Summary of Public Comments and Responses for National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Amendments

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List of Acronyms and Abbreviations

ACI	activated carbon injection
CAA	Clean Air Act
EPA	Environmental Protection Agency
ESP	electrostatic precipitator
F	Fahrenheit
FF	fabric filter
HAP	hazardous air pollutant(s)
HCl	hydrochloric acid
ICR	information collection request
lb/hr	pounds per hour
LMP	Lime manufacturing plant
NESHAP	National Emission Standards for Hazardous Air Pollutants
OM&M	operations, maintenance, and monitoring
PM	particulate matter
PSH	process stone handling
RTR	residual risk and technology review
SAB	Science Advisory Board
SSM	startup, shutdown, and malfunction

SECTION 1: January 05, 2023 Proposal

Purpose and Background

On January 05, 2023, the U.S. Environmental Protection Agency (EPA) proposed revisions to the National Emission Standards for Hazardous Air Pollutants from Lime Manufacturing Plants (Lime NESHAP) to address the decision in LEAN v. EPA, 955 F. 3d. 1088 (D.C. Cir. 2020) (referred to hereafter as *LEAN*) in which the Court held that EPA has an obligation to set standards for unregulated pollutants from a major source category when the Agency conducts a technology review under the Clean Air Act (CAA) section 112(d)(6). This action proposed emission limits for hydrochloric acid (HCl), mercury (Hg), total hydrocarbons (THC), and dioxin furans (DF).

In response to public comments on the 2023 proposal and new information received, the EPA issued a supplemental proposal on February 9, 2024. The 2024 supplemental proposal revised the 2023 proposed emission limits for HCl, Hg, organic hazardous air pollutants (oHAP), and DF. Note that the 2023 proposed THC standards were dropped and oHAP standards were supplementally proposed in place of the THC standards.

Accordingly, this document is divided into two sections.

- **Section 1** addresses public comments received on the 2023 proposal.
- **Section 2** addresses comments received on the 2024 supplemental proposal.

Section 1 summarizes and responds to the comments received on the 2023 proposed rule. It should be noted that many topics identified in public comments received on the 2023 proposal have been addressed in the 2024 supplemental proposal (e.g., the THC standard was replaced with and organic HAP standard).

EPA received 30 comment letters on the 2023 proposal (eight requests for a comment period extension, 20 comments on the proposal, and 2 comments unrelated to the Lime NESHAP). The commenter and item number in Docket ID No. EPA-HQ-OAR-2017-0015 are listed in Table 1.

It should be noted that lime manufacturers are represented by the National Lime Association (NLA) trade association. NLA submitted extensive comments on the proposed rule. These comments were supported by and incorporated by reference by Carmeuse Americas (0146/0157), Cleveland-Cliffs Inc. (0160), Graymont (0141/0164), Greer Lime Company (0142/0167), Lhoist North America (0149/0162), Martin Marietta Magnesia Specialties (0143), Mississippi Lime Company (0145/0158), Pete Lien & Sons, Inc. (0153), RHI Magnesita Refractories Company (0156), and United States Lime & Minerals, Inc. (0150/0161).

For the remainder of **Section 1**, these commenters will be referred to as **Commenters 0166 (NLA and supporters)** where NLA comments are summarized.

Table 1. List of Commenters (January 2023 Proposal)

Document ID	Commenter Name	Affiliation	Abstract	Individual Comments on Proposal	NLA Endorsement	SBA Endorsement
0140	Casey Katims	United States Climate Alliance	Not related to Lime NESHAP			
0141	Mathieu Bouchard	Graymont	Extension Request		Yes	
0142	Robert Gwynne	Greer Lime Company	Extension Request		Yes	
0143	Wade Weaver	Martin Marietta Magnesia Specialties	Extension Request		Yes	
0144	Stephen Hall	Missouri Department of Natural Resources' Air Pollution Control Program	Comment Letter	Yes		
0145	Kimberly Bauman	Mississippi Lime Company	Extension Request		Yes	
0146	Jack Fahler	Carmeuse Americas	Extension Request		Yes	
0147	Sean O'Neill	Portland Cement Association	Extension Request	Yes		
0148	David Green	N/A	Comment Letter	Yes		
0149	Christopher Scholl	Lhoist North America	Extension Request		Yes	
0150	Timothy Byrne	United States Lime & Minerals, Inc.	Extension Request		Yes	

Document ID	Commenter Name	Affiliation	Abstract	Individual Comments on Proposal	NLA Endorsement	SBA Endorsement
0151	Faith Embler	N/A	Not related to Lime NESHAP			
0152	Major Clark, Dave Rostker	U.S. Small Business Administration	Comment Letter	Yes		
0153	Brian Tideman	Pete Lien & Sons, Inc.	Comment Letter	Yes	Yes	
0154	John Lucas	Genesis Alkali Wyoming, LP	Comment Letter	Yes		
0155	Clare Schulzki	Institute of Clean Air Companies	Comment Letter	Yes		
0156	Gary Bartkowski	RHI Magnesita Refractories Company	Comment Letter	Yes	Yes	
0157	Jack Fahler	Carmeuse Americas	Comment Letter		Yes	
0158	Kimberly Bauman	Mississippi Lime Company	Comment Letter		Yes	
0159	N/A	California Communities Against Toxics, Sierra Club, and Earthjustice	Comment Letter	Yes		
0160	Rich Zavoda	Cleveland-Cliffs Inc.	Comment Letter	Yes	Yes	
0161	Timothy Byrne	United States Lime & Minerals, Inc.	Comment Letter		Yes	Yes
0162	Marc Desimone	Lhoist North America	Comment Letter	Yes	Yes	
0163	Sean O'Neill	Portland Cement Association	Comment Letter	Yes		

Document ID	Commenter Name	Affiliation	Abstract	Individual Comments on Proposal	NLA Endorsement	SBA Endorsement
0164	Mathieu Bouchard	Graymont	Comment Letter	Yes	Yes	
0165	Brian Vollbrecht	N/A	Comment Letter	Yes		
0166	William Herz	National Lime Association	Comment Letter	Yes		
0167	Robert Gwynne	Greer Lime Company	Comment Letter	Yes	Yes	
0168	James Wulfenstein	N/A	Comment Letter	Yes		
0169	Joseph Kroger	N/A	Comment Letter	Yes		

1 Dioxin Furans

1.1 Inadequate Data

Comment 1:
Commenter 0159 stated that the Environmental Protection Agency's (EPA) floor approach is defective because the agency collected emissions data for just 7 out of the 96 lime kilns. Commenter 0159 stated that EPA's failure to collect adequate data led to a situation where it sought to base floors on the emissions of just 2 out almost 100 kilns and some of the data for these kilns were, according to EPA, below detection levels. Commenter 0159 stated that EPA sabotaged its own standard-setting process for dioxin/furan (D/F) limits by failing to collect additional data even though the data it has are, according to EPA, inadequate.

Commenters 0166 (NLA and supporters) also stated that EPA has proposed to set D/F standards for all major lime sources based on data from only 2 lime kilns, one with non-detectable amounts of D/F, and another with very low but detectable amounts. Commenters 0166 stated that EPA provides no data indicating that the tests from these 2 lime kilns (either individually or taken together) are representative of the emissions of the lime industry. Commenters 0166 stated that it is arbitrary and capricious for EPA to set a standard based on such limited data.

Commenters 0166 (NLA and supporters) stated that the EPA should withdraw its proposed D/F standard.

Response 1:
The EPA notes that the MACT floor is based on the average emission limitation achieved by the best performing 12 percent of existing sources "for which the Administrator has emissions information."[1] For the final Lime Manufacturing NESHAP rule amendments, there are 34 facilities with a total of 96 lime kilns, and dioxin/furan (D/F) emissions test data collected in support of the 2020 Residual Risk and Technology Review (2020 RTR) (85 FR 44960) are available for 6 kilns. The nationwide source category has 96 lime kilns (i.e., greater than 30 sources), and the MACT floor is determined based on the best performing 12 percent of existing sources with data if greater than or equal to 30 sources nationwide, i.e., 12 percent of 6 kilns is 0.72 or 1 kiln.

