999, 64 FR 53066). On July 10, 2000 (65 FR 42301), EPA amended parts of this section to make sure statutory definitions of "responsible official" are consistent with other Clean Air Act rules. In addition, there were two typographical changes made. CRWI suggests that, in the final rule, the language match the amended language from the July 10, 2000, *Federal Register* notice. The following changes would do this.

(2) An authorized representative ~~should be a responsible corporate officer (for a corporation), a general partner (for a partnership), the proprietor (of a sole proprietorship), or a principal executive officer or ranking elected official (for a municipality, State, Federal, or other public agency)~~ is the same as a "responsible official" as defined under § 63.2.

(b) *Sources that begin burning hazardous waste after the effective date of the emission standards of this subpart.* (1) If you begin to burn hazardous waste after the effective date of the emission standards of this subpart, but prior to nine months after the effective date of the emission standards of this subpart, you must comply with the requirements of §§ 63.1206(a)(~~2~~ 3), 63.1210(b) and (c), 63.1211(c), and paragraph (a) of this section, and associated time frames for public meetings and document submittals.

(2) If you intend to begin burning hazardous waste more than nine months after the effective date of the emission standards of this

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subpart, you must comply with the requirements of §§ 63.1206(a)(~~2~~ 3), 63.1210(b) and (c), 63.1211(c), and paragraph (a) of this section prior to burning hazardous waste. In addition:

H. CRWI supports the outlined approach for transitioning between RCRA and Clean Air Act permitting but opposes the options presented.

In the preamble (69 Fed. Reg. at 21317), the Agency outlines a permitting approach for new sources that eliminates most of the overlap currently required and also maintains the critical pieces of the RCRA enhanced public participation program. In the past, CRWI was critical of the initial requirements to complete RCRA requirements before making the transition to Clean Air Act permits and the environmental groups were concerned about losing public participation opportunities. We believe that the Agency has now crafted a process that will minimize the overlap between RCRA and Title V permitting while retaining the public participation opportunities. CRWI encourages the Agency to convert the concepts in the preamble into regulatory language when the rule becomes final.

In addition, EPA offers three other options on making the transition from RCRA to CAA for new sources (69 Fed. Reg. at 21319): 1) after the RCRA Part B is submitted; 2) after the RCRA permit is issued; or 3) after the source places DOC in the operating record. We believe that each of these three options is inferior to the method described above. Option 1 would require preparing and submitting a Part B permit before making the transition to the Title V permit process. It makes no sense to start a process just to get to a transition point when that transition point can be made earlier in the process with no loss of oversight by the public and the permitting authority. CRWI believes that this option offers no advantages and should not be considered. Option 2 is the status quo. It requires a facility to go all the way though the RCRA process before converting. This option would be time consuming, expensive and a waste of limited agency and industry resources for no purpose. CRWI believes that this option should not be considered. CRWI is not sure how Option 3 would work. The documentation of compliance is a Clean Air Act method of estimating the operating parameters necessary to show compliance prior to actual testing. We are not sure how this would help with the transition between RCRA and Title V and suggest it also should not be considered.

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I. CRWI supports maintaining consistency regarding startup, shutdown and malfunction plans.

EPA is not proposing any changes in how startup, shutdown, and malfunction plans (SSMP) are developed and administered during this rulemaking. CRWI agrees that this is appropriate. Startup, shutdown, and malfunction plans are a part of every MACT standard. There is no reason why they should not stay consistent across all MACT standards. Startup, shutdown, and malfunction plans have been the subject of an entirely separate rulemaking under the Office of Air and Radiation. All these issues have already been discussed during these rulemakings. However, the Agency does ask for specific comments on these plans. Below are CRWI's responses to these requests for comments.

1. Is it appropriate to require compliance with the standards during malfunctions to give O/O an incentive to minimize the frequency and duration?

   CRWI does not believe it is appropriate to require compliance during malfunction events. By definition, malfunctions are sudden, infrequent, and not reasonably preventable. If they could be reasonably prevented, they would not be malfunctions. Thus, requiring facilities to maintain compliance during a malfunction would not be an incentive to minimize the frequency and duration. Instead, it would be punishment for something over which you had no control.

2. Should SSMPs be submitted for review and made available for public review?

   Section 63.6(e)(3)(v) of the General Provisions gives the Administrator the authority to request an SSMP at any time. If a member of the public submits a specific and reasonable request for an SSMP, the Administrator is required to request that plan. If a plan is requested, the facility must promptly submit a copy of that plan. During the promulgation of the amendments to the interim standards rule, the Office of Solid Waste set up a process that requires SSMPs to be submitted and approved before a RCRA permit can be modified to remove permit conditions that apply during SSM events (§ 63.1206(c)(2)).

