

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

BLUE RIDGE ENVIRONMENTAL
DEFENSE LEAGUE, CLEAN WISCONSIN,
MIDWEST ENVIRONMENTAL DEFENSE
CENTER, and SIERRA CLUB,

Plaintiffs,

v.

MICHAEL S. REGAN, in his official
capacity as Administrator,¹ U.S.
Environmental Protection Agency,

Defendant.

Case No. 1:16-cv-364-CRC

Joint Motion to Extend Deadlines Under Court Order

After conferral regarding the issues discussed in prior status reports, the parties jointly move the Court for an extension of EPA’s deadlines under the Court’s March 22, 2017 Order, ECF No. 38, to take final action to control hazardous air pollution in light of *Louisiana Environmental Action Network v. EPA*, 955 F.3d 1088 (D.C. Cir. 2020) (*LEAN*).

EPA earlier explained that it had finalized six actions in response to that order. Those actions include hazardous air pollution rules required under sections 112(d) and 112(f) of the Clean Air Act, 42 U.S.C. § 7412(d), (f). *See* Order (Mar. 22, 2017) (requiring that EPA “complete its ‘Risk and Technology Review’ (“RTR”) rulemakings” for six source categories by June 30, 2020). The actions cover six source categories: Lime Manufacturing Plants,

¹ Michael S. Regan is substituted for his predecessor Jane Nishida under Fed. R. Civ. P. 25(d).

Rubber Tire Manufacturing, Miscellaneous Coating Manufacturing, Plywood and Composite Wood Products, Taconite Iron Ore Processing, and Iron and Steel Foundries. ECF No. 55.

As EPA was preparing those actions for signature, the D.C. Circuit decided *LEAN* on April 21, 2020. In a case concerning the national emission standards for pulp mill sources, the court held that EPA must set limits on uncontrolled hazardous air pollutant (“HAP”) emissions when it conducts rulemakings under section 112(d)(6) of the Act, 42 U.S.C. § 7412(d)(6). EPA then reported that it was evaluating whether *LEAN* affects the scope of its obligations under this Court’s order. *See, e.g.*, ECF No. 55.

Since then, EPA has concluded that *LEAN* does not affect the scope of its obligations for the risk and technology review of the Iron and Steel Foundries category.² But for the other five of the source categories—Lime Manufacturing Plants, Miscellaneous Coating Manufacturing, Rubber Tire Manufacturing, Plywood and Composite Wood Products, and Taconite Iron Ore Processing³—EPA has concluded that, in finalizing its actions, it did not (or for the source category italicized in the list below, may not have) set all necessary emission limits for HAP emissions as part of its final rules as required by *LEAN*. To allow EPA to fill these regulatory gaps in accordance with *LEAN* and without the need for further litigation on new deadlines, the parties ask the Court to extend the deadlines to take final action on these five source categories as follows:

² 85 Fed. Reg. 56,080 (Sept. 10, 2020).

³ *See* 85 Fed. Reg. 44,960 (July 24, 2020) (Lime Manufacturing Plants); 85 Fed. Reg. 49,724 (Aug. 14, 2020) (Miscellaneous Coating Manufacturing); 85 Fed. Reg. 44,752 (July 24, 2020) (Rubber Tire Manufacturing); 85 Fed. Reg. 49,434 (Aug. 13, 2020) (Plywood and Composite Wood Products); 85 Fed. Reg. 45,476 (July 28, 2020) (Taconite Iron Ore Processing).

Source category	New deadline for signature of Final Rule
Rubber Tire Manufacturing	October 27, 2022
<i>Miscellaneous Coating Manufacturing</i>	<i>February 16, 2023</i>
Lime Manufacturing Plants	February 23, 2023
Plywood and Composite Wood Products	November 16, 2023
Taconite Iron Ore Processing	November 16, 2023

EPA believes that these deadlines would give it time to collect and analyze any additional information needed to address *LEAN*, as well as provide meaningful public participation in the rulemaking process.

Plaintiffs state that they have agreed to these dates to allow time for EPA to meet its obligations under *LEAN*. Plaintiffs also have agreed to allow this additional time due to the change in Administrations and the time needed for EPA to comply with the directive from President Biden to “review . . . agency actions taken between January 20, 2017 and January 20, 2021 . . . that are or may be inconsistent with, or present obstacles to,” the Administration’s policy “of protecting public health and the environment” and “advanc[ing] environmental justice.” E.O. 13,990 (Jan. 20, 2021), 86 Fed. Reg. 7037 (Jan. 25, 2021).

After submission of any signed notice of an information collection request, or notice of a proposed rule to the Federal Register for publication for these source categories, EPA will make its best efforts to notify Plaintiffs within 10 days of each such action. No later than 30 days after publication of each final rule for these source categories, EPA shall notify this Court of that action.

A proposed order accompanies this motion.

Submitted on April 13, 2021.

/s/ Sue Chen

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Certificate of Service

I certify that on April 13, 2021, I filed the foregoing with the Court's CMS/ECF system, which will notify each party.

/s/ Sue Chen

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UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

BLUE RIDGE ENVIRONMENTAL
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MIDWEST ENVIRONMENTAL DEFENSE
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Defendant.

Case No. 1:16-cv-364-CRC

EPA's Unopposed Motion to Extend Deadline

EPA moves for an extension of its deadline to take final action. Plaintiffs do not oppose EPA's requested relief.

Earlier this Court ordered EPA to complete risk and technology review rulemakings for certain source categories, including Lime Manufacturing Plants, under section 112(d) and (f) of the Clean Air Act, 42 U.S.C. § 7412(d), (f). ECF No. 38 (setting deadline at June 30, 2020). The Court later extended the deadline for Lime Manufacturing Plants to February 23, 2023. *See* ECF No. 61 (extending deadline); ECF No. 60 (joint motion for extension).

EPA's analysis here took longer than expected and the proposed rule for this action was published in the Federal Register on January 5, 2023. 88 Fed. Reg. 805. The comment period is open until February 21, 2023. As a result, EPA will need more time to complete final action.

The agency thus asks the Court to extend its deadline for Lime Manufacturing Plants until August 1, 2023.

Submitted on January 23, 2023

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Certificate of Service

I certify that on January 23, 2023, I filed the foregoing with the Court's CMS/ECF system, which will notify each party.

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UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

BLUE RIDGE ENVIRONMENTAL
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EPA's Unopposed Motion to Extend Deadline

EPA moves for an extension of its deadline to take final action until June 30, 2024.

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Earlier this Court ordered EPA to complete risk and technology review rulemakings for certain source categories, including Lime Manufacturing Plants, under section 112(d) and (f) of the Clean Air Act, 42 U.S.C. § 7412(d), (f). ECF No. 38 (setting deadline at June 30, 2020).

The Court later extended the deadline for Lime Manufacturing Plants to August 1, 2023.

Minute Order (Jan. 24, 2023) (extending deadline to August 1, 2023); *see* ECF No. 61 (extending deadline to February 23, 2023).

In January, EPA's proposal for this action was published in the Federal Register. 88 Fed. Reg. 805 (Jan. 5, 2023). The comment period closed on February 21, 2023. Some

comments challenged underlying assumptions that EPA had made when it decided, under the Regulatory Flexibility Act, that the proposal would not have “a significant economic impact on a substantial number of small entities.” 5 U.S.C. § 605(b). Because EPA can no longer certify that the proposal would not have such effects, the agency now plans to convene a review panel under 5 U.S.C. § 609(b), invite public comments on an initial regulatory flexibility analysis, and issue a final regulatory flexibility analysis to accompany the final rule. *See id.* §§ 603-04.

As a result, EPA will need more time to take final action. The agency thus asks that the Court extend the deadline for Lime Manufacturing Plants to June 30, 2024.

Submitted on July 20, 2023

 /s/ Sue Chen

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Certificate of Service

I certify that on July 20, 2023, I filed the foregoing with the Court’s CMS/ECF system, which will notify each party.

 /s/ Sue Chen

Sue Chen

ORAL ARGUMENT NOT YET SCHEDULED

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 15-1487 (and consolidated cases)

SIERRA CLUB, et al.,

Petitioners,

v.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, et al.,

Respondents.

On Petition for Review of Final Action of the
United States Environmental Protection Agency

**BRIEF FOR RESPONDENT UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY**

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DATED: January 19, 2017

FINAL FORM: April 28, 2017

CERTIFICATE AS TO PARTIES, RULINGS, AND RELATED CASES

A. Parties and Amici

All parties and intervenors appearing in these consolidated cases are listed in the Brief for Environmental Petitioners and the Brief for Industry Petitioners.

B. Rulings Under Review

These petitions challenge EPA's final action entitled "NESHAP for Brick and Structural Clay Products Manufacturing; and NESHAP for Clay Ceramics Manufacturing," published at 80 Fed. Reg. 65,470 (Oct. 26, 2015). Petitioner Brick Industry Association also challenges EPA's final action entitled "NESHAP for Brick and Structural Clay Products Manufacturing; and NESHAP for Clay Ceramics Manufacturing," published at 81 Fed. Reg. 31,234 (May 18, 2016).

C. Related Cases

Case No. 15-1487 is consolidated with Case Nos. 15-1492, 15-1493, 15-1496, and 16-1179.

s/ Kate R. Bowers

KATE R. BOWERS

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GLOSSARY

ATSDR	Agency for Toxic Substances and Disease Registry
BIA	Petitioner Brick Industry Association
Brick/Clay Rule	NESHAP for Brick and Structural Clay Products Manufacturing; and NESHAP for Clay Ceramics Manufacturing, published at 80 Fed. Reg. 65,470 (Oct. 26, 2015)
Brick Rule	NESHAP for Brick and Structural Clay Products Manufacturing
CAA	Clean Air Act
Clay Rule	NESHAP for Clay Ceramics Manufacturing
EPA	United States Environmental Protection Agency
HAP	Hazardous Air Pollutant
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
PM	Particulate Matter
RTC	Responses to Comments
TCNA	Petitioner Tile Council of North America
UPL	Upper Prediction Limit
2003 Rule	NESHAP for Brick and Structural Clay Products Manufacturing; and NESHAP for Clay Ceramics Manufacturing, published at 68 Fed. Reg. 26,690 (May 16, 2003)

STATEMENT OF JURISDICTION

This Court has jurisdiction pursuant to 42 U.S.C. § 7607(b)(1), except that, as set forth below, Petitioner Tile Council of North America (“TCNA”) has failed to meet its burden to demonstrate Article III standing to challenge the tile industry standards.

STATEMENT OF THE ISSUES

Petitioners challenge emission standards established by Respondent Environmental Protection Agency (“EPA”) under section 112 of the Clean Air Act (“CAA” or “the Act”), 42 U.S.C. § 7412, for hazardous air pollutants (“HAPs”) emitted by brick and structural clay products and clay ceramics manufacturing facilities. EPA promulgated these regulations through the final agency action titled “NESHAP for Brick and Structural Clay Products Manufacturing; and NESHAP for Clay Ceramics Manufacturing” (“Brick/Clay Rule”), 80 Fed. Reg. 65,470 (Oct. 26, 2015). Petitioner Brick Industry Association (“BIA”) also challenges EPA’s final action on reconsideration of the Brick/Clay Rule, 81 Fed. Reg. 31,234 (May 18, 2016).

The issues raised by Environmental Petitioners are:

1. Is EPA’s decision to establish health-based standards for acid gas emissions consistent with the CAA and reasonable?
2. Did EPA reasonably use the Upper Prediction Limit (“UPL”) methodology to calculate emission standards for sources for which EPA had limited emissions data?

3. Is EPA's creation of alternative emission standards for brick kilns consistent with the CAA and reasonable, where the alternative standards are each expressed in a different unit of measurement and calculated based on the best-performing sources according to that unit of measurement?

The issues raised by Industry Petitioners are:

4. Is BIA barred from challenging EPA's inclusion of synthetic area source data in MACT floor calculations? And if reviewable, did EPA reasonably include emissions information from synthetic area sources in calculating the MACT floors to set standards for major sources?

5. Did EPA adequately justify the MACT floors for particulate matter ("PM") and non-mercury metals for brick industry sources and reasonably estimate the emissions from the best-performing 12 percent of sources?

6. Did EPA comply with the CAA in setting mercury standards for sources in the brick industry, and in declining to subcategorize based on the mercury content of raw materials?

7. Does Petitioner TCNA lack standing to challenge the tile industry standards and EPA's decision to list a major source category which includes the tile industry, where TCNA has not shown that any of its members would be injured by the standards for that category?

8. Does EPA have authority to set standards for major sources in the tile industry when, at the time the standards are proposed and issued, there are no sources in the category that would be subject to the standards?

9. Is TCNA barred from challenging EPA's decision to list a major source category including ceramic tile sources? And if reviewable, did EPA adequately support the listing of a major source category that includes tile sources?

10. Did EPA reasonably rely on reported emission levels that were measured using an established test method to set standards for dioxin/furan for tile industry sources?

11. Did EPA reasonably decline to include malfunction data in setting standards for the tile industry?

12. Are EPA's standards for ceramic tile sources reasonable where such standards are set at MACT floor levels and where EPA has neither required the use of a specific control technology nor set standards based on a beyond-the-floor analysis?

13. Did EPA reasonably base its MACT floor calculations for sanitaryware sources in part on emissions information from a source operating with emission controls that the source is not required to use?

PERTINENT STATUTES AND REGULATIONS

Pertinent statutes and regulations appear in Petitioners' briefs and Addendums thereto. Additional statutes are included in a separate addendum.

STATEMENT OF THE CASE

A. Statutory Background

The Brick/Clay Rule regulates the emissions of hazardous air pollutants (“HAPs”) pursuant to CAA section 112, 42 U.S.C. § 7412. As amended in 1990, section 7412 directs EPA to regulate HAP emissions utilizing technology-based standards. *Sierra Club v. EPA*, 353 F.3d 976, 979 (D.C. Cir. 2004). In the 1990 amendments, Congress designated 189 HAPs that it deemed to be hazardous and therefore subject to regulation. *See* 42 U.S.C. § 7412(b)(1). Congress also required EPA to identify the categories of sources of each HAP, *id.* § 7412(c), and to set emission limits for each major stationary source, *id.* § 7412(d)(1). The statute defines major sources as those that emit or have the potential to emit considering controls more than ten tons per year of any covered HAP, or more than twenty-five tons per year of any combination of HAPs. *Id.* § 7412(a)(1). Sources that emit lower levels of HAPs are classified as “area sources.” *Id.* § 7412(a)(2).

For major sources, section 7412 requires EPA to establish national emission standards for listed categories for both new and existing major sources. These standards are ordinarily promulgated under section 7412(d) and “require the maximum degree of reduction in emissions of the hazardous air pollutants subject to this section (including a prohibition on such emissions, where achievable)” that the Administrator determines is achievable based on existing technology, taking into consideration cost and other specific factors. 42 U.S.C. § 7412(d)(2). These emission

standards are referred to as “maximum achievable control technology” or “MACT” standards.

To establish MACT standards, EPA follows a two-step process. *U.S. Sugar Corp. v. EPA*, 830 F.3d 579, 594 (D.C. Cir. 2016). First, EPA establishes a “MACT floor,” which is the absolute minimum level of emissions reductions covered sources must achieve. *Mossville Env'tl. Action Now v. EPA*, 370 F.3d 1232, 1235 (D.C. Cir. 2004). The MACT floor is based on what level of emissions limitation has been achieved within the source category. For new sources, the MACT floor is “the emission control that is achieved in practice by the best controlled similar source, as determined by the Administrator.” 42 U.S.C. § 7412(d)(3). The MACT floor for existing sources in categories or subcategories with 30 or more sources is “the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information).” *Id.* Where there are fewer than 30 sources in a category or subcategory, the MACT floor is determined based on the best-performing 5 sources. *Id.* Second, EPA has the discretion to set standards that are more stringent than the MACT floor (known as beyond-the-floor standards) that EPA determines are achievable “taking into consideration the cost of achieving such emissions reduction, and any non-air quality health and environmental impacts and energy requirements.” *Id.* § 7412(d)(2); see *U.S. Sugar*, 830 F.3d at 594-95.

EPA has extensive discretion to determine whether and how to collect data and to decide how to identify and assess relevant data when establishing emission

standards. *Cement Kiln Recycling Coal. v. EPA*, 255 F.3d 855, 867 (D.C. Cir. 2001).

EPA may use estimates of emission levels that have been achieved or are achievable, and may account for variability of a source's emissions. *Mossville*, 370 F.3d at 1240-42; *U.S. Sugar*, 830 F.3d at 632. "Floors need not be perfect mirrors of the best-performers' emissions . . . [but instead are to] reflect a reasonable estimate of the emissions 'achieved' in practice by the best-performing sources." *Cement Kiln*, 255 F.3d at 871-72 (citations omitted).

Under certain circumstances, section 7412 allows EPA to exercise its discretion to promulgate standards other than numeric MACT emission limitations. First, EPA has discretion to promulgate "health-based" emission limits pursuant to section 7412(d)(4). When section 7412 was first enacted, it required EPA to identify and regulate HAPs when they were found to "cause, or contribute to, an increase in mortality or an increase in serious irreversible [] or incapacitating reversible [] illness." Pub. L. No. 91-604, § 4(a), 84 Stat. 1676, 1685 (1970), 42 U.S.C. § 7412(a)(1) (1970). Congress amended section 7412 in 1990 to direct the use of technology-based standards because the prior health-based standards proved exceedingly difficult to generate. *NRDC v. EPA*, 529 F.3d 1077, 1079 (D.C. Cir. 2008).

By contrast, section 7412(d)(4) provides, "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.”¹ 42 U.S.C. § 7412(d)(4). As EPA explained, “This provision is intended to allow the EPA to establish emission standards other than technology-based MACT standards, in cases where an alternative emission standard will still ensure that the health threshold will not be exceeded, with an ample margin of safety.” NESHAP for Brick and Structural Clay Products Manufacturing; and NESHAP for Clay Ceramics Manufacturing; Proposed Rules, 79 Fed. Reg. 75,622, 75,638/3 (Dec. 18, 2014).

Second, if EPA determines that it is “not feasible” (as defined in section 7412(h)(2)) to prescribe or enforce a numeric MACT standard, it may instead promulgate a design, equipment, work practice or operational standard. 42 U.S.C. § 7412(h). These alternative standards are referred to as “work practice” standards.

B. Regulatory Background

EPA initially promulgated major source standards for brick and clay sources in 2003. NESHAP for Brick and Structural Clay Products Manufacturing; and NESHAP for Clay Ceramics Manufacturing, 68 Fed. Reg. 26,690 (May 16, 2003) (“2003 Rule”). This Court vacated those standards in 2007. *Sierra Club v. EPA*, 479

¹ EPA describes the “health threshold” as the level “below which no adverse health effects are expected to occur.” 80 Fed. Reg. at 65,491/3. Additionally, the Senate report accompanying the 1990 amendments refers to the “no observable effects level” or “health-effects threshold” as a level of exposure “below which human exposure is presumably ‘safe.’” S. Rep. No. 101-228, at 171 (1989), *reprinted in* 5 A Legislative History of the Clean Air Act Amendments of 1990 (“1990 Legis. Hist.”) at 8511 (Comm. Print 1993).

F.3d 875, 876 (D.C. Cir. 2007). Pursuant to a consent decree establishing deadlines for the proposal and promulgation of standards, EPA issued a proposed rule on December 18, 2014, 79 Fed. Reg. 75,622, and promulgated the final Brick/Clay Rule on October 26, 2015. 80 Fed. Reg. 65,470.

Following publication of the Brick/Clay Rule, the Industry Petitioners each submitted petitions for administrative reconsideration. On May 12, 2016, EPA denied BIA and TCNA's petitions, and granted in part and denied in part Kohler's petition. 81 Fed. Reg. 31,234 (May 18, 2016).

The Brick/Clay Rule establishes emission limitations for two major source categories: brick and structural clay products manufacturing (the "Brick Rule"), and clay ceramics manufacturing (the "Clay Rule"). The brick and structural clay products source category includes manufacturers of brick, clay pipe, roof tile, extruded floor and wall tile, and other extruded, dimensional clay products. 80 Fed. Reg. at 65,473/3. The clay ceramics source category includes manufacturers of pressed tile and sanitaryware (e.g., toilets and sinks). *Id.* at 65,477/3. The HAPs emitted by these sources are primarily acid gases such as hydrogen fluoride, hydrogen chloride, and chlorine. *Id.* at 65,473/2. These sources also emit lesser amounts of metals, including mercury, as well as dioxin/furan. *Id.* Depending on duration and level of the exposure, exposure to these chemicals can cause a variety of chronic and acute effects to the lungs, skin, central nervous system, digestive system, and kidneys. *Id.* at 65,473/2-3.

