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Washington, DC 20460

Attn: Docket ID No. EPA-HQ-OAR-2002-0051

The Coalition for Responsible Waste Incineration (CRWI) appreciates the opportunity to submit comments on *National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry; Proposed Rule. 74 FR 21136 (May 6, 2009)*. CRWI is a trade association comprised of 26 members with interests in hazardous waste combustion. CRWI's members operate incinerators, boilers, process heaters, and hydrochloric acid production furnaces that are covered by MACT regulations.

CRWI has been extensively involved in the development of rules under the MACT program. MACT rules regulating our industry segment (40 CFR Part 63, Subpart EEE) have been at the forefront of many of the legal and policy disputes over the past 12 years and were the subject of a decision by the DC Circuit Court of Appeals, *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855, 862 (DC Cir. 2001). These rules were also subject to numerous public notice and comment periods from 1996 – 2008, were extensively reviewed by the Agency in light of the *Brick MACT* court decision that plays a major role in this proposal, and were recently remanded by the federal D.C. Circuit Court of Appeals at EPA's request so they could undergo extensive review in a similar fashion as the Portland Cement MACT. 74 FR at 21140. Consequently, CRWI has expertise in MACT issues and an interest in the current proposal and, since the legal interpretations, policy positions, and standard setting methods being proposed may become precedents for the MACT rules applicable to our industrial source category.

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CRWI has concerns about seven issues. We believe that EPA is not required to set MACT floor levels using a straight emission approach; EPA should promulgate a health-based alternative for HCl; EPA's proposed requirements that cement kilns comply with the same standards at all times is not logical or lawful; mercury CEMs should not be used for compliance; the proposed THC standard is unlawful; EPA should use the same method for showing compliance with the mercury standard as was used to develop the standard; and EPA is not using the proper method for modifying Method 321. Our detailed comments are attached.

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

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Melvin E. Keener', with a long horizontal flourish extending to the right.

Melvin E. Keener, Ph.D.  
Executive Director

cc: CRWI members  
K. Barnett, EPA



## Comments on Specific Issues

### 1. EPA still retains considerable discretion on how to set MACT floors.

Despite several court rulings vacating and remanding MACT rules, EPA still retains considerable discretion on how to set the MACT floors. As such, CRWI supports the Agency's authority to set the floor standards based on control efficiency, as EPA discusses at 74 FR at 21149, or any other method as long as their method reasonably estimates the performance of the relevant best performing plants. There is nothing in the court's decisions that requires EPA to use the straight-emissions approach favored in this rule, and EPA retains much discretion over how to set the floor standards.

As the Agency lays out in the preamble, standards for existing sources must be at least as stringent as the "average emissions limitation achieved" by the best performing 12 percent of existing sources (for which the administrator has emissions information) or the best performing 5 sources for source categories with less than 30 sources. Standards for new sources must be based on the best controlled similar source. 74 FR at 21137. However, the DC Circuit has noted, and the Agency has recognized (74 FR 21149), the statute is silent on key issues affecting the standard setting process. For example, in the first MACT case, the court stated that the statutory standard-setting provision "says nothing about how the performance of the best units is to be calculated." *Sierra Club v. EPA*, 167 F.3d 658, 661 (DC Cir 1999) ("*Sierra Club*"). The court reiterated that point in the case that has led to this rulemaking, and in the other leading MACT case (*Cement Kiln*) that almost every other MACT-related court decision is based upon. *National Lime Association v. EPA*, 233 F.3d 625, 632 (DC Cir. 2000) ("*National Lime II*"); *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855, 862 (DC Cir. 2001) ("*Cement Kiln*"); see also *Mossville Environmental Action Now and Sierra Club, v. EPA*, 370 F.3d 1232, 1241 (DC Cir. 2004) ("*Mossville*"); *Northeast Maryland Waste Disposal Authority v. EPA*, 358 F.3d 936, 953 - 954 (D.C.Cir.2004) ("*NMWD*"); *Sierra Club v. EPA*, 479 F.3d 875, 882 (DC Cir. 2007) (*Brick MACT*).

In *Cement Kiln* the court noted that it consistently reiterated that EPA has flexibility in devising the standards because "'to comply with the statute, EPA's method of setting emission floors must reasonably estimate the performance of the relevant best performing plants.' 233 F.3d at 632 (citing *Sierra Club*, 167 F.3d at 665)." *Cement Kiln* at 862. In addition, Judge Williams noted in his *Brick MACT* concurrence that there are interesting dichotomies in the statute that render it ambiguous. *Sierra Club v. EPA*, 479, 884 F.3d 875 (DC Cir. 2007)



(*Williams concurring*). Consequently, the court has given EPA considerable discretion.

A. The *Brick MACT* decision did not alter EPA's discretion.

Even after the court's decision in the *Brick MACT* rule, *National Lime II*, *Cement Kiln*, and their progenitor *Sierra Club*, still stand as the primary cases upon which all MACT decisions are based. In fact, the *Brick MACT* court stated as such: the entire decision was premised on *Sierra Club* arguing that the *Brick MACT* rule violated "the Clean Air Act's plain language as interpreted by *Cement Kiln* and *National Lime II*.' We agree." *Brick MACT* at 880. Later in the opinion, the court noted, "EPA's emission standards run counter to *Cement Kiln* and *National Lime II* in several other respects . . . ." *Id.* at 881.