   As can be seen, there are already two processes set up to address this issue. CRWI believes that these are adequate and no additional requirements are needed.

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3. Should the final rule clarify the definitions of startup, shutdown and malfunction to preclude an O/O from incorrectly classifying an exceedance when the event is not infrequent and could have been prevented by proper operation and maintenance?

   CRWI believes that the definition in the General Provisions (§63.2) needs no clarification. It clearly states that a malfunction is any sudden, infrequent, and not reasonably preventable failure. It goes on to exclude failures that are caused in part by poor maintenance or careless operations. In addition, under the HWC MACT rule, facilities that have more than 10 malfunctions within a 60 day period that result in excess emissions are required to complete an investigation of the cause of each exceedance and evaluate approaches to minimize the frequency, duration, and severity of each exceedance and to place the results of this investigation in the operating record (see § 63.1206(c)(3)(v) (A)(3)). Finally, malfunctions are included in the semi-annual reports. The permitting authority can review these reports and modify their inspection frequency if there are excessive malfunctions. As always, final oversight is in the hands of the permitting authority. Adequate measures are already in place to prevent improper classification of events as malfunctions.

4. Should the scope of SSMPs be expanded to address specific, proactive measures that O/O's have considered and are taking to minimize the frequency and severity of malfunctions?

   Facilities that submit their SSMP to the permitting authority for approval are already required to minimize the emissions of toxic compounds from SSM events (§ 63.1206(c)(2)(i)(A)). In addition, all malfunctions are reported on a semi-annual basis (40 CFR 63.10(d)(5)). If the permitting authority believes that there are excessive numbers of malfunctions, they have the authority to request that the facility find ways to minimize the occurrence of these malfunctions. CRWI does not see where adding such a provision will obtain much for either the permit writer or the public. CRWI suggests that no additional requirements are necessary.

Again, CRWI believes that adequate protection has already been built into the SSMP system and no additional changes are needed.

J. CRWI suggests that EPA make no changes in the fugitive emissions requirements.

EPA is not proposing to make any changes to how fugitive emissions are regulated (69 Fed. Reg. at 21340). CRWI supports that decision.

CRWI has commented extensively on the use of negative pressures to minimize fugitive emissions. The current regulations are the result of a long series of negotiations that developed what we believe is a good compromise. The regulations allow facilities to show their permitting authority that their system can handle short positive pressure events without having fugitive emissions. We believe the current requirements are appropriate to minimize fugitive emissions and that no changes are needed.

CRWI would also like to point out that by the time this rule is finalized, all hazardous waste combustors will already be complying with the interim standards and will have addressed the instantaneous negative pressure issues as currently written. It does not make any sense to go back and change these requirements after the problem has already been solved. EPA used similar logic when they decided to allow for site-specific OPLs for fabric filters, electrostatic precipitators, and ionizing wet scrubbers. We see no reason why that same logic cannot be applied here also.

EPA specifically requested comments on whether the regulations should spell out the specific combustor design criteria needed to allow positive pressures or whether this decision should be made on a site-specific basis?

CRWI does not believe it is proper or desirable to add this level of detail to regulatory language. Putting specific design criteria into regulatory language may preclude the development and use of new designs. Changing regulatory language is difficult and time consuming. In addition, it is difficult to determine how to develop a design that fits all facilities and situations. These determinations are best made on a site-specific basis. When facilities request an alternative monitoring provision, they will have to spell out this detail. CRWI sees no reason to include this level of detail in the regulatory language and suggests that no additional regulatory language addressing this issue be included in the final rule.

K. CRWI supports the use of bag leak detectors that are less sensitive than 1.0 mg/acm.

In previous amendments, EPA allowed an owner/operator to petition to use a bag leak detector that was less sensitive than the 1.0 mg/acm

specification. A commenter on these previous amendments expressed concern that this revision may not be appropriate. EPA has reopened this issue for comments (69 Fed. Reg. at 21340).

CRWI has supported the use of bag leak detectors that are less sensitive than the 1.0 mg/acm specification. We continue to support that position. We also note that in the signed version of the Boiler and Process Heater MACT rule, this rule will allow bag leak detectors that can detect particulate matter emissions at concentrations of 10 mg/acm or less (§ 63.7525(i)(3)). The writers of this MACT rule believe that a sensitivity of 10 mg/acm is adequate for a bag leak detector. Given this, we see no reason to change this requirement.