For each source category, EPA finalized a combination of requirements. In general, EPA set three types of standards: (1) numeric emission limitations at the MACT floor level; (2) health-based numeric emission limitations, pursuant to section 7412(d)(4); and (3) non-numeric work practice standards. The specific requirements challenged in this case are discussed below in the sections of the argument that relate to each requirement.

SUMMARY OF ARGUMENT

This case presents challenges to the Brick/Clay Rule from two sides. On the one hand, Environmental Petitioners argue that the rule is not sufficiently protective of public health. They challenge health-based standards set pursuant to section 7412(d)(4), emission limits calculated using an established statistical methodology, and the flexibility afforded to industry to choose standards that are all calculated based on the best-performing sources. On the other hand, Industry Petitioners argue that the rule is overly stringent for a litany of reasons largely relating to the data EPA considered in setting the standards for brick and clay ceramics manufacturing facilities. Neither side is right.

A. Environmental Petitioners' Claims

1. EPA reasonably promulgated health-based emission limits for acid gases pursuant to section 7412(d)(4). The statute does not specify what it means when a health threshold “has been established,” and the concept of an “established” threshold is unique to section 7412(d)(4). The identification of an “established”

health threshold in the same rulemaking in which EPA set health-based emission limits is fully consistent with the plain language of the CAA. EPA was not required to affirmatively conclude that the acid gases were not carcinogens before invoking section 7412(d)(4). Petitioners' argument to the contrary misunderstands the nature of scientific uncertainty and how EPA must address such uncertainty when regulating. Additionally, EPA thoroughly analyzed the best available scientific information, including well-established, peer-reviewed toxicity databases, to determine that the three pollutants all had health thresholds. Furthermore, EPA appropriately considered evidence and classification of carcinogenic risk in considering whether hydrogen chloride, chlorine, and hydrogen fluoride had health thresholds. EPA provided adequate support for the specific health threshold levels it identified, and EPA's technical judgments are entitled to the highest level of deference. Finally, EPA's health-based standards include an "ample margin of safety" as required by section 7412(d)(4) because EPA built a margin of safety into its process for translating the acid gas health thresholds into emission limits by including several conservative assumptions in its emissions modeling. This approach is consistent with the statute, and EPA fully explained why it expected this approach to result in exposure concentrations well below the identified threshold values.

2. EPA's use of the Upper Prediction Limit ("UPL") methodology to account for variability in calculating MACT floors for which the Agency had limited emissions data was reasonable. This Court has affirmed EPA's use of the UPL as a

general matter, and EPA has sufficiently articulated a process for ensuring that the application of the methodology to limited datasets still results in a reasonable estimate of the emissions achieved in practice by the best-performing sources in each subcategory. Moreover, EPA followed that process here, which resulted in adjustments to five of the MACT floors for brick kilns to more accurately account for the distribution of data. EPA adequately explained the basis for all five of those adjustments. Additionally, the upward adjustment of two of those floors was related to the addition of a raw material variability factor, which Petitioners do not challenge and which was not part of the UPL limited dataset analysis. Furthermore EPA may make either upward or downward adjustments to its MACT floor calculations if it determines based on its limited dataset analysis that such adjustments are necessary.

3. EPA's promulgation of alternative emission limits for mercury and non-mercury metals for brick tunnel kilns was both consistent with the statute and reasonable. Nothing in the plain language of section 7412(d) forbids EPA from promulgating multiple alternative MACT standards, so long as those standards require the maximum degree of emission reduction and are based on the best-performing source or sources. Because each floor was determined based on the best-performing sources according to the unit of measurement in which the floor is expressed, the alternative floors are all based on the best-performing sources and satisfy the requirements of section 7412(d)(3). EPA's method for calculating the alternative limits was therefore reasonable.

B. Industry Petitioners' Claims

4. BIA's challenge to EPA's inclusion of synthetic area source data is barred because BIA did not challenge the approach when EPA first used it in the 2003 Rule. In any case, EPA properly included emissions data from synthetic area sources, which would emit HAPs at major source levels but for their federally-enforceable controls, in determining the MACT floors for PM and mercury emissions from brick kilns. EPA's use of such data is consistent with the statutory requirement to determine MACT floors based on emission levels achieved by the "best performing" sources. Inclusion of synthetic area sources in the MACT floor calculations is consistent with the CAA, congressional intent, and longstanding EPA policy.

5. EPA's determination to base the PM and non-mercury HAP metal standards for brick industry sources on the top 12 percent of sources for which it had emissions data was consistent with the statute and reasonable. EPA's other proposed approach, preferred by BIA, would have set standards based on the top 12 percent of the total number of sources in the category. If EPA had used that approach, it would have needed to ensure that it had emissions data from all the best-performing sources in the category. In the final rule, EPA appropriately rejected BIA's preferred approach because EPA had no basis to conclude that it had data from all of the sources comprising the best-performing 12 percent of the entire industry.

6. EPA appropriately set mercury standards for brick kilns at the MACT floor levels based on what the best-performing sources actually achieved. EPA did not and could not consider other factors when calculating the MACT floor. The standards are not based on any specific control method, and leave sources with flexibility as to the methods for achieving compliance. Further, in setting the mercury standards for sources in the brick industry, EPA reasonably declined to subcategorize based on raw material content, and legislative history regarding EPA's ability to consider raw material switching is not applicable here.

7. TCNA has not adequately demonstrated that it has standing to challenge the standards and the major source category listing of tile industry sources. In arguing that EPA impermissibly promulgated standards for a source category that includes no major sources, TCNA fails to allege that any of its members have suffered a cognizable injury.

8. EPA has authority to set standards for tile industry sources, and its promulgation of such standards was proper even in the absence of sources that would be subject to the standards at the time of proposal or promulgation. The tile industry sources are part of a source category listed pursuant to section 7412(c), and EPA is required to set standards for listed source categories. EPA reasonably set major source standards for the tile industry because major sources existed in the industry when the category was listed, and because existing synthetic area sources and area sources could increase emissions to become subject to the major source standards.

9. The CAA provides for judicial review of EPA's listing of a major source category at the time standards are issued for the category. Because EPA issued major source standards for the clay ceramics manufacturing category in 2003, challenges to the listing should have been brought at that time. No challenges to the listing were brought within 60 days of the date the standard was issued, so TCNA's challenge to the listing is now untimely, and the vacatur of the prior standards does not provide another opportunity to challenge the listing. In any case, EPA's listing of the category that includes the tile industry was consistent with the CAA and adequately supported.

10. EPA's reliance on information from tile industry sources collected using an established EPA test method, Method 23, to calculate MACT floors for dioxin/furan is consistent with the CAA's requirement that EPA calculate MACT floors based on the best-performing sources for which it has emissions information. TCNA's argument that Method 23 does not provide reliable "emissions information" is without merit. Whether results from Method 23 are appropriate to use in setting dioxin/furan emission standards is a decision squarely within the Agency's expertise, and EPA reasonably concluded that Method 23 results are reliable and appropriately considered here.

11. EPA reasonably did not include data from periods of malfunction when establishing standards for the tile industry. To estimate emission levels of the best-performing sources, EPA relied on test data collected from those sources and accounted for variability in their actual operations. Because malfunctions are

unpredictable events with unpredictable effects on emissions, EPA reasonably determined that information gathered during malfunctions was not useful in determining the MACT floors or otherwise setting standards.

12. EPA reasonably set standards for tile industry mercury and dioxin/furan emissions based on the MACT floor. TCNA's argument that EPA impermissibly considered the effectiveness of activated carbon injection controls in setting these standards is misplaced. EPA did not set them based on anything other than what tile sources have actually achieved.

13. EPA permissibly calculated the MACT floors for sanitaryware sources based in part on data collected from a source using controls built to comply with the vacated 2003 Rule. Kohler's argument that use of this data in setting standards was impermissible is without merit. Vacatur of the 2003 Rule did not erase the actual emission reductions that sources had achieved. Because the CAA requires that EPA base the MACT floors on emission levels that have been achieved, and emissions data using controls demonstrated the emission levels achieved, EPA reasonably considered this data.

STANDARD OF REVIEW

Challenged portions of the Brick/Clay Rule may not be set aside unless they are "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law." 42 U.S.C. § 7607(d)(9). The "arbitrary and capricious" standard presumes the validity of agency action, and a reviewing court is to uphold an agency action if it

satisfies minimum standards of rationality. *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 520-21 (D.C. Cir. 1983); *Ethyl Corp. v. EPA*, 541 F.2d 1, 34-35 (D.C. Cir. 1976) (*en banc*). Where EPA has considered the relevant data and articulated a rational connection between the facts found and the choices made, its regulatory choices must be upheld. *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

When reviewing scientific determinations within an agency's special expertise, a reviewing court must be at its most deferential. *Baltimore Gas & Elec. Co. v. NRDC*, 462 U.S. 87, 103 (1983). In reviewing EPA judgments regarding acceptable levels of risk, "EPA, not the court, has the technical expertise to decide what inferences may be drawn from the characteristics of . . . substances and to formulate policy with respect to what risks are acceptable." *NRDC v. EPA*, 824 F.2d 1146, 1163 (D.C. Cir. 1987) (citation and quotation marks omitted). This Court "will not second-guess a determination based on that expertise." *Id.*

Questions of statutory interpretation are governed by the two-step test set forth in *Chevron, U.S.A., Inc. v. NRDC* ("*Chevron*"), 467 U.S. 837, 842-45 (1984). The reviewing court must first determine "whether Congress has directly spoken to the precise question at issue." *Chevron*, 467 U.S. at 842. If the congressional intent is clear from the statutory language, the inquiry ends. *Id.* at 842-43. If the statute is silent or ambiguous, the reviewing court must accept the agency's interpretation if it is

reasonable; the agency's interpretation need not represent the only permissible reading of the statute nor the reading that the court might prefer. *Id.* at 843 & n.11.

ARGUMENT

I. EPA reasonably set health-based emission limits for acid gases pursuant to section 7412(d)(4).

In order for EPA to invoke section 7412(d)(4) and adopt a standard more lenient than the MACT floor for a pollutant, two requirements must be met: (1) there must be an established health threshold; and (2) the health-based standards must provide an ample margin of safety. 42 U.S.C. § 7412(d)(4). In the Brick/Clay Rule, EPA reasonably promulgated health-based emission limits for three acid gases (hydrogen fluoride, hydrogen chloride, and chlorine) for all existing and new brick tunnel kilns and clay ceramics roller and tunnel kilns. 80 Fed. Reg. at 65,471, 65,474, 65,478.

First, *before* deciding to set health-based standards, EPA appropriately determined, based on the best available toxicity information, that each of the three pollutants has a health threshold. 80 Fed. Reg. at 65,488/2. For all three pollutants, EPA: (1) evaluated the carcinogenic and non-cancer health effects based on existing scientific literature; (2) identified a health benchmark below which adverse effects are not expected to occur; and (3) provided a rationale for their designation as threshold pollutants. *See id.* at 65,488/2-89/1; 79 Fed. Reg. at 75,639-41. EPA then assessed the suitability of setting a health-based standard specifically for brick and clay

ceramics facilities, considering whether setting technology-based standards would result in significant reductions in emissions of other pollutants, the potential for environmental impacts, the potential for cumulative adverse health effects in light of other co-located or nearby sources that also emit pollutants, and the availability of industry-specific data to determine a standard. 80 Fed. Reg. at 65,495/3-98/3; 79 Fed. Reg. at 75,641/2-42/3, 75,660/1-61/1. Finally, in determining the appropriate level of the health-based standards, EPA developed risk assessments and used modeling to ensure that the established emission limits would provide an ample margin of safety, and that persons exposed to emissions of the pollutants would not experience the adverse health effects on which the health thresholds are based. 80 Fed. Reg. at 65,498/3-65,505/3; 79 Fed. Reg. at 75,643/1-44/2. This approach is consistent with previous actions in which the Agency promulgated or considered promulgating health-based standards. NESHAP Proposed Standards for Hazardous Air Pollutants from Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills, 63 Fed. Reg. 18,754, 18,765/2-68/2 (Apr. 15, 1998); NESHAP for Lime Manufacturing Plants Proposed Rule, 67 Fed. Reg. 78,046, 78,054/2-57/2 (Dec. 20, 2002); NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters,² 69 Fed. Reg. 55,218, 55,240/1 (Sept. 13, 2004); NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers

² The 2004 standards for boilers were vacated on other grounds in 2007. *NRDC v. EPA*, 489 F.3d 1250 (D.C. Cir. 2007).

and Process Heaters Proposed Rule, 75 Fed. Reg. 32,006, 32,030/3-31/3 (June 4, 2010); NESHAP for the Portland Cement Manufacturing Industry and Standards of Performance for Portland Cement Plants, 75 Fed. Reg. 54,970, 54,985/3-87/2 (Sept. 9, 2010).

Environmental Petitioners' challenge to the health-based standards should be rejected. Petitioners' interpretation of the requirement that a health threshold "has been established" misreads section 7412(d)(4) and misunderstands how EPA addresses scientific uncertainty in the consideration of the potential health effects of a pollutant. It also disregards the fact that EPA set such standards after thoroughly analyzing the best available scientific information in a highly technical field, basing its determinations on rigorously vetted toxicity assessments of acid gases and adequately supporting both its conclusion that hydrogen chloride, chlorine, and hydrogen fluoride had established health thresholds, and the specific threshold values it identified for each pollutant. Finally, Petitioners' argument fails to account for the method EPA used to translate its identified health threshold values into emission limitations that provide an ample margin of safety.

A. EPA reasonably construed section 7412(d)(4).

Section 7412(d)(4) provides that EPA may establish health-based emission standards "[w]ith respect to pollutants for which a health threshold has been established." The concept of a "health threshold [that] has been established" is unique to section 7412(d)(4). EPA does not make findings under the CAA regarding

the existence of a “health threshold” outside the context of determining whether to set health-based emission limits under this subsection. Nor does the statute explain what constitutes an “established” health threshold, or what EPA must do to determine that a health threshold “has been established.” 80 Fed. Reg. at 65,491/3. Additionally, by using the passive voice, the statute does not specify *who* must establish the health threshold. *Id.* Accordingly, the precise meaning of the phrase “has been established” is ambiguous.

Here, EPA reasonably interprets the phrase “has been established” as authorizing EPA to identify a health threshold for a particular pollutant as part of a rulemaking establishing emission standards. As the Agency explained, “[i]n the absence of such specificity in the statute, the EPA reads [section 7412(d)(4)] to authorize the EPA to set health-based limits where, in the EPA’s expert judgment, there is a health threshold for the pollutant below which no adverse health effects are expected to occur.” 80 Fed. Reg. at 65,491/3. Applying this interpretation, EPA appropriately determined in the Brick/Clay Rule that hydrogen chloride, chlorine, and hydrogen fluoride all had established health thresholds. As further explained *infra* in Section I.B, the analysis supporting the rule includes an evaluation of the available and relevant scientific evidence on the cancer risk and non-cancer health effects of each pollutant. *See id.* at 65,488-89; 79 Fed. Reg. at 75,639-41. That evidence included human health values derived as part of several agencies’ toxicity assessments, and which EPA used in identifying health threshold values for each pollutant. *See* 79 Fed.

Reg. at 75,639/3-40. EPA's approach of concluding in the Brick/Clay Rule that hydrogen chloride, chlorine, and hydrogen fluoride were threshold pollutants based on existing toxicity assessments was reasonable. Nothing in section 7412(d)(4) precludes EPA from determining that a health threshold has been established for pollutants as part of the same rulemaking process in which it promulgates a health-based emission standard. *See Chevron*, 467 U.S. at 842-43 (holding that where a statute is "silent or ambiguous with respect to the specific issue," the court must defer to the Agency's interpretation so long as it is "based on a permissible construction of the statute").

The plain meaning of section 7412(d)(4) does not support Petitioners' position that a health threshold must already have been established prior to the rulemaking that promulgates health-based standards. Petitioners' references to case law interpreting statutes using the present perfect tense are inapposite. *Environmental Br.* 34-35. Neither a statute criminalizing a convicted felon's receipt of a firearm which "has been shipped or transported in interstate . . . commerce," nor a statute requiring a person seeking damages for wrongful imprisonment to show that a conviction "has been reversed or set aside," contemplates an agency taking further regulatory action. Indeed, there would be no logical framework for the identified actions under the statutes at issue in those other cases to be performed if they had not already taken place, and therefore it would be illogical to read either of those statutes as being predicated on an action that had not yet happened. Here, however, the statutory

framework contemplates EPA exercising its discretion to take further action to set health-based standards after it determines that those pollutants have health thresholds.

Furthermore, the fact that an unenacted version of section 7412(d)(4) would have allowed EPA to set health-based standards where a health threshold “*can be established*,” Environmental Br. 35-36, does not demonstrate that EPA must make a threshold determination prior to the rulemaking in which it sets health-based standards. The change from “*can be established*” to “*has been established*” is most reasonably read to clarify that it is not sufficient for the establishment of a health threshold to be hypothetically possible. Instead, section 7412(d)(4) provides that a health threshold must actually be established for EPA to set health-based standards. Here, EPA’s threshold determination did just that.

Finally, EPA reasonably interpreted section 7412(d) as not requiring consensus on or the resolution of all uncertainty regarding a pollutant’s health effects before determining that a health threshold “has been established” for that pollutant. As EPA explained with respect to the identification of a health threshold value, “the phrase ‘has been established’ [does not mean] that there is universal agreement on the health threshold level.” 80 Fed. Reg. at 65,491/2-3. Petitioners also ignore the normal degree of uncertainty that is inherent in the scientific process. Indeed, this Court has recognized that “EPA is not obligated to conclusively resolve every scientific

uncertainty before it issues regulation.”³ *White Stallion Energy Ctr., LLC v. EPA*, 748 F.3d 1222, 1245 (D.C. Cir. 2014) (citing *Coal. For Responsible Regulation, Inc. v. EPA*, 684 F.3d 102, 121 (D.C. Cir. 2012)), *rev'd on other grounds, Michigan v. EPA*, 135 S. Ct. 2699 (2015). *See also Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1026 (D.C. Cir. 1978) (recognizing the “technological and scientific uncertainty that EPA must overcome as best it can in making the discretionary judgments delegated to it by Congress”).

This is particularly salient with respect to EPA’s evaluation of a pollutant’s carcinogenicity, or likelihood of causing cancer. In order for EPA to promulgate a health-based standard for a pollutant, “the pollutant must have a health threshold and not be carcinogenic.” 79 Fed. Reg. at 75,639/1. EPA does not apply section 7412(d)(4) to carcinogenic pollutants because it is assumed that any amount of exposure to carcinogens poses *some* risk. *Id.* at 75,639/1 and n.7. *See also* Air Toxics Risk Assessment Technical Resource Manual at 12-5 (Apr. 2004), EPA-HQ-OAR-2013-0291-0572, JA463. Accordingly, EPA evaluates the evidence and classification of carcinogenic risk when determining whether to establish health-based standards. 79 Fed. Reg. at 75,639/1. Where there is not enough evidence to make a conclusive

³ EPA’s guidance materials include instructions for addressing scientific uncertainty in risk assessments. *See* Air Toxics Risk Assessment Technical Resource Manual at 12-22 to 12-24 (Apr. 2004), EPA-HQ-OAR-2013-0291-0572, JA464-466; Guidelines for Carcinogen Risk Assessment at 3-29 to 3-32 (2005), available at https://www.epa.gov/airtoxics/cancer_guidelines_final_3-25-05.pdf, JA1009-1012.

determination of carcinogenicity, EPA conducts a case-by-case evaluation, which it did for hydrogen chloride, chlorine, and hydrogen fluoride in the Brick/Clay Rule. *Id.*

Contrary to Petitioners' argument, Environmental Br. 26-27, EPA is not required to prove a negative, *i.e.*, to affirmatively conclude that a pollutant does not cause cancer before finding that a health threshold has been established and promulgating standards under section 7412(d)(4). And nothing in the legislative history cited by Petitioners suggests otherwise. The 1990 Senate report, *see id.* at 27, simply indicates that health-based limits could be appropriate "where health thresholds are well-established . . . and the pollutant presents no risk of other adverse health effects, including cancer, for which no threshold can be established." S. Rep. No. 101-228 at 171, 1990 Legis. Hist. at 8511. Citing the Senate report, Petitioners suggest that even if pollutants have not been classified as known, likely, or suspect carcinogens, they are still subject to "study and debate" in the absence of conclusive evidence proving non-carcinogenicity. But the Senate report does *not* state that a pollutant's health effects must no longer be subject to "study and debate." The reference to "study and debate" appears in the context of explaining that EPA's authority to set health-based standards is discretionary, as requiring the Agency to "consider the evidence for a health threshold higher than MACT" in every case would "jeopardize the standard-setting schedule imposed under this section with the kind of lengthy study and debate that has crippled the current program." *Id.*

Furthermore, it is rare to find conclusive determinations as to non-carcinogenicity for *any* chemical. Indeed, the International Agency for Research on Cancer has developed monographs on 998 chemicals and agents, and classified only one of those as “probably not carcinogenic to humans.” *See* IARC Monographs on the Evaluation of Carcinogenic Risks to Humans (last updated Dec. 22, 2016), <http://monographs.iarc.fr/ENG/Classification/>. And EPA has classified only two HAPs as “not likely to be carcinogenic to humans.” *See* Prioritized Chronic Dose Response Values (May 29, 2014), available at <https://www.epa.gov/sites/production/files/2014-05/documents/table1.pdf>, JA1029-1036. In short, EPA reasonably interprets section 7412(d)(4) as authorizing it to determine that a health threshold has been established as part of the same rulemaking process in which it promulgates a health-based emission standard, and to identify a health threshold where not all scientific uncertainty has been resolved with respect to carcinogenicity. *See NRDC v. EPA*, 749 F.3d 1055, 1060 (D.C. Cir. 2014) (“[W]e must defer to [EPA’s] reasonable interpretation of any ambiguities in the [CAA].”) (citing *Chevron*, 467 U.S. at 843-44).