In fact, each of the court's discussions on the four decided issues begins with a statement that their ruling is based on *National Lime II* and *Cement Kiln*. Thus, whatever discretion EPA retained after those two decisions still remains. This includes the ability to set standards using whatever methodology the Agency desires, as long as EPA's method "reasonably estimates the performance of the relevant best performing plants." *Brick MACT*, *supra*, at 878. Thus, the Agency is not required to use a particular method such as a "straight-emissions" approach. In fact, as shown below, the *Brick MACT* panel chastised the Agency for not adhering to the standard it proposed -- a standard that was based on technology -- *not* straight emissions.

The *Brick MACT* panel explained that EPA based the proposed standards on so-called "non-DLA" technology (not dry lime absorbers) because they represented the best control technology and resulted in the lowest emissions. The court approved that approach explaining that it was *required by law*: "Because the 94th percentile (the median of the top 12 percent) of the best-performing large tunnel brick kilns used non-DLA technology, EPA—as *required by Cement Kiln*—*proposed a floor based on this technology*. *Id.* at 47,911." *Brick MACT*, *supra*, at 880 (emphasis added). Thus, the court believed that setting the standards based on the levels achieved by technology was proper and consistent with precedent.

After receiving comments regarding the infeasibility of retrofitting sources with non-DLA technology, EPA established the standard based on DLA technology. This the court could not abide. Rejecting EPA's argument that it could consider the ability of sources to retrofit as part of its standard-setting, the court stated: "But EPA cannot circumvent *Cement Kiln's* holding that section 7412(d)(3) requires floors based on the emission level actually achieved by the best performers (those with the lowest emission levels), not the emission level



achievable by all sources, simply by redefining “best performing” to mean those sources with emission levels achievable by all sources. See 255 F.3d at 861.” *Brick MACT*, *supra*, at 880 – 881.

Thus, the *Brick MACT* court was willing to approve a technology-based approach; this parenthetical phrase simply referred back to what EPA had asserted in its proposal – non-DLA technology resulted in the lowest emissions. It was not the court opining on the ambiguity contained in the statute regarding how EPA must judge who the “best performers” are. A decision about that issue would have been accompanied by at least some discussion, since it had been a contentious issue from the initial MACT case. Instead, the *Brick MACT* panel was just expressing approval for EPA’s proposed technology-based methodology and rebuking the Agency for, once again, setting the standard based on what was achievable by all sources in the category. Indeed, that rebuke was the subject of Judge Williams’ concurrence. Consequently, the *Brick MACT* decision does not limit EPA’s discretion any more than the limits imposed by the *Sierra Club*, *National Lime II*, and *Cement Kiln* cases.

Thus, interpreting the *Brick MACT* decision as requiring EPA to establish MACT standards based on a straight-emissions methodology is incorrect. It also disregards the fact that the *Brick MACT* decision did not overrule relevant court decisions, as we point out in the next section.

B. The court has expressly decided that a “straight-emissions” methodology is not required.

A “straight-emissions” or arithmetical methodology has never been required by the court. Indeed, as discussed in the first MACT case, *Sierra Club*, the court stated that basing the standard on the lowest emitters might not be justifiable. *Sierra Club*, *supra*, at 664.

Nonetheless, *Sierra Club* continued to push its “lowest emitter” rationale in later cases and shortly after *Sierra Club*, the D.C. Circuit *rejected* the lowest emitter interpretation of the statute. In *National Lime II* – the very case that prompted the current rulemaking – the court stated:

According to the *Sierra Club*, section 7412(d)(3) requires EPA to set new source floors at the lowest recorded emission level for which it has data and existing source floors at the average of the lowest twelve percent of recorded emission levels for which it has data. Nothing in the statute, the *Sierra Club* argues, permits the Agency to set floors based on the



performance of technology as opposed to the recorded performance of plants.

In resolving this issue, we do not write on a clean slate. EPA's technology-based approach to setting new source emission standards has already faced and survived a *Chevron* one challenge. In *Sierra*, 334 U.S. App. D.C. 421, 167 F.3d 658, we reviewed a new source emission standard for solid waste combustion that EPA promulgated pursuant to section 7429, which establishes emission requirements virtually identical to section 7412's. There, as here, the Sierra Club argued that EPA's MACT technology approach to setting emission standards is unambiguously forbidden by the Clean Air Act. *Sierra* rejected that argument, holding that EPA may estimate the performance of the best performing units and that it was not "impossible" that EPA's methodology constituted a reasonable estimation technique. See 167 F.3d at 665.

*National Lime II*, *supra*, at 631. Consequently, the court blessed EPA using a technology-based approach that estimated performance rather than simply deriving the standards through an arithmetic, straight-emissions, approach.

Later cases also approved EPA using methods other than a straight emissions or arithmetic approach, as long as they result in a reasonable estimate of the performance of the best controlled units – the test adopted by the first *Sierra Club* case. For example, in *Mossville*, *supra*, the court upheld EPA using regulatory/permit limits as the basis for setting floors standards and rejected EarthJustice's contentions that EPA failed to even identify the best performing sources (a prerequisite to using the sources with the lowest emissions). As the court noted, it had a long-history of upholding reasonable estimates of best performance. *Id.* at 1240.

