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Air Pollution

The D.C. Circuit Court of Appeals Examines the MACT Floor

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MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY

The Clean Air Act directs the Environmental Protection Agency to develop national emissions standards for hazardous air pollutants and new source performance standards and emissions guidelines for new and existing solid waste incinerators on the basis of the Maximum Achievable Control Technology identified for particular industry categories. EPA has promulgated, or is in the process of promulgating, MACT standards for close to 100 different categories of industries and for five categories of solid waste incinerators. The D.C. Circuit Court of Appeals has issued only three opinions addressing the methodologies used to establish MACT standards--*Sierra Club v. EPA*, addressing medical waste incinerator standards; *National Lime Association v. EPA*, addressing portland cement kiln standards; and finally *Cement Kiln Recycling Coalition v. EPA*, addressing hazardous waste combustor standards. This article examines EPA's methodology to set MACT floors, challenges to that methodology, the legal principles established by the court, and the unresolved issues.

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The views expressed in this article are not necessarily those of BNA, which welcomes other points of view.

Sections 112 and 129 of the Act direct EPA to promulgate standards applicable to new and existing sources that reflect the "maximum degree of reduction in emissions of [specific air pollutants] that the administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable for new or existing sources" through application of measures, methods, techniques, and technologies for controlling air pollution.[1] This standard-setting criterion[2] is interpreted as a technology-based mandate identified as Maximum Achievable Control Technology (MACT).[3]

Sections 112 and 129 also require EPA to established a minimum stringency level for MACT, known as the

"MACT floor."[4] The Act prohibits EPA from promulgating national emissions standards for hazardous air pollutants (NESHAP) and standards for solid waste incinerators that are less stringent than the MACT floors. To implement this statutory mandate, EPA follows a two-step process in which it first determines the MACT floors for new and existing sources and then evaluates whether a more stringent emissions limitation "beyond the floor" can be achieved for new or existing sources considering the other factors listed in the statute.

The MACT floors for new and existing sources are defined differently, with the floor for new sources being the more stringent.[5] To define the MACT floor for new sources, the Act provides that the "degree of reduction in emissions that is deemed achievable for new [units or 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 [unit or source]."[6] For existing sources, the MACT standards "shall not be less stringent ... than ... the average emissions limitation achieved by the best performing 12 percent of the [existing sources or units]."[7]

Although there is some variation between the statutory language in sections 112 and 129, the definitions of MACT and the MACT floors in each section are essentially the same and have been recognized as such by the District of Columbia Circuit.[8]

Section 112 governs major and area sources in categories identified by EPA that emit one or more of the 188 hazardous air pollutants listed in the statute.[9] This technology-based mandate replaced a risk-based framework for hazardous air pollutant standards that existed prior to 1990.[10]

Section 129 applies to five categories of solid waste incineration units listed in the statute and requires EPA to establish new source performance standards and guidelines for existing sources under section 111 of the Act for nine specific criteria and hazardous air pollutants.[11]

EPA's Methods for Setting MACT Floors

To set each of the MACT standards reviewed by the D.C. Circuit,[12] EPA first compiled a data set of emissions information for sources in the category. EPA used this data set to identify the best performing 12 percent of sources in the category for existing sources and the best performing single source for new sources. EPA called the best performing sources or source in each category (12 percent for existing sources and best single source for new sources) the "MACT pool."

For the cement kiln and hazardous waste combustor standards reviewed by the court, EPA identified the air pollution control technology, called the "MACT control," used by the sources in each MACT pool. To set the MACT floor, EPA expanded the MACT pool to include the performance of all sources in its data set that utilized the MACT control. EPA then set the MACT floor at the level of emissions achieved by the worst performing source that utilized the MACT control (the highest level of emissions observed at a source using a particular pollution control technology based on EPA's data set for all sources) on the theory that this highest level of emissions reflected the lowest level consistently achievable in practice by all sources using that technology given inherent operational variability.