The EPA disagrees with the commenters that EPA proposed to set D/F emission standards based solely on data from 2 lime kilns. The data collected for the 2020 Residual Risk and Technology Review final rule (2020 RTR) indicated the presence of D/F emissions. We used all valid available data (from the best performing 12 percent of sources for which the Administrator has emissions information), as required by the CAA, to calculate representative MACT floor limits using the well-established UPL methodology which accounts for variability in the data. After

[1] See *National Ass'n of Clean Water Agencies v. EPA*, 734 F.3d 1115, 1131 (2013) (citing *Sierra Club v. EPA*, 167 F.3d 658, 661 and 662) ("We accorded *Chevron* deference to EPA's … estimate of the MACT floor, noting that the requirement that the existing unit floors 'not be less stringent than the average emissions limitation achieved by the best performing 12 percent of units' does not, on its own, dictate 'how the performance of the best units is to be calculated, … [and] recognizing that 'EPA typically has wide latitude in determining the extent of data gathering necessary to solve a problem.'"

Commented [XX1]: For public transparency, EPA should clarify in the RIA how these lime facilities practically look and operate including the scale and size of the operation. Perhaps an illustrative example of the size of the facility (and how it varies over the lifetime of the operation) and how can kilns are sited.

Similarly, see comment in the RIA, are these lime facilities co-located near any other industrial sites or manufacturing? If so, how will EPA treat any noise in the data?

Commented [SB2R1]: EPA Response: Beyond the scope of this action. No change

Commented [XX3]: Does that mean that EPA has data from *more* than 2 lime kilns? Please clarify.

Commented [SB4R3]: EPA Response: Please see the preceding paragraph - "dioxin/furan (D/F) emissions test data collected in support of the 2020 Residual Risk and Technology Review (2020 RTR) (85 FR 44960) are available for 6 kilns." This sentence is referring to the setting of the floor, which, per CAA 112(d)(3), the existing source limit is set as "the average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information)" Thus in this case the existing source floor is set using the best 1 source (12% of 6, rounded up).

comparing the calculated UPLs for new and existing sources in the source category to the new and existing source representative detection levels (RDL), in accordance with the guidance provided in the Westlin/Merrill memorandum, "Data and procedure for handling below detection level data in analyzing various pollutant emissions databases for MACT and RTR emissions limits", located in the docket of this rulemaking.

When establishing MACT emission standards, EPA sets the standards at a level above the RDL to ensure that emissions can be accurately measured. In other words, EPA's use of 3xRDL accounts for measurement variability and uncertainty. After computing the RDL, the UPL values were compared to a value equal to 3xRDL values and, the EPA determined it appropriate to set the D/F emission limits at 3xRDL. Given the emissions test data collected and the information that we have about the operation of these kilns, additional tests would not have resulted in a less stringent emission limit for existing sources, and it is highly unlikely to have changed the standard for existing sources. Other than asserting that the test data used to set the MACT emission limit is not representative of emissions from lime kilns, commenters have not provided any additional data to suggest that the standard of 3xRDL would change if additional testing were carried out and the results considered.

Comment 2:
Commenter 0159 stated that the EPA chose to throw out five its seven test results because they were not consistent with its UPL floor approach. Commenter stated that the inconsistency of some test results with EPA's preferred floor approach is not a reasoned basis to throw those data out. Commenter stated that the EPA does not even acknowledge that it has the choice to use different floor approaches let alone why it prefers to throw out data than employ them.

Response 2:
The EPA uses the UPL methodology to both evaluate average emissions performances of the emission sources in the source category and estimate variability in those emissions to determine the level of control the sources currently achieve.

The five tests referenced by the commenter were excluded as the test consisted of only a single test run for a given operating unit and these were the only data for that unit. Without multiple data points, variability in the operation of the unit cannot be assessed, and the representability of that test run cannot be determined.

Comment 3:
Commenter 0159 stated that the EPA did not explain why it did not make an effort to collect dioxins/furans emissions data for more than 7 kilns in a category of almost 100 kilns. Commenter stated that the only reason appears to be that EPA's data collection occurred when the agency still held the unlawful position that it did not have to set limits for uncontrolled hazardous air pollutants in its RTR and then, afterwards, did not make any effort to collect the additional data it needed.

Commenters 0166 (NLA and supporters) stated that the MACT floor analysis should be based on the distribution of a dataset large enough to yield meaningful results. Commenters stated that the EPA should withdraw its proposed DF standard and should issue a new ICR to collect sufficient

data to make a statistically valid determination of a proper MACT standard. Commenters 0166 (NLA and supporters) stated that a new ICR would allow the EPA to:

- Establish (if needed) DF emission standards based on genuinely representative data from the industry, or
- Permit the EPA to consider setting a work practice for DF, or
- Permit the EPA to develop subcategories for DF.

Response 3:

Please refer to Response 1.

With regard to the proposed HAP limits for hydrogen chloride (HCl), mercury, organic HAP, and dioxins/furans (D/F) for new and existing sources, these limits are for previously unregulated HAP. Pursuant to the *LEAN* decision, CAA section 112(d)(2)-(3) and the Court's Order for the EPA to complete this final rule (that fulfills the CAA section 112(d)(6) mandate) by June 30, 2024, the EPA must establish standards for these HAP based on available data in this final rule.

We collected emissions test data through the section 114 requests in support of the 2020 RTR, and through public comments received on both the January 5, 2023, proposal and February 9, 2024, supplemental proposal. We used all valid available data to calculate representative MACT floor limits using the well-established UPL methodology which accounts for variability in the data. We are finalizing these limits similar to those proposed in the February 9, 2024, supplemental proposal with minor adjustments to the organic HAP limit to incorporate comments received regarding the 3xRDL calculations we made to determine the aggregate limits.

1.2 EPA Should Promulgate Work Practices or No Standard

Comment 4:
Commenters 0166 (NLA and supporters), 0152, and 0154 stated that in the absence of adequate data to set a numeric standard, the D.C. Circuit has upheld the EPA's promulgation of a non-numeric work practice standard. Chesapeake Climate Action Network v. EPA, 952 F.3d 310, 315 (D.C. Cir. 2020). Commenters stated that the EPA repeatedly and consistently informed them that the Agency was planning to issue a work practice for DF because the DF data showed that more than 55% of test results were non-detect. Commenters stated that they had multiple conversation with the EPA on the form a work practice could take, and that they submitted a suggested work practice (EPA-HQ-OAR-2017-0015-0090 and attachment). Commenters reiterated that due to extremely low DF emissions, an appropriate work practice would require sources to properly operate the air pollution control devices already in place to control particulate matter.

Commenters 0166 (NLA and supporters), 0152, 0154, and 0163 all generally stated that section 112(h) of the CAA allows for EPA to set work practice standards, and that the EPA has determined that work practice standards are justified in lieu of emission limits when at least 55 percent of the test data are determined to be non-detect following the methods specified by the EPA in a 2014 memorandum. Commenters stated that that the EPA had test data for five

additional kilns, but each test report had only valid test run. Commenter noted that the EPA determined that these tests were valid for estimating expected emission rates but were not valid for use in determining proposed standards using the UPL method. Commenters asserted that when evaluating whether a work practice standard for D/F was appropriate instead of a numerical emission standard, the EPA should have considered all available test runs, including the one-run tests, as the EPA itself recognized these tests were valid for estimating emission rates. Commenters stated that had EPA included the five one-run tests, EPA would have reached the opposite conclusion, thus justifying a work practice standard in lieu of emissions standards. Commenters stated that all valid data should be used when evaluating the need for work practice standards.