Finally, *Brick MACT* does not endorse a straight emissions approach; nor could it. To do so would mean that the *Brick MACT* court was overturning the *Chevron* step one holding in *Sierra Club* and *National Lime II* – something that it cannot do. *United States v. Lawrence*, 471 F.3d 135, 141 (D.C. Cir 2006) (One three-judge panel, does not have the authority to overrule another three-judge panel of the court); *National Council of Resistance of Iran and National Council of Resistance of Iran, U.S. Representative Office v. Department of State*, 251 F.3d 192, 198 (D.C. Cir. 2001) (panel has no power to overrule another panel's decision, even if it was inclined to do so); *United States v. Kolter*, 71 F.3d 425, 431 (D.C. Cir. 1995) (panel is bound by a prior decision even if does not agree with it.)



The Brick MACT decision, therefore, did not alter EPA's discretion or require EPA to use a straight emissions methodology by using the lowest emissions in has in its data base. The Agency still retains the ability to set standards using whatever methodology it desires so long as it results in a reasonable estimate of the emissions from the best performing facilities. This includes considering all factors that affect emissions and the variability experienced by the best performing sources. *Cement Kiln, supra* at 863-865.

C. National Lime II allows EPA to consider intent.

Supporters of the interpretation that the *Brick MACT* decision requires a straight-emissions methodology also rely on the court's decision in *National Lime II*. According to them, *National Lime II's* discussion that EPA is not allowed to consider "intent" means that the lowest level of emissions EPA has in its database should be the basis for floor standards. Not only did the court explicitly reject that position in *National Lime II* (see quote above), their argument misinterprets the "intent" discussion in the *National Lime II* case.

In the preamble, EPA states that "the fact that a specific level of performance is unintended is not a legal basis for excluding the source's performance from consideration [as a best performer]." In other places, EPA states that the facilities intent in providing treatment does not matter, as if Congress expected EPA to merely decide that whatever emitted from a facility should be considered viable. CRWI does not believe that *National Lime II* stands for either of these propositions. Congress expected the program to require technology-based standards. See e.g., 1990 Leg. Hist. at 862, 875, 876, 950, 1029, 1062, 1079. Instead, *National Lime II* merely stands for the principle that *as long as the facility is controlling pollution*, the levels achieved can be considered, even if the facility was not intending to control the specific HAP.

To explain this issue, we note that the major issue in *National Lime II* was whether EPA could decline to set an emission standard for HAPs that no facility in the source category was controlling *with technology*. In explaining the dispute, the court began by stating,

EPA established emission floors of "no control" for HCl, mercury, and total hydrocarbons (a surrogate for organic HAPs other than dioxin/furan) *because the Agency found no cement plants using control technologies for these pollutants*. The Sierra Club argues that EPA's failure to set emission limits for these HAPs violates the statute's requirement that the Agency establish emission standards for each of "the hazardous air pollutants listed for regulation." 42 U.S.C. § 7412(d)(1).



*National Lime II, supra*, at 633-34 (*emphasis supplied*). The court held, "On this issue, we agree with the Sierra Club. Nothing in the statute even suggests that EPA may set emission levels only for those listed HAPs *controlled with technology*." *Id.* (*emphasis supplied*). Consequently, the case was about EPA's failure to set standards because no one was using technology to control particular HAPs.

Later in the decision, the court addressed an issue raised by the National Lime Association (NLA). NLA argued that EPA could not set a PM standard for several reasons. First, NLA argued that PM was not subject to regulation because it was not a HAP. Second, NLA argued that PM was not a reasonable surrogate for HAPs. The court rejected both of these arguments.

However, NLA also argued that using PM as a surrogate was incompatible with EPA's MACT setting methodology. The court explained,

The NLA offers several other reasons for thinking the EPA's use of PM as a surrogate for HAP metals might be unreasonable or contrary to law, but each of them is without merit. First, the NLA claims that the use of PM as a surrogate is incompatible with the agency's own methodology for setting MACT floors. According to the NLA, this methodology requires the agency to set a floor of "no control" for HAP metals because no cement plant intentionally controls HAP metals; metal emissions are controlled only incidentally by controls placed upon PM. [This was EPA's position in the rule that the court disagreed with earlier in the decision.] *The EPA's response is the correct one: "cement plants actually are controlling HAP metals[,] intentionally or not."* The Clean Air Act requires the EPA to set MACT floors based upon the "average emission limitations achieved," 42 U.S.C. § 7412(d)(3); it nowhere suggests that this achievement must be the product of a specific intent. Moreover, as we have seen, the EPA's floor-setting methodology does not permit the agency to set a MACT floor of "no control" simply because no controls are in place, see Ct. Op. at 12 above; *a fortiori*, the EPA may not set such a floor [*i.e.*, no limits] *when the controls are in place* but the cement kilns have not intentionally deployed them for that purpose.

*National Lime II, supra*, at 640 (*emphasis supplied*.)

Consequently, the *National Lime II* court was not opining on when a source could be excluded from being considered a best source, or that intention to control is never a factor. It was merely saying that if a facility was already controlling its emissions, the fact that it was not intending to control the HAP in question could



not be a reason for EPA to consider the pollutant uncontrolled. *Id.* at 640. Thus, the intent discussion in *National Lime II* does not mean that any emission level in EPA's data base must be the basis for floor standards. Indeed, the very same decision rejected that interpretation as being already decided by *Sierra Club*.