In *National Lime Association v. EPA (National Lime II)*[13] and *Cement Kiln Recycling Coalition v. EPA*,[14] EPA used this "MACT control approach" to establish the MACT floor for both new and existing sources. EPA accounted for the difference in the criteria governing new and existing source floors when it selected the MACT

control for either new or existing sources. EPA chose the control technology used by the top 12 percent of sources when setting the floor for existing sources and the control technology used by the best single source when setting the floor for new sources.

Because EPA used the same basic approach for new and existing sources, we discuss the MACT control approach in summary fashion, using the term "best performing sources or source" to refer to both the existing and new source criteria and distinguishing between EPA's method for new and existing source only when necessary.

EPA used the MACT control approach to set the MACT floors for new sources in each of the three cases reviewed in this article and to set the floors for existing sources in *National Lime II* and *Cement Kiln*. In *Sierra Club v. EPA*,[15] EPA set the floor for existing medical waste incinerators by averaging the emissions data in the MACT pool for the top 12 percent rather than basing the standard on the highest emissions level observed at a source employing the technology used by the top 12 percent.[16]

The emissions data EPA has used in setting MACT floors has included a combination of actual emissions test data and other information used as a surrogate for actual emissions of sources in the category. Surrogate data has included the level of emissions control required for particular pollutants under existing regulations and operating permits for facilities in a particular category. EPA has considered state emission limitations to be representative of the limitations being achieved in practice by sources in a category. In some cases where sources were not subject to any state emission limitations and EPA had no actual emissions data, EPA considered the sources uncontrolled. For these sources, EPA extrapolated that emissions would equal the performance test results at sources that employed no pollution control technology.

EPA's derivation of the MACT floors has been the predominant focus of the D.C. Circuit's opinions on the MACT standards and is the focus of this article. There are various reasons why the court's opinions focus on the floors:

- EPA often establishes the final MACT standards at the level of the floors, finding that more stringent standards "beyond the floor" are not achievable.

- The court often failed to reach the "beyond the floor" issues once it decided to remand the MACT floors back to EPA.[17]

- The court passed over "beyond the floor" arguments in one case because the record and the briefs failed to provide enough information to permit review.[18]

Arguments by Trade Associations and Environmental Groups

In the cases challenging the MACT standards, industry and environmental organizations focused their MACT floor arguments on the type of data included in EPA's data set and the permissibility of the MACT control approach.

Industry petitioners and intervenors relied on the "achievability" and "achieved in practice" language in the Act to argue that the MACT floors must account for the variability of emissions, and that the standards must be achievable under the worst

foreseeable operating conditions.

The environmentalists have argued that because the MACT floors must be based on the best performing sources or source (either the best 12 percent of sources or the best single source), the standards must be set at the lowest levels of emissions in EPA's data set (either single lowest data point or the lowest 12 percent of emissions data) because these levels of emissions have been demonstrated to be achieved in practice by the best performing sources or source. Environmental petitioners also have challenged the use of state emission limitations and data from uncontrolled sources in EPA's data set.

In two cases, industry parties did not quarrel with the data used by EPA, but in one case an industry petitioner argued EPA was required to use state emission limitations in its data set rather than performance data from compliance tests.

Review by D.C. Circuit Court of Appeals

Review of each individual case shows the D.C. Circuit has construed the statute to grant EPA discretion to set the MACT floors using a data set and a methodology that reasonably estimates the performance of the best performing sources or source in an industry category, considering the variability in emissions at the best performing sources or source under the worst foreseeable circumstances. However, the court has rigorously scrutinized EPA's methods and demanded EPA demonstrate its methods are, in fact, a reasonable predictor of the performance of the group of sources that the Act defines as the basis for the MACT floors (either the best 12 percent or the best single source).