Commenters 0166 (NLA and supporters) stated that the proposed rule was the first time that they were notified that the Agency did not have sufficient non-detect data to support a work practice. Commenters noted that instead, the EPA set a MACT floor based on data from a single lime kiln. Commenters stated that it is unscientific and arbitrary and capricious for EPA to take the position that a single non-detect result and a single detect result is insufficient for EPA to set a work practice on the grounds that there are not 55% non-detects, especially since EPA rejected four other non-detect results on technical grounds.

Commenters stated that if the EPA does not issue a new ICR, it should establish the work practice suggested by NLA. Commenters also noted that the only work practice discussed in the docket materials is that requested by NLA and that should the EPA consider any different work practice, the rule will have to be withdrawn and reproposed.

Response 4:
In order to promulgate a work practice standard the EPA must determine if it is "not feasible to prescribe or enforce an emission standard" which means any situation in which the Administrator determines that (1) a hazardous air pollutant or pollutants cannot be emitted through a conveyance designed and constructed to emit or capture such pollutant, or that any requirement for, or use of, such a conveyance would be inconsistent with any Federal, State or local law, or (2) the application of measurement methodology to a particular class of sources is not practicable due to technological and economic limitations.[2]

The EPA has evidence that D/F emissions from lime kilns are emitted from the stack and can be tested at the stack, which conflicts with condition (1). If the emissions data from lime kilns indicated non-detects for D/F the EPA could make the case that the D/F emissions could not be measured. However, in the lime manufacturing source category D/F emissions test data indicate levels above the detection limit. With that being the case, criteria (2) are not met. Therefore, the EPA cannot legally set a work practice standard regardless of the number of non-detects as suggested by the commenter.

Comment 5:
Commenter 0152 stated that the EPA should adopt a work practice standard for DF, as it will allow small businesses to continue operating without changing processes or installation of costly equipment. Commenter stated that this is sensible given the EPA's own assessment that the lime

[2] CAA Section 112(h)

manufacturing industry poses no unreasonable risk. Commenter noted that the EPA's strict new DF standards will waste economic resources, and raise prices on industry and consumers, but will have no appreciable public health benefits. Commenter noted that this will disproportionately affect small businesses.

Response 5:
Please refer to Response 4.

The EPA estimated the costs to control D/F emissions based on an estimated annual emission rate for each facility determined using site operating conditions. In the EPA's proposed cost estimates for controlling D/F emissions, only one facility was identified as needing additional controls to meet the proposed D/F emission standards. The single facility identified from the source category was not one of the small businesses in the source category. The EPA, therefore, disagrees that the D/F emission standards will disproportionately affect small businesses in the source category.

Comment 6:
Commenters 0166 (NLA and supporters) stated that the EPA should consider setting no standard for DF, as the Agency did in 2004. Commenters stated that the EPA already established that DF emissions from lime manufacturing processes are negligible (*See* EPA Docket No. A-95-41, Item No. II-B-121.) Commenters stated that such emissions are de minimis, and do not require an emissions standard. *Alabama Power Co. v. Costle*, 636 F.2d 323, 400 (D.C. Cir. 1979) (describing EPA's discretion to exempt certain de minimis releases from regulation under the CAA). Commenters stated that a standard is clearly not "necessary" under the terms of the LEAN decision and the CAA.

Response 6:
In 2000, the D.C. Circuit held that the EPA has a clear statutory obligation to set emission standards for each listed HAP emitted from a major source. *National Lime Ass'n v. EPA, 233 F.3d 635; Sierra Club v. EPA*, 479 F.3d 875 (D.C. Cir. 2004). In the *LEAN* decision referenced by the commenters, issued on April 21, 2020, the D.C. Circuit held that the EPA has an obligation to address unregulated HAP emissions from a major source category when the Agency conducts the 8-year technology review required by CAA section 112(d)(6). Emissions data collected from lime manufacturing kilns in the source category have demonstrated that HCl, mercury, organic HAP, and D/F are emitted during manufacturing operations. Since these four pollutants are emitted from the lime manufacturing source category, and were not previously regulated by the NESHAP, pursuant to the *LEAN* decision, the EPA is required to set emission standards as part of the CAA section 112(d)(6) technology review for the source category. Specifically, EPA is required to establish new MACT standards pursuant to CAA sections 112(d)(2) and (3).

1.3 Beyond the Floor Limits

Comment 7:
Commenter 0159 stated that the EPA's failure to perform a beyond-the-floor analysis for dioxins/furans is unlawful. Commenter stated that the § 112(d)(2) requires emission standards to

reflect the "maximum" degree of reduction that is "achievable" considering cost and the other statutory factors. Commenter stated that the EPA's proposed limit does not meet this standard, and that the EPA cannot declare that it will not determine what the maximum achievable degree of reduction is.

Commenter disagreed with the EPA's determination that its proposed limit (three times the representative detection level) represents the lowest concentration of dioxins/furans "that can be measured" so that "no further reduction can be achieved that is measurable." Commenter stated that dioxins/furans can be measured down to the "representative detection level" that the EPA calculated.

Commenter stated that the test reports show that dioxins/furans have been detected at levels below the representative detection level used in this rulemaking. Commenter stated that the EPA's claims (that results are below detection) are based on an arbitrary and artificial "representative detection level" that is considerably higher than the levels at which the record shows dioxins/furans can be detected and measured.

Commenter stated that the proposed limit for dioxins/furans is so weak that only "1 of 96 kilns" would have to install control technology to meet it. Commenter highlighted that the proposed limit would result in less than a 1% reduction in dioxins/furans emissions from the baseline rate. Commenter stated that this does not represent the maximum degree of reduction that is achievable nor the emission level actually achieved by the best performing kilns.

Commenter discussed the fact that the proposed beyond-the-floor limits for mercury would require the use of activated carbon injection, and that this would reduce emissions of dioxins/furans. Commenter noted that this does alleviate the EPA's failure to set standards for dioxin/furans that actually reduce emissions to the "maximum" degree that is achievable. Commenter stated that without meaningful limits, kilns using activated carbon injection can still emit dioxin/furans (at higher levels than would be allowed with a meaningful limit) in cases where kilns are poorly operated (such as poor control of post-combustion conditions). Commenter stated that the kilns that do not need to use activated carbon can emit dioxin/furans at high levels.

Commenter stated that the EPA must determine whether a stricter limit is achievable.

Response 7:
In the proposed rule, the EPA set the D/F emission standard at 3xRDL. The factor of three used in the 3xRDL calculation is based on a scientifically accepted definition of the level of quantitation – simply stated, the level where a test method performs with acceptable precision. Because the emission standard (MACT floor) is set equal to 3xRDL, there is not a "beyond-the-floor". The floor is at the level of quantitation – the lowest value the EPA could set the standard.

1.4 Technical Revisions

Comment 8:
Commenters 0166 (NLA and supporters) stated that the DF limit is based on the EPA's Johnson memo. Commenters stated that to properly utilize Reference Image 4-3 to obtain a limit, the stack gas sample volume, in dry standard cubic meter (dscm), is required to select the appropriate 3xRDL value. Commenters stated that a sample volume for DF testing on a lime kiln should be 3 dscm (or less, desirably, given costs for testing and long sample collection times). Commenters stated that the EPA's proposed DF limit is set incorrectly by improperly referencing a sample collection volume of 4 dscm (and not 3 dscm as is included in the rulemaking red line strike out, see Table 5). Commenters stated that the proposed DF limit is incorrect, and that the correct DF limit should be 0.037 ng/dscm, corresponding to 3 dscm.

Response 8:
The EPA has carefully considered this comment and as explained in the February 9, 2024, supplemental proposal, agrees with commenters that the 3xRDL value should be based on a sample volume of 3 dscm, the minimum sample volume required in the rule as proposed. In the supplemental proposal and the final rule, the MACT standard for D/F has been changed to 0.037 ng/dscm to correspond to the 3xRDL value at a sample volume of 3 dscm.