2. Health-based compliance alternatives are authorized by § 112(d)(4) of the Clean Air Act and supported by record evidence.

In the proposal, EPA declines to establish a health-based standard for HCl, even though they acknowledge having the authority to do so. 74 FR at 21154. EPA declines to use this authority, it appears, due to the expected reductions that HCl control will have on SO<sub>2</sub> emissions. CRWI believes that EPA should establish a health-based standard in this rule and we offer the following comments on the Agency's authority and the effects HCl control will have on limiting SO<sub>2</sub>.

A. The Agency has the authority to establish a health-based standard for HCl.

As EPA knows, the Clean Air Act Amendments of 1990 substantially revised the Nation's program to control hazardous air pollutants. In these amendments, Congress split the program into two phases. In the first phase, the Agency requires control commensurate with "the maximum degree of reduction in emissions" being achieved by the best controlled sources. 42 U.S.C §§ 7412(d)(2) and (3). This phase is commonly referred to as the technology-standard phase. See *e.g.*, 1990 Leg. Hist. at 862, 875, 876, 950, 1029, 1062, 1079. In the second phase, EPA is to examine the amount of risk that remains to human health and the environment, and impose further controls if necessary to protect human health with an ample margin of safety, and prevent adverse environmental consequences. 42 U.S.C. § 7412(f).

This shift to an initial technology-based program was not absolute, however. Congress authorized EPA to use a risk-based approach during the technology-based phase where further regulation was not necessary from a risk standpoint. Consequently, EPA is allowed to delist an entire source category or subcategory, if none of the sources in it emit hazardous air pollutants that create a risk greater than 1 in one million excess cancer cases. 42 U.S.C. § 7412(c)(9).

Another risk-based component was enacted in § 112(d)(4). 42 U.S.C. § 7412(d)(4). Since at least 1997, under the previous Democratic Administration, EPA has recognized that section 112(d)(4) authorized the Agency to set risk-based emission standards in lieu of technology-based standards. As that administration's EPA wrote in a *Federal Register* notice, "Congress provided in



section 112(d)(4) that EPA could, at its discretion, develop risk-based standards for HAP 'for which a health threshold has been established,' provided that the standard achieves an 'ample margin of safety.'" 62 Fed Reg. 33,625, 33,631 (June 20, 1997).<sup>1</sup>

Based on the legislative history that clarifies Congressional intent, this interpretation is clearly correct. The Senate Report wrote,

To avoid expenditures by regulated entities which 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, including cancer, for which no threshold can be established, 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. Employing a health threshold or safety level rather than the MACT criteria to set standards shall not result in adverse environmental effects which would otherwise be reduced or eliminated.

1990 Leg. Hist. 8511, S. Rep. No. 228, 101<sup>st</sup> Cong. Sess. 171 (1990). *See also* 1990 Leg. Hist. 8516 (Administrator authorized to use threshold level "in lieu of more stringent 'best technology' requirements."). Thus, EPA clearly has the authority to set a risk-based standard.

EPA cannot set a risk-based standard for just any HAP, however. It must be a "threshold pollutant." As the Agency noted in the preamble to a prior proposal of this rule, HCl is a health threshold pollutant for the purpose of section 112(d)(4). 71 FR 76518, 76528 (December 20, 2006) referencing 63 FR 18753, 18765 (April 15, 1998).

Some may argue that HCl is not a threshold pollutant because it has not been conclusively shown to be non-carcinogenic. That is not necessary according to

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<sup>1</sup> The Browner-led EPA then proceeded to use this authority in the first Plywood MACT. *See* 63 Fed. Reg. 18754, 18765 (April 15, 1998) (Proposed National Emission Standards for Hazardous Air Pollutants; Proposed Standards for Hazardous Air Pollutants From Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills), finalized at 66 Fed. Reg. 3180 (January 12, 2001).



Congress. As quoted above, Congress explained that ammonia was a HAP with a “well-established” threshold for which EPA could set a risk-based standard. A comparison of the IRIS information relating to carcinogenicity for ammonia and HCl shows striking similarities: the information for both ammonia and HCl contains the same notation relating to carcinogenicity, *i.e.*, it has “not undergone a complete evaluation and determination under US EPA’s IRIS program for evidence of human carcinogenic potential.” Compare <http://www.epa.gov/ncea/iris/subst/0422.htm> (Ammonia) with <http://www.epa.gov/ncea/iris/subst/0396.htm> (HCl) (viewed August 26, 2009). There are other similarities as well: *i.e.*, EPA only looked at respiratory effects of both HCl and ammonia, and the RfC for ammonia appears to be based on a LOAEL, not a NOAEL – just like HCl.

In short, EPA has the authority to set a health-based standard for HCl under §112(d)(4). To believe that EPA must make a positive finding of absolutely no cancer risk, *i.e.*, prove a negative, renders this provision a near nullity and belies both the scientific process and Congressional intent.

B. EPA can use the authority in section 112(d)(4) to set emission standards

In the proposal, EPA notes that it determined HCl was a threshold pollutant and has already relied on this authority in a prior rulemaking. 74 FR at 21154. However, in that rulemaking, EPA was not deciding whether to set a health-based standard in lieu of a technology-based one. Based on extensive analysis of emissions from Portland Cement facilities, the Agency determined that they emitted HCl at levels well below what was needed to protect human health and the environment and therefore declined to set any emissions standard. 71 FR at 76527 - 29 referencing 63 FR 18754, 18765 (April 15, 1998). Thus, EPA was decided to not set *any* HCl standard.