Sierra Club v. EPA:

Medical Waste Incinerators

The first case to review EPA's MACT standard setting methodology, *Sierra Club v. EPA*,[19] involved a challenge to emission limitations issued under section 129 for new and existing medical waste incinerators, which were subdivided into small, medium, and large subcategories. EPA set standards in the three subcategories for each of the nine pollutants listed in section 129 (a total of 27 emission limitations). For existing medical waste incinerators, EPA determined the MACT floor by averaging the 12 lowest emissions levels achieved by sources in its data base, which included data from state emission limitations and uncontrolled sources.[20] To set the MACT floor for new sources, EPA identified the pollution control technology used by the best performing sources or source (the MACT control), determined the highest level of emissions observed at a source using that technology (the worst performance), increased that level by a 10 percent safety factor, and rounded the number upward.[21]

Environmental petitioners, Sierra Club and the Natural Resources Defense Council, challenged the inclusion of state emission limitations data and data from uncontrolled sources in the data set used by EPA to determine the MACT floors for existing sources, and EPA's use of the MACT control approach to set the MACT floors for new sources

based on the worst performing unit using the best performing technology.[22] No industry parties challenged the medical waste incinerator standards as petitioners, but two industry trade associations intervened in the case in support of EPA.

The court rejected the environmental petitioners' statutory argument that section 129 precluded EPA from using state emission limitations and data from uncontrolled sources to set the MACT floor for existing sources.[23] Sierra Club and NRDC based this argument on the language in section 129 requiring floors to be based on "average emissions limitation achieved." EPA argued in response that its use of state emission limitations was permissible because section 302(k) of the Clean Air Act defined the term "emission limitation" as a "requirement established by the state or the administrator which limits the quantity, rate, or concentration of emissions of air pollutants."

The court rejected what it described as EPA's "tortured" statutory argument but still upheld the agency under the second-step of the statutory construction analysis set forth in *Chevron v. NRDC*,[24] holding that it was permissible for EPA to construe the statute to permit the use of data from state regulatory requirements if this data allowed EPA to make a reasonable estimate of the performance of the top 12 percent of the units.[25]

The court concluded that EPA has wide latitude to determine the extent of data-gathering necessary to solve a problem, and that courts generally defer to EPA's decision to proceed on the basis of imperfect scientific information rather than invest resources to conduct the perfect study.[26]

The court similarly reasoned that EPA's database could include extrapolated data points representing the performance of uncontrolled sources if EPA had a reasonable basis to believe any of the best performing 12 percent of sources were not using emissions controls.[27]

Turning to the specific facts of the case, however, the court held under an arbitrary and capricious analysis that EPA had failed to explain adequately why it was reasonable to use such regulatory limitations to represent the emissions achieved by the best performing 12 percent of sources.[28] The court observed that there was data in the record suggesting the regulatory limits were higher than the emissions limits achieved in practice and that EPA failed to provide any explanation regarding the possibility, suggested by evidence in the record, that sources might be consistently operating at a level below the state regulatory limitations.[29]

In addition, the court noted that EPA never gave a reason for its belief that medical waste incinerators not subject to permit requirements were not using any emissions controls.[30] The court observed that EPA's conclusions regarding the number of uncontrolled units "looks hopelessly irrational."[31]

Reviewing the statutory requirements for identifying the MACT floor for new sources, the court held EPA could base the MACT floors for new sources on an estimate of the performance of the best controlled source under the worst reasonably foreseeable

circumstances.[32] The court agreed with EPA and the intervenors that EPA could interpret the language "achieved in practice" to require a floor "achieved under the worst foreseeable circumstances."[33] The court based its holding on *National Lime Ass'n v. EPA*,[34] an earlier case addressing new source performance standards which construed the use of the term "achievable" in section 111 of the Act to mean achievable "under the most adverse circumstances which can reasonably be expected to recur."[35] With this holding, the court rejected the environmental petitioners' argument that the statute required EPA to establish the MACT floors for new sources at the lowest emissions data point (lowest level of emissions observed at any source) in each subcategory.

EPA and industry intervenors argued the MACT control approach was a reasonable method for setting the MACT floors for new sources because it accounted for variability under the worst foreseeable conditions, but the court could not find this explanation in the record and ordered EPA to explain its reasoning. The court said EPA failed to explain why the phrase "best controlled similar unit" should be construed to mean the performance of all units using the same technology rather than the unit with the best observed performance, as the use of the singular in the statutory language suggested.[36] The court expressed similar concerns about EPA's decision to add 10 percent to the observed emissions levels and round up the result and required EPA to provide an explanation.[37]

Sierra Club did not decide whether the MACT control approach used by EPA to set the floors for new units was a reasonable means to determine the performance of the best unit and to meet the requirements of the statute, but the court suggested the MACT control approach might be a reasonable method. The court said, "Perhaps considering all units with the same technology is justifiable because the best way to predict the worst reasonably foreseeable performance of the best unit with the available data is to look at other units' performance."[38] However, because there was an insufficient record of EPA's reasoning, the court could not decide whether this method was in fact reasonable under the circumstances.