B. EPA reasonably found that hydrogen chloride, chlorine, and hydrogen fluoride were threshold pollutants based on existing scientific evidence.

Here, contrary to Petitioners’ argument, EPA applied its interpretation of section 7412(d)(4) and reasonably found that a health threshold had “been established” for hydrogen chloride, chlorine, and hydrogen fluoride. This finding, as

well as EPA's identification of a specific threshold value for each pollutant, is based on a robust review of existing scientific literature, including consideration of toxicity databases that identify an exposure level below which adverse health effects are not expected to occur. As part of its review of the health effects of hydrogen chloride, chlorine, and hydrogen fluoride, EPA stated that it considered each to be a threshold pollutant based on a lack of affirmative carcinogenicity data and on the Agency's knowledge of how each pollutant reacts in the body and its likely mechanism of action. 80 Fed. Reg. at 65,488/2; 79 Fed. Reg. at 75,639-41.

1. EPA appropriately considered information regarding carcinogenic risk.

Consistent with its position that it may not promulgate health-based emission standards for carcinogenic pollutants, EPA began its health threshold assessment by evaluating the evidence of carcinogenicity of hydrogen chloride, chlorine, and hydrogen fluoride. In doing so, EPA considered reviews conducted by several existing authoritative bodies. 80 Fed. Reg. at 65,488/2. None of those bodies had classified hydrogen chloride, chlorine, or hydrogen fluoride as carcinogens or "suggestive of the potential to be carcinogenic," either individually or in combination. *Id.* EPA found that there was an absence of evidence of carcinogenic risk, and therefore went on to consider whether a threshold existed for each pollutant below which other adverse health effects are not expected. *Id.*

For hydrogen chloride, EPA noted that there were “limited studies on the carcinogenic potential of [hydrogen chloride] in humans.” 80 Fed. Reg. at 65,488/2. One occupational study found no evidence of association between exposure to hydrogen chloride and lung cancer among chemical manufacturing plant employees. *Id.* at 65,488/3. EPA found that other occupational studies were not appropriate for evaluating the carcinogenic potential of hydrogen chloride because they involved exposure to a mixture of acid gases and other chemicals, and failed to separate potential exposure to hydrogen chloride from exposure to other substances shown to have carcinogenic activity. *Id.* For hydrogen fluoride, EPA noted that there are a limited number of studies investigating the pollutant’s carcinogenic potential, and that those studies are unreliable on that issue. *Id.* at 65,488/3. EPA cited an ATSDR Public Health Statement document, which concluded that “carcinogenicity via inhalation of fluoride is not considered to be likely by most investigators reporting in the existing literature.” 79 Fed. Reg. at 75,641/1. Finally, for chlorine, EPA noted that studies of workers in the chemical industry, as well as studies in rodents and primates, have not found any evidence that chlorine was carcinogenic.⁴ 80 Fed. Reg. at 65,489/1.

⁴ Although Petitioners complain that EPA did not cite studies regarding the carcinogenicity of chlorine, Environmental Br. 13, citations for the studies and more detailed discussions of them are contained in the ATSDR toxicological profile for chlorine. *See* 80 Fed. Reg. at 65,494/3 n.68; Toxicological Profile for Chlorine, EPA-HQ-OAR-2013-0291-0053 (Nov. 2010), at 74-75, JA475-476.

EPA reasonably concluded based on its review of the available scientific evidence regarding the health effects of hydrogen chloride, chlorine, and hydrogen fluoride that there was not evidence of carcinogenic risk for those three pollutants. As discussed *supra* at 24-25, it was not necessary for EPA to affirmatively determine that conclusive evidence proves that hydrogen chloride, chlorine, and hydrogen fluoride do not cause cancer before promulgating standards under section 7412(d)(4). No authoritative body has classified hydrogen chloride, chlorine, or hydrogen fluoride as known, likely, or suspected carcinogens. 80 Fed. Reg. at 65,488/2. It therefore was reasonable for EPA to conclude, in light of other available evidence discussed below, that hydrogen chloride, chlorine, and hydrogen fluoride were threshold pollutants. That conclusion is entitled to a high degree of deference. *Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 560 (D.C. Cir. 2002) (“[P]articular deference is given by the court to an agency with regard to scientific matters in its area of technical expertise. . . .”). Moreover, Petitioners have pointed to no evidence of ongoing debate in the scientific community regarding the carcinogenicity of hydrogen chloride, chlorine, or hydrogen fluoride.

Finally, Petitioners’ concern that EPA’s invocation of section 7412(d)(4) opens the door for the Agency to issue health-based standards for any HAPs with unknown cancer risks or deliberately “[stay] ignorant” of the cancer risks of a pollutant, Environmental Br. 28, 30, is unfounded. EPA evaluates chemicals for which there is not enough information to make a conclusive determination of non-carcinogenicity

on a case-by-case basis. 79 Fed. Reg. at 75,639/1. EPA also evaluates a host of other factors, including non-cancer health effects, in determining whether a health threshold exists, and in further determining whether health-based emission limits are appropriate. *See, e.g.*, Boiler Proposed Rule, 75 Fed. Reg. at 32,031/3-32/3; NESHAP for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters, 76 Fed. Reg. 15,608, 15,643/3, 15,644/1 (Mar. 21, 2011). And because EPA's exercise of its section 7412(d)(4) authority is discretionary, EPA may decline to promulgate health-based standards even if it finds that a pollutant has an established health threshold.

2. EPA reasonably identified health thresholds for acid gases that were equivalent to established human health values.

After discussing the available evidence on carcinogenicity, EPA then addressed the non-cancer health effects of chronic and acute exposure to hydrogen chloride, chlorine, and hydrogen fluoride. For each pollutant, EPA identified a human health value that is rooted in well-established, peer-reviewed toxicity databases. Several agencies—including EPA's Integrated Risk Information System Program, the Agency of Toxic Substances and Disease Registry (ATSDR), and the California Environmental Protection Agency—had conducted toxicity assessments of one or more of the three pollutants. 80 Fed. Reg. at 65,488/2. Those assessments resulted in the calculation of reference values at and below which exposure is not expected to result in adverse health effects. EPA considered that those agencies' toxicity

assessments “undergo rigorous peer review processes before they are published” and “are widely vetted through the scientific community,” and the Science Advisory Board has endorsed the use of those agencies’ reference values for pollutants. *Id.* EPA also noted that those agencies were in agreement about using a reference value for hydrogen chloride, chlorine, and hydrogen fluoride. *Id.*

EPA identified threshold values for each pollutant consistent with its practice of using toxicity assessments from different databases in a specified order of priority. Air Toxics Risk Assessment Technical Resource Manual at App’x C (Table 1), JA467-473; Prioritization of Data Sources for Chronic Exposure (Dec. 30, 2016), <https://www.epa.gov/fera/prioritization-data-sources-chronic-exposure>. In other words, for each pollutant, EPA based its conclusions on the highest-priority database for which an assessment was available. For hydrogen chloride, EPA relied on an EPA-conducted toxicity assessment of chronic inhalation exposure, which established a reference concentration⁵ (RfC) of 20 micrograms per cubic meter. 79 Fed. Reg. at

⁵ EPA defines “reference concentration” as “an estimate (with uncertainty spanning perhaps an order of magnitude) of a continuous inhalation exposure to the human population (including sensitive subgroups) that is likely to be without an appreciable risk of deleterious effects during a lifetime.” 79 Fed. Reg. at 75,639/3. *See also* Basic Information about the Integrated Risk Information System (May 24, 2016), <https://www.epa.gov/iris/basic-information-about-integrated-risk-information-system>.

75,639/3. For chlorine, EPA relied on the ATSDR's Minimal Risk Level⁶ of 0.00015 micrograms per cubic meter. *Id.* at 75,640/1. For hydrogen fluoride, EPA relied on the California EPA's reference exposure level⁷ of 0.014 milligrams per cubic meter. *Id.* at 75,640/3. EPA's identification of health thresholds that were based on well-established values already accepted by the scientific community was consistent with the language and purpose of section 7412(d)(4).⁸ EPA relied on widely vetted toxicity assessments from authoritative bodies in considering the carcinogenic and non-carcinogenic health effects of hydrogen chloride, chlorine, and hydrogen fluoride, and in identifying a health threshold level for each pollutant. 80 Fed. Reg. at 65,489/2. These bodies, including EPA's Integrated Risk Information System, ATSDR, and California EPA, have derived "health protective reference values at or below which

⁶ The minimal risk level is an estimate of daily human exposure to a hazardous substance that is "likely to be without appreciable risk of adverse non-cancer health effects over a specified duration of exposure." ATSDR Toxic Substances Portal, Minimal Risk Levels (Mar. 8, 2016), <https://www.atsdr.cdc.gov/mrls/index.asp>.

⁷ California EPA's chronic inhalation reference exposure levels (RELs) are concentrations at or below which health effects are not likely to occur in the general human population. 80 Fed. Reg. at 65,491/1; Cal. Office of Env'tl. Health Hazard Assessment (OEHHA), OEHHA Acute, 8-Hour and Chronic Reference Exposure Level Summary (June 28, 2016), <http://www.oehha.ca.gov/air/Allrels.html>.

⁸ Moreover, EPA has previously stated that it considers hydrogen chloride, chlorine, and hydrogen fluoride to be threshold pollutants. *See, e.g.*, Portland Cement NESHAP, 75 Fed. Reg. at 54,986/1; Boiler Proposed Rule, 75 Fed. Reg. at 32,030/3.

no adverse effects are expected to occur.” *Id.* The EPA Science Advisory Board,⁹ which reviews the quality and relevance of the scientific information EPA uses in its regulations, has endorsed this approach in the context of EPA’s risk assessments under section 7412(f)(2) of the CAA. *Id.*

The Science Advisory Board has also endorsed EPA’s preference for applying its own health benchmark values, where available, in instances where other agencies have also derived benchmarks.¹⁰ 80 Fed. Reg. at 65,490/2, 65,491/3 and n.29. *See also* Risk Assessment to Determine a Health-Based Emission Limitation for Acid Gases for the Brick and Structural Clay Products Manufacturing Source Category at 11-12 (May 19, 2014), EPA-HQ-OAR-2013-0291-0132 (“Brick Risk Assessment”), JA495-496. Consistent with its established preferences, EPA here applied its own reference concentration for hydrogen chloride, which was generated in a 1995 EPA risk assessment, as the most appropriate chronic non-cancer health threshold. 80 Fed.

⁹ The Science Advisory Board is a federal advisory committee that was established in 1978 by the Environmental Research, Development, and Demonstration Authorization Act, 42 U.S.C. § 4365. Members are independent experts that provide scientific advice and peer review to EPA on environmental issues. *See* EPA Science Advisory Board Charter, <https://yosemite.epa.gov/sab/sabproduct.nsf/WebBOARD/currentcharter> (last viewed Jan. 16, 2017).

¹⁰ Where an EPA reference concentration is unavailable for a pollutant, EPA typically selects the ATSDR minimal risk level (as it did here for chlorine). If the minimal risk level is unavailable, EPA typically selects the California EPA reference exposure level (as it did here for hydrogen fluoride). Prioritization of Data Sources for Chronic Exposure (Dec. 30, 2016), <https://www.epa.gov/fera/prioritization-data-sources-chronic-exposure>.

Reg. at 65,491/3. Environmental Petitioners contend that EPA should have applied a lower reference exposure level derived by the California EPA. Environmental Br. 40. But EPA provided an extensive and reasonable explanation supporting the application of its own reference concentration to derive the health threshold for hydrogen chloride, and EPA's decision to do so is motivated by its consistent institutional preferences, not because one agency's level is higher or lower than another's. *See* 80 Fed. Reg. at 65,490-91. EPA's use of its own reference concentration as opposed to the California EPA reference exposure level is entitled to deference. *Marsh v. Or. Nat. Res. Council*, 490 U.S. 360, 368 (1989); *Ethyl Corp. v. EPA*, 541 F.2d 1, 36-37 (D.C. Cir. 1976).

Furthermore, although EPA assigned the hydrogen chloride reference concentration a "low confidence" label, Petitioners misunderstand the import of that designation. EPA assigns each of its reference concentrations a confidence label of high, medium, or low based on the completeness of the supporting database. 80 Fed. Reg. at 65,490/2. A "low confidence" designation means that the reference concentration is based on less complete data than those with a "high confidence" or "medium confidence" designation, and therefore the reference concentration is more likely to change with the development of additional data. *Id.* at 65,490/3. But the "low confidence" designation does not mean that EPA believes the reference concentration is unreliable or that the supporting data are inadequate. Indeed, EPA does not calculate a reference concentration for a chemical unless its toxicity

assessment establishes that it *is* possible to quantify a chronic exposure level below which adverse health effects are not expected.¹¹ *Id.*; Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry at 4-2 to 4-12 (Oct. 1994), EPA-HQ-OAR-2013-0291-0160, JA422-432. EPA therefore properly considered that “[a]ll [reference concentrations], even those with low confidence, are appropriate for regulatory use.” 80 Fed. Reg. at 65,490/3. Moreover, EPA reviewed the 1995 hydrogen chloride reference concentration in 2003 and did not identify any critical studies that would change the conclusions of the earlier assessment. *Id.* at 65,490/1.

EPA also explained why the 1995 reference concentration for hydrogen chloride was the suitable basis for a health threshold value even though the reference concentration was itself based on a study that did not identify an exposure level below which there were no observable adverse health effects (referred to as the “no observable adverse effects level”). 80 Fed. Reg. at 65,489-90. Instead, the study identified the lowest dose that induced a measurable adverse health effect, and EPA extrapolated from that level to calculate a reference concentration below which adverse health effects were not expected to occur. *Id.* As EPA stated, it is not

¹¹ For example, EPA has declined to calculate a reference concentration for acetone because of the amount of uncertainty in the data on health risks. EPA Integrated Risk Information System Chemical Assessment Summary, Acetone at 12 (last viewed Jan. 16, 2017), available at https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0128_summary.pdf.

necessary for a threshold value to have underlying data on the no observable adverse effects level, and many reference concentrations are derived without such data. *Id.* Instead, EPA may extrapolate an analogous level from available data and then apply uncertainty factors¹² to account for data limitations, including the use of the lowest adverse effects level. *Id.*

This approach is consistent with section 7412(d)(4)'s requirement of a health threshold that "has been established" in order to set health-based emission limits, and is a reasonable exercise of EPA's discretion to determine what constitutes an "established" health threshold. Petitioners are essentially asking this Court to reweigh the scientific evidence considered by EPA and reach its own independent technical conclusions. But that is beyond the proper scope of judicial review. *See Coal. For Responsible Regulation*, 684 F.3d at 122 ("When EPA evaluates scientific evidence in its bailiwick, we ask only that it take the scientific record into account in a rational manner.") (internal quotation marks and citation omitted), *aff'd in part, rev'd in*

¹² Uncertainty factors may be applied where a reference concentration is derived from data that do not match the assumed human exposure scenario to which the reference concentration is intended to apply (for instance, because data are from animal rather than human studies). To account for the uncertainty inherent in extrapolations, including the extrapolation of a no observable adverse effects level from a study that identified a lowest observable adverse effects level, EPA divides the extrapolated effects level by the uncertainty factor, usually an order of magnitude, in calculating the reference concentration. 80 Fed. Reg. at 65,490/3. *See generally* Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry at 4-73 to 4-80, JA433-440.

part by Util. Air Regulatory Grp. v. EPA, 134 S. Ct. 2427 (2014). In short, EPA provided substantial support for its conclusion that hydrogen chloride, chlorine, and hydrogen fluoride have established health thresholds, and for its use of specific health benchmarks for each pollutant.¹³ EPA's application of section 7412(d)(4) to set health-based emission limits was therefore permissible.

C. EPA provided an ample margin of safety.

Once EPA determined that hydrogen chloride, chlorine, and hydrogen fluoride were threshold pollutants, it prepared risk assessments to determine a level of emissions that would ensure those health thresholds would not be exceeded, with an ample margin of safety, at any facility in the brick or clay source categories. *See* Brick Risk Assessment, JA485; Risk Assessment to Determine a Health-Based Emission Limitation for Acid Gases for the Clay Ceramics Manufacturing Source Category (May 19, 2014), EPA-HQ-OAR-2013-0290-0213 ("Clay Risk Assessment"), JA247. Using emissions information for each facility in both source categories, EPA employed the Human Exposure Model to estimate the maximum ambient chronic concentration associated with unit emissions (one ton per year) of hydrogen chloride from each facility in the source category. Brick Risk Assessment at 6, JA490; Clay

¹³ Environmental Petitioners also claim that EPA's health-based standard for hydrogen fluoride did not properly account for acute exposure health risks. Environmental Br. 41-43. Because this argument relates to the method by which EPA set emission limits based on the identified health threshold value, it is addressed in Section I.C.3, *infra* at 43-45. Petitioners do not challenge EPA's use of the ATSDR Minimal Risk Level as the basis for the chlorine health threshold level.

Risk Assessment at 3, JA249. After identifying the facility in each source category with the highest modeled ambient chronic concentration—*i.e.*, the source whose emissions would generate exposure at the highest concentrations—EPA then scaled up the emissions of that facility until the emission level would correspond to a non-cancer hazard quotient¹⁴ of one. *Id.*

For brick facilities, that calculation generated an emission level of 250 tons per year of hydrogen chloride-equivalent emissions, which is equivalent to 175 tons per year of hydrogen fluoride or 1.9 tons per year of chlorine. Brick Risk Assessment at 6, JA490. Because an emission level of 250 tons per year of hydrogen chloride-equivalent per brick facility would result in exposures at or below the threshold level at the facility with the greatest potential for human exposure, EPA concluded that an emission level of 250 tons per year of hydrogen chloride-equivalent per brick facility would be unlikely to result in adverse chronic health effects at any facility in the source category, and would result in exposure concentration levels remaining below the chronic health reference values at all facilities. *Id.* at 17, JA501. For clay ceramics facilities, the same approach led to an emission level of 600 tons per year of hydrogen

¹⁴ EPA expresses health hazards by dividing the chronic exposure level by the reference level. Brick Risk Assessment at 9, JA493. The resulting ratio is referred to as the “hazard quotient.” *Id.* Exposures at or below the reference level ($HQ \leq 1$) are not likely to cause adverse health effects, and the potential for adverse health effects increases as the hazard quotient grows increasingly greater than one. *Id.*

chloride-equivalent, which is equivalent to 420 tons per year of hydrogen fluoride and 4.5 tons per year of chlorine. Clay Risk Assessment at 3, JA249.

EPA also conducted an acute screening assessment for acid gases. Brick Risk Assessment at 9-10, JA493-494; Clay Risk Assessment at 5-6, JA251-252. The acute screening assessment assumed worst-case exposures for a 1-hour period, and compared those exposures to appropriate acute threshold values to evaluate the risk of significant acute inhalation exposures at each facility. *Id.* While the acute screening indicated that the acute reference value for hydrogen fluoride (but not hydrogen chloride or chlorine) might be exceeded at some facilities, EPA was nevertheless able to conclude that there was low potential for acute health effects, as is further discussed *infra* at 43-45. Brick Risk Assessment at 17, JA501; Clay Risk Assessment at 12-13, JA258-259; 80 Fed. Reg. at 65,503/1.¹⁵

1. Section 7412(d)(4) allows for a margin of safety to be provided in the emission standard.

The phrase “ample margin of safety” has appeared in multiple sections of the Clean Air Act since the statute was enacted, including in the pre-1990 provision for setting health-based standards, Pub. L. No. 91-604, 84 Stat. 1676, 1685 (1970), but Congress has never defined it. In discussing a similar requirement in the context of setting ambient air standards under section 7409, the 1970 Senate Report explained

¹⁵ EPA also evaluated the potential for environmental effects from annual modeled concentrations. Brick Risk Assessment at 10, JA494; Clay Risk Assessment at 6, JA252. Petitioners have not challenged that aspect of EPA’s analysis.

that the purpose of the “margin of safety” is to afford a “reasonable degree of protection . . . against hazards which research has not yet identified.” S. Rep. No. 91-1196, at 10 (1970), *reprinted in* 1 Legislative History of the Clean Air Act Amendments of 1970 at 410 (Comm. Print 1974). That view, as this Court has recognized, “comports with the historical use of the term in engineering as a safety factor . . . meant to compensate for uncertainties and variabilities.” *NRDC v. EPA*, 824 F.2d at 1152 (citation and internal quotation marks omitted). Similarly, this Court noted in discussing identical language in the Federal Water Pollution Control Act that “Congress used the modifier ‘ample’ to exhort the Administrator not to allow ‘the public [or] the environment . . . to be exposed to anything resembling the maximum risk’ and, therefore, to set a margin ‘greater than “normal” or “adequate.”” *Id.* at 1153 (quoting *Envtl. Def. Fund v. EPA*, 598 F.2d 62, 81 (D.C. Cir. 1978)). This Court has long recognized the discretion Congress vested in EPA to determine an appropriate margin of safety. *Id.* (noting the “great latitude” Congress afforded EPA).¹⁶

¹⁶ The phrase “ample margin of safety” is also used in section 7412(f)(2), which requires EPA to review MACT standards and determine whether promulgation of additional standards is necessary to provide an “ample margin of safety” to protect public health. 42 U.S.C. § 7412(f)(2). In making such residual risk determinations, EPA relies on the approach and the interpretation of “ample margin of safety” developed in the Agency’s 1989 standards for benzene, 54 Fed. Reg. 38,044 (Sept. 14, 1989), which is explicitly preserved in section 7412(f)(2)(B).

Environmental Petitioners argue that an emission limit that allows exposures up to the threshold level does not provide an ample margin of safety. Environmental Br. 44. This argument fails to acknowledge that the statute does not define *how* EPA must include an ample margin of safety when setting health-based emission limits pursuant to section 7412(d)(4). Such a margin could be provided at multiple points in the process. As Petitioners suggest, EPA could identify an exposure level that is below the established threshold level at which adverse health effects are not anticipated, and then run its modeling to determine an emission level that would result in exposure concentrations at or below that lower health value. But EPA may also reasonably choose to base its emissions modeling on the established threshold, and build a sufficiently health-protective model such that compliance with the emission limits should result in exposures below the established threshold level. Either approach would result in actual exposures that are below the threshold level, and either approach therefore provides an ample margin of safety. EPA's use of the second approach here was reasonable. *See* 79 Fed. Reg. 75,642/3-43/1 (concluding that "it would be reasonable to set any [health-based] emission standard for a pollutant with a health threshold at a level that at least assures that, for the sources in the controlled category or subcategory, persons exposed to emissions of the pollutant would not experience the adverse health effects on which the threshold is based").

2. EPA's method of determining emission levels based on identified health threshold values provided an ample margin of safety.

Once EPA identified health threshold values for hydrogen chloride, chlorine, and hydrogen fluoride below which adverse effects were not expected to occur, it modelled each value to determine an emission level that would result in exposure at or below the threshold level. Risk Assessments at 2, JA248, 486. Importantly, however, EPA built several conservative assumptions into its model that it expected would result in actual exposure levels remaining below the threshold level even if a facility emitted at the limit. 80 Fed. Reg. at 65,501/3. This conservative modeling approach provides the “ample margin of safety” required by section 7412(d)(4).

First, EPA based the limits “on the single facility in the source category with the worst-case combination of meteorology and distance to nearest residential receptor that leads to the highest ambient concentrations.” 80 Fed. Reg. at 65,501/3; Brick Risk Assessment at 6, JA490; Clay Risk Assessment at 3, JA249. Because the same level of emissions at all other facilities will result in lower ambient concentrations, for all but one facility in each source category, the model understates the quantity of emissions that would be sufficient to cause exposures at the threshold level. 80 Fed. Reg. at 65,501/3 (explaining that chronic exposures at approximately 90 percent of facilities are estimated to be half the threshold level or less).

Additionally, EPA based the limits on estimated ambient concentrations, which assume that people at the exposure location at all times and do not leave (to go to

work or school, for instance). *Id.* Because a person is unlikely to breathe ambient air around the clock at an exposure location, the model overestimates the average exposure to pollutants over time, and thus the risk of exposure at the threshold level, for a person living at an exposure location.

The ample margin of safety thus rests not on an assumption that sources' emissions will be lower than the permitted level, Environmental Br. 46, but on the likelihood that the conservative assumptions built into EPA's risk modeling approach will mean that ambient chronic exposures for each facility remain below the threshold level even if the sources' emissions are at the maximum permitted level. EPA therefore reasonably concluded that this modeling approach, and the resultant emission levels that were determined, would ensure an ample margin of safety.

Moreover, as discussed *supra* at 32-33, EPA's application of its own reference concentration for hydrogen chloride as the threshold level, rather than the different California EPA reference exposure level, was fully explained and reasonable, and therefore does not undermine EPA's separate provision of an ample margin of safety through its modeling process. Petitioners' argument that EPA's use of its own reference concentration negates the margin of safety provided by its modeling approach, Environmental Br. 46-47, is therefore without merit.

3. EPA's health-based standards provide an ample margin of safety with respect to acute exposures.

Petitioners take issue with EPA's assessment of acute exposure risks for hydrogen fluoride, Environmental Br. 41, but EPA properly assessed these risks. While EPA found that acute exposures at the selected emission limit had the potential to be slightly above the California EPA acute reference exposure level for hydrogen fluoride at some facilities (meaning that, at those facilities, the acute hazard quotient values had the potential to be greater than one), EPA nevertheless reasonably found the potential for acute health effects at those facilities was low. Brick Risk Assessment at 17, JA501; Clay Risk Assessment at 12, JA258. As EPA explained, exceeding the California EPA reference exposure level on which the acute hydrogen fluoride threshold was based does not automatically result in adverse health impacts. Brick Risk Assessment at 13, JA497. EPA considers a wider variety of reference values for its acute risk assessments than for its chronic risk assessments. 80 Fed. Reg. at 65,503/2. Here, EPA considered a range of reference values even though it calculated the hazard quotient for acute risk based on the California EPA acute reference exposure levels. *Id.* In particular, EPA explained that applying the Acute Exposure Guideline Level¹⁷ instead would result in a maximum offsite hazard

¹⁷ Similar to the California EPA acute reference exposure levels, the Acute Exposure Guideline Level is a threshold limit for short-term exposures. *See* Brick Risk Assessment at 13, JA497. The Acute Exposure Guideline Levels “represent threshold exposure limits for the general public and are applicable to emergency exposures ranging from 10 [minutes] to 8 [hours].” *Id.* (internal quotation marks omitted).

quotient for hydrogen fluoride of less than one for all facilities. Brick Risk Assessment at 17, JA501; Clay Risk Assessment at 12, JA258.

Additionally, EPA noted that the highest acute hazard quotient (based on the California EPA reference exposure level) for hydrogen fluoride was two. *Id.* By comparison, EPA has found in section 7412(f) residual risk reviews that an emission standard that would result in exposures with hazard quotients well above two can still provide an ample margin of safety. *See, e.g.*, NESHAP: Generic MACT Standards; and Manufacture of Amino/Phenolic Resins, 79 Fed. Reg. 60,898, 60,909 (Oct. 8, 2014) (finding acute hazard quotient value of ten based on reference exposure level value for formaldehyde). Furthermore, EPA's acute exposure scenario included a conservative assumption that a person would be present at the location of maximum exposure for the single worst hour of the year in terms of emission levels and meteorological conditions. Brick Risk Assessment at 17, JA501.

Finally, EPA found that it was unlikely that a facility would emit only hydrogen fluoride and not other acid gases.¹⁸ Brick Risk Assessment at 17, JA501; Clay Risk Assessment at 12, JA258. The brick emission limits allow facilities to emit either 250 tons per year of hydrogen chloride, or 175 tons per year of hydrogen fluoride, or 1.9

¹⁸ This finding is supported by the test data EPA used to set the emission limits. *See* Cover Sheet, "Test run data showing mercury emissions and emissions of hydrogen fluoride in relation to other gases" (summarizing EPA-HQ-OAR-2013-0291-0657 Appendix B ("Brick Test Data Memo") and EPA-HQ-OAR-2013-0290-0293 Appendix B ("Clay Test Data Memo")), JA923.

tons per year of chlorine; or up to 250 tons per year of hydrogen chloride-equivalent of a combination of those pollutants. EPA's acute exposure risk assessment for each particular pollutant, however, assumed that a facility was emitting *that* pollutant at the maximum permitted level. In reality, because all brick facilities emit a combination of acid gases and not just hydrogen fluoride, a facility would invariably exceed the hydrogen chloride-equivalent emission limit based on emissions from a combination of acid gases before it reached the hydrogen fluoride limit. *See id.* Thus, under actual conditions, for a facility emitting 250 tons per year or less of hydrogen chloride-equivalent, the hydrogen fluoride emissions will be less than those predicted by the model. Accordingly, EPA reasonably considered acute health risks when setting a health-based emission limit for hydrogen fluoride.

In short, Petitioners have presented no basis to conclude that EPA acted contrary to law in identifying health thresholds for hydrogen chloride, chlorine, and hydrogen fluoride, and setting emission limits for these pollutants under section 7412(d)(4).

II. EPA set MACT floors based on data reflecting emission levels and using the Upper Prediction Limit.

A. Introduction

Environmental Petitioners challenge EPA's application of an established statistical methodology known as the "Upper Prediction Limit" ("UPL") to determine MACT floors where EPA had limited emissions information to use in such

calculations. Environmental Br. 49-53. As discussed further below, this Court has upheld EPA's use of the UPL, and the record here demonstrates that EPA provided sufficient explanation of why application of the UPL to limited datasets is appropriate. Additionally, EPA reasonably explained its application of the UPL in setting MACT floors in the Brick/Clay Rule.

The CAA mandates that MACT floor standards must be no less stringent than the level of emission control achieved by the best-controlled source or sources. 42 U.S.C. § 7412(d)(3). While such standards also must ensure continuous regulation of the covered sources, *id.* § 7602(k), as this Court has noted, “no source emits any HAP at a constant level; rather, HAP emissions fluctuate over time and for many reasons.” *U.S. Sugar*, 830 F.3d at 598. Most sources “do not measure their HAP emissions at all times and under all conditions,” *id.*, so EPA must establish MACT standards based on limited data, generally in the form of “stack tests.”¹⁹ Stack tests provide a “snapshot” of a facility's emissions in a limited set of conditions. *Id.*

EPA uses the UPL methodology “[t]o compensate for the lack of adequate emissions data . . . [and] to account for the expected variability in emissions levels.” *U.S. Sugar*, 830 F.3d at 598. This Court included an extensive discussion of the

¹⁹ A stack test typically consists of three separate sampling periods of several hours each conducted over one or more days. The concentration of tested pollutants is determined for each sampling event, and the result of the test is the average of the three values for each pollutant. *E.g.*, 40 C.F.R. § 63.8445(e) (incorporating § 63.7(e)(3)).

mechanics of the UPL in *U.S. Sugar, id.* at 634-36, and summarized the methodology as follows:

In layman's terms, the UPL uses an equation that considers (1) the average of the best performing source or sources' stack-test results (*i.e.*, the mean); (2) the pattern the stack-test results create (*i.e.*, the distribution); (3) the variability in the best performing source or sources' stack-test results (*i.e.*, the variance); and (4) the total number of stack tests conducted for the best performing source or sources (*i.e.*, the sample size).

Id. at 635. *See also* Use of the Upper Prediction Limit for Calculating MACT Floors at 4-5, (Sept. 9, 2014) EPA-HQ-OAR-2013-0291-0128 ("UPL Memo"), JA506-507. To establish a MACT floor using the UPL, EPA: (1) ranks all sources in each category based on their stack-test data; (2) determines the HAP emission level of the best-performing source or sources pursuant to section 7412(d)(3); and (3) "applies the UPL methodology to provide the cushion necessary to account for the expected peaks and valleys in HAP emissions not reflected in the three-run stack-test 'snapshots.'" *U.S. Sugar*, 830 F.3d at 598.

EPA used the UPL methodology to determine 22 of the brick and 27 of the clay MACT floors. Final Maximum Achievable Control Technology (MACT) Analysis for Brick and Structural Clay Products Manufacturing at C-5, C-6 (Tables C-4, C-5) (Sept. 24, 2015), EPA-HQ-OAR-2013-0291-0660 ("Brick MACT Floor Memo"), JA851, 852; Final Maximum Achievable Control Technology (MACT) Analysis for Clay Ceramics at C-6, C-7 (Tables C-5, C-6) (Sept. 24, 2015), EPA-HQ-OAR-2013-0290-0294 ("Clay MACT Floor Memo"), JA366, 367. Of those, 16 of the

brick floors and 16 of the clay floors were based on what EPA describes as “limited datasets.” *See id.* at B-2 to B-3 (Tables B-1, B-2), JA358-359, 844-845 (identifying number of data points in each MACT floor); Brick MACT Floor Memo at C-5 to C-6 (Tables C-4, C-5), JA851-852; Clay MACT Floor Memo at C-6 to C-7 (Tables C-5, C-6), JA366-367 (identifying basis for determining floors). Petitioners challenge EPA’s application of the UPL methodology to limited datasets both in general, and specifically with respect to the emission limits it promulgated in the Brick/Clay Rule. Environmental Br. 49-53. But EPA has provided ample support for its methodology.

B. This Court has upheld EPA’s use of the UPL as a general matter.

EPA’s use of the UPL was challenged in two recent cases in this Circuit. In *National Association of Clean Water Agencies v. EPA* (“*NACWA*”), which involved EPA’s MACT standards for sewage sludge incinerators, this Court remanded certain aspects of the rule for further explanation, including the question of how the UPL represents the MACT floor for new and existing units. 734 F.3d 1115, 1143 (D.C. Cir. 2013). The *NACWA* Court did not invalidate the use of the UPL, but rather held that EPA needed to more fully explain why the UPL was appropriate. *Id.* at 1151. *See also U.S. Sugar*, 830 F.3d at 633.

EPA then provided such explanation in its response to a remand of the record in challenges to rules for boilers and commercial and industrial solid waste incineration units. *U.S. Sugar*, 830 F.3d at 633-34. In that case, the Court found that EPA had “demonstrate[d] with substantial evidence . . . that the UPL ‘allows a

reasonable inference as to the performance of the top 12 percent of units,” which represented “reasoned decision making” and accordingly was entitled to deference. *Id.* at 636. The Court concluded that “the UPL ‘reflect[s] a reasonable estimate of the emissions achieved in practice by the best-performing sources,’” and upheld EPA’s general use of the methodology. *Id.* at 639 (quoting *Cement Kiln*, 255 F.3d at 871-72).

C. EPA adequately justified the application of the UPL methodology to limited datasets.

The Court’s opinion in *U.S. Sugar* expressly left open the question of whether the UPL is an appropriate statistical method for small datasets. 830 F.3d at 633 n.25. EPA addressed that issue in this Rule in a pair of memoranda setting forth its general approach for applying the UPL to limited datasets, and explaining how that approach was followed in determining the brick and clay MACT floors. *See* Approach for Applying the Upper Prediction Limit to Limited Datasets (Sept. 24, 2015), EPA-HQ-OAR-2013-0291-0661 (“Brick Limited Datasets Memo”) and EPA-HQ-OAR-2013-0290-0295 (“Clay Limited Datasets Memo”) JA857, 370.

As EPA explained, determining the distribution of data is an important component of the UPL approach, and EPA uses well-established tests of kurtosis and skewness²⁰ to determine distribution. Limited Datasets Memos at 1-2, JA370-371,

²⁰ The kurtosis statistic characterizes the degree of peakedness or flatness of a given data distribution in comparison to a normal distribution. The skewness statistic characterizes the degree of asymmetry of a given data distribution. Brick MACT Floor Memo at 3-4, JA817-818.

857-858. Previously, EPA used a kurtosis equation that required at least four values in a dataset. *Id.* In further reviewing the application of the UPL to limited datasets, however, EPA identified another kurtosis estimating equation that provides a meaningful result with as few as three values. *Id.* This equation enables EPA to apply the UPL to smaller datasets.

As EPA further explained, to determine sample size thresholds above which use of the UPL does not require further scrutiny, or below which use of the UPL is not appropriate, EPA considers how a diminishing sample size affects the t-score, which is “a value that estimates the uncertainty and variability for a certain confidence level associated with a specific number of data points.” Brick Limited Datasets Memo at 2, JA858. As the sample size decreases, the t-score—and the uncertainty of the average that is calculated from the available data points—increases. *Id.* As the sample size increases, the relative changes in the t-score become less dramatic, particularly once the sample size is equal to or greater than three. *Id.* at 3 (Figure 1, Table 1), 5, JA859, 861. EPA thus determined that it may be appropriate to use the UPL to develop emission limits based on as few as three datapoints.²¹ *Id.* at 2, JA858.

Even with the use of the alternate kurtosis equation, EPA “recognize[d] that the use of the UPL approach for limited datasets introduces some amount of

²¹ Additionally, because emission tests typically include three test runs, the MACT floor dataset size is typically a multiple of three. Brick Limited Datasets Memo at 5, JA861.

uncertainty in the calculation of MACT standards.” Limited Datasets Memos at 2, JA371, 858. Accordingly, EPA identified additional steps “to ensure that the level of the MACT standards is reasonable.” *Id.* For MACT floors based on between three and six test runs, EPA conducts additional, case-by-case evaluation “to ensure that the uncertainty associated with a limited dataset does not cause the calculated emission limit to be so high that it does not reflect the average performance of the units upon which the limit is based after accounting for variability the emissions of those units.” *See id.* at 6-8, JA375-377, 862-864. That evaluation includes some combination of “confirming that the data distribution was selected correctly; after confirming the data distribution, ensuring that we use the most appropriate UPL equation; and, as necessary, comparing UPL equation components for the individual unit upon which a new source floor is based with those of the units in the existing source floor to determine if our identification of the best unit is reasonable.” *Id.* EPA thus reasonably explained why MACT floors derived from limited datasets can be considered adequate, and identified a sufficient case-by-case evaluation process to ensure that individual MACT floors based on limited datasets are reasonable.

Petitioners’ contention that *NACWA* precludes the application of the UPL to limited datasets, Environmental Br. 49, is incorrect. The *NACWA* Court simply directed EPA to explain “why the [UPL] could still be considered accurate given a small dataset,” 734 F.3d at 1144-45. EPA in this rule has done exactly what the *NACWA* Court directed, and what the *U.S. Sugar* Court found EPA had successfully

done on a more general level: EPA demonstrated that the UPL can, when applied to limited datasets, still allow a reasonable inference as to the emissions achieved by the best-performing sources, and EPA has adopted a sound analytical process to follow when it uses the UPL to determine a MACT floor and based on limited data.

EPA “typically has wide latitude in determining the extent of data-gathering necessary to solve a problem,” and is entitled to deference “when it determines how best to meet the technical challenges in its area of expertise.” *U.S. Sugar*, 830 F.3d at 636 (quoting *NACWA*, 734 F.3d at 1131). Here, EPA’s analysis of the acceptable level of uncertainty in the determination of MACT floors, and its development of a process to further evaluate and address that uncertainty, are reasonable. *See NACWA*, 734 F.3d at 1141-42; *Mossville*, 370 F.3d at 1241; *Sierra Club v. EPA*, 167 F.3d 658, 661-63 (D.C. Cir. 1999) (stating that the CAA does not specify how EPA must determine what the best-performing units are achieving, and EPA has considerable discretion in doing so as long as its methodology is reasonable).

D. EPA adequately supported its use of the UPL in the Brick/Clay Rule.

The Limited Datasets Memos apply EPA’s evaluative process to brick and clay MACT floors involving limited datasets. *See* Brick Limited Datasets Memo at 8-10, JA864-866; Clay Limited Datasets Memo at 8, JA377. EPA had limited datasets for 18 pollutants and subcategories in the brick source category, and for 21 pollutants and subcategories in the clay ceramics source category. Brick Limited Datasets Memo at

11 (Table 4), JA867; Clay Limited Datasets Memo at 9 (Table 2), JA378. For each dataset, EPA explained that it “ensur[ed] that [it] selected the data distribution that best represents each dataset;” “ensur[ed] that the correct equation for the distribution was then applied to the data;” and “compar[ed] individual components of each limited dataset to determine if the standards based on limited datasets reasonably represent the performance of the units included in the dataset.” Limited Datasets Memos at 8, JA377, 864. EPA determined based on its evaluation that no changes to its usual floor calculation procedure were warranted for the clay MACT floors, and that changes were warranted for five of the brick floors. *Id.*

Environmental Petitioners contend that EPA did not adequately explain the adjustments made to five brick floor calculations. Environmental Br. 52. They further assert that EPA improperly made upward adjustments to two of the five floors. *Id.* Both of these arguments fail. First, for each of the five adjusted MACT floors, the Limited Datasets Memo includes an explanation of how and why EPA made these adjustments. *See* Brick Limited Datasets Memo at 8-10, JA864-866.