Comment 9:
Commenters 0166 (NLA and supporters) stated that the proposed DF standard in the red line strike out (0.092 ng/dscm TEQ at 7% O_2) docket does not match the value in the preamble (0.028 ng/dscm TEQ at 7% O_2). Commenters reiterated that both of these values are incorrect, and that the correct DF limit should be 0.037 ng/dscm, corresponding to 3 dscm.

Commenter 0164 also noted that it is not clear which standard EPA is proposing. Commenter 0164 stated that this error requires re-proposal because the EPA has not exhibited reasoned consideration. Commenter summarized several court decisions supporting its request for re-proposal and stated that EPA must re-propose due to its error.

Response 9:
The January 5, 2023, proposed rule clearly described the proposed D/F standard as 0.028 ng/dscm TEQ at 7 percent O_2. EPA included a redline/strikeout of the proposed regulatory text associated with the proposed rule in the docket for the rulemaking. The document contained an error as it incorrectly identified the proposed D/F standard. EPA included a new redline/strikeout of the proposed regulatory text in the docket in February 2024 to reflect the proposed changes to the D/F standard in the supplemental proposal.

Comment 10:
Commenters 0166 (NLA and supporters) stated that the EPA proposed different toxicity equivalence factors (TEF) in the preamble and the redline strike out. Commenters stated that the values in the red line strike out are from 1989 and are incorrect (no longer applicable). Commenters stated that the EPA needs to correct the TEF values.

Response 10:
In the January 5, 2023, proposed rule and the February 9, 2024, supplemental proposal, the EPA stated that it was incorporating by reference TEF values from 2006 for D/F as referenced in

"Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin and Dioxin-Like Compounds", December 2010. The redline/strikeout of the proposed regulatory text associated with the January 5, 2023, proposed rule in the docket contained an error which has been corrected in the final rule.

Comment 11:
Commenter 0164 stated that there is correspondence between NLA and EPA in the docket indicating that Graymont no longer used high organic stone at its Superior plant. Commenter stated that this plant does use high organic stone. Commenter noted that this test report is accordingly valid and should be used in any MACT floor calculations.

Response 11:
After researching the comment, the EPA determined the data from the Graymont Superior Plant was used in the MACT floor analysis, but the facility is not included in the MACT floor pool because the pool is made up of 12 percent of the best performers, and the facility was not one of the best performers.

2 Hydrochloric Acid

2.1 Health Based Standard for HCl Pursuant to CAA Section 112 (d)(4)

Comment 12:
Commenters 0166 (NLA and supporters) 0152, and 0154 stated that if the EPA issues any standard at all, it should issue a health-based standard for HCl, as it would more than adequately protect the public and is based on the best available science. Commenters reiterated the requirements of CAA Section 112 (d)(4) and stated that the EPA concluded in its 2004 rule that HCL was a threshold pollutant. Commenters summarized the risk assessment that they performed in 2002 and noted that the EPA concluded that it (the risk assessment) reached a reasonable conclusion that current levels (at the time) of HCl emissions from lime kilns would be well under the threshold levels of concern for human receptors. Commenters noted that the EPA confirmed their assessment through its own analyses. Commenters further summarized their 2002 risk results to highlight that risks from HCl emissions from lime plants had a more than adequate "ample margin of safety" because they were expected to be significantly lower than the level at which there would likely be no appreciable risk (i.e., a hazard quotient of 1.0). Commenters stated that the EPA decided that HCl was a threshold pollutant entitled to a health-based standard under 112(d)(4), and that the EPA ultimately determined that the risks were so low that no standard was justified.

Commenters stated that this finding was further validated in the EPA's 112(f) risk analysis supporting its final 2020 RTR rule. Commenters summarized the findings of the 2020 risk assessment and stated that it proves that risks from uncontrolled emissions of HCl are acceptable with an ample margin of safety.

Commenter 0154 stated that 112(d)(4) is a powerful tool that enables EPA to match the stringency of a HAP emissions limitation to the level determined necessary to fully protect human health. Commenter 0154 state that the EPAs default methodology has resulted in a standard that goes well beyond what is needed to protect the public. Commenter 0154 stated that acid gas emissions from lime kilns are inherently low because the kiln itself acts as a control device for these emissions. Commenter noted that the EPA estimates that out of 96 existing kilns, 55 will require additional controls to comply with the proposed HCl limit and that this outcome is unreasonable, especially given the results of the EPAs own risk analysis.

Commenters stated that the EPA has concluded that HCl is a threshold pollutant and that the risks from emissions of HCl from lime manufacturing facilities are below the health threshold value. Commenters stated that the "current NESHAP provides an ample margin of safety to protect public health." 85 Fed. Reg. 44,960. Commenters stated that no party has challenged this conclusion and the time for making any such challenge has long since passed. See CAA § 307(b)(1). Commenters stated that this conclusion is the "law of the case," and must be respected in this rulemaking proceeding. Commenters stated that for the EPA to now set a non-health-based standard without explanation would be arbitrary and capricious and contrary to its own prior decisions.

Response 12:
The *LEAN* decision specifically requires EPA to regulate any previously unregulated pollutant independent of the risk analysis performed in the 2020 RTR.

The February 9, 2024, included a discussion regarding a health-based standard for HCl. The EPA took public comment on this discussion. Refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.
Please refer to responses 140-143.

Comment 13:
Commenters 0152 stated that the EPA should adopt a health-based standard for HCl, as it will make it possible for small businesses to comply with the amended NESHAP without significant new capital investments and operating costs. Commenter stated that this is sensible given the EPA's own assessment that the lime manufacturing industry poses no unreasonable risk. Commenter noted that the EPAs strict new HCl standards will waste economic resources, and raise prices on industry and consumers, but will have no appreciable public health benefits. Commenter noted that this will disproportionately affect small businesses.

Response 13:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Regarding the commenters' assertion that the HCl standards will have no appreciable public health benefit, the EPA disagrees. The final rule amendments to the Lime Manufacturing NESHAP, and the application of recommended controls, are expected to reduce HAP emissions from the lime manufacturing source category by 905 tons per year, and specifically will reduce HCl emissions by 884 tons per year.

Comment 14:
Commenters 0166 (NLA and supporters) stated that the EPA is not constrained by the Brick/Clay Sierra Club MACT case because lime manufacturing is distinguishable from that case in all of its key factual, technical, and legal conclusions. Commenters stated that the court rejected the EPAs use of a health-based standard for HCl for the brick/clay industry for three reasons. *Sierra Club v. EPA*, 895 F.3d 1 (D.C. Cir. 2018). Commenters stated that none of those reasons are either relevant today or can be used to deny use of a health-based standard for HCl for the lime manufacturing RTR. Commenters discussed each of the three findings, as summarized below.

Finding One:
Commenters 0166 (NLA and supporters) summarized the *Sierra Club v. EPA* 2018 court finding that the EPA acted unreasonably by concluding that it is "established" that HCl poses no cancer risk. Commenters stated that the current scientific consensus now supports the conclusion that HCl does not cause cancer. Commenters reiterated points from the Ramboll report that they provided to EPA in June of 2021 regarding the carcinogenicity of HCl (EPA-HQ-OAR-2017-0015-0073). Commenters stated that the findings of this report demonstrate that there is no

evidence to indicate that HCl is a carcinogen. Commenters also summarized recent instances where the EPA itself concluded that HCl is not a carcinogen:

- *NESHAP: Flexible Polyurethane Foam Fabrication Operations Residual Risk and Technology Review and Flexible Polyurethane Foam Production* and *Fabrication Area Source Technology Review*, 86 Fed. Reg. 64385 (Nov. 18, 2021). These facilities emit HCl, and EPA promulgated standards for HCl, but EPA specifically concluded that "no carcinogens are emitted by this category." 86 Fed. Reg. 64391-92.
- *NESHAP: Asphalt Processing and Asphalt Roofing Manufacturing Residual Risk and Technology Review*, 85 Fed. Reg. 14526, 14535 (Mar. 12, 2020) (citing to the International Agency for Research on Cancer's conclusion that HCl is "not classifiable as to its carcinogenicity to humans").
- *NESHAP: Hydrochloric Acid Production Residual Risk and Technology Review*, 85 Fed. Reg. 20855, 20861 (Apr. 15, 2020) ("[t]he results of the inhalation cancer risk assessment … indicate there is no quantifiable cancer risk posed by the source category…HCl is not classifiable as a human carcinogen").