The court remanded the matter back to EPA to better explain its reasoning and to show why EPA's conclusions regarding the floors for new and existing sources were not as irrational as they appeared to the court.[39]

The court did not vacate the MACT standards for medical waste incinerators, but rather left them in effect pending EPA's reconsideration.

National Lime Association v. EPA:

Portland Cement Manufacturing

The first case involving MACT standards issued under section 112, *National Lime Ass'n*

v. EPA[40] (*National Lime II*), was a challenge to EPA's hazardous air pollutant standards for the portland cement manufacturing category by the National Lime Association and the Sierra Club. In *National Lime II*,[41] EPA used the MACT control approach to set the MACT floors for both existing and new portland cement kilns.

To set the floor for new sources, EPA identified the emissions control technology used by the best performing plant, evaluated the emissions data for all plants using that technology, and then set the floor at the highest reported emissions level for any plant in the database using that technology.[42]

To set the floors for existing portland cement kilns, EPA identified the control technology used by the median plant out of the best 12 percent of the plants for which it had information and set the floor at the level of emissions observed at the worst performing plant in the database using that technology.[43]

EPA set no floors for hydrochloric acid, mercury, and total hydrocarbons on the ground that no sources were controlling these pollutants.[44]

In all cases but one, EPA set the final MACT standards at the floor, finding standards beyond the floor were not achievable.[45]

In *National Lime II*, the environmental petitioners again challenged the legality and reasonableness of the MACT control approach for setting the floors. The environmentalists also attacked EPA's failure to set floors for hydrochloric acid, mercury, and total hydrocarbons, as well as the agency's failure to set MACT standards more stringent than the levels of the floor.[46]

Industry petitioners' primary argument was that the Act did not permit EPA to use a standard for particular matter as a surrogate for regulation of hazardous air pollutant metals.[47]

On the statutory challenge to EPA's method for setting the floors, the court in *National Lime II* followed *Sierra Club*, holding that "EPA's method of setting emissions floors must reasonably estimate the performance of the relevant best performing plants."[48]

The court interpreted *Sierra Club* as 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."[49]

However, the court did not decide whether EPA's MACT control approach was a reasonable estimation method that met the requirements of the Act. In contrast to *Sierra Club*, when EPA set the standards at issue in *National Lime II*, the Agency explained why it had selected the MACT control approach--to ensure the standards were achievable under the most adverse conditions expected to recur; to estimate the actual performance of the top performing plants; and to account for variability in the

manufacturing process and the effectiveness of the air pollution control devices.[50]

Sierra Club claimed at oral argument that the MACT control approach was not reasonable because factors other than pollution control technology influenced the performance of the best sources. However, because Sierra Club had not made this argument in its brief, the *National Lime II* court refused to consider it.[51]

Turning to the other issues, the court agreed with Sierra Club's argument that EPA was required to set MACT floors for hydrochloric acid, mercury, and total hydrocarbons. The court held that the Act did not allow EPA to avoid setting standards for hazardous air pollutants not presently controlled by air pollution control technology.[52]

In the only instance in which the court addressed the merits of EPA's beyond the floor analysis, the court struck down the MACT standards for hazardous air pollutant metals in *National Lime II* because EPA overlooked a study on the benefits of switching to natural gas fuel and the record contained no evidence EPA considered non-air quality impacts.[53]

EPA remanded the rule to EPA to set MACT floors for hydrochloric acid, mercury, and total hydrocarbons and to consider setting standards more stringent than the floor for hazardous air pollutant metals.[54]

The court did not vacate the standards.