For the new source MACT floor for PM (in pounds per ton) from large tunnel kilns, EPA found that it could not accurately determine a representative distribution from the best-performing source because there were only two test runs for that kiln, so EPA selected the next best-performing unit and recalculated the UPL based on that unit. Brick Limited Datasets Memo at 8, JA864. For the existing source MACT floor for PM (in grams per dry square cubic foot) from small tunnel kilns, EPA found

that the distribution of the dataset would be better represented by a lognormal template, and determined the MACT floor using that template. *Id.* at 8-9, JA864-865. *See also* UPL Memo at 7-9, JA509-511 (describing characteristics of normal and lognormal distribution curves). Similarly, for the new source MACT floors for mercury (in pounds per ton, micrograms per dry standard cubic meter, and pounds per hour), EPA explained that the datasets would be better represented by a lognormal distribution and template. Brick Limited Datasets Memo at 9-10, JA865-866. EPA therefore adequately explained the basis for the adjustments.

Furthermore, EPA reasonably adjusted upward the floors (in pounds per ton and pounds per hour) for mercury emissions from large new kilns. In arguing that EPA's decision to adjust those floors was arbitrary, Environmental Br. 52-53, Petitioners first fail to note that EPA also made changes to the mercury floors outside the limited dataset analysis. As discussed *infra* at 75-76, EPA added a variability factor to account for variations in the mercury content of raw material used at brick kilns. 80 Fed. Reg. at 65,485/2-3. Because the addition of a raw material variability factor—which Environmental Petitioners do not challenge—introduces more uncertainty into the UPL calculations, it results in a higher MACT floor. *See* Brick MACT Floor Memo at 8-9, JA822-823. *See also* Cover Sheet, “Calculation of Upper Prediction Limit before and after addition of mercury variability factor” (summarizing EPA-HQ-OAR-2013-0291-0660, Appendices B-1, B2), JA925-926. Therefore, the upward adjustment of the mercury floors was due at least in part to the uncontested

application of a raw material variability factor. In any event, while the steps outlined in the Limited Datasets Memos aim to ensure that a MACT floor determined by applying the UPL methodology to a limited dataset is not unreasonably high, *see* Brick Limited Datasets Memo at 6, JA862, the specific facts in the record of a given rule may lead to an adjustment either downward or upward to ensure the floor more accurately represents the average of the best-performing source or sources.

In short, EPA articulated a reasonable method for ensuring that MACT floors based on limited datasets “reflect the average performance of the units upon which the limit is based.” Limited Datasets Memos at 6, JA375, 862. EPA then applied that method in the case of the brick and clay MACT floors based on limited datasets. EPA demonstrated that its application of the UPL methodology to limited datasets is reasonable both in general and as applied to the Brick/Clay Rule. EPA has therefore met the requirement identified in *NACWA* and *U.S. Sugar* that it “demonstrate[s] with substantial evidence—not mere assertions—that the UPL allows a *reasonable inference* as to the performance of the top 12 percent of units.” *U.S. Sugar*, 830 F.3d at 636 (quoting *NACWA*, 734 F.3d at 1131) (internal quotation marks omitted).

III. EPA’s use of alternative emission limits for brick tunnel kilns was reasonable.

In the Brick Rule, rather than promulgating a single numeric MACT limit for each subcategory, EPA gave operators of new and existing tunnel kilns a choice of three alternative emission limits, each expressed in a different unit of measurement,

for both mercury and non-mercury metals. 80 Fed. Reg. at 65,474. To comply with the mercury emission limits, sources could choose one of three numeric emission limits expressed as mass of pollutant emitted per ton of bricks produced, pounds per hour, or concentration (micrograms per dry standard cubic meter). *Id.* at 65,530, Table 1. For non-mercury metals, EPA set a pounds per hour emission limit, and also provided options for limiting PM as a surrogate²² with limits in pounds per ton or grains per dry standard cubic foot. *Id.* This approach “provides flexibility for the regulated community by allowing a regulated source to choose any control technology or technique to meet the emission limits, rather than requiring each unit to use a prescribed control method that may not be appropriate in each case.” 79 Fed. Reg. at 75,633/2.

Consistent with the statutory directive to determine MACT floors based on the “best performing” sources “for which [EPA] has emissions information,” EPA determined the MACT floor for each of the alternative limits using a slightly different pool of sources. EPA found that the composition of the group of top-ranked sources varied depending on the unit of measurement that was applied. 80 Fed. Reg. at 65,485/2. EPA therefore ranked sources so that “[e]ach floor [would be] based on the best performing units for that unit of measurement.” *Id.* In other words, as EPA

²² The use of PM as a surrogate for HAP metals in the context of setting MACT floors is well-established and not at issue here. *Sierra Club v. EPA*, 353 F.3d at 982 (quoting *Nat'l Lime Ass'n v. EPA*, 233 F.3d 625, 637 (D.C. Cir. 2000)).

explained, “the concentration floor is based on the ranking of concentration data, and the [pounds-per-hour] floor is based on the ranking of the [pounds-per-hour] data.”

Id.

EPA’s decision to set alternative emission limits for mercury and non-mercury metals for brick tunnel kilns is consistent with the statutory language. Section 7412(d) directs EPA to promulgate “[e]missions standards . . . [that] require the maximum degree of reduction in emissions,” and requires those standards to be based on the best-performing source or sources for which the Administrator has emissions information. 42 U.S.C. § 7412(d)(2), (d)(3). Nothing in the plain language of the statute forecloses the promulgation of multiple, alternative standards that each independently meets those requirements.

Moreover, the statute does not specify what unit of measurement EPA must use in expressing its emission limitations or identifying the best-performing source or sources to determine the MACT floor. Congress therefore left to EPA’s discretion the selection of an appropriate metric by which to measure sources’ performance. Inherent in that discretion is the ability to set alternative floors based on different metrics.²³ EPA has considerable discretion in its determination of MACT floors as long as its methodology is reasonable. *NACWA*, 734 F.3d at 1141-42; *Mossville*, 370

²³ EPA has promulgated alternative emission limits pursuant to section 7412(d) in several other rules. *See, e.g.*, 40 C.F.R. pt. 63, Subpt. UUU § 63.1564(a)(1) (setting alternative limitations for metal HAP emissions from catalytic cracking units at petroleum refineries); Subpt. DDDDD § 63.7500(a), Tables 1 and 2 (major boilers).

F.3d at 1241; *Sierra Club*, 167 F.3d at 661-63. EPA's decision to promulgate alternative limits is therefore reviewable under *Chevron* step two, and is entitled to deference so long as it is "based on a permissible construction of the statute." *Chevron*, 467 U.S. at 842-43.

Petitioners argue that because the alternative floors were not based on identical emission levels, they are not equal, and that two of the floors are therefore less stringent. Environmental Br. 54. Petitioners further claim that it is impossible for multiple sources or groups of sources to all be the "best" performing source or group of sources unless their emission levels are identical. *Id.* This argument is rooted in an overly simplistic conception of when emission limits may be said to be based on the "best" performing sources. The alternative floors each reflect the "best" performing sources because each is based on the best-performing sources for the unit of measurement for that floor.

Similarly, Petitioners' contention that the use of alternative floors allows regulated facilities to choose the least stringent floor with which to comply, *see* Environmental Br. 53, mistakenly assumes that one of the alternative floors is the most or least stringent. Instead, the relative stringency of the alternative floors is an apples-to-oranges comparison. By way of analogy, in a comparison of the most talented professional football, basketball, and baseball players, it would be impossible to determine which is the best-performing athlete without establishing a metric for evaluating overall athletic performance. Furthermore, it is impossible to say that the

football player who scores the most touchdowns is a better or worse-performing athlete than the basketball player who makes the most three-point shots, or than the baseball player who hits the most home runs, because those metrics are not directly comparable. Given this, it would be reasonable to set a standard for athleticism that requires an athlete to have either scored at least a certain number of touchdowns, make at least a certain number of three-point shots, or hit at least a certain number of home runs. That athletes could pick the metric that they are most capable of meeting would not make the approach unreasonable.

The same is true when measuring the performance of brick kilns. For instance, a smaller facility with fewer kilns may emit a smaller volume of pollutants overall as measured in pounds per hour, but it may emit more pollutants per ton of bricks produced. By contrast, a larger kiln may emit more pollutants as measured in pounds per hour, but may run more efficiently and therefore have lower emissions as measured in pounds per ton of bricks produced. *See, e.g.*, Brick MACT Floor Memo at A-2 (Table A-1), A-5 (Table A-2), A-9 (Table A-5), JA830, 833, 837 (showing Kiln 514 as the top-ranking large kiln as measured by pounds per ton of PM, Kiln 508 as the top-ranking large kiln as measured by grams of PM per dry square cubic foot, and Kiln 526 as the top-ranking large kiln as measured by pounds per hour of non-mercury metal HAP).

EPA's decision to set alternative emission limitations for brick tunnel kilns was therefore a reasonable exercise of its discretion under section 7412(d). Having

decided to promulgate alternative limits, EPA's method for calculating those limits was also reasonable. EPA explained this method and its rationale for calculating each MACT floor based on its own unit of measure dataset. *See* 80 Fed. Reg. at 65,485/2, 65,507/1. In basing each alternative limit on the best-performing sources for that unit of measurement, EPA satisfied the requirement of section 7412(d)(3) to base its MACT floors on the best-performing sources in a category. 42 U.S.C. § 7412(d)(3).

Finally, Petitioners suggest that it was unnecessary for EPA to promulgate alternative limits because EPA could have divided tunnel kilns into further subcategories (*i.e.*, beyond two subcategories based on size), and then set a single emission limit for each subcategory. Environmental Br. 55. While EPA has the discretion to further subcategorize and considered whether to do so, *see* 79 Fed. Reg. at 75,634/1, the discretion to identify subcategories does not foreclose the Agency's authority to promulgate alternative emission limits where appropriate.

IV. EPA reasonably considered emissions information from synthetic area sources in determining major source MACT floors.

Synthetic area sources (or "synthetic minor sources") are sources that have the potential to emit HAPs in excess of the major source threshold, but whose emissions have been controlled to the extent that they fall below the threshold due to federally-enforceable emission controls. *See* Brick Rule Summary of Public Comments and Responses at 46-47 (Sept. 2015), EPA-HQ-OAR-2013-0291-0685 ("Brick Rule RTC"), JA907-908; 2003 Rule, 68 Fed. Reg. at 26,697/2. Consistent with EPA's

interpretation of section 7412, EPA treats such sources as area sources for determining applicability of emission standards, but as major sources for other purposes. Because the statute directs EPA to identify the level of control achieved in practice by the best-performing sources, 42 U.S.C. § 7412(d)(3), EPA considers emissions information from synthetic area sources when determining which sources are the best-performing sources. EPA continued to use this approach in setting the brick industry standards. Brick MACT Floor Memo at A-2 to A-6, A-9, A-10 to A-12 (Tables A-1, A-2, A-5, A-7, A-8, A-9), JA830-834, 837, 838-840.

BIA challenges EPA's inclusion of emissions information from synthetic area sources in determining existing source MACT floors for the PM and mercury standards for large kilns. Industry Br. 20. Because BIA did not challenge this same approach to determining MACT floors in the 2003 Rule, *see* 68 Fed. Reg. at 26,697/2-98/3, its argument is time-barred. *Med. Waste Inst. v. EPA*, 645 F.3d 420, 427 (D.C. Cir. 2011) (holding that a challenge to EPA's approach not raised within sixty days of EPA's first use of the approach was barred). The argument also fails because EPA's interpretation of the ambiguous statutory text is reasonable and consistent with the statute's structure, congressional intent, and longstanding EPA policy.

A. Synthetic area sources do not fit neatly within the section 7412(a) definition of either a major source or an area source.

Section 7412(a) of the CAA defines a "major source" based on a threshold amount of HAPs that a source "emits or has the potential to emit considering

controls.” 42 U.S.C. § 7412(a)(1). A source with the potential to emit at or above the threshold is a major source, and any other source is an area source. *Id.* § 7412(a)(1), (a)(2). Major sources are treated differently from area sources in certain respects. *See, e.g., id.* § 7412(c) (requiring EPA to list all categories of major sources, but only requiring EPA to list area sources in certain circumstances); *id.* § 7412(d)(5) (allowing EPA to set standards for area sources based on “generally available control technologies or management practices” rather than the MACT floor).

Determining whether a source should be considered as a major source or an area source is not always straightforward. The definition of a major source includes the phrase “potential to emit *considering controls.*” 42 U.S.C. § 7412(a)(1) (emphasis added). This phrase is not defined in the statute, and its meaning is ambiguous. Although this phrase would not matter for determining whether most sources are major sources, it does matter for synthetic area sources. EPA interprets the phrase to show that consideration of a source’s potential to emit before and after controls is relevant to how the source is treated (in both setting and applying standards). *See* 80 Fed. Reg. at 65,509/1-2. This interpretation is entitled to considerable deference, as it is a permissible construction of a complex statute that is within the agency’s area of expertise. *See Chevron*, 467 U.S. at 842-43; *United States v. Mead Corp.*, 533 U.S. 218, 227-31 (2001).

B. EPA’s consideration of synthetic area source data is consistent with the CAA and longstanding EPA policy.

Section 7412 expresses Congress’s intent that emission standards for existing major sources are based on levels that are actually achieved by the “best performing” existing sources. *See* 42 U.S.C. § 7412(d)(3)(A) (basing standards on the “best performing 12 percent of the existing sources”); *id.* § 7412(d)(3)(B) (basing standards on the “best performing 5 sources”). Consistent with this intent, EPA includes emissions information from synthetic area sources when determining the MACT floor for existing major sources. Synthetic area sources demonstrate “emission limitation[s] achieved” by major sources because their controls have effectively reduced their emissions from above major source threshold levels to below major source threshold levels. It would be contrary to congressional intent to exclude synthetic area sources from the MACT floor determination simply because their controls decreased their emissions enough to fall below the major source threshold level. This approach is also consistent with the statute’s legislative history. *See* Floor Statement of Sen. Durenberger, 1 1990 Legis. Hist. at 870 (clarifying the intent that EPA collect “data on all of the better-performing sources within each category” and ensure that EPA “does not miss any sources that have superior levels of emissions control”). EPA’s inclusion of synthetic area sources for purposes of determining the MACT floor ensures “sources that have superior levels of emissions control” are considered.

Further, section 7412(d)(3) expressly excludes from the MACT floor calculation those sources that meet the lowest achievable emission rate requirements of section 7501. *See* 42 U.S.C. §§ 7412(d)(3)(A), 7501(3). The express exclusion of those sources demonstrates that Congress considered the issue of which sources should be excluded from the MACT floor determination, but did not conclude that synthetic area sources should be excluded. Instead, Congress provided EPA the flexibility to include synthetic area sources.

EPA has consistently treated synthetic area sources as area sources when determining the applicability of particular requirements, but as major sources for determining major source MACT floors. *See* 40 C.F.R. § 63.2 (defining “potential to emit” as the “maximum capacity of a stationary source to emit a pollutant under its physical and operational design,” and a limitation on the capacity of the source “shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable”—*i.e.*, a synthetic area source would not be subject to major source standards); Memorandum from John S. Seitz to EPA Regions, Potential to Emit for MACT Standards – Guidance on Timing Issues (May 16, 1995), EPA-HQ-OAR-2013-0291-0569 (“Seitz Memo”), JA441-450 (addressing when a major source can become a synthetic area source). And EPA has included synthetic area sources in MACT floor calculations in prior rulemakings. *E.g.*, NESHAP for Municipal Solid Waste Landfills, 68 Fed. Reg. 2227, 2232/2 (Jan. 16, 2003); NESHAP

for Polyvinyl Chloride and Copolymers Production, 77 Fed. Reg. 22,848, 22,876/3-78/1 (Apr. 17, 2012).

C. The CAA allows EPA to treat synthetic area sources as major or area sources depending on context.

BIA's argument that section 7412(d)(3)(A) requires exclusion of synthetic area sources wrongly assumes that synthetic area sources can never be considered major sources for any purpose. BIA argues that EPA may only use sources "in the category" to determine the MACT floor for that category, thus excluding synthetic area source data from consideration, since they are not subject to major source standards. Industry Br. 19-20. BIA's argument is based on the assumption that a source must be treated as either a major or an area source *for every purpose*. As explained above, that is not how EPA interprets the statutory definition of "major source" in the context of synthetic area sources.

Contrary to BIA's assertion, EPA does not "admit[] that synthetic [area] sources are not major sources." Industry Br. 21.²⁴ EPA has stated that although synthetic area sources "are not subject to the requirements imposed on major sources . . . that does not equate to a conclusion that they are no longer major sources in any respect." 80 Fed. Reg. at 65,509/1. EPA considers synthetic area sources to be major

²⁴ That the standards' application is "limited to brick plants located at a major source," Industry Br. 20, demonstrates only that EPA does not subject synthetic area sources to major source *standards*, which is consistent with EPA's position. See 40 C.F.R. § 63.8385.

sources in certain respects, such as when EPA identifies the best-performing major sources as part of the MACT floor determination. *Id.* Thus, even if, as BIA contends, section 7412(d)(3)(A) requires that all sources considered in determining the MACT floor be “in the category,” *see* Industry Br. 21, synthetic area sources *are* major sources that are “in the category” for the purpose of determining the MACT floor. Further, this does not mean that section 7412(d)(3)(A)’s phrase “in the category or subcategory” is meaningless. The phrase limits the sources that EPA considers. Here, for example, when setting standards for brick sources, EPA only looked at the emission limitations achieved by brick sources—not the emission limitations achieved by tile sources or other non-brick sources. The phrase also means that brick sources that are true area sources are excluded from major source MACT floor determinations.

Nowhere does the statute require that once a source is treated as “in” (or out of) a category, it must be treated that way for all purposes. BIA’s argument that Congress excluded sources meeting the lowest achievable emission rate requirements from section 7412(d)(3) because they are “in” the major source category while synthetic area sources are excluded by definition because they are not “in” the major source category only continues to rely on BIA’s preferred interpretation of the statute. *See* Industry Br. 22. EPA’s interpretation of the phrase “potential to emit considering controls” is consistent with Congress’s direction to use the “best performing” sources in the category or subcategory and is entitled to deference.

Further, this Court has acknowledged that synthetic area sources should not necessarily be treated the same as area sources. *See U.S. Sugar*, 830 F.3d at 650 (finding that EPA had not adequately explained “why the rationale it used to exempt natural area sources from Title V could be identically applied to synthetic area sources.”). And for a major source included in more than one source category, if the source’s compliance with major source standards for one source category results in the source’s potential to emit falling below the major source threshold, EPA’s interpretation allows the source to be treated as a synthetic area source for later-promulgated standards for a different source category. *See* Seitz Memo at 9-10, JA449-450. This Court should therefore defer to EPA’s reasonable and longstanding treatment of synthetic area sources as major sources for the purpose of determining the MACT floor.

V. The PM standards are consistent with the statute and rationally developed, and EPA adequately responded to BIA’s comments.

A. EPA reasonably determined the MACT floors using the best-performing 12 percent of sources for which it had emissions information.

For a category with 30 or more sources, section 7412(d)(3)(A) requires EPA to determine the existing source MACT floor by calculating the “average emission limitation achieved by the best performing 12 percent of the existing sources (*for which the Administrator has emissions information*).” 42 U.S.C. § 7412(d)(3)(A) (emphasis added).

This is precisely what EPA did in determining the MACT floor for PM from existing brick sources.