While that may be one way of using the authority in § 112(d)(4), it is not the only way. Instead, EPA can use the authority to establish a standard for HCl, consistent with the statement in the legislative history that, “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.”

It appears as if the Agency already understands this use of the standard since that is how the Agency used this authority in the HWC MACT rule at 40 CFR §63.1215, and the preamble discusses the level that EPA might set a health-based standard stating: “an emission limit of 23 ppmv or less would result in no exceedances of the RfC for HCl with an ample margin of safety.” 74 FR at



21154. (This implicitly adopts the RfC as the level which is protective of human health with an ample margin of safety.) CRWI believes that this emission standard is appropriate for cement kilns because it is protective of human health with an ample margin of safety.

C. An ample margin of safety has been demonstrated.

When setting a health-based limit, the Agency is required to ensure that the level will be protective of human health, with an ample margin of safety. Traditionally, that level has been the RfC which, as the Agency knows, contains multiple levels of added safety. For example, the RfC for HCl is  $20 \text{ ug/m}^3$ , 30 times lower than the NOAEL.

EPA's analysis for this proposed rule shows that 23 ppmv emitted from any plant would not result in any Portland cement plant causing an annual average ground concentration of more than  $20 \text{ ug/m}^3$  (74 FR at 21154). Since the RfC for HCl is  $20 \text{ ug/m}^3$ , an emission standard of 23 ppmv would be protective not just for one facility but for all. CRWI sees no reason to force cement kilns to meet the proposed technology-based standard of 2 ppmv when EPA has already concluded that 23 ppmv is protective with an ample margin of safety. This circumstance seems to be exactly why Congress gave EPA the flexibility to use a risk-based alternative. While we understand that the statute does not force EPA to use this option, it seems only logical that EPA would use it. EPA has shown that a higher standard is protective. Forcing these source categories to meet a lower, technology based standard would only cost more money without adding any benefit. As Congress noted in the legislative history, Section 112(d)(4), was enacted to "avoid expenditures by regulated entities" which do not have public health or environmental benefit. Thus, EPA should set a health-based standard for HCl.

D.  $\text{SO}_2$  control is overestimated.

EPA should not rely on the additional  $\text{SO}_2$  reductions that will be achieved by HCl control as a public health or environmental benefit to prevent them from establishing a health-based standard. While the Senate mentioned in its report that EPA may consider the benefits that MACT standards might have on non-HAP pollutants, CRWI notes that Congress placed the §112(d)(4) authority *in the statute*, not just its deliberations, thereby expressing a stronger intent for the Agency to consider and implement. Besides, CRWI believes that EPA is overestimating the degree of reductions  $\text{SO}_2$  that will be achieved by HCl control.



As EPA knows, HCl absorbs readily in water at most pH's. As a result, most wet scrubbers designed to control HCl operate at acidic pH's. On the other hand, SO<sub>2</sub> scrubbing requires pH's above 8.5 (alkaline). Operating controls for an alkaline scrubber are much more difficult due to the formation of carbonates in the process. This can lead to plugging and more frequent cleaning. For this reason, facilities that wish to control HCl will operate their scrubber at acidic pH's because it will achieve the same results with fewer maintenance problems. Consequently, technology to control HCl will not necessarily control SO<sub>2</sub>.

In conclusion, we have shown that EPA has the authority to set health-based alternative standards, HCl is a threshold pollutant, there is an ample margin of safety at 23 ppmv, and the additional justification of controlling SO<sub>2</sub> may not be technically correct. As such, CRWI believes that EPA should allow cement kilns to use a health-based alternative standard based on the RfC.

3. EPA's proposed requirement that facilities meet steady-state standards during SSM events is not logical nor is it lawful.

EPA's proposal to require Portland cement facilities to comply with the same emission standards during periods of startup, shutdown, malfunction, and steady state conditions is neither logical nor lawful.

Before the court's decision in *Sierra Club v. EPA*, 551 F.3d 1019 (DC. Cir 2008) ("SSM Decision") addressing the SSM provisions in the MACT program, the DC Circuit had consistently held that technology-based standards *must* contain exemptions or less stringent standards during periods of startup, shutdown, and malfunction than would usually apply during steady state periods.

For example, in *Portland Cement Ass'n v. Ruckelshaus*, 86 F.2d 375, 396, 398 (D.C. Cir. 1973), *cert. denied*, 417 U.S. 921 (1974), the DC Circuit recognized that "'start-up' and 'upset' conditions, due to plant or emission device malfunction, is an inescapable aspect of industrial life and that allowance must be made for such factors in the standards that are promulgated. The Court, which was addressing EPA's NSPS rules, also noted that including the startup, shutdown, and malfunction provisions "imparts a construction of 'reasonableness' to the standards as a whole and adopts a more flexible system of regulation than can be had by a system devoid of 'give.'" *Id.* at 399.