Cement Kiln Recycling Coalition v. EPA: Hazardous Waste Combustors

Finally, the court recently decided *Cement Kiln Recycling Coalition v. EPA*[55] (*Cement Kiln*), a challenge to EPA's national emissions standards for hazardous air pollutants for hazardous waste combustors. Once again, EPA used the MACT control approach to set the MACT floors for both existing and new sources. EPA promulgated a total of 49 standards for emissions of dioxin, mercury, metals, arsenic, beryllium, particulate matter, chlorine, carbon monoxide, and hydrocarbons from three subcategories--hazardous waste incinerators, cement kilns that use hazardous waste as fuel, and lightweight aggregate kilns that use hazardous waste fuel.[56]

EPA compiled its database of emissions information primarily from the results of compliance tests conducted under Resource, Conservation, and Recovery Act regulations governing hazardous waste combustion. EPA calculated the floors by using this database to identify the "MACT pool" of the best performing 12 percent and the best performing single source for existing and new sources, respectively. Then, EPA identified the primary air pollution control technology (the "MACT control") used by the sources in the MACT pool and expanded the MACT pool to include all sources using the MACT control, provided the control was well-designed and properly operated. EPA set the floors at the highest emission level achieved by any source in the expanded MACT pool.[57]

The Sierra Club made the same basic MACT floor and database related arguments in its challenge here that it made in the two prior cases--that EPA's use of the MACT control approach was unlawful and that EPA could not use RCRA test data in the database of emissions information.[58]

Industry petitioners argued the Act required EPA to establish the floors based on a database containing only emission limitations from RCRA permits rather than actual performance test data.[59]

In *Cement Kiln*, the court finally had what it needed to tackle the merits of the MACT control approach and the permissibility of setting the floors at the worst performance level achieved by a source using the MACT control. Although the court had declined Sierra Club's invitation to reject the MACT control approach in *Sierra Club* and *National Lime II*, when these issues were presented in *Cement Kiln*, the court addressed them squarely and rejected the MACT control approach on the grounds that it did not produce a reasonable estimate of the performance of the best sources.

In reaching this conclusion, the *Cement Kiln* court reaffirmed the principle established in *Sierra Club* and followed in *National Lime II* that EPA has discretion to choose a method to derive the MACT floors but "EPA's method of setting emission floors must reasonably estimate the performance of the relevant best performing plants."[60] Relying heavily on the holdings in *Sierra Club* and *National Lime II*, *Cement Kiln* held that "EPA must show not only that it believes its methodology provides an accurate picture of the relevant sources' actual performance, but also why its methodology yields the required estimate."[61] The court held that this standard must be met regardless of whether the EPA used the MACT control approach or another method.[62]

Applying this principle in the case before it, the *Cement Kiln* court held that the MACT control approach did not provide a reasonable estimate of the performance of the best hazardous waste combustors because the method failed to account for factors other than end-of-stack pollution control technology that, based on evidence in the record, affected the performance of the best sources.[63] These factors included combustion quality, waste feed composition, newer and better models of the same control technology, and the combined effect of more than one control device.[64] Because of the influence of these other factors, the court concluded that the emissions of the worst-performing source using the MACT control did not represent a reasonable estimate of emissions achieved by the best performing sources or source.[65]

The court did not agree with EPA's view that the agency had to consider the emissions of the worst performing source using the best performing pollution control technology to account for the operational variability of the best sources or source. The court found this method flawed because it did not focus on the operational variability of only the best-performing sources or source, but rather focused on variability across all sources in the expanded MACT pool that used the MACT control.[66]

In rejecting the "worst of the best" approach in *Cement Kiln*, the court was heavily

influenced by a record showing "a real difference between emissions achieved by the worst-performing sources and the variability experienced by the best performers."[67] The record revealed EPA was able to calculate the variability experienced by the top 12 percent of hazardous waste combustors but declined to propose MACT floors based on this calculation because the floors would not have been achievable by all MACT sources.[68] In addition, emissions data from RCRA compliance tests in EPA's database already provided an indication of the variability in emissions at the best performing sources or source because most of the performance tests were conducted under worst-case scenarios.[69]