IV. CRWI's Comments on Modifications to RCRA

A. EPA should not modify the rule relating to omnibus authority.

EPA proposed adding new §§ 270.10(l) and 270.32(b)(3) in response to the Cement Kiln Recycling Coalition's petition on the Agency's use of site-specific risk assessments. CRWI does not think that either of these two additions is needed. EPA has stated at public meetings that these two provisions do not make any changes in their authority to require site-specific risk assessments and has reiterated that these provisions do not change current EPA policy. Since, in the Agency's opinion, these two provisions do not add to their authority or make any changes in current policy, we see no real reason to keep them in the final rule. CRWI suggests they be dropped.

If the Agency believes that additional explicit language must be added to make it clear that permit writers have the authority to require site-specific risk assessments, then CRWI believes that additional explicit language is also necessary to define how this process will proceed. Although the Agency describes how the process should work regarding the basis for a decision (69 Fed. Reg. at 21328) and there is specific language in 40 CFR 124 that describes the requirements to document the factual and technical basis for any decision made by the agency, these provisions have been ignored in the past. If EPA believes that the final rule needs further clarification, then CRWI believes the following sentences should be added to clarify EPA's requirements when making decisions.

> "The factual and technical basis for any decision under this paragraph should be included in the administrative record for the facility according to the requirements in 40 CFR 124."

This change is required to be consistent with the Horinko memo, dated April 10, 2003, which defines current EPA policy on when and how to require risk assessments.

B. CRWI supports the additions of the new paragraph to § 270.42(k).

CRWI supports the addition of the new paragraph 270.42(k) as proposed. We believe that the Agency has identified a problem area in the transition between RCRA and Clean Air Act testing and proposed the best solution to minimize potential conflicts. EPA proposes three other options to address the conflicts. However, CRWI agrees with EPA that none of these options provide the optimal solution.

There is one circumstance where the mechanism as proposed will not work. The proposed process in 270.42(k) requires that a facility have an approved comprehensive performance test plan. CRWI agrees that it is appropriate to have an approved plan prior to requesting the waiver of the RCRA permit limits, if possible. However, if the permitting authority has not approved the test plan, facilities still have to run the comprehensive performance test after all extensions have been exhausted. EPA partially addresses this in the preamble by stating that they expect facilities to request extensions to the test date (69 FR 21321). However, in this proposed language, facilities that have to test without an approved plan cannot use this language to modify their RCRA permit during the testing conditions. CRWI is not sure how to address this. If all facilities test under an approved plan, there is not an issue. If a facility has to test without an approved plan and they do not need to waive their RCRA permit to run the test, again, there is not an issue. The group of facilities that are forced to test without an approved plan and need a waiver of their RCRA permit to do those tests hopefully will be a small part of the population. If that is the case, then these issues may best be addressed on a site-specific basis. While it would be difficult to write regulatory language to address this hopefully, remote possibility, we believe that the Agency should find a way to acknowledge this in the preamble of the final rule and make plans to address this issue should it be required.

V. Changes Not Proposed

There are a number of areas where EPA chose not to propose any changes. CRWI's comments on these areas are as follows.

A. Definition of Research, Development, and Demonstration Source (69 Fed. Reg. at 21341).

CRWI agrees with EPA's decision not to propose amendments to the definition of research, development, and demonstration source. CRWI believes that the original exemption for research, development, and demonstration sources as laid out in Section 63.1200, Table 1 is appropriate.

B. Identification of an Organics Residence Time that is Independent of and Shorter than the Hazardous Waste Residence Time. (69 Fed. Reg. at 21341).

CRWI agrees with EPA's decision not to propose an organics residence time. While the concept may have had merit, the complexity of developing the rationale for that determination does not make it worth the effort for either the regulators or the regulated community.

C. Extend APCD Controls After the Residence Time has Expired (69 Fed. Reg. 21342).

CRWI agrees with EPA's decision not to propose extending the residence time on dry air pollution control devices until a cleaning cycle has been completed. CRWI submitted extensive comments opposing this concept during the previous comment period.

D. Matching the Profile Alternative Approach to Establish Operating Parameter Limits (69 Fed. Reg. at 21343)

CRWI agrees with EPA's decision not to propose the "match the profile" approach to setting operating parameter limits. We opposed this idea when it was initially proposed as making an already complicated process even more complicated with no real increase in protection.