In *Essex Chem. Corp. v. Ruckelshaus*, 486 F.2d 427, 432 (D.C. Cir. 1973), petitioners argued that lesser or no standards should apply during startup, shutdown or malfunction conditions. The Court agreed, holding that such provisions "appear necessary to preserve the reasonableness of the standards



as a whole.” *Id.* at 433. And in *NRDC v. EPA*, 859 F.2d 156 (D.C. Cir. 1988), the court held that, although water-quality permit limits need not incorporate an “upset defense,” “[a] technology-based standard discards its fundamental premise when it ignores the limits inherent in the technology.” *Id.* at 208 (citing *Marathon Oil. Co. v. EPA*, 564 F.2d 1253, 1273 (9<sup>th</sup> Cir. 1977)). Consequently, because all pollution control technologies will occasionally malfunction and take time to get to their steady-state conditions (such as during startup, shutdown or malfunction), “achievable” technology-based standards must contain provisions excusing noncompliance or making compliance easier during such unavoidable events.

Now that the court has decided that MACT compliant standards must apply during periods of SSM, the Agency must develop standards that are “achievable.” Indeed, the court has already spoken to this issue when it stated, that for standards to be “achievable,” they must be achievable under the most adverse circumstances which can reasonably be expected to recur. *Sierra Club, supra*, citing *National Lime Ass’n v. EPA* 627 F.2d 416 (D.C. Cir. 1980) (“*National Lime I*”). Thus, since startup, shutdown, and malfunctions will recur, EPA must set standards that must be achievable during those times.

The standards EPA are proposing for the Portland cement source category are not capable of being complied with during periods of SSM. In the preamble, EPA notes that stationary sources have four modes of operations that are all expected to recur: normal operations, startup, shutdown, and malfunction. As such, EPA must establish, and explain why facilities can comply with the standards it promulgates. As the court noted in *National Lime I*, “by failing to explain how the standard proposed is achievable under the range of relevant conditions which may affect the emissions to be regulated, the Agency has not satisfied this initial burden.” *National Lime I, supra*, at 433.

In addition, it is not logical to apply these standards during periods of SSM. For example, if a facility ran a Method 5 test during startup, a single test would take 6 – 8 hours (each run takes at least an hour, three runs are required for a valid test, and the operator must have time in between runs to change probes). During those eight hours, the conditions would have changed so significantly that it would be virtually impossible to understand what that data meant or to extrapolate that data to other transient conditions. The same is true for CEMs readings.

So, while it is appropriate to use data gathered under steady-state conditions to set emission standards for steady-state conditions, it is not appropriate (from



either a logical or legal perspective) to apply those standards to non steady-state conditions.

Since standards developed under steady-state conditions do not include transient events, they cannot possibly incorporate the variability that occurs under these conditions. Expecting a facility to comply with emission standards developed under steady state conditions during transient events is neither logical nor is it lawful.

4. Mercury CEMs should not be used as a compliance method for Portland cement kilns.

EPA has decided to require Portland cement kilns to use continuous emission monitors (CEMs) to measure compliance with the proposed mercury standard even though it is not “aware of any cement kiln in the U.S. that have continuous mercury monitoring systems.” 74 FR at 21156. EPA notes, however, that a number of mercury CEMs have been installed and certified on utility boilers and they see no reasons why they will not work as well on cement kilns. They add that mercury CEMs are been successfully used on cement kilns in Germany after solving initial problems. *Id.*

CRWI would like to remind EPA of a study carried out in 1997 where a number of mercury CEMs were installed on a cement kiln burning hazardous waste located in Holly Hill, NC. When EPA published the report on this experiment (62 FR 67788, December 30, 1997), the Agency concluded there were numerous problems with these instruments. In the notice for this report, EPA states:

In summary, the Agency found certain aspects of the testing program revealed substantial problems regarding the measurement of the Hg CEMS accuracy and precision. EPA found it difficult to dynamically spike known amounts of mercury (in the elemental and ionic form) and obtain manual method and Hg CEMS measurements that agree at the test source. As a result, the Agency now believes it has not sufficiently demonstrated the viability of Hg CEMS as a compliance tool at all hazardous waste combustors and should not require their use.

In the September 30, 1999, final rule for hazardous waste incinerators, cement kilns, and lightweight aggregate kilns (64 FR at 52930), EPA made similar statements:

In the March 1997 NODA, we elicited comment on early aspects of our approach to demonstrate total mercury CEMS. And, in the December



1997 NODA, we presented a summary of the demonstration test results and our preliminary conclusion that we were unable to adequately demonstrate total mercury CEMS at a cement kiln, a site judged to be a reasonable worst-case for performance of the total mercury CEMS. As new data are not available, we continue to adhere to this conclusion, and comments received in response to the December 1997 NODA concur with this conclusion. Therefore, we are not requiring total mercury CEMS in this rulemaking.

CRWI understands that these experiments happened more than ten years ago and it is possible that mercury CEMs have improved significantly since then. However, some of the same issues plaguing these instruments in 1997 are still around today. The primary issue facing mercury CEMs is whether there is a NIST traceable standard that can be used to calibrate the unit. There are NIST traceable standards for 40 ug/dscm (the area where power plants operate). However, with compliance based on production rate (tons of clinker produced) and using a 30 day average, it is difficult to know what range to calibrate these units. Basing compliance on an instrument that cannot be calibrated is not reasonable.