Cement Kiln also questioned EPA's practice of basing the floors on performance data from the expanded MACT pool of all sources using a particular control technology. The court observed that the MACT floor provisions limit the scope of what can be deemed "achievable" under section 112.[70]

The court held that "[w]hile standards achievable by all sources using the MACT control might also ultimately reflect what the statutorily relevant sources achieve in practice, EPA may not deviate from section 7412(d)(3)'s requirement that floors reflect what the best performers actually achieve by claiming that floors must be achievable by all sources using MACT technology."[71]

However, despite these conclusions, the court did not hold that the MACT control approach was wholly inconsistent with the statutory mandate of Section 112. To the contrary, the Court described the following circumstances under which EPA might still use the performance of a particular control technology to identify the MACT floors:

> If in the case of a particular source category or hazardous air pollutants, the agency can demonstrate with substantial evidence--not mere assertions--that MACT technology significantly controls emissions, or that factors other than the control have a negligible effect, the MACT approach could be a reasonable means of satisfying the statute's requirements.[72]

Thus, the MACT control approach could be a viable method in a different factual context.

Cement Kiln also upheld EPA's use of RCRA compliance test data.[73] Sierra Club objected to including this data in the database on the grounds that sources allegedly spiked their waste feed with the most hazardous wastes during these tests to approximate the worst foreseeable operating conditions and to obtain the highest permit limitations possible. Relying on *Sierra Club*, the court held EPA has wide latitude to determine the extent of data gathering necessary to solve a problem and held the Sierra Club had presented the court with no basis to conclude EPA could not use the RCRA data to identify the best performers and predict their emissions under the worst reasonably foreseeable circumstances.[74]

The court remanded the hazardous waste combustor rule to the agency to reconsider the MACT floors[75] using a method consistent with its opinion.

The court also vacated the MACT standards for the first time. In *Sierra Club* and *National Lime II*, the court left the standards in place because there were either no industry petitioners or the court rejected all of the industry claims. In *Cement Kiln*, by contrast, the court failed to reach potentially meritorious arguments by industry petitioners (e.g., that the MACT standard's start up, shut down, and malfunction provision was unlawful), and this made vacatur appropriate.[76] 

The court allowed the parties to file a motion to stay issuance of the court's mandate to provide time to work out interim standards and a schedule for the issuance of new final standards.[77] 

Conclusions

Collectively, the D.C. Circuit's three opinions on MACT standards have established the following legal principles:

1. EPA is not required to use any particular kind of data. The agency has wide latitude to include various types of emissions data in its database, including state emission limitations, data from uncontrolled sources, and actual emissions data from performance tests and RCRA compliance tests;

2. EPA has discretion to select a method for determining the MACT floors but the method must reasonably estimate the emissions achieved in practice by the best performing sources or source (either the best performing 12 percent of sources in the case of floors for existing sources, or the best single source for new source floors);

3. EPA's method must consider the variability in the emissions of the best performing sources or source and base floors on standards achievable under the most adverse operating conditions reasonably foreseeable.

In establishing these principles, the court has struck a balance between the statutory arguments of industry and environmentalists regarding the required level of the MACT floors. By holding in *Sierra Club* that EPA must consider variability and the worst foreseeable operating conditions when estimating the emissions levels achieved in practice by the best performing sources or source, the court rejected the environmentalists' argument that the MACT floor must be based on the lowest observed levels of emissions contained in EPA's database.

However, in *Cement Kiln*, the court rejected EPA's practice of accounting for the variability in the performance of the best sources by setting floors at the worst performance level for *all* sources that used the same control technology as the best performing sources or source. *Cement Kiln* could be read to foreclose the use of this component of the MACT control method to account for variability, but the result in that case was influenced by a record which showed the method did not reflect the variability experienced by the best performing sources or source. Hazardous waste combustors may be a unique category because the composition of the waste feed has a significant

impact on hazardous air pollutant emissions. It remains to be seen whether EPA's "worst of the best" method would be permissible under a different set of facts.

Cement Kiln also cast doubt on whether EPA can continue to use the overall MACT control approach to set the floors. EPA may still be able to use some form of the MACT control approach if the agency can demonstrate on the record that pollution control technology is the primary factor that affects the emissions of the best sources or source.