Commenters stated that these conclusions satisfy the requirements of the *Sierra Club* decision, and thus, for purposes of the lime manufacturing RTR revisions, HCl should be considered a health threshold pollutant.

Finding Two:
Commenters 0166 (NLA and supporters) stated that the court found that the EPA used only a single-low confidence, low-quality risk assessment in its review, and that the EPA did not use a more stringent California EPA ("CalEPA") reference concentration for HCl that does not pose a health risk. 895 F.3d at 12. Commenters stated that this concern does not apply to the lime RTR because the EPA's 2020 risk assessment included multiple, robust dose-response assessments, including CalEPA chronic and acute inhalation reference exposure levels (RELS). Commenters stated that the EPA risk assessment found no unacceptable human health risk due to chronic or acute inhalation exposure. Commenters stated that utilizing a health-based threshold for HCl in the revised lime RTR would not be relying on a "single low-confidence, low-quality" risk assessment, but would instead be relying on a risk assessment that includes multiple robust dose-response assessments.

Finding Three:
Commenters 0166 (NLA and supporters) stated that the court concluded that EPA's brick/clay health-based assessment was flawed because the court could not determine whether EPA provided any "ample margin of safety" in the HCl health threshold as required by section 112(d)(4). Commenters stated that this flaw in the EPA's reasoning in the brick/clay context should be easily addressed in this rulemaking – EPA should break out specifically and set forth in precise terms its "ample margin of safety" conclusions (which it already made in the context of the risk assessment performed for the RTR).

Commenters 0166 (NLA and supporters) stated that none of the reasons listed above is either relevant today, or can be used to deny use of a health-based standard for HCl for the lime manufacturing RTR.

Response 14:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Comment 15:
Commenters 0166 (NLA and supporters) stated that the EPA should always seek to preserve its regulatory authority and flexibility in the context of 112(d)(4) health-based standards. Commenters stated that if the EPA fails to establish a health-based threshold for HCl, then it is hard to see how EPA could ever demonstrate a health threshold under section 112(d)(4) given the data in support of a health-based HCL standard for Lime. Commenters noted that the court held that the EPA is not "obligated to conclusively resolve every scientific uncertainty before it issues regulation." 895 F.3d at 10 (citations omitted). Commenters cited the following court position:

- The statutory term "established" does not unambiguously require that the EPA prove its scientific conclusions beyond all possible doubt. Nor does the term "health threshold" require that the EPA find a specific threshold that lacks uncertainty. With respect to scientific conclusions, "established" and "health threshold" are ambiguous terms and we give deference to the EPA to the extent its interpretations fall within the bounds of reasonableness.

Commenters stated that under this standard, it would be reasonable for EPA to conclude that HCl is a threshold pollutant in the context of this rulemaking.

Commenters 0166 (NLA and supporters) stated that not setting a health-based threshold for HCl would be a harmful precedent, given the evidence, and it could be read to deprive the EPA of the flexibility to use health-based standards as provided under the statute. Commenters stated that regulating HCl using a health-based standard is faithful to the intent of Congress in enacting section 112(d)(4), faithful to the D.C. Circuit's concerns expressed in the *Sierra Club* decision, and a reasonable and appropriate exercise of EPA's discretion in setting standards for pollution prevention that protect the public with an ample margin of safety.

Response 15:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Comment 16:
Commenters 0166 (NLA and supporters) stated that the EPA will be required to make a determination regarding use of 112(d)(4) in the lime manufacturing rule before it does so in the other rules. Commenters stated that they understand that EPA may not want to make a decision regarding HCl as a threshold pollutant until after it has made such a decision in the brick/clay or pulp and paper RTR rulemakings. Commenters stated that the problem with this approach is that there is a deadline for EPA to issue the lime manufacturing rule, but there is no such deadline for the brick/clay or paper and pulp rulemakings. Commenters stated that the lime manufacturing rule will likely be the first of these rules to be issued, and therefore the first instance in which the

HCl threshold determination will be made. Commenters stated that it is preferable to make this determination in the context of the lime rule, because of the robust record regarding HCl: (1) EPA already determined that HCl is a threshold pollutant; and (2) there is a strong record both at the MACT and RTR rulemaking stages that would support an EPA determination to issue a section 112(d)(4) standard.

Response 16:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Comment 17:
Commenters 0166 (NLA and supporters) stated that the EPA should make it clear that even if it believes that it must set standards pursuant to sections 112(d)(2) and (3) for previously unregulated HAPs, the provisions in the statute providing for alternative approaches to the methods described in 112(d)(2) and (3) remain available to the Agency (health-based standard under 112(d)(4), subcategories under 112(d)(1), and work practices under 112(h)).

Response 17:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

2.2 Subcategories

Comment 18:
Commenter 0159 stated that proposed subcategories for HCl are unlawful because they are not based on difference in the class, type, or size of kiln. Commenter stated that the Clean Air Act § 112(d)(1) allows EPA only to distinguish between "classes, types, and sizes" of sources in setting emission standards for a category. 42 U.S.C. § 7412(d)(1). Commenter stated that EPA has not specified any such difference for the HCl subcategories with regard to type of lime produced.

Commenter stated that the only different "types" of kilns that the EPA has identified are SR, PR, and VK. Commenter stated that the other subcategories that the EPA has proposed (DL, QL, and DB) are, by the EPA's own description, just types of "lime produced." Commenter stated that EPA has not shown that kilns producing different types of lime have any kind of design or technology difference, or that a kiln currently producing one kind of lime could not produce the other types of lime.

Commenter stated that this is not a difference in the class, type, or size of kiln, but a choice the kilns' owners make about how to run their kilns and that this is not a valid basis for subcategorizing. Commenter stated that the EPA did not explain how a lime kiln choosing to produce different lime products is a different class, type, or size or kiln.

Commentor stated that the subcategorizing by the type of lime exceeds the subcategorization authority provided to EPA in § 112(d)(1) and is similar to subcategorizing by pollution control device.

Response 18:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Comment 19:
Commenters 0160 stated that the EPA should allow averaging for cases where one kiln makes both QL and DL (i.e., a swing kiln). Commenter noted swing kilns would be subject to substantially different emission rates under the proposed rule depending on the product they produce at any given time. Commenter noted that a swing kiln could operate well below the HCl limit for one product and slightly above the other limit. Commenter stated that this would require them to install expensive controls to reduce a small level of HCl even though the emissions overall would be well below the MACT standard.

Commenter 0160 proposed the following equations to determine emissions and compliance:

- Allowable Emissions Average Calculation:
    - Actual 12-month production QL x QL HCl Emission Limit + Actual 12-month Production DL x DL HCl Emission Limit = Z lbs/year
        - HCl emissions limits for both QL and DL in units of lb/ton lime as defined by the rule
        - Z = allowable HCl emissions (pounds per year) for the affected facility
- Compliance Assurance Calculation. After the close of each calendar month, the compliance demonstration calculation would be as follows, per kiln:
    - Actual 12-month Production QL x Tested ER QL + Actual 12-month Production DL x Tested ER DL = K lbs/year
        - Tested ER = most recent HCl performance test, lb/ton lime
        - If K is less than Z, then compliance with the HCl limit for the affected facility is demonstrated.