E. Add a Maximum pH Limit for Wet Scrubbers to Control Mercury emissions (69 Fed. Reg. at 21344).

EPA requested comments on the appropriateness of requiring an upper pH limit on scrubber liquid to ensure compliance with the mercury emission standard. The Agency cites new work on a "laboratory-scale wet scrubber simulator" that was used to develop a model of how mercury behaves in a scrubber system. While this work potentially adds to the understanding of mercury chemistry, CRWI does not believe it is sufficient justification to impose a maximum pH limit on scrubber water for the following reasons:

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1. The laboratory results are in conflict with the full-scale results cited in footnote 279. This could indicate that the chemistry when processing actual fuels is more complex than the controlled laboratory study.
2. Scrubber pH can swing quickly from acid to base as acid gas loadings change. For example, an AWFCO when burning halogenated waste will remove the load from the caustic control loop. If the controller/operator doesn't react quickly enough to stop caustic and the pH was already close to neutral, the pH can easily swing to 9 or 10 quickly. Scrubber systems are not typically outfitted with acid addition to adjust pH. Once a high pH is present in the scrubber water, the source either has to add acid to the scrubber water, purge the scrubber system completely, or start burning waste to neutralize the caustic. A high pH limit would likely prevent burning waste to neutralize the caustic. This could also mean that a facility not only has to have a system for adding caustic but would have to have a system to add acid.
3. From a risk perspective, elemental mercury is not a risk driver. According to the HHRAP protocol, only 1% of elemental mercury is assumed to act locally and the risk is only from inhalation[8]. Thus, if some portion of the higher risk divalent form is converted to elemental and emitted, its risk most likely is not significant. It can be argued that any emissions of mercury should be prevented, but HW incinerators are a relatively small source of mercury emissions compared to power plants and other sources.
4. Using a separate test to establish an upper pH limit greatly complicates the comprehensive performance test execution in that it is difficult to hold other OPLs constant from one test to another. Also, in contrast to lower pH limits, sources have little experience on which to base a target OPL for upper pH. This makes demonstrating compliance during the comprehensive performance test to be a high-risk venture even if mini-burns are conducted before hand.

CRWI believes that while there may be a rationale for considering this OPL, it appears that there is still much to learn and the significance of the impact to human health and the environment is likely small. Thus, we believe that imposing an upper pH limit does not appear to be justified, particularly because of the increased burden it will pose to the regulated community from a testing and operational standpoint.

[8] Bell, J. "Different Approaches to the Evaluation of Human Health Impacts of Mercury via the Fish Ingestion Pathway" in Proceedings of the 23rd Annual International Conference on Incineration and Thermal Treatment Technologies, May 2004, University of Maryland, College Park, MD

Appendix A

EASTMAN CHEMICAL COMPANY

Project Cost Summary - ISBL ONLY — **Order of Magnitude Estimate +100%;-50%**

Project Title: SDA FOR FLUE GAS - NEW STRUCTURE
Project Name: SCRUBBERS FOR BOILERS 23 AND 24 — **Scenario Name:** BOILERS 23 AND 24
Proj. Location: KINGSPORT, TN — **Job No:** BOILERS — **Prep. By:**
Estimate Date: 20MAY04 11:30:43 — **Est. Class:** FORECAST — **Currency:** DOLLARS USD

Account	MH	Wage Rate	Labor Cost	Matl Cost	Total Cost	Percentages
(2) Equipment	2,564	32.00	82,043	5,421,200	5,503,243	43.1% of TDC
(3) Piping & Ductwork	27,706	32.00	886,583	2,046,524	2,933,107	23.0% of TDC
(4) Civil	33,531	32.00	1,072,997	75,429	1,148,426	9.0% of TDC
(5) Steel	9,256	32.00	296,182	823,830	1,120,012	8.8% of TDC
(6) Instruments	2,393	32.00	76,583	622,597	699,180	5.5% of TDC
(7) Electrical	3,412	32.00	109,186	324,966	434,153	3.4% of TDC
(8) Insulation	10,505	32.00	336,174	531,835	868,009	6.8% of TDC
(9) Paint	1,896	32.00	60,668	10,941	71,608	0.6% of TDC
Total Direct Field Costs	**91,263**		**2,920,417**	**9,857,322**	**12,777,739**	100.0% of TDC
	(TDMH)		(TDL)	(TDM)	(TDC)	
Indirect Field Costs	**0**				**0**	0.0% 0
	(IFMH)				(IFC)	
Total Field Costs	**91,263**				**12,777,739**	100.0% of TIC
	(TFMH)				(TFC)	
Freight					0	0.0% 0
Contractors LSTK Profit					0	0.0% 0
Engineering and HO	0				0	0.0% 0
Eastmqn Project Team	0				0	0.0% 0
Contingency					0	0.0% 0
Total Non-Field Costs	**0**				**0**	0.0% 0
	(HOMH)					
Project Total Costs					**12,777,739**	100.0% of TDC
					(TIC)	

NOTE:
The area at the South end of B-83 near #24 boiler is too small to accommodate this equipment. The maintenance shop to the South of B-83 is assumed to be demolished and that steel structures can be built above the railroads that can hold the auxilliary equipment. The bag house and the SDA will require area on the ground. The design scheme is assumed to be similar to that on boiler #30 at B-325 but smaller in size.