Second, the reliability of mercury CEMs on cement kiln stacks has not been demonstrated in the U.S. While they have been used in Germany, these units must conform to CEN (Comite Europeen de Normalisation; European Committee on Standardization) regulations for monitoring emissions, but they are not required (nor demonstrated) to utilize gas calibration standards to verify performance on a daily basis as required by 40 CFR 60.13(d) or 40 CFR 63.8(c). In addition, they are not subject to relative accuracy test requirements. In regards to the Hg CEMs used at coal-fired power plants, these instruments have been demonstrated in a fairly consistent gas stream environment, meaning consistent Hg concentrations and effluent conditions. These conditions may not be similar to the stack gas environment at cement kilns. These differences are likely to impose new technical challenges and problems that have not been encountered in the evaluation of Hg CEMs at coal-fired power plants.

In addition, CRWI questions whether EPA has the legal authority to require mercury CEMs. Under the Clean Air Act, EPA's monitoring requirements must "provide a reasonable assurance of compliance with emissions standards." *Sierra Club v. EPA*, 353 F.3d 976, 990-991 (DC Cir. 2004) ("*Copper Smelters*") citing *Natural Res. Def. Council, Inc. v. EPA*, 194 F.3d 130, 136 (D.C. Cir. 1999). This requirement does not, however, require CEMs. *Id.* Thus, there is no legal imperative for EPA to require CEMs. Instead, the Agency must establish monitoring requirements that provide a reasonable assurance of compliance.



Based on the evidence EPA has presented so far, the problems observed at Holly Hill, and the experience of CRWI members, requiring CEMs does not provide a reasonable assurance of compliance.

In addition, without further study, imposing mercury CEMs would be arbitrary and capricious or abuse of discretion. This standard requires EPA to articulate a rational connection between the facts found and the choice made demonstrating that the Agency has not made a clear choice in judgment. *Bluewater Network v. EPA*, 370 F.3d 1, 11 (DC Cir. 2004). We note that, so far, the Agency has not found any evidence that mercury CEMs will work under the regulatory regime imposed in the United States, nor has it concluded that facilities will be able to resolve issues in a timely fashion that will allow them to demonstrate compliance. Consequently, EPA is making a clear error in judgment.

5. Basing the THC standard on CEMs data leads to an unlawful standard.

CRWI also has serious concerns about using daily CEMs data to establish a Total Hydrocarbon (THC) standard for cement kilns. There are at least three issues associated with using this type of data that could render such a standard unlawful. These are that: A) using daily averages significantly reduces variability leading to an unlawful standard, B) there is a flaw in using continuous data under normal operating conditions to set a standard, and C) the standard is unachievable.

A. Using daily data significantly reduces variability.

The DC Circuit Court of Appeals has repeatedly stated that EPA is required to consider variability in setting its MACT standards. *Sierra Club, supra*, at 665 (“achieved in practice” means achieved under the most adverse circumstances which can reasonably be expected to recur). This requirement comes from the understanding that the facility must be in compliance at all times. *National Lime I, supra*, at 430; *Essex Chemical Corp. v. Ruckelshaus*, 486 F.2d 427, 433 (D.C. Cir. 1973). Consequently, considering variability, when setting the standards, allows the standards to be met each and every day. *Mossville, supra*, at 1242.

In light of this requirement, CRWI points out that any sort of averaging reduces the variability. Consequently, EPA’s use of daily averages as the starting point significantly reduces the variability in the THC data. Since EPA did not provide the minute data or even the hourly THC data associated with this rulemaking, it is impossible to show what this means for this data. However, CRWI has obtained CO data from one of its member companies and will use this data to illustrate the



point. This data comes from a rotary kiln that feeds both liquid and solid hazardous waste. Twenty days of minute data are used to illustrate the point about variability.

Rotary Kiln	Mean	sd	Upper 99%	Max
Minute	6.0	53.8	131.0	3452.0
Hour	5.9	8.8	26.5	78.5
Day	5.9	3.1	13.7	11.6

As one can see, the mean for both the minute, hourly, and daily averages are the same (within round off error). This is as would be expected. However, there is a significant change in the standard deviations, subsequent upper 99% limits, and the maximums. Thus, when averages are used, there will be a significant decrease in variability. Using daily averages will not capture the variability that is inherent in minute data.

B. Fundamental flaw in using continuous data under normal operating conditions to set standards.

There is also a fundamental flaw in using continuous data (CEMs) under normal operations to set standards. If one uses a 99% upper limit, by definition, there is 1% of the time that facility will not be in compliance. However, § 63.1350(h) of 40 CFR Part 63 Subpart LLL requires compliance with the THC standard at all times.

C. The currently proposed 7 ppmv THC standard cannot be achieved by the top performers.

In Appendix B of the "Development of the MACT Floors for the Proposed NESHAP for Portland Cement," April 15, 2009, EPA published the data used to develop the THC standard. In Section 3 (starting on page 9), EPA explains that they used the average daily data for two sources (TXI Midlothian kiln 5 and Holcim Trident kiln 1) to set a floor standard for new sources at 6 ppmv and for existing sources at 7 ppmv. Compliance with this standard is based on a 30-day rolling average. In an effort to see how each of the top performers would comply with both the new source (TXI) and the existing THC standards (TXI and Holcim), CRWI took the data in Appendix B and developed 30-day rolling averages for both sources. There were only 35 data points for the top performer (TXI). From this, one can calculate six 30-day rolling averages. All six of these 30-day rolling averages were below 4 ppmv, easily meeting both the new source standard (6



ppmv) and the existing source standard (7 ppmv). It should be noted that this is based on a very limited amount of data. Appendix B contains 695 data points for the second top performer (Holcim). However, these data are not continuous. For this analysis, they were assumed to be continuous.