Response 19:
The EPA has included provisions in the emissions averaging alternative to allow emissions averaging in those situations where one kiln produces two different types of lime in the final rule.

Comment 20:
Commenters 0166 (NLA and supporters) stated that should the EPA continue to pursue non-health-based emissions standards for HCl, they generally support the EPAs proposal to establish subcategories. Commenters stated that the EPA based its HCl subcategories on two factors that impact HCl emissions, kiln type (preheater rotary, straight rotary, and vertical), and lime product produced (high calcium lime and dolomitic lime). Commenters stated that the EPA reasonably determined that these differences in equipment and in product made resulted in differences in emissions that justify establishment of subcategories. Commenters stated that they fully support this determination.

Response 20:
The EPA acknowledges the commenter's support.

Comment 21:
Commenters 0166 (NLA and supporters) stated that subcategorization by kiln type is appropriate. Commenters summarized the differences in the three kiln types with regard to design and HCl emissions:

- HCl emissions from rotary kilns equipped with a preheater are typically lower than a straight rotary kiln with no preheater. This is because, among other things, HCl that exits the kiln can be chemically adsorbed by lime (CaO) and limestone (CaCO3) in the preheater section of the kiln. This has the overall effect of lowering HCl stack emissions. In addition, the stack temperature of a preheater kiln is lower than a straight rotary kiln, which lowers HCl formation.
- A straight rotary kiln with no preheater and similar inputs has HCl emissions higher than a preheater equivalent. Both kiln types will have some adsorption of HCl in the rotary kiln, but a straight rotary kiln does not have the additional opportunity for HCl adsorption in the preheater.
- Vertical lime kilns also have a different emissions profile from straight kilns. In vertical kilns, close contact between the gases in the kiln and the stone and lime tends to scrub out HCl emissions.

Response 21:
The EPA acknowledges the commenter's support.

Comment 22:
Commenters 0166 (NLA and supporters) stated that subcategorization by lime product produced is appropriate. Commenters summarized the requirements of 112(d)(1) and (3) that allow for subcategories and establish the number of sources in the MACT pool. Commenters also summarized two courts cases that have upheld the EPA's use of subcategories, as follows:

- In *Sierra Club v. EPA*, 895 F.3d 1 (D.C. Cir. 2018), the court upheld EPA's decision to establish subcategories for brick kilns by size. In setting a brick MACT floor, EPA set separate standards for PM (used as a surrogate for non-mercury hazardous metals) and mercury, with subcategories for large tunnel and small tunnel brick kilns. *NESHAP for Brick and Structural Clay Products Manufacturing; and NESHAP for Clay Ceramics Manufacturing*, 80 Fed. Reg. 65470, 65471 (Oct. 26, 2015).
- In *U.S. Sugar Corp. v. EPA*, 830 F.3d 579 (D.C. Cir. 2016), the court upheld EPA's establishment of subcategories for major boilers (based on primary fuel combusted and method used to feed the boiler), and for area boilers (based on size). The court held that EPA's creation of subcategories of boilers based on the type of fuel the boilers burned was based on a reasonable interpretation of CAA provisions permitting EPA to distinguish among "classes, types, and sizes" of sources when establishing hazardous air pollutant emissions standards, and was not arbitrary and capricious, even though a single boiler could use different fuels over the course of its lifetime. EPA explained that boilers varied in their designs depending on type of fuel they burned, which affected boiler

emissions and the feasibility of emissions controls. *Id.* at 656. EPA demonstrated with sufficient evidence that burning a different fuel made a boiler a different type of boiler, and thus EPA's creation of subcategories of boilers based on the type of fuel the boilers burned was not arbitrary or capricious. *Id.* at 657.

Commenters stated that the data in the record show that kilns producing dolomitic lime consistently have significantly higher HCl emissions than kilns producing high calcium lime (this is true even when the two kinds of product are produced in the same kiln). Commenters stated that these differences are due to differences in the stone feedstock, and not because of fuels or equipment. Commenters stated that dolomitic lime is made from naturally occurring stone with a higher percentage of magnesium chloride than high calcium quicklime. Commenters also noted that dolomitic lime and high calcium quick lime are different products and have different uses and markets. Commenters stated that the differences in HCl emissions between these two types of lime are appropriate for subcategorization.

Response 22:
The EPA acknowledges the commenter's support.

Comment 23:
Commenters 0166 (NLA and supporters) stated that the EPA grouped all vertical kilns into a single category because the 2017 ICR did not include data on vertical kilns producing dolomitic lime. Commenters requested that vertical kilns producing dolomitic lime be grouped with preheater kilns producing dolomitic lime, because in this case, similarities related to product type are more significant than similarities in kiln equipment. Commenter 0162 provided technical information to support his request, as summarized:

- Chloride concentrations in the stone are the primary driver for HCl emissions.
- Chloride concentration in dolomitic stone is higher than concentrations in high calcium limestone.
- Dolomitic limestone has less CaO and CaCO3 than high calcium limestone. As a result, less HCl can be captured in a dolomitic kiln resulting in higher HCl emissions.
- Although vertical and preheater kilns are different in some ways, they are similar in that the exhaust gases flow through a bed of limestone allowing for inherent scrubbing of HCl to occur.

Commenters stated that they unaware of any vertical kilns making dead-burned dolomitic lime, but any such operations should be grouped with kilns making dolomitic lime due to the similarities in product type. Commenters requested the following final subcategories:

Type of Kiln Type of Lime	Type of Kiln Type of Lime
Straight Rotary (SR)	Dolomitic Lime (DL) and Dead-Burned Dolomitic Lime (DB)
Straight Rotary (SR)	High-Calcium Quicklime (QL)
Preheater Rotary (PR) and Vertical (VK)	Dolomitic Lime (DL) and Dead-Burned Dolomitic Lime (DB)
Preheater Rotary (PR)	High-Calcium Quicklime (QL)

Vertical Kiln (VK)	High-Calcium Quicklime (QL)

Response 23:
After further evaluation of the information provided by the commenter, the EPA has decided this additional subcategory is warranted. The final rule includes the additional subcategorization of vertical kilns by stone type produced as suggested.

2.3 Inadequate Data

Comment 24:
Commenter 0159 stated that the EPA's decision to subcategorize resulted in datasets for HCl subcategories that have less than 5 sources. Commenter stated that § 112(d)(3)(B) provides that for subcategories with fewer than 30 sources, floors must reflect the average emission level achieved by the best performing 5 sources for which EPA has or could reasonably obtain emissions information." Commenter stated that the EPA has not explained why it cannot obtain data for at least 5 sources for each of these subcategories, and that any such claim would be inconsistent with § 114, which gives EPA ample opportunity to collect the data it needs. 42 U.S.C. § 7114. See U.S. Sugar Corp. v. EPA, 830 F.3d 579, 644 (D.C. Cir. 2016) ("The Agency was obligated to collect the data it needed, and Congress gave it the authority to do so.").

Response 24:
Regarding the collection of data used to set MACT standards, the EPA typically has wide latitude in determining the extent of data-gathering necessary and courts generally defer to the Agency's decision to proceed on the basis of imperfect scientific information, rather than to "invest the resources to conduct the perfect study." *Sierra Club v. EPA*, 167 F. 3d 658, 662 (D. C. Cir. 1999). "If the EPA were required to gather exhaustive data about a problem for which gathering such data is not yet feasible, the agency would be unable to act even if such inaction had potentially significant consequences ...[A]n agency must make a judgment in the face of a known risk of unknown degree." *Mexichem Specialty Resins, Inc. v .EPA* 787 F.3d. 544, 561 (D.C. Cir. 2015).