Finally, the court has provided no significant guidance on what the Act requires the agency to do when evaluating the achievability of standards more stringent than the floors in the second stage of the process. The most the court has said on this issue is that there must be evidence in the record that EPA has considered non-air quality impacts. The D.C. Circuit has yet to address how the important factor of cost should be considered in the beyond-the-floor analysis. There are many unanswered questions about how EPA must weigh cost, energy requirements, and non-air quality impacts when determining whether a standard beyond the floor is achievable.

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1 42 U.S.C. § 7412(d)(2); 42 U.S.C. § 7429(a)(2)-(3).

2 EPA has finalized approximately 60 national emissions standards for hazardous air pollutants and has proposed close to 20 more. 67 Fed. Reg. 6521 (Feb. 12, 2002); 40 C.F.R. Part 63. EPA's most recent version of the Source Category List, required under section 112(c) of the Clean Air Act, lists close to 200 categories of sources. Id. The list started with 174 categories in 1992, and EPA has added, deleted, combined, and renamed categories since then. See 67 Fed. Reg. at 6521. EPA has issued final rules for four solid waste incineration categories. 60 Fed. Reg. 65,387 (Dec. 19, 1995) (Large Municipal Waste Combustors; 62 Fed. Reg. 48,348 (Sept. 15, 1997) (Medical Waste Incinerators); 65 Fed. Reg. 76,349 (Dec. 6, 2000); 65 Fed. Reg. 76,377 (Dec. 6, 2000) (Small Municipal Waste Combustors); 65 Fed. Reg. 75,338 (Dec. 1, 2000) (Commercial Solid Waste Incinerators). EPA is developing rules for a fifth category called Other Solid Waste Incineration Units. 65 Fed. Reg. 67,357 (Nov. 9, 2000).

3 Several of the challenges to MACT standards by industry trade associations have been resolved through settlements. These include the rules for Pharmaceuticals Production, 65 Fed. Reg. 452 (Jan. 5, 2000); 65 Fed. Reg. 19,152 (Apr. 10, 2000); 65 Fed. Reg. 52,588 (Aug. 29, 2000), Wood Furniture Manufacturing, 63 Fed. Reg. 71,376 (Dec. 28, 1998), and Pesticide Active Ingredient Manufacturing, 67 Fed. Reg. 13,504 (Mar. 22, 2002); 66 Fed. Reg. 58,396 (Nov. 21, 2001).

4 *See* 42 U.S.C. § 7412(d)(3); 42 U.S.C. § 7429(a)(2)

5 42 U.S.C. § 7412(d)(3); 42 U.S.C. § 7429(a)(2).

6 42 U.S.C. § 7412(d)(3); 42 U.S.C. § 7429(a)(2).

7 42 U.S.C. § 7412(d)(3); 42 U.S.C. § 7429(a)(2)

8 *National Lime Ass'n v. EPA*, 233 F3d 625 at 631, 51 ERC 1737 (D.C. Cir. 200) (*National Lime II*); *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855 at 861-62, 52 ERC 1865 (D.C. Cir. 2001) (*Cement Kiln*).

9 42 U.S.C. § 7412(b)(1).

10 NESHAPs promulgated under the technology-based MACT criteria established in 1990 are set forth in Part 63 of Title 40 of the Code of Federal Regulations. Hazardous air pollutant standards promulgated before November 15, 1990 using the risk-based criteria are contained in 40 C.F.R. Part 61. See 40 C.F.R. § 63.1(a)(2).

11 The nine pollutants are particulate matter, sulfur dioxide, hydrogen chloride, oxides of nitrogen, carbon monoxide, lead, cadmium, mercury, and dioxins and dibenzofurans. Opacity is also listed in the statute but is generally regulated as a surrogate for particulate matter. 42 U.S.C. § 7429(a)(4).

12 Each opinion was issued by the D.C. Circuit because section 307(d) of the Clean Air Act grants this court exclusive jurisdiction over challenges to national emissions standards for hazardous air pollutants and new source performance standards. 42 U.S.C. § 7607(b).

13 233 F.3d 625, 51 ERC 1737 (D.C. Cir. 2000).

14 255 F.3d 855, 52 ERC 1865 (D.C. Cir. 2001).

15 167 F.3d 658, 48 ERC 1161 (D.C. Cir. 1999).

16 *Sierra Club*, 167 F.3d at 661; 61 Fed. Reg. 31736, 31745 (June 20, 1996).

17 *National Lime II*, 233 F.3d at 634.

18 *Sierra Club*, 167 F.3d at 666.

19 *Id*. at 658

20 *Id*. at 660-661

21 *Id*. at 664-665

22 The environmental groups also challenged EPA's failure to evaluate non-air quality

impacts and the benefits of pollution prevention when the agency considered whether standards beyond the floor were achievable. *Id.* at 665-66.

23 *Id*. at 661-662.

24 467 U.S. 837 at 843-845, 21 ERC 1049 (1984).

25 *Sierra Club*, 167 F.3d at 662.

26 *Id*. at 662.

27 *Id*. at 663.

28 *Id*. at 663-664.

29 *Id*. at 663.

30 *Id*. at 664.

31 *Id*.

32 *Id*. at 665.

33 *Id*. (internal quotation marks omitted.)

34 627 F.2d 416 at 431 n. 46, 14 ERC 1509 (D.C. Cir. 1980) (*National Lime I*).

35 *Sierra Club*, 167 F.3d at 665 (internal quotation marks omitted).

36 *Id.*

37 *Id.*

38 *Id*.

39 *Id*. at 666.

40 233 F.3d 625, 51 ERC 1737 (D.C. Cir. 2000).

41 The first case with this name was *National Lime Ass'n v. EPA*, 627 F.2d 416, 14 ERC 1509 (D.C. Cir. 1980) (*National Lime I*), as discussed above.

42 *National Lime II*, 255 F.3d at 630.

43 *Id*.

44 *Id*.

45 *Id*.

46 *Id*. at 631.

47 *Id.* at 630. *National Lime II* rejected the industry argument that EPA could not use a standard for controlling a criteria pollutant regulated under other parts of the Act (particulate matter), as a surrogate for standards for hazardous air pollutants metals. Id. at 637-39. This article does not discuss the court's treatment of challenges to monitoring methods raised by Sierra Club and National Lime Association.

48 *Id.* at 632.

49 *Id.* at 631.

50 *Id*. at 631-632.

51 *Id.* at 632-33.

52 *Id*. at 634.

53 *Id.* at 634-635.

54 *Id.* at 641.

55 255 F.3d 855, 52 ERC 1865 (D.C. Cir. 2001).

56 *Id.* at 858-59.

57 *Id.* at 859. In the second step of the MACT standard-setting process, EPA established five hazardous waste combustor standards at a level beyond the floor. *Id.*

58 *Id.* Sierra Club also argued EPA failed to evaluate non-air quality effects in the beyond-the-floor analysis and EPA should have established standards more stringent than the floors. *Id.*

59 *Id.* Several industry petitioners also challenged individual standards and procedural requirements as arbitrary and capricious for various reasons. *Id.*

60 *Id*. at 862 (internal quotations omitted).

61 *Id*.

62 *Id*. at 871-872.

63 *Id.* at 864.

64 *Id*. at 863-864.

65 *Id*. at 864.

66 *Id.* at 865-66.

67 *Id.* at 866.

68 *Id.*

69 *Id.*

70 *Id.* at 861.

71 *Id.*

72 *Id*. at 866.

73 The court declined to address the industry argument that the Act required EPA to use emission limitations in RCRA permits rather than performance tests data because the industry petitioners had not raised the issue in the rulemaking process below. *Id.* at 860.

74 *Id.* at 867.

75 Because it directed EPA to reconsider the first step in the process, the court declined to rule on the environmental and industry challenges to actions EPA took in the second-step of the process to determine whether a standard beyond the floor was achievable. *Id.* at 872.

76 *Id.* at 872.

77 *Cement Kiln*, 255 F.3d at 872; 67 Fed. Reg. 6792 (Feb. 13, 2002).