EPA initially identified two potential approaches for determining the existing source MACT floor for PM emissions from brick sources, and sought information from the brick industry to use in determining MACT floors. 79 Fed. Reg. at 75,635/1-2, 75,649/1-2. The first proposed approach was based on the possibility that EPA could identify the best-performing 12 percent of sources in the entire category, in which case the MACT floors could be based on a larger number of sources. *See* 80 Fed. Reg. at 65,506/3; 79 Fed. Reg. at 75,635/1-2. At the time of the proposal, EPA assumed that kilns with fabric filters would be the best-performing sources. *See* 79 Fed. Reg. at 75,635/1; Analysis of Potential Subcategories for BSCP Tunnel Kilns at 6-7 (Nov. 6, 2014) EPA-HQ-OAR-2013-0291-0122, JA530-531. EPA explained that *if* kilns with fabric filters were the best-performing sources and *if* it had information from all fabric filter-controlled sources, then EPA could identify the best-performing 12 percent of sources. *See* 79 Fed. Reg. at 75,635/1-2; 80 Fed. Reg. at 65,506/2-3. Because the category contained 225 sources at the time of proposal and 220 when the standards were issued, the best-performing 12 percent of the category would be represented by 27 sources. *See* 79 Fed. Reg. at 75,635/2; Brick MACT Floor Memo at 10 (Table 1), JA824 (showing 122 large kilns and 98 small kilns). EPA expressed concern, however, that although kilns with fabric filters were statistically better-performing as a group, emissions data reflected that some sources

with other or no controls performed better than some of the fabric filter-controlled kilns. 79 Fed. Reg. at 75,635/1-2. EPA therefore requested information on the reliability of data showing low emissions from kilns without fabric filters. *Id.*

The second proposed approach was simply to set emission limits “based on the top 12 percent of the data available in each of the kiln size subcategories.” *Id.* at 75,635 n.1; *see id.* at 75,649/1-2; Maximum Achievable Control Technology (MACT) Floor Analysis for Brick and Structural Clay Products at 11-12, A-5 to A-8 (Tables A-4, A-5) (Nov. 6, 2014), EPA-HQ-OAR-2013-0291-0119 (“Proposed Brick MACT Floor Memo”), JA522-523, 525-528.²⁵ EPA proposed emission limits under this approach, Proposed Brick MACT Floor Memo at 12 (Tables 5, 6), JA523, and requested comment on the method of generating those limits, and on whether the available-data approach should be used instead of the fabric filter-based approach. 79 Fed. Reg. at 75,649/2. EPA noted that the reliability of the data from non-fabric

²⁵ To determine MACT floors based on the total number of sources in the category (with 30 or more sources), EPA would need sufficient information about all sources in the category to conclude that it had emissions data from the best-performing 12 percent of sources. For example, if a category has 100 sources, EPA could base the MACT floors on 12 sources only if it has information to show that those 12 sources are the best performers in the category. Alternatively, EPA could determine the floor based on 12 percent of the sources for which it has emissions information. For example, if EPA has information for only 50 of 100 sources, the MACT floor could be calculated based on the best-performing 6 sources for which EPA has data, even though some of the sources for which EPA does not have data might be better-performing sources.

filter-controlled kilns was “a key factor” in determining which approach is appropriate. *Id.* at 75,635 n.1.

Between the proposal and the final rule, EPA did not receive information sufficient to explain why some non-fabric filter-controlled sources emitted at levels as low as or lower than some sources with fabric filter controls. 80 Fed. Reg. at 65,485/1. EPA therefore had no basis for excluding data from those lower-emitting non-fabric filter-controlled sources and thus could no longer assume that fabric filter-controlled sources were the best performers. Additionally, EPA did not have emissions data from all the fabric filter-controlled sources, so even if it could have excluded the lower emitting data, it would not necessarily have had information from the best-performing 12 percent of sources in the category. *Id.* at 65,484/3-85/1. For these reasons, EPA determined the final PM MACT floors using the best-performing 12 percent of sources for which it had emissions information. *Id.* at 65,485/1-2. EPA finalized the standards using subcategories based on kiln size, consistent with the second approach it had proposed. *Id.* Because the data showed that some non-fabric filter kilns had lower emissions than fabric filter-controlled kilns, EPA reasonably concluded that it could not assume that fabric filter-controlled kilns were the best-performing kilns, and EPA appropriately set the PM MACT floors based on the best-performing 12 percent of sources for which it had emissions information.

B. The PM MACT standard reasonably represents the best-performing 12 percent of sources.

BIA's contention that the PM MACT floors are unrepresentative because the data were skewed toward the best-performing sources, Industry Br. 24-28, is not supported by the record. *See White Stallion*, 748 F.3d at 1247 (considering similar allegations, and finding that "assertions of a biased or irrational data collection process are not supported by a review of the record"). EPA relied on data from a variety of sources, including responses to EPA surveys, test data compiled during the 2003 rulemaking, and additional data from Petitioner BIA. Test Data Used in BSCP Manufacturing Final Rule at 1-2 (Sept. 24, 2015), EPA-HQ-OAR-2013-0291-0657 ("Brick Test Data Memo"), JA812-813. And BIA could have provided emissions data from more sources. Although data from fabric filter-controlled sources were a large portion of EPA's dataset, these sources were not consistently the best performers. Indeed, EPA included data from non-fabric filter-controlled sources to determine the MACT floors. Brick MACT Floor Memo at A-2 to A-9, JA830-837, (showing non-fabric filter-controlled sources ranked in the top twelve percent). And like the data at issue in *White Stallion*, 748 F.3d at 1248, here, some of the best-performing sources for PM were worse-performing for mercury. *Compare* Brick MACT Floor Memo at A-2 to A-6, JA830-834 *with id.* at A-10 to A-12, JA838-840.

EPA has provided ample support and justification for its method, and had no reason to believe that the lower non-fabric filter emissions data were inaccurate. *See*

80 Fed. Reg. at 65,484/3-85/1; 79 Fed. Reg. at 75,635/1-2, 75,649/1-2. EPA proceeded cautiously in questioning the data that were counter to its expectations and requesting comment, and the industry responses did not show that the data were unreliable. *See* 80 Fed. Reg. at 65,484/3-85/1. Moreover, contrary to BIA's assertion that "EPA made no attempt to reconcile the suspicious data," Industry Br. 25, EPA contacted kiln owners to request information concerning the test results, requested input from BIA, and undertook a technical review of the data. *See, e.g.*, Telephone Contact Summary for Lee Brick (May 2015), EPA-HQ-OAR-2013-0291-0650, JA781; Telephone Contact Summary for Boral Industries (May 2015), EPA-HQ-OAR-2013-0291-0649, JA780; Email from Sharon Nizich to Terry Schimmel and Susan Miller, Re: More Information Needed on Kiln Test Reports for Uncontrolled Kilns at 4-6 (June 8, 2015 at 10:42 am), EPA-HQ-OAR-2013-0291-0607, JA785-787; Brick Test Data Memo at 6, JA814. Therefore, EPA reasonably relied on these data in determining the PM MACT floors.

C. EPA complied with procedural requirements.

BIA's argument that EPA failed to respond to information it provided concerning lower emissions data for some non-fabric filter-controlled sources, Industry Br. 28-29, lacks merit. EPA is only required to respond to *significant* comments. 42 U.S.C. § 7607(d)(6)(B); *Covad Commc'ns Co. v. FCC*, 450 F.3d 528, 550 (D.C. Cir. 2006). Here, the sole "comment" that BIA cites is an email providing a list of kilns with short notes on factors BIA suspected *might* affect the test data, without

explaining *why* the factors might cause the data to be unrepresentative of the kiln's emissions. *See* Email from Susan Miller to Sharon Nizich, DLA/Uncontrolled Kilns (June 25, 2015 at 2:43 pm), EPA-HQ-OAR-2013-0291-0614, JA788 (listing notes such as “[i]nitial MACT compliance test- suspect all new limestone”). This can hardly be considered a legally significant comment. Indeed, BIA's explanation of these factors in its brief provides more explanation than was provided in its email. *See* Industry Br. 28-29.

Furthermore, the information in BIA's email would not have changed how EPA determined the MACT floors. *See* 42 U.S.C. § 7607(d)(8) (“In reviewing alleged procedural errors, the court may invalidate the rule only if the errors were so serious and related to matters of such central relevance to the rule that there is a substantial likelihood that the rule would have been significantly changed if such errors had not been made.”). In the absence of additional evidence, BIA's identification of factors that it suspected might potentially indicate unrepresentative emissions data would not have provided sufficient justification for EPA to exclude data from low-emitting sources without fabric filter controls. BIA did not show that the non-fabric filter data were unreliable, nor did it provide additional data so that EPA could conclude that it had information from all best-performing sources. Without such evidence, EPA could not have justified using data from 12 percent of sources in the industry—*i.e.*, from more than the top-performing 12 percent of sources for which it had emissions data—in finalizing the fabric filter-based proposed standards. 80 Fed. Reg. at

65,506/2-3. *See also* Letter Responding to BIA Petition for Reconsideration, Enclosure at 2-3 (May 12, 2016), EPA-HQ-OAR-2013-0291-0689, JA919-920.

Therefore, EPA satisfied procedural requirements in setting the PM standards for brick sources.

VI. The mercury standards for the brick industry are consistent with the statute and congressional intent.

Contrary to BIA's argument, Industry Br. 29-39, EPA determined the mercury MACT floor for the brick industry exactly as required by section 7412(d)(3)(A). Legislative history cited by BIA does not negate what the statute and case law require. Further, EPA reasonably found that sources can comply with the standard through means other than switching raw materials (although no such finding is necessary). Finally, EPA reasonably declined to establish subcategories based on raw materials.

A. EPA appropriately determined the MACT floors for mercury and set standards at the floor levels.

As this Court has emphasized, "EPA may not deviate from section 7412(d)(3)'s requirement that floors reflect what the best performers actually achieve." *Sierra Club*, 479 F.3d at 880 (quoting *Cement Kiln*, 255 F.3d at 861) (internal quotation marks omitted). "When setting the MACT floor, [] EPA considers *only* the performance of the cleanest sources in a category . . . it does not take into account other factors, including the cost of putting a source in line with its better-performing counterparts." *U.S. Sugar*, 830 F.3d at 594.

In its decision vacating the 2003 Rule, this Court held that where EPA had found that raw material content has an appreciable effect on HAP emissions from brick kilns, EPA could not set MACT floors based solely on the use of pollution control technology. *Sierra Club*, 479 F.3d at 882-83. The Court stated that a purely technology-based approach would satisfy the CAA “if pollution control technology were the *only* factor determining emission levels of that HAP.” *Id.* at 882 (quoting *Cement Kiln*, 255 F.3d at 863) (internal quotation marks and further citations omitted). By contrast, if factors other than technology “influence a source’s performance, it is not sufficient that EPA consider[] sources using only . . . MACT controls.” *Id.* (quoting *Cement Kiln*, 255 F.3d at 864-65).

Here, EPA determined the mercury MACT floors for brick kilns by calculating the emissions from the best-performing 12 percent of sources for which it had emissions information, as required by section 7412(d)(3)(A). EPA set standards for two subcategories, small kilns and large kilns, and allowed kilns to use one of three alternative measurements to comply. 80 Fed. Reg. at 65,474/2-3, Table 4. EPA set the mercury standards under section 7412(d)(3) at the MACT floor level because it found that more stringent limits (which would have to be based on a beyond-the-floor analysis under section 7412(d)(2)) were “not reasonable relative to the level of emission reduction achieved” due to the costs of additional controls. 79 Fed. Reg. at 75,638/2. Further, because mercury emissions result from the mercury content in the raw clay used, and mercury content varies by the location where clay is quarried, EPA

developed a variability factor for mercury content in raw clay and incorporated it into the UPL equation used to determine the MACT floors. 80 Fed. Reg. at 65,485/2-3. As a result, the final mercury standards are less stringent than the proposed standards. *Compare* 79 Fed. Reg. at 75,628 Table 4 (proposing mercury standards for large kilns as 0.000022 pounds per ton) *with* 80 Fed. Reg. at 65,474 Table 4 (finalizing mercury standards for large kilns as 0.000041 pounds per ton). EPA also noted that the mercury standards provide flexibility for sources by “allowing a regulated source to choose any control technology or technique to meet the emission limits, rather than requiring each unit to use a prescribed control method.” 79 Fed. Reg. at 75,633/2. *See also* Brick Rule RTC at 27, JA901 (“[I]t is up to each facility to determine the type of emission control that works best for their particular situation.”).

BIA’s arguments that the mercury standards are invalid proceed from the incorrect assumption that EPA must ensure that all sources are able to achieve MACT floor-based standards. But that is not what the CAA requires. Rather, this Court has clarified that the MACT floors must be set regardless of whether all sources can achieve them. *Cement Kiln*, 255 F.3d at 861 (stating that section 7412(d)(3) “limits the scope of the word ‘achievable’ in section 7412(d)(2),” and that “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”); *Nat’l Lime Ass’n v. EPA*, 233 F.3d 625, 629 (D.C. Cir. 2000) (stating

that MACT floors “apply without regard to either costs or the other factors and methods listed in section 7412(d)(2)”.

B. EPA’s finding that sources could install controls or switch raw materials to meet the standards was not a basis for the standards, but was reasonable.

In its response to comments, EPA noted that activated-carbon injection control devices were an available compliance option for brick kilns. *See* Brick Rule RTC at 13, 26-27, JA894, 900-901. BIA argues that because no sources in the industry use such devices to reduce mercury emissions, and EPA has not shown that they would be effective, the controls are not a realistic compliance option, so that EPA has effectively required brick facilities to switch raw materials. Industry Br. 30-32.

In fact, the record fully supports EPA’s statements concerning the effectiveness of activated carbon injection controls. *See* Brick Rule RTC at 26-27, JA900-901 (noting proven effectiveness of controls in similar industries and noting lack of evidence that controls would interfere with operation of brick sources). *See also* Methodology and Assumptions Used to Estimate the Model Costs and Impacts of BSCP Air Pollution Control Devices for the Final Rule at 7-9 (Sept. 24, 2015), EPA-HQ-OAR-2013-0291-0662 (“Brick Cost Memo”), JA870-872 (considering activated carbon injection controls in the cost analysis). Activated carbon injection controls have proven effective in controlling mercury emissions from similar sources in other industries. Brick Rule RTC at 13, JA894. EPA has used its technical expertise to

reasonably determine that such controls would be effective for the brick industry as well. That technical determination is entitled to considerable deference. *See White Stallion*, 748 F.3d at 1233. Therefore, there is no basis for BIA's conclusion that "the only available means of controlling mercury emissions is raw material substitution." Industry Br. 32.

In any event, as explained *supra* in Section VI.A, EPA does not need to determine *how* sources can meet the MACT floor, let alone *whether* sources can meet the MACT floor at all. BIA's statement that EPA asserts that brick plants could meet the standard by "switching to clay with lower mercury content," Industry Br. 30, wrongfully assumes that EPA's assertion could have any bearing on the levels at which MACT floor-based standards were set. While EPA noted in its cost analysis that "if significant amounts of mercury are found at one location onsite, material found at another onsite location with a lower mercury content could be used," Brick Cost Memo at 9, JA872, EPA explained elsewhere that it was "not requiring the use of offsite raw materials in this rule." Brick Rule RTC at 26, JA900. Stating that sources may be able to comply if they switched raw materials does not amount to a requirement. But even if EPA had found that switching clays was the only way sources could comply with the standards, that finding would not have allowed EPA to set less stringent standards, because the standards are already at the MACT floor level. *See Sierra Club*, 479 F.3d at 880.

C. The CAA legislative history does not prohibit raw material substitution requirements for brick kilns.

Largely ignoring the statutory text and this Court's decision in *Sierra Club*, BIA argues that legislative history indicates that EPA may not require raw materials substitution for brick kilns. *See* Industry Br. 33-34. As explained *supra* in Sections VI.A and VI.B, this argument proceeds from the flawed premises that EPA must explain how all sources could meet the standards, and that all sources must meet the standards through raw material substitution. Even if BIA's premises were correct, this argument would lack merit.

To support its position, BIA cites an explanatory statement in a Conference Report for the 1990 Amendments, which states that in setting standards for categories of sources "engaged in mining, extraction, beneficiation, and processing of nonferrous ores, concentrates, minerals, metals, and related in-process materials, the Administrator shall not consider the substitution of, or other changes in, metal- or mineral-bearing raw materials that are used as feedstocks or materials inputs, or metal- or mineral-bearing materials processed or derived from such feedstocks or materials." Industry Br. 33 (quoting H.R. Rep. No. 101-952 at 339, 1 1990 Legis. Hist. at 1989). However, the clear language of the statute requires EPA to determine the MACT floor by estimating the emissions actually achieved by the best-performing existing sources. *Cement Kiln*, 255 F.3d at 861 ("EPA may not deviate from section 7412(d)(3)'s requirement that floors reflect what the best performers actually

achieve. . . .”). The statutory language provides no allowance to set the MACT floor at a less stringent level if some sources would otherwise need to switch raw materials. Indeed, *Sierra Club* held that MACT floors could not be justified by the Agency’s “concern that floors based on clean clay would be unachievable.” 479 F.3d at 883.

BIA’s request for *en banc* review of *Sierra Club* or an *Irons* footnote, Industry Br. 38, is unjustified because no prior conflicting holdings are at issue. *See Irons v. Diamond*, 670 F.2d 265, 267-68, n.11 (D.C. Cir. 1981). As in the cases BIA cites, “[t]his case does not present the very rare situation where the legislative history of a statute is more probative of congressional intent than the plain text.” *Consumer Elecs. Ass’n v. FCC*, 347 F.3d 291, 298 (D.C. Cir. 2003); *see Engine Mfrs. Ass’n v. EPA*, 88 F.3d 1075, 1088 (D.C. Cir. 1996) (discussing that unless the statute’s text “compels an ‘odd result’” the statute’s plain language “should be conclusive”) (citing Supreme Court cases); *id.* at 1093 (finding the statute’s plain text reliable). Here, interpreting the legislative history to deviate from the plain text of the CAA’s MACT floor requirements would uproot not only the holding of *Sierra Club*, but also this Court’s longstanding precedent that MACT floors must be set at the lowest levels achieved.

Finally, while the directive of the statute is clear, the legislative history is not. It is not apparent that the statement even intended to refer to and include the brick industry among industries “engaged in mining, extraction, beneficiation, and processing of nonferrous ores, concentrates, minerals, metals, and related in-process

materials.” Although brick facilities could be considered as “processing” clays and shales to produce bricks, it is not clear that these clays and shales are among the types of raw materials identified in the statement.²⁶ Therefore, the plain language of the statute, not legislative history, controls.

D. EPA’s decision not to establish subcategories based on raw materials is rational and entitled to deference.

At the time of proposal, EPA stated that it would consider subcategorizing based on the mercury content of raw materials if data were provided showing “a correlation between raw material content and mercury emissions and . . . sharp disparities in raw material mercury content that readily differentiate among types of sources.” 79 Fed. Reg. at 75,650/3-51/1. EPA specifically requested “mercury emissions data coupled with raw materials mercury data.” *Id.* at 75,651/1. During the rulemaking, however, although EPA assumed a correlation existed between the mercury content of clay and mercury emissions, EPA did not receive sufficient data to subcategorize on that basis. Brick Rule RTC at 13, JA894. Because emissions data

²⁶ If the legislative history were to have any controlling weight, it would only be to limit EPA’s considerations when setting beyond-the-floor standards for specific industries. This is because section 7412(d)(2) allows EPA to consider ways in which sources could reduce emissions, such as materials substitution, in setting standards more stringent than MACT floors. And contrary to BIA’s assertion, Industry Br. 34, this interpretation is consistent with how EPA considered legislative history in a prior rulemaking. See *Sierra Club v. EPA*, 353 F.3d at 988 (discussing EPA’s decision not to set *beyond-the-floor* standards for copper smelters based in part on legislative history).

were collected years prior to data on raw material content,²⁷ and because the mercury content of clay varies even within a quarry, *see* Mercury Content of Oklahoma and Ohio Shale Deposits Supplying the Brick Industry at 6, 9 (Tables 1, 2) (Sept. 23, 2015), EPA-HQ-OAR-2013-0291-0659, JA805, 808, EPA could not demonstrate a correlation between the mercury content in the raw materials and mercury emissions. Accordingly, EPA reasonably concluded that it could not justify subcategorization based on raw material content.

BIA contends that subcategorization would “ensure that MACT floors are truly ‘achievable’” and would “avoid the need for raw material substitution.” Industry Br. 37. As stated above, however, there is no requirement that MACT floors be achievable by all sources,²⁸ nor has EPA required material substitution. EPA explained what data it would need to justify subcategories, but then determined that it did not receive enough information to justify that approach. EPA’s decision not to subcategorize based on raw materials is rational and entitled to deference. *See White Stallion*, 748 F.3d at 1233.

²⁷ While the most recent mercury emission test was conducted in 2011, *see* Cover Sheet, “Test run data showing mercury emissions and emissions of hydrogen fluoride in relation to other gases,” JA924, the samples for raw material content were collected between 2013 and 2015. *See* Attachment to Email from Susan Miller to Sharon Nizich, Green Brick Mercury Data (May 4, 2015), EPA-HQ-OAR-2013-0291-0618, SJA1-5.

²⁸ Indeed, setting a standard based on what is “achievable” rather than on what is “achieved” was one of the bases for the vacatur of the 2003 Rule. *Sierra Club*, 479 F.3d at 880.

VII. TCNA lacks standing to challenge the standards for the tile industry and EPA's decision to list the major source category.

TCNA challenges EPA's promulgation of standards on the grounds that they are for a subcategory that did not include any major sources at the time of promulgation, and argues that the hypothetical possibility of a major source arising in the industry in the future is not enough to support EPA's promulgation of the standards. Industry Br. 41. As discussed in greater detail *infra* at 85-88, although major sources in the tile industry existed when EPA listed the category and were subject to the 2003 Rule, no major sources in the tile industry were subject to the Clay Rule at the time it was promulgated.

In challenging EPA's major source standards for the tile industry and EPA's listing of the major source category including the tile industry, TCNA bears the burden of proving that it has Article III standing. *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 561 (1992). TCNA must show that its members suffer an injury caused by the promulgation of the standards that could likely be redressed by this Court. *Id.* at 560-61; *Sierra v. Morton*, 405 U.S. 727, 738-40 (1972). And TCNA must prove that injury is actual or imminent, not conjectural or hypothetical. *Lujan*, 504 U.S. at 561. TCNA incorrectly claims that "[t]he legitimacy of the promulgation is dependent upon TCNA's right to judicial review challenging it." Industry Br. 18. Rather, TCNA must affirmatively establish its right to seek judicial review before its arguments may be considered. *See Lujan*, 504 U.S. at 560.

To demonstrate that it satisfies Article III requirements, TCNA must show that at least one of its members likely would be subject to the standards. But any such demonstration would undermine TCNA's argument that EPA inappropriately promulgated the standards. Accordingly, TCNA has not identified a single member who is or will be harmed, and has failed to allege specific facts sufficient to prove it has standing. *See* Industry Br. 17-18, Attachment B; *Lujan v. Nat'l Wildlife Fed'n*, 497 U.S. 871, 888 (1990) (holding "conclusory allegations" are insufficient to establish standing); *Sierra Club v. EPA*, 292 F.3d 895, 899 (D.C. Cir. 2002) (finding petitioner's burden to prove standing is the same as a plaintiff's burden at summary judgment). If TCNA views the "hypothetical possibility" of a future source becoming subject to the standards as so remote as to preclude EPA from promulgating the standards, then TCNA lacks standing to challenge them. And as discussed *infra* in Sections VIII-XII, TCNA's arguments fail on the merits even if this Court determines that TCNA has standing.

VIII. EPA complied with the CAA in setting standards for major sources in the tile industry.

TCNA argues that the CAA requires that EPA issue standards under section 7412(d) only if it finds that there are major sources in the category that would be subject to the standards. Industry Br. 39-44. This argument lacks merit. EPA appropriately determined that there were major sources in the listed category at the time of listing, consistent with CAA requirements. After EPA properly listed the

category, the CAA required it to promulgate major source standards for sources in that category. Accordingly, EPA properly issued standards for the tile industry.

A. EPA set standards for major sources in the tile industry consistent with CAA requirements.

In the 1990 CAA amendments, Congress required EPA to publish an initial “list of all categories . . . of major sources,” and certain area sources of HAPs. 42 U.S.C. § 7412(c)(1), (c)(3). To supplement its initial list, EPA “may at any time list additional categories . . . according to the same criteria for listing” applicable under section 7412(c)(1) and (c)(3). *Id.* § 7412(c)(3). For major sources, the only “criter[ion] for listing” is that the category contain major sources of HAPs. *See id.* Any person can petition to have a category deleted from the list, and EPA may delete a category only if it makes certain determinations specified in section 7412(c)(9). *Id.* § 7412(c)(9); *New Jersey v. EPA*, 517 F.3d 574, 578-79, 582 (D.C. Cir. 2008). Otherwise, once a category is listed, EPA must establish emission standards for major sources in that category. 42 U.S.C. § 7412(c)(2), (c)(5), (d)(1), (e)(1); *see Sierra Club v. EPA*, 850 F. Supp. 2d 300, 304 (D.D.C. 2012).

EPA promulgated the Clay Rule consistent with those requirements. In 1992, EPA published the initial list of source categories, which included a “clay products manufacturing” source category. Notice of Initial List of Categories of Sources under Section 112(c)(1) of the Clean Air Act Amendments, 57 Fed. Reg. 31,576, 31,591/3 (Table 1) (July 16, 1992). In 2002, in addition to proposing standards, EPA provided

notice that it had replaced the clay products manufacturing source category on the source category list with two source categories: brick and structural clay products manufacturing and clay ceramics manufacturing. NESHAP for Brick and Structural Clay Products Manufacturing; and NESHAP for Clay Ceramics Manufacturing; Proposed Rule, 67 Fed. Reg. 47,894, 47,896/2-3 (July 22, 2002).²⁹ The “clay ceramics manufacturing source category includes those facilities that manufacture pressed floor tile, pressed wall tile, and other pressed tile; or sanitaryware.” *Id.* at 47,913/3. EPA finalized clay ceramics standards in 2003, 68 Fed. Reg. 26,690, and existing major sources in the tile industry were subject to the standards starting in 2006, until this Court vacated the standards in 2007. *See* 68 Fed. Reg. at 26,716/1; *Sierra Club*, 479 F.3d at 876.

The clay ceramics manufacturing category remained a listed source category notwithstanding this Court’s vacatur of the 2003 Rule, and therefore, EPA was still required to promulgate standards for major sources in the category. 42 U.S.C. § 7412(c)(2), (e)(1); *See Sierra Club*, 850 F. Supp. 2d at 304. Accordingly, EPA properly promulgated standards for major tile industry sources in the Rule under review.

²⁹ EPA had provided notice in 1999 that it anticipated reevaluating the clay products manufacturing category and replacing it with four categories, including a clay ceramics manufacturing category. Notice of Revision of Source Category List and Schedule for Standards under Section 112 of the Clean Air Act, 64 Fed. Reg. 63,025, 63,028/1 (Nov. 18, 1999). EPA anticipated that each category would be added to the list “[w]hen each of the standards is proposed.” *Id.*

B. EPA had authority to set major source standards for the tile industry even when no sources are subject to the standards.

By August 27, 2014, just months before EPA re-proposed major source standards for the clay ceramics manufacturing category, all sources in the tile industry that would otherwise have been subject to the standards had either closed or become synthetic area sources. *See* Email and Letter from Eric Astrachan to Peter Tsirigotis, TCNA Letter - No MACT Major Sources in Ceramic Tile Industry Segment at 1 (Aug. 29, 2014), EPA-HQ-OAR-2013-0290-0131 (“Astrachan Letter”), JA261.³⁰

Because no tile industry sources would be subject to the standards, EPA at the time of proposal requested comment on whether it was, in fact, required to finalize standards for the tile industry. 79 Fed. Reg. at 75,665/2-3. In the final rule, EPA responded to comments and appropriately concluded that, because the category contained major sources when it was listed, and because EPA is required to set standards for listed

³⁰ In 2003, EPA projected that four tile industry sources would be subject to major source standards. *See* Updated Inventory Database and Documentation for Clay Ceramics Proposed Rule at 1-2 (Nov. 6, 2014), EPA-HQ-OAR-2013-0290-0222, JA264-265. Since 2003, several tile industry sources have changed their status: one major source closed; three major sources became synthetic area sources; two area sources “briefly became major sources” before becoming synthetic area sources; and one new major source became a synthetic area source. *Id.* at 2-3, JA265-266. *See also* Final Rule: Economic Inputs for Clay Ceramics Manufacturing at 2-3 (Table 1) (Feb. 26, 2003), A-2000-48, IV-B-5, JA212-213 (showing costs of the rule for existing ceramic tile manufacturing facilities operated by TileCera (Florim USA), Dal-Tile, American Marazzi Tile, and Premark (Florida Tile)). The Brick/Clay rulemaking dockets incorporate the 2003 rulemaking dockets. 79 Fed. Reg. at 75,627/2; Brick Docket Incorporation by Reference (Oct. 21, 2014), EPA-HQ-OAR-2013-0291-0510, JA518; Clay Docket Incorporation by Reference (Oct. 21, 2014), EPA-HQ-OAR-2013-0290-0002, JA263.

categories, EPA must set standards for the tile industry. 80 Fed. Reg. at 65,508/3-09/3; Clay Rule Summary of Public Comments and Responses at 2-4 (Sept. 2015), EPA-HQ-OAR-2013-0290-0314 (“Clay Rule RTC”), JA386-388.

TCNA argues that because there are not currently any major sources in the tile industry that are subject to the standards, EPA’s promulgation of the Clay Rule was unlawful. Industry Br. 39. In other words, TCNA interprets subsections 7412(c)(1), (c)(2), and (d) to *prohibit* EPA from setting standards for a listed source category unless major existing sources that will be subject to the standards remain in the listed category at the time of the standards’ promulgation. *Id.* at 40. This interpretation is inconsistent with the statute’s plain text.

The CAA clearly provides that EPA must promulgate standards for listed categories, 42 U.S.C. § 7412(c)(2), (e)(1), absent a decision to delist (*see* 42 U.S.C. § 7412(c)(9)). Further, it is at the *time of listing* that EPA’s determination that there are major sources in the category is relevant. As explained *supra* in Section VIII.A, EPA is required to list categories of major sources, and it is the listing of a category that triggers EPA’s obligation to set standards. The CAA does not require EPA to reevaluate its decision to list a category before issuing standards.³¹ Indeed, this Court

³¹ TCNA’s argument that EPA interprets the statute to allow major source “regulations for every existing or imaginable industry, regardless of whether a major source had been or would ever exist in the industry,” Industry Br. 42, is incorrect. Rather, EPA interprets the statute to only direct it to list categories of major sources when the categories contain major sources. *See* 57 Fed. Reg. at 31,579/3 (noting that

has considered unlawful EPA's removal of a source category from the list on any basis other than those provided in section 7412(c)(9), which does *not* authorize delisting on the basis of a finding that the source category no longer contains major sources. *New Jersey*, 517 F.3d at 582-83.

Nor is there any reason to doubt that EPA's statutory interpretation is consistent with congressional intent. Congress required EPA to set standards for both existing sources and new sources. *See* 42 U.S.C. § 7412(d). In requiring EPA to set standards for *new* major sources, Congress clearly contemplated that EPA could set standards that might never apply, as it is possible that no new major sources would be built in a source category.

Further, even if no major existing sources are subject to the major source standards when they are promulgated, those standards can still have environmental benefits. 80 Fed. Reg. at 65,508/3-09/3. First, major sources in a given category may choose to become synthetic area sources before major source standards go into effect, *see* Seitz Memo at 5-7, JA445-447, thus reducing those sources' emissions in advance of the reductions required by the standards. Second, having major source standards

EPA only listed categories of major sources "where there was reasonable certainty that at least one stationary source in the category is a major source or where sources in the category are commonly located on the premises of major sources"). Further, TCNA does not, and cannot, contend that major sources never existed in the tile industry. *See, e.g.*, Updated Inventory Database and Documentation for Clay Ceramics Proposed Rule at 1-3 (Nov. 6, 2014), EPA-HQ-OAR-2013-0290-0222, JA264-266 (describing major tile industry sources); Astrachan Letter at 1, JA261 (stating that former major sources in the tile industry had become synthetic area sources).

in effect may deter natural area sources and synthetic area sources from increasing their emissions to avoid becoming subject to the major source standards. *See* Industry Br. Attachment B ¶¶ 5-7. In the absence of major source standards, area and synthetic area sources might have an incentive to increase emissions to become major sources. And, as EPA explained, this incentive is greater when sources are already subject to area source standards. 80 Fed. Reg. at 65,509/1. Further, if EPA were required to identify a source emitting at major source levels at the time of setting standards, as preferred by TCNA, then it is possible that sources emitting at major source levels could become synthetic area sources during the rulemaking process to head off the promulgation of major source standards. *See id.* Indeed, after EPA listed the clay ceramics manufacturing source category, and while EPA was in the process of setting these standards, the remaining major sources in the tile industry become synthetic area sources. *See* Astrachan Letter, JA260-262; Updated Inventory Database and Documentation for Clay Ceramics Proposed Rule at 2-3 (Nov. 6, 2014), EPA-HQ-OAR-2013-0290-0222, JA265-266 (showing changes in tile industry sources' status).³² Under TCNA's interpretation, EPA would have to hold off on setting standards for the listed source category until it could again identify a source emitting

³² Contrary to TCNA's assertion, the distinction between a major source and an area source is not as clear as it may at first seem. *See supra* Section IV.A.

at major source levels, at which point the source could become a synthetic area source and (again) foreclose EPA from setting standards.

In addition to creating a regulatory loophole that would prevent EPA from setting appropriate major source standards,³³ TCNA's interpretation would be incredibly inefficient, as EPA would possibly need to rework or abandon proposed standards every time sources changed their status. In short, even if there were any ambiguity in the statute (and there is not), EPA's statutory interpretation is reasonable, and should be upheld under *Chevron* step two.³⁴

C. EPA complied with notice and comment procedures in issuing the standards.

TCNA argues that it "was never afforded the opportunity to comment" on EPA's position that listed sources must be regulated, and that it "had no reasonable notice of this position" from the proposal. Industry Br. 46. TCNA also argues that

³³ TCNA asserts that there is no such loophole because section 7412(j) applies to require case-by-case emission limits when section 7412(d) standards have been vacated, and cites a 2010 proposal to revise EPA's section 7412(j) rule as support. Industry Br. 41 n.6. However, case-by-case standards are intended to be a stopgap for the period of time before EPA promulgates standards for a source category, not a permanent substitute for source category standards. Further, the existence of section 7412(j) does not change EPA's duty to promulgate section 7412 standards for the clay ceramics category. *See Sierra Club*, 850 F. Supp. 2d. at 304.

³⁴ Additionally, because EPA did not act beyond the scope of the CAA, there is no legitimate constitutional challenge to EPA's actions. *See* Industry Br. 44 (arguing that EPA violated Article II).

EPA's position was not a logical extension of the proposal. *Id.* at 46-47. TCNA is wrong on all counts.

First, when EPA proposed standards in 2014, EPA specifically requested comment on whether it must set major source standards for the tile industry in light of the fact that all of the major sources had become synthetic area sources. 79 Fed. Reg. at 75,665/2-3. But EPA also noted that it was required to set standards for the listed clay ceramics manufacturing source category pursuant to section 7412(c), and that the D.C. District Court had already found EPA's mandatory duty to set standards for this listed source category remained in place after vacatur of the 2003 Rule. *Id.* at 75,627/1-2. Further, EPA's longstanding position, as reflected in its initial 1992 listing notice, is that the CAA requires EPA to set standards for listed sources. *See* 57 Fed. Reg. at 31,577/3. In any event, EPA made clear it was proposing to set standards for major sources in the tile industry, and TCNA had ample opportunity to comment on all aspects of whether such regulation was legally appropriate. *See* 79 Fed. Reg. at 75,657-58 (Tables 10, 11).

IX. TCNA cannot now challenge EPA's listing of the major source category, and its challenge is without merit.

A. TCNA's challenge to the listing is untimely.

TCNA challenges EPA's section 7412(c) listing of the major source category containing the tile industry. EPA agrees that section 7412(e)(4) prohibits legal challenges to EPA's decision to list categories of major sources prior to the issuance

of emission standards.³⁵ *See* Industry Br. 45. However, TCNA's challenge to the listing decision is untimely. As provided in section 7412(e)(4), the time to challenge the listing of a source category arises "when the Administrator issues emission standards for such . . . category." With respect to the clay ceramics category, that occurred in 2003, when EPA promulgated the initial Brick/Clay Rule. At that time, TCNA had 60 days to challenge the category's listing. 42 U.S.C. § 7607(b)(1). TCNA did not do so. Having waived its arguments concerning the validity of the listing decision after the standards were issued in 2003, TCNA cannot now assert them. The vacatur of the 2003 Rule did not change or affect the prior listing, and does not change TCNA's inability to raise this argument. Petitioners had an opportunity to challenge the listing and failed to pursue any timely challenge.

Further, it would be nonsensical to read Section 7412(e)(4) to allow litigants to reassert challenges to the listing decision every time emission standards are issued, reissued or revised for a category. Section 7412(e)(4) is more reasonably read to allow EPA to list categories of major sources of HAPs and begin the process of setting emission standards for those categories without interruption from protracted litigation. In short, Congress provided an opportunity to challenge listing decisions,

³⁵ Section 7412(e)(4) states that "no action of the Administrator . . . listing a source category or subcategory under subsection (c) of this section shall be a final agency action subject to judicial review, except that any such action may be reviewed under subsection 7607 of this title when the Administrator issues emission standards for such . . . category." 42 U.S.C. § 7412(e)(4).

even though it delayed judicial review of the listing of a category until after emission standards for that category were issued, but Congress limited the timeframe for challenges to EPA's actions. Therefore, the Court should dismiss TCNA's challenge to the listing decision as untimely, and need not reach the merits of this issue.

B. EPA's listing of the major source category was proper.

Even if TCNA's challenge to the listing were timely, it would fail on the merits. TCNA claims that the listing was not adequately supported, and was unlawfully finalized because EPA failed to provide notice and an opportunity to comment. Industry Br. 44-47. TCNA is wrong on both counts.

1. EPA adequately supported its basis for the listing.

TCNA argues that there must be a "citation in the relevant EPA docket to a major source" in the tile industry before EPA can promulgate section 7412(d) standards for the industry. Industry Br. 46. TCNA cites the initial 1992 listing notice and claims that the docket contains no citation to any sources in the ceramic tile manufacturing industry. *Id.* This argument misses the mark. EPA replaced the 1992 listing of the clay products manufacturing category with the listing of the clay ceramics manufacturing category in 2002, at the same time that it proposed setting standards for the listed category. Because the 2002 listing superseded the 1992 listing, any challenge TCNA would have to the listing would be to EPA's 2002 decision. *See* 67 Fed. Reg. at 47,896/2-3.

When EPA listed the clay ceramics manufacturing category in 2002, it had ample information to conclude that sources in that category, *including tile industry sources*, were major sources. *See supra* note 30; 67 Fed. Reg. at 47,913/3-14/1; Documentation of Database of Responses to the 1997 EPA Information Collection Request for Clay Ceramics Manufacturing at 306-09 (Table 11) (Dec. 6, 2001), A-2000-48; II-B-20, JA205-208 (showing four major sources in the tile industry). And the fact that there were major sources at the time of listing cannot be disputed. Further, prior to the promulgation of the 2003 Rule, EPA received no comments challenging the listing of the category based on the absence of major tile industry sources. *See generally* 2003 Clay Rule Summary of Public Comments and Responses (Feb. 2003), A-2000-48, IV-A-1 (“2003 Clay Rule RTC”), JA214.

Even if TCNA could challenge the initial 1992 listing, whether the docket for the initial list identifies any ceramic tile manufacturing sources has no effect on the validity of the listing, because the listed category at that time was clay products manufacturing.³⁶ EPA needed only to conclude that there were major sources in the category it listed, 42 U.S.C. § 7412(c)(1), and EPA did just that. *See* 57 Fed. Reg. at 31,591/3 (Table 1), 31,592/3 n.a. EPA’s rationale for listing all categories, including clay products manufacturing, was based on “reasonable certainty that at least one

³⁶ TCNA is careful to describe its challenge to the listing based on a lack of material in the docket—rather than claiming that major sources in the tile industry did not exist at that time—presumably because it could not credibly assert that there were not major tile industry sources at the time.

stationary source in the category is a major source or where sources in the category are commonly located on the premises of major sources.” *Id.* at 31,579/3. And EPA explicitly found that it had “information indicating that [the clay products manufacturing] source category contains a major source.” Documentation for Developing the Initial Source Category List, Final Report at B-45 (July 1992), A-90-49, IV-A-55/V-B-1, JA928. Although the tile industry would later be described as part of the initially-listed clay products manufacturing category, *see supra* at 85-86, there is no requirement that at the time EPA listed the category, it had to identify major sources of every industry that might later be considered part of that initially-listed category. *See* 42 U.S.C. § 7412(c)(1) (requiring publication, and revision if appropriate, of a list of categories of major sources).³⁷ Therefore, EPA’s 1992 listing of the clay products manufacturing category as a major source category pursuant to section 7412(c)(1) was valid.

³⁷ EPA explained that in proposing standards for each category, it planned to revise the list and better describe the industries in each category. 57 Fed. Reg. at 31,590/3-91/1. This approach ensured that as EPA accumulated information and developed proposed standards for a category, it could properly describe the sources within the listed category that would be subject to the standards. *See, e.g.*, 67 Fed. Reg. at 47,896/2-3, 47,898/3-99/2, 47,913/3-14/1 (replacing one initially-listed category with two categories and describing sources in those categories).

2. TCNA had ample opportunity to comment on the 2002 listing decision in the rulemaking for the 2003 Rule.

TCNA had notice and an opportunity to comment on the listing in 2002, when EPA proposed standards for the clay ceramics manufacturing category.³⁸ 67 Fed. Reg. at 47,896/2-3. Providing notice of and opportunity to comment on the listing at the time standards are proposed is consistent with section 7412(e)(4), which provides that the window for judicial review commences when EPA issues emission standards. 42 U.S.C. § 7412(e)(4). This approach is also pragmatic: it allows EPA to better describe the sources within the listed category that will be subject to the standards; and until standards are developed, listing of a category has no actual effect on its sources. *See supra* note 37. In the 2002 proposal preamble, EPA explained that it was replacing the clay products source category with two categories, including the clay ceramics manufacturing category. 67 Fed. Reg. at 47,896/2-3. EPA requested comment on the listing and the sources covered by the listing. *Id.* at 47,896/3. After publication of the 2002 proposal, TCNA could not credibly claim that its members had no notice of the listing and no opportunity to comment on it. In fact, tile companies commented that EPA “should delist ceramic tile roller kilns from the final [standards].” Comments on Proposed Rule Submitted for American Marazzi Tile and Monarch Ceramic Tile at 32 (Comment 4) (Sept. 19, 2002), A-2000-48, IV-D-07,

³⁸ Although TCNA asserts these claims under the APA, these claims can only be considered, if at all, under CAA section 7607. *See* 42 U.S.C. § 7607(d)(1).

JA209; 2003 Clay Rule RTC at 2-38, JA214. Therefore EPA has satisfied any notice and comment requirements for the listing.

X. EPA reasonably set the dioxin/furan standards and adequately responded to public comment.

In the Clay Rule, EPA issued numeric dioxin/furan MACT emission limits for all new and existing ceramic tile roller kilns, sanitaryware tunnel kilns, floor tile press dryers, and ceramic tile spray dryers. 80 Fed. Reg. at 65,478/3, Table 5. TCNA argues that the dioxin/furan standards are not based on “emissions information” because EPA requested that sources use a flawed test method to report emissions. Industry Br. 48-50. Additionally, TCNA argues that EPA did not comply with notice and comment procedures and that the standards were not a logical outgrowth of the proposal. *Id.* at 51. These arguments lack merit. EPA provided sufficient support for the test method. Additionally, TCNA had ample opportunity to comment on the use of the test method, and EPA responded to TCNA’s comments.

A. EPA reasonably determined that Method 23 provided emissions information that could be used in determining MACT floors for ceramic tile sources.

Because each tile industry subcategory contained less than 30 sources, EPA determined the MACT floors based on the lowest-emitting 5 sources for which EPA had emissions information. *See* 42 U.S.C. § 7412(d)(3)(B). In gathering information

for the standards, EPA requested that sources use EPA Test Method 23³⁹ to report dioxin/furan emissions. *See, e.g.*, 2010 Section 114 Information Collection Request to Dal-Tile Corp., Enclosure 3 at 1-3 (Table 1.1) (Mar. 9, 2010), EPA-HQ-OAR-2013-0290-0023, JA218-220. EPA used the information submitted in response to determine the dioxin/furan MACT floors for the tile industry. *See* Clay MACT Floor Memo at 2, 8-12, JA336, 342-346.

TCNA argues that Method 23 is outdated and does not account for naturally-occurring non-gaseous forms of dioxin/furan contained in raw materials used by the tile industry. Industry Br. 49. For this reason, TCNA argues that Method 23 erroneously reports non-gaseous dioxin/furan as emissions, and therefore the data produced by Method 23 are not “emissions information.” TCNA asserts that EPA ignored this problem and unlawfully relied on the Method 23 data. *Id.* These arguments fail.⁴⁰

³⁹ Method 23 is a specific sampling method used to determine emissions of dioxin and furan. Determination of Polychlorinated Dibenzop-Dioxins and Polychlorinated Dibenzofurans from Stationary Sources, 40 C.F.R. pt. 60, App’x A-7.

⁴⁰ TCNA also challenges the dioxin/furan emission standards because they control for a “miniscule volume” of dioxin/furan. Industry Br. 50. But because EPA set the standards at MACT floor levels, EPA could not have made those standards less stringent. *See Nat’l Lime*, 233 F.3d at 640 (holding that the CAA “does not provide for exceptions from emissions standards based on *de minimis* principles where a MACT floor exists”) (internal quotation marks omitted).

The CAA requires that EPA base the MACT floors on “emissions information,” and as TCNA admits, this phrase is not defined in the statute. *See* Industry Br. 48; 42 U.S.C. § 7412(d)(3). Here, EPA reasonably considered the results of Method 23 tests to provide “emissions information.” *See* Clay Rule RTC at 12-19, JA390-397 (explaining Method 23’s validity and appropriateness in generating emissions information on dioxin/furan for ceramic tile sources).⁴¹ EPA reviewed the data submitted by the tile industry and determined that “the recovery of labeled dioxin and furan congeners met method requirements” and that the samples generated valid data. Clay Rule RTC at 12, JA390. And although implementation of Method 23 varied, EPA found that the quality control inherent in the method supported the validity and accuracy of the results. *Id.* at 12, 16, 18, JA390, 394, 396. For several categories with sources similar to those in the tile industry, EPA had found that Method 23 produced “valid data for particle bound and gaseous chlorinated dioxin.” *Id.* at 16. Furthermore, the fact that EPA is working to revise Method 23, Industry Br. 49-50, does not invalidate the data collected using the method. *See* Clay Rule RTC at 15, JA393. EPA specifically determined that the method produced useful emissions information for ceramic tile sources, and TCNA “failed to demonstrate that EPA’s [method] ‘bears no rational relationship to the reality it purports to represent.’” *Cement*

⁴¹ Contrary to TCNA’s assertion, Industry Br. 48, EPA is not required to make an explicit finding in the rulemaking docket that test data or other sources of information EPA considers are “emissions information.”

Kiln, 255 F.3d at 867 (quoting *Columbia Falls Aluminum Co. v. EPA*, 139 F.3d 914, 923 (D.C. Cir. 1998)). EPA's decision to use Method 23 data to determine the MACT floors was within the agency's area of expertise and is entitled to deference. *See Cement Kiln*, 255 F.3d at 867 (noting that the Court will "defer to an agency's decision to proceed on the basis of imperfect scientific information, rather than to invest resources to conduct the perfect study," and finding reasonable EPA's interpretation that "emissions information" in section 7412(d)(3) included compliance data gathered under another statute (quoting *Sierra Club*, 167 F.3d at 662) (internal quotation marks omitted)).

B. EPA provided notice and adequately responded to comments regarding the dioxin/furan standards.

EPA provided sufficient opportunity for TCNA to comment on EPA's use of Method 23, and EPA was not required to describe in the proposal its *justification* for using Method 23. *See* 42 U.S.C. § 7607(d)(3) (requiring a statement of the basis and purpose of a proposed rule, including a summary of the factual data and methodology used). Indeed, as demonstrated by its comments, TCNA had the opportunity to comment on the use of the method, including its concern that the method was unjustified. As required, EPA responded to those comments and provided justification for using Method 23. Clay Rule RTC at 11-19, JA389-397.

Further, EPA considered and rejected TCNA's arguments against using Method 23. EPA explained that "the quality control inherent in the method provides

adequate support for the validity and accuracy of the emission results.” Clay Rule RTC at 12, JA390. In responding to TCNA’s concern that Method 23 does not account for non-gaseous forms of dioxin/furan contained in raw materials, EPA explained that it had no basis to conclude (and TCNA did not provide any) that TCNA’s concern was warranted. *Id.* Method 23 had been successfully implemented to measure dioxin/furan from other source categories, and EPA noted that the same requirements for evaluating the validity of the data still applied. *Id.* at 12, 16, JA390, 394. EPA reviewed the Method 23 data submitted by tile industry sources and found they “met method requirements” and “generated valid data on emission concentration.” *Id.* at 12, JA390; *see id.* at 16-18, JA394-396 (describing validation methodology for data collected from tile industry sources).

In characterizing EPA’s response to TCNA’s comments in the preamble as “a six-sentence non-responsive brush-off,” Industry Br. 51, TCNA overlooks (1) EPA’s more thorough responses to TCNA’s comments in its response-to-comments document, *see* Clay Rule RTC at 12-19, JA390-397; and (2) the fact that the cited statements in the preamble, 80 Fed. Reg. at 65,511/1, *are actually in response to different comments.* *See* 80 Fed. Reg. at 65,471/1 (noting availability of EPA’s responses to comments in a separate document in the docket). And with respect to TCNA’s argument that EPA’s final rule was not a logical outgrowth of the proposal, *see* Industry Br. 51, EPA did not change its position: EPA proposed to and did use Method 23. Thus, the question of logical outgrowth does not even arise here.

XI. EPA's decision not to set standards for periods of malfunction is reasonable and entitled to deference.

TCNA argues that EPA arbitrarily and capriciously failed to set standards for periods of malfunction. Industry Br. 52. Because EPA did not use emissions data from periods of malfunction in setting standards, TCNA argues that EPA unlawfully set standards that EPA knew the regulated community had not and could not achieve. *Id.* at 53. TCNA is wrong and ignores clear precedent that is contrary to its position.

This Court recently recognized that because the best-controlled similar source is unlikely to be a malfunctioning source, the CAA, if anything, “prevents [] EPA from taking into account the effect of potential malfunctions when setting MACT emission standards” and “[a]t the very least” “permits [] EPA to ignore malfunctions in its standard-setting and account for them instead through its regulatory discretion.” *U.S. Sugar*, 830 F.3d at 608; *see* 42 U.S.C. § 7412(d)(2), (d)(3). TCNA seeks to distinguish the standards at issue here from the boiler standards at issue in *U.S. Sugar* by arguing that, in this case, the docket contained information from a single facility during some malfunction events. Industry Br. 52. TCNA cites data from times when emission control devices were shut down, resulting in higher than normal emission levels. *See* Dal Italia Responses to EPA 2010 Information Collection Request Startup and Shutdown Events (Sept. 22, 2010), EPA-HQ-OAR-2013-0290-0028, Enclosure 1 (“Dal Italia Responses”), JA238-241. Although some portions of the data were from malfunctions of control devices, EPA reasonably did not use those data to set

standards. EPA's rationale here is essentially the same as the rationale upheld in *U.S. Sugar*. Compare 830 F.3d at 606-09 (noting that EPA based its position on "the impracticality of accounting for events that are necessarily unpredictable" and that EPA explained that it would use its enforcement discretion to determine when emission exceedances were excusable) with 80 Fed. Reg. at 65,482/3-83/2 (explaining the impracticability of accounting for malfunctions in setting standards and asserting EPA would use its enforcement discretion). As this Court has acknowledged, "[w]hile the existence of malfunctions is entirely predictable, the nature of those malfunctions is not, and it is the malfunction's nature that affects emissions and thus is relevant to the application of emission limits." *U.S. Sugar*, 830 F.3d at 607. And the Court upheld EPA's decision not to set alternative standards to cover malfunctions because the decision to set those standards is purely within EPA's discretion and any such standard applicable to malfunctions "is likely to be hopelessly generic to govern such a wide array of circumstances." *Id.* at 608. Here as well, EPA reasonably declined to consider malfunction data in setting the standards. See 80 Fed. Reg. at 65,482/3 (explaining that "accounting for malfunctions in setting emission standards would be difficult, if not impossible"). Further, EPA adequately explained why it did not rely on malfunction data. *Id.* at 65,482/3-83/2; Clay Rule RTC at 73-74, JA406-407.⁴²

⁴² EPA disagrees with TCNA's assertion that it "knows from data in the docket that the regulated community has not and cannot achieve [the] standards." Industry Br. 53. Because malfunctions are unpredictable, there is no way of knowing when they

TCNA also argues that EPA should have identified legal defenses in the regulations. Industry Br. 54. To the extent TCNA seeks to have EPA write affirmative defenses into the regulations to protect sources that exceed standards due to malfunctions, this Court's past decisions clearly bar EPA from doing so. *NRDC v. EPA*, 749 F.3d at 1057; *U.S. Sugar*, 830 F.3d at 607. And, to the extent TCNA seeks to have EPA simply list defenses without adopting them or otherwise changing their availability, doing so would neither affect a defense's availability nor change a court's role to determine what, if any, defenses are properly considered in determining penalties. *NRDC v. EPA*, 749 F.3d at 1063. In any event, EPA's statement that a source "can raise any and all defenses," 80 Fed. Reg. at 65,483/2, simply states the law, and does not require or empower EPA to specify what defenses could possibly be asserted.

XII. The mercury and dioxin/furan standards for ceramic tile sources do not require the use of activated carbon injection controls.

TCNA's argument that the mercury and dioxin/furan standards for ceramic tile kilns, spray dryers, and tile dryers unlawfully require installation of activated carbon injection controls is based on numerous flawed premises. *See* Industry Br. 55-56.

First, TCNA incorrectly suggests that the standards require use of a particular control technology. Similar to the brick standards discussed *supra* in Section VI, EPA set the

will occur or what their effect on emissions will be. EPA therefore reasonably set the standards based on emissions information demonstrating what sources have achieved. *See U.S. Sugar*, 830 F.3d at 608.

standards for the tile industry in the form of numeric emission limits, at the MACT floor levels. *See* 80 Fed. Reg. at 65,478/2-3, Table 5. Such standards do not require the use of any particular control technology, but instead allow for flexibility in the method sources use to comply. Clay Rule RTC at 104, 105, JA409, 410 (noting that “[i]ndustry may use whatever means and methods they deem necessary to achieve compliance with the emission limits”). And because the standards were set at the MACT floor level, they are based on emissions from the best-performing sources. *See id.* at 103, JA408. The cost of using controls was not (nor could it have been) a consideration in determining the MACT floor. *Id.*; 42 U.S.C. § 7412(d); *NRDC v. EPA*, 489 F.3d 1364, 1376 (D.C. Cir. 2007) (“[C]ost is not a factor that EPA may permissibly consider in setting a MACT floor.”).

Second, contrary to TCNA’s assertions, EPA was not required to conduct a beyond-the-floor analysis to prove that activated carbon injection controls would be effective for tile industry sources. *See NRDC v. EPA*, 489 F.3d at 1376 (“[The petitioner] relies on an incorrect premise that the MACT level of emissions reduction is invalid if it is based on control technology that a source cannot install.”). Although in response to comments, EPA explained that activated carbon injection controls would be appropriate for controlling mercury and dioxin/furan emissions for sources in the tile industry, Clay Rule RTC at 104, JA409, this was not a consideration in setting the standards and therefore would not be a valid basis for vacating the

standards even if EPA had failed to support its reasoning.⁴³ *See* 42 U.S.C. § 7412(d); *NRDC v. EPA*, 489 F.3d at 1376.

Finally, TCNA's argument that the cost of using activated carbon injection controls would be unconscionable, *see* Industry Br. 56, fails to present a legitimate legal attack on the standards. Because EPA set the standards at the MACT floor level, EPA was prohibited from setting less stringent standards based on costs. *NRDC v. EPA*, 489 F.3d at 1375-76.⁴⁴ Instead, the standards must be based on emission levels actually achieved in the source category. TCNA's challenge to the mercury and dioxin/furan emission standards for ceramic tile sources should therefore be rejected.

XIII. EPA set the standards for sanitaryware sources in compliance with the CAA.

To obtain information for determining the MACT floor for sanitaryware sources, EPA sent information collection requests to manufactures of sanitaryware.

⁴³ Contrary to TCNA's assertions, EPA *did* conduct a beyond-the-floor analysis and concluded that, for tile industry sources, "the incremental costs of additional control above the MACT floor emission limits are not reasonable relative to the level of emission reduction achieved." 79 Fed. Reg. at 75,659/3. Based on this finding, EPA proposed setting standards at the MACT floor levels. *Id.*

⁴⁴ It is only where EPA sets a more stringent "beyond-the-floor" standard that it has to justify the more stringent standards by considering control types, costs, and other factors. 42 U.S.C. § 7412(d)(2); *NRDC v. EPA*, 749 F.3d at 1057. *See also White Stallion*, 748 F.3d at 1238-39 (noting that costs are reflected in MACT floor standards to the extent that MACT floors are determined based on what is already achieved by sources, which presumably reflects what is cost-effective).

See 80 Fed. Reg. at 65,510/1-2. One source from which EPA requested emissions information had installed controls to comply with the new source MACT standards from the 2003 Rule. *See id.* at 65,510/1. That source, “Kiln 10,” had stopped running the controls in 2009, after its state operating permit was modified to reflect the vacatur of the 2003 Rule. Industry Br. 57-58; *see* 80 Fed. Reg. at 65,510/1. However, the controls remained functional and attached to the source. *See* Industry Br. 58; 80 Fed. Reg. at 65,510/1-2. When EPA requested information from Kiln 10, it requested that information be gathered while the controls were operating. *See* 80 Fed. Reg. at 65,510/1-2.

Kohler argues that EPA should have based its MACT floor calculations on data from when Kiln 10 was operating *without* its controls. Industry Br. 56-63. Kohler contends that the Kiln 10 data were not representative of any existing source operating at the time when EPA determined the MACT floors, and that the MACT floors for sanitaryware are improperly based on emissions data originating from a vacated standard, rather than on the actual performance of the best-performing sources. *Id.* Additionally, Kohler argues that the standards are inconsistent with EPA’s stated objective that emission standards should reflect real-world performance. *Id.* at 62. These arguments are wrong.

A. EPA set the MACT floors as required by the CAA, based on what has been achieved.

Kohler argues that EPA violated the CAA requirement that MACT floors be based on the actual performance of the best-performing sources by artificially creating a better-performing source. Industry Br. 58. EPA did nothing of the sort.

The CAA requires EPA to set the MACT floors based on the “average emission limitation achieved by the best performing 5 sources” for which EPA has emissions information or could reasonably obtain emissions information. 42 U.S.C. § 7412(d)(3)(B). The CAA does not set a time limit for when the emissions information that EPA uses in setting the MACT floor is collected, nor does it specify criteria for what emissions information may be used to show what has been achieved; it simply requires that the emissions limitation has been “achieved.” *See id.* Kohler provided data to EPA demonstrating emission levels Kiln 10 actually achieved with controls. 80 Fed. Reg. at 65,510/1-2.⁴⁵ Although Kiln 10 does not currently operate the controls, that does not change the fact that it had “achieved” emission reductions with the controls. 42 U.S.C. § 7412(d)(3). And the data provided to EPA were not hypothetical speculation on what Kiln 10 could potentially achieve. Rather, it was real-world emissions information that was produced from the actual operation of Kiln

⁴⁵ Kiln 10 not only provided data showing levels it had achieved during testing, it had operated for several years with controls. *See* 80 Fed. Reg. at 65,510/1. In fact, Kiln 10 was operating its controls in the year preceding EPA’s request for emissions information. *Id.*

10. *See* 80 Fed. Reg. at 65,510/2. Because information from Kiln 10 demonstrated emission levels actually achieved by the source, EPA permissibly relied on it in determining the MACT floors.⁴⁶

B. EPA was not required to omit emissions data because a source achieved emission reductions to comply with a vacated standard.

Kohler argues that because Kiln 10's controls were installed to comply with a standard that was subsequently vacated, EPA should be prohibited from using Kiln 10's emissions information. Industry Br. 56-60. But vacatur of the 2003 Rule does not affect the appropriateness of EPA's use of the Kiln 10 data. Although the vacatur invalidated the obligation to comply with the 2003 standards, it did not erase the ability of the source to demonstrate emission reductions that were actually achieved in practice. This Court has ruled that EPA acted lawfully in setting MACT floors using data collected from sources complying with a remanded standard. *Med. Waste Inst.*, 645 F.3d at 426. The Court explained that it was "not persuaded that remand without vacatur as opposed to vacatur has the outcome-changing significance that petitioners ascribe to it." *Id.* The same principle applies where, as here, a standard has been vacated. EPA had no reason to doubt that the data from Kiln 10 demonstrated anything other than emission reductions that the source had actually achieved. *See* 80 Fed. Reg. at 65,510/2. Having determined that the data provided "emissions

⁴⁶ As explained in the preamble, the only sanitaryware standard affected by the data from Kiln 10 is the existing source dioxin/furan MACT floor. 80 Fed. Reg. at 65,510/2-3.

information,” EPA reasonably included the data in the MACT floor calculations.

Accordingly, this Court should uphold the sanitaryware standards.

CONCLUSION

The petitions for review should be denied.

Respectfully submitted,

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CERTIFICATE OF COMPLIANCE WITH WORD LIMITATION

Pursuant to Federal Rule of Appellate Procedure 32(a)(7)(C), I hereby certify that this brief contains **27,902 words** as counted by the Microsoft Office Word 2013 word processing system, and thus complies with the applicable word limitation.

s/ Kate R. Bowers

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CERTIFICATE OF SERVICE

I hereby certify that on April 28, 2017, I electronically filed the foregoing brief with the Clerk of the Court for the United States Court of Appeals for the District of Columbia Circuit by using the appellate CM/ECF system.

The participants in the case are registered CM/ECF users and service will be accomplished by the appellate CM/ECF system.

s/ Kate R. Bowers

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