We collected emissions test data through the section 114 requests in support of the 2020 RTR, and through public comments received on both the January 5, 2023, proposal and February 9, 2024, supplemental proposal. We used all valid available data to calculate representative MACT floor limits using the well-established UPL methodology which accounts for variability in the data. We are finalizing these limits similar to those proposed in the February 9, 2024, supplemental proposal with minor adjustments made to the organic HAP limit to incorporate comments received regarding the 3xRDL calculations made to determine the aggregate limits.

2.4 Beyond the Floor Limits

Comment 25:
Commenter 0159 stated that the EPA rejected its proposed beyond the floor standard for HCl because it does not consider the control cost, $4,300 per ton of HCl to be "reasonable." Commenter stated that Section 112(d)(2) requires the "maximum" degree of reduction in

hydrogen chloride that is "achievable," not the degree of reduction that comes at a cost EPA considers "reasonable."

Commenter stated that the EPA failed to explain (or support with evidence) why $4,300 per ton of HCl removed is unreasonable. Commenter stated that the EPA's rejection of a beyond-the-floor limit for HCl is unlawful.

Response 25:
In addition to assessing the MACT floor level of control, section 112(d)(2) of the CAA also requires the EPA to examine emission standards more stringent than the MACT floor, which the EPA refers to as beyond-the-floor (BTF) control options. Unlike standards set at the MACT floor level of control, when assessing whether to require emission standards more stringent than the MACT floor, the EPA must consider the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements. The EPA's HCl BTF analysis evaluated these factors in determining whether it was appropriate to establish standards more stringent than the MACT floor. In developing this final rule, we evaluated HCl emission limits more stringent than the MACT floor after adjusting estimates of HCl emissions, HCl emission reductions, and control costs to assess whether a BTF option was technically achievable and cost effective. Based on this analysis, we concluded that the cost-effectiveness numbers (measured in $/ton of HCl reduced) to set BTF HCl standards are well above those that we have historically accepted when considering BTF options for regulating HCl emissions such that it would not be reasonable to set BTF standards in this action. The analysis of the BTF options (including the estimated costs, emissions reductions, cost effectiveness and secondary impacts of each option), are included in the memorandum "Final Maximum Achievable Control Technology (MACT) Floor Analysis for the Lime Manufacturing Plants Industry", which is available in the docket for this action.

Comment 26:
Commenter 0159 highlighted the EPA's decision to not consider a beyond the floor standard for HCl for the SR (DL, DB) subcategory, which has a limit of 2.2 lb/ton of lime produced. Commenter noted that this limit is approximately four times higher than the next highest limit, 0.58 lb/ton of lime produced for SR (QL). Commenter noted that the EPA has not discussed what the cost per ton of installing controls would be for this subcategory, let alone why it would consider that cost per ton – which is presumably far lower than the cost per ton for the lime kilns category as a whole – to be unreasonable.

Response 26:
The EPA's HCL beyond-the-floor (BTF) analysis evaluated whether to require emission standards more stringent than the MACT floor, including consideration of the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements in determining whether it was appropriate to establish standards more stringent than the MACT floor. Historically, the highest cost effectiveness (expressed in $/ton of pollutant removed) the EPA has accepted for BTF controls to remove HCl has been approximately $2,000/ton of HCl (89 FR 16408). The BTF cost analysis performed for the February 9, 2024, supplemental proposal, found the BTF costs to remove HCl to be approximately $95,000/ton. The results of the cost analysis indicates that the estimated cost effectiveness is a much higher

value than the EPA has previously considered to be cost-effective for many different HAP, and therefore, did not consider beyond-the-floor standards for HCl.

2.5 Technical Revisions

Comment 27:
Commenters 0166 (NLA and supporters) stated that in the EPA's MACT floor analysis, five kilns were miscategorized as preheater rotary kilns, when in fact they are straight rotary kilns. Commenters stated that this error resulted from incorrect responses to the 2017 ICR. Commenters stated that one of the four kilns is incorrectly in the MACT pool for the preheater quicklime (PR, QL) subcategory. Commenters provide a written statement from the affected facility affirming that this kiln is a straight rotary kiln. Commenters provided updated calculations supporting revisions to the HCl standards for the straight rotary and preheater rotary quicklime subcategories.

Response 27:
The standards set in the final rule include the changes in subcategories as suggested.

Comment 28:
Commenters 0166 (NLA and supporters) stated that Method 26/26A should be allowed by the EPA to determine HCl compliance. Commenters stated that it appears that the EPA inadvertently omitted Method 26/26A from Table 7 in the preamble (88 Fed. Reg. 815), and from Table 5, Row 19, in the redline in the docket. Commenters stated the following in regard to Method 26/26A:

- Is a standard isokinetic method that can be run concurrently with PM sampling.
- Is an EPA promulgated method.
- Is allowed in other industries and NESHAP rules (see, e.g., 40.CFR section 63.7520 and Table 5 (boilers and process heaters).
- Has lower detection limits.
- Does not have the sample transport difficulties found in the direct interface FTIR approach (M320/321).
- Does not require a trained FTIR specialist on site to operate the equipment.
    - Limited availability of trained FTIR specialists will be problematic for both the lime industry and the testing industry.
- Is quicker and less expensive (approximately $10,0000/plant less than M320/321).

Commenters stated that the EPA should authorize the use of Method 26/26A as an approved method for HCl compliance testing.

Response 28:
The EPA disagrees with the commenter that EPA Methods 26/26A should be allowed for demonstrating compliance in lime kilns. As noted in the memorandum "Final Maximum Achievable Control Technology (MACT) Floor Analysis for the Lime Manufacturing Plants Industry", results from EPA Method 26A were not included in the determination of the MACT floor. These results were excluded because, similar to cement kilns, and as discussed in the

preamble to that rule (64 FR 31920), for cement kilns, “EPA Method 26A “may have positive biases attributable to chloride salts rather than to HCl and negative biases due to condensation and/or removal of HCl on the filter and/or in the sampling probe” (i.e., may understate HCl emission). The emissions matrix for lime kilns is similar in that lime depositing on the walls of the probe and on the filter can cause scrubbing of HCl within the probe and filter prior to the sample collection area. Consequently, we are not allowing the use of EPA Methods 26/26A for this subpart. Additionally, we have made it clear in item 19 of Table 5 that HCl must be used for analyte spiking, and a surrogate may not be used when using EPA Method 320 or ASTM Method D6348-12e1.

2.6 General Comments

Comment 29:
Commenters 0166 (NLA and supporters) stated that proposed MACT standard starts from a pool that is based on the few lowest emitting sources and then proceeds to require the installation of expensive controls to attempt to reduce very low levels to even lower levels without conclusive data on its feasibility, and with unsupported estimates of its cost.

Response 29:
This general comment is addressed in other responses within this document.

3 Mercury

3.1 Intra-quarry Variability Factor

Comment 30:
Commenters 0166 (NLA and supporters) 0152, and 0154 stated that the EPA should apply an intra-quarry variability (IQV) factor for Hg. Commenters summarized the data that they provided to the EPA in December of 2021 (EPA-HQ-OAR-2017-0015-0074) in support of an IQV factor. Commenters summarized the need for and purpose of an IQV factor. Commenters stated that the EPA rejected the use of an IQV factor for reasons that are incorrect and that this is inconsistent with other rules. Commenters highlighted the use of IQV factors in other rules and provided a comparison of the data available for those rules to the data available for lime. Commenters also provided additional Hg concentration data for non-MACT pool sources.

Commenters 0166 (NLA and supporters) stated that emissions of Hg are dependent on feedstocks and therefore there is a need for an IQV factor. Commenters stated that without an IQV factor, the MACT floor source could find itself in violation of the standard if it is excavating limestone with higher mercury levels from a different part of the quarry. Commenters noted that the MACT floor source should be able to meet the standard without additional controls, and therefore an IQV factor is necessary. Commenters stated that the IQV factor accounts for how Hg concentrations may vary in each quarry over time.

Commenters 0166 (NLA and supporters) addressed the EPAs rejection of the Hg concentration quarry data. Commenters stated that the MACT floor quarry data are more representative of long-term variability than kiln feed samples, because they represent limestone that will be used in the kiln over the life of the quarry. Commenters noted that "quarry life" data is far more representative of variability than materials stockpiled over hours, days, or a week in transient short-term stockpiles. Commenters stated that their originally proposed IQV (based on data for the two MACT floor plants), which includes quarry samples from Eden and kiln feed samples from both plants, should be used to set the UPL-based standard.

Commenters 0166 (NLA and supporters) addressed the EPA's assertion that the MACT floor quarry Hg data is not representative of kiln feed because it would be mixed with other stone collected from the quarry over time in piles. Commenters stated that while stone is stored in transient piles, they are not maintained for long periods of time and piles are not intentionally blended in standard operating practice. Commenters stated that stone entering the pile will typically exit the pile and be fed to the kiln over short time periods (i.e., hours or days) that are representative of the variations in mineral that occur at the associated on-site quarry. Commenter 0162 provided a letter summarizing typical pile time frames.

Commenters 0166 (NLA and supporters) stated that samples from the quarry were taken throughout the quarry at approximately 6-foot intervals, and that each sample represents a section of the quarry that would be mined over decades of quarry operation. Commenters stated that the EPA must use data that represents the life of a quarry and not just the current portion of the quarry being mined.

Response 30:
During the proposed rule development, the EPA reviewed the quarry data provided by NLA in support of an intra-quarry variability (IQV) factor and found the data to be unreliable, and because of this did not include an IQV factor in the January 5, 2023, proposal. Subsequently, since proposal, the EPA has re-evaluated the data, as described in section 6.2 of the memorandum, "Final Maximum Achievable Control Technology (MACT) Floor Analysis for the Lime Manufacturing Plants Industry", included in the docket for this rulemaking.

The final rule includes an IQV factor based on our statistical analysis of the quarry data provided by NLA for the Carmeuse Maysville and Graymont Eden lime manufacturing facilities. Both facilities were included in the MACT floor pool of best performers.

Comment 31:
Commenter 0152 stated that the EPA should adopt an intra-quarry variability factor for Hg, as it may reduce the number of small businesses that need to install mercury controls. Commenter stated that this is sensible given the EPA's own assessment that the lime manufacturing industry poses no unreasonable risk. Commenter noted that the EPAs strict new Hg standards will waste economic resources, and raise prices on industry and consumers, but will have no appreciable public health benefits. Commenter noted that this will disproportionately affect small businesses.

Response 31:
Please refer to Response 30.

Comment 32:
Commenter 0154 stated that the EPA should gather additional data in order to apply a variability factor to the mercury emission limits.

Response 32:
Please refer to Response 30. The quarry data used in support of the development of an IQV must be based on quarry information from the facilities and kilns in the MACT floor pool of best performers. The EPA was provided sufficient data from these sources (Carmeuse Maysville and Graymont Eden).

Comment 33:
Commenter 0167 suggested that the EPA should also account for variability of Hg in coal, but no further information was provided.

Response 33:
No additional data was provided by the comment in support of their assertion regarding the variability of mercury in the coal. Additionally, the EPA regulates lime manufacturing kilns in the Lime Manufacturing NESHAP under the assumption that kiln emissions are primarily generated due to the composition of the raw materials fed to the kiln, and, therefore, the NEHSAP regulates the emissions generated from the raw materials being heated in the kiln and not specifically from the fuel being burned.

Comment 34:
Commenters 0166 (NLA and supporters) provided and compiled additional nationwide stone feed Hg concentration data and calculated a corresponding new IQV factor. Commenters also provided updated UPL calculations for Hg with the new IQV factor applied and suggested that the EPA could use this as an alternative approach, if needed.

Commenters 0166 (NLA and supporters) also provided another IQV factor alternative based on three plants in Alabama that mine from the same limestone formation. Commenters reiterated that the EPA should use their proposed IQV factor, or one of the 2 alternatives provided.

Response 34:
Data to be used to calculate an IQV must be representative of the quarries used by facilities in MACT floor pool. The IQV calculated in the final rule uses the original data supplied by NLA, and which represent facilities (Carmeuse Maysville and Graymont Eden) in the MACT floor pool.

3.2 Beyond the Floor Limits

Comment 35:
Commenter 0159 supported the beyond the floor limits for mercury (Hg) and encouraged EPA to make them more protective. Commenter agreed that the proposed limits were achievable and cost-effective. Commenter expressed support for the beyond-the-floor limit for DB kilns based on the use of activated carbon injection. Commenter supported EPAs proposed beyond-the-floor limit for Hg and stated that it will result in added reductions to DF, organic HAP, and POM.

Response 35:
In the February 9, 2024, supplemental proposal the EPA did not subcategorize mercury emission standards based on lime produced, as was proposed in the 2023 proposal.

Comment 36:
Commenter 0159 requested that the EPA set stronger mercury limits that lime kilns can achieve through the use of activated carbon injection. Commenter 0159 stated the EPA should set a beyond-the-floor limit that reduces mercury by 90% by requiring the use of activated carbon injection at all lime Kilns. Commenter stated that this approach would further reduce Hg emissions and reduce DF, and organic HAP emissions. Commenter stated that the EPA has not calculated the cost of such a standard or provided any reason to believe it is not achievable. Commenter stated that the EPA's own analyses demonstrate that this is achievable and that it would be cost effective.

Commenter stated that the EPA's proposed standards for Hg are unlawful and would result in final limits that are far less stringent than the Clean Air Act allows if EPA did not finalize its proposed beyond-the-floor limits.

Response 36:
The EPA's mercury BTF analysis, like the analysis conducted for HCl, evaluated whether to require emission standards more stringent than the MACT floor, including consideration of the

cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements in determining whether it was appropriate to establish standards more stringent than the MACT floor. In developing this final rule, we found that kilns would be able to comply with the non-subcategorized mercury emission standards we are setting in the final rule, with the addition of controls, and therefore subcategorization is unnecessary. The analysis of the BTF options determining in setting the final rule standards (including the estimated costs, emissions reductions, cost effectiveness and secondary impacts of each option) are included in the memorandum "Final Maximum Achievable Control Technology (MACT) Floor Analysis for the Lime Manufacturing Plants Industry", which is available in the docket for this action.

Comment 37:
Commenters 0166 (NLA and supporters) stated that the EPA should not set beyond-the-floor standards for mercury. Commenters stated that the EPA's justification for setting beyond the floor standards for existing sources (at most lime plants), as well as existing and new sources making dead-burned dolomitic lime, are flawed because they do not account for risks. Commenters summarized the EPA's beyond the floor justification for Hg, from the preamble.

Commenters 0166 (NLA and supporters) stated that the EPA's cost effectiveness analysis failed to consider whether it will significantly reduce the risk imposed by the emissions to be controlled. Commenters summarized the 2020 RTR findings that Hg risks are acceptable at all major sources with an ample margin of safety even with no additional controls for Hg. Commenters stated that it cannot be cost-effective to impose additional costs on any existing source because the lack of a health or environmental benefit does not justify any new costs.

DB Hg Sub-category.
Commenters 0166 (NLA and supporters) stated that the DB subcategory for Hg has only two existing sources at a single facility, those sources are the MACT floor, and they are uncontrolled. Commenters stated that new emission standards should only be imposed if they are beyond the uncontrolled floor. Commenters stated that the EPA's cost effectiveness analysis for this subcategory only addressed removal costs and did not consider the level of risk. Commenters stated that the EPA has already determined that the risks imposed justified no controls at all.

Other Existing Hg Sources.
Commenters 0166 (NLA and supporters) stated that the EPA's claim that lowering the existing Hg emission standard will not impose any additional costs on sources is flawed. Commenters stated that in order to comply, sources must calibrate pollution control devices to achieve the standard, with an appropriate margin of