From these 695 days of data, we were able to create 666 30-day rolling averages. If Holcim were to be required to meet a 7 ppmv 30-day rolling average THC standard based on these data, they would fail 142 times during this 666 days. This is approximately 20% of the time. Said another way, if the 7 ppmv THC standard is finalized, one of the top performers could meet this standard only 80% of the time. The proposed standards require compliance 100% of the time. Thus, we believe that the 7 ppmv THC standard is not capable of being achieved, even by the top performers.

6. Setting mercury standards with feed rate data and requiring compliance with CEMs or sorbant traps.

CRWI is concerned that EPA is developing a standard for mercury based on feed rates while requiring compliance based on either sorbant traps or mercury CEMs. It appears that EPA is using one method to set the standard (feed rate data) and a totally different method to show compliance. The U.S. Court of Appeals for the D.C. Circuit has ruled that "a significant difference between techniques used by the Agency in arriving at standards, and requirements presently prescribed for determining compliance with standards, raises serious questions about the validity of the standard." *Portland Cement Ass'n v. Ruckelshaus, supra*, at 396. CRWI believes that using feed rates to set the standards and then some form of stack gas concentration to show compliance qualifies as "a significant difference between techniques." Interestingly, EPA appears to agree with this principle in other parts of the rule. In setting the THC standards, EPA states: "In addition, a MACT standard based on CEMS data would be consistent with the way we are proposing to implement the THC emission limit (i.e., by requiring continuous monitoring with a THC CEMS)." (Development of the MACT Floors for the Proposed NESHAP for Portland Cement, page 11).

CRWI believes that if EPA wishes to use mercury CEMs or sorbant traps to show compliance, then the standard must be developed using mercury CEMs or sorbant trap data.



7. EPA's proposal to lower the detection limit for Method 321 does not follow proper procedure.

EPA is proposing to modify the “practical lower quantification range” of Method 321 from 1 to 5 ppm to 0.1 to 1.0 ppm (74 FR at 21192). EPA is basing this decision on the concept that data supplied to the Agency has values below the current “practical lower quantification range” of the method. They have also proposed to change the absorption path length and added a liquid nitrogen cooled IR detector specification to the method. In the preamble, EPA states that it “did not receive the emissions information and other data necessary to assess independently the detection levels, some as low as 20 parts per billion, achieved and reported by sources.” 74 FR at 21162.

Method 321 does not define the term “practical lower quantification range.” One must assume that this is similar to the Practical Quantification Limit (PQL). PQL is defined as: “A quantification level that is the lowest level that can be reliably achieved with specified limits of precision and accuracy during routine laboratory operating conditions.”<sup>2</sup>

A PQL is developed by multiplying the Method Detection Limit (MDL) by a factor (subjective and variable between laboratories and analyses performed) usually in the range of 5 to 10. However, PQLs with multipliers as high as 50 have been reported.<sup>3</sup>

MDL is defined as the minimum concentration of a substance that can be measured (via non-isotope dilution methods) and reported with 99 percent confidence that the analyte concentration is greater than zero. It is determined from analysis of a sample in a specific matrix type containing the analyte. An MDL is considered the lowest level at which a compound can be reliably detected. It is based on statistical analyses of laboratory data. In practice, MDLs are determined on analytical reagents (e.g., water) and not on the matrix of concern. However, a laboratory may contract to do a matrix-specific “MDL Study” for a particular project or a particular facility’s waste matrix when needed. Routine MDL determinations (water reagent) are conducted on at least an annual basis or whenever equipment changes occur. MDLs for a given method are laboratory- and compound-specific.<sup>2</sup>

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<sup>2</sup> U.S. EPA., 2005. *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities*, Volume 1, page 2-80. [www.epa.gov/region6/6pd/rcra\\_c/protocol/volume\\_1/chpt2-hh.pdf](http://www.epa.gov/region6/6pd/rcra_c/protocol/volume_1/chpt2-hh.pdf), accessed August 27, 2009

<sup>3</sup> U.S. EPA. 1995. *Development of Compliance Levels from Analytical Detection and Quantification Levels*. U.S. EPA, Washington, DC. NTIS PB95-216321



40 CFR Part 136, Appendix B contains the method for determining an MDL. Appendix B requires at least seven replicate samples with a concentration of the compound of interest near the estimated MDL being analyzed. The standard deviation among these analyses should then be calculated and multiplied by 3.14. The result of the calculation becomes the MDL. The factor of 3.14 is based on a t-test with six degrees of freedom and provides a 99 percent confidence that the analyte can be detected at this concentration.

Presumably, EPA used Appendix B when Method 321 was developed to obtain the original 1 to 5 ppm practical lower quantification range. CRWI believes that before EPA can modify the practical lower quantification range with the revised absorption path length and detector, the Agency must repeat the analysis outlined in 40 CFR Part 136, Appendix B. CRWI does not dispute that EPA can change the practical lower quantification range; we are simply stating that the Agency did not follow their own protocols in proposing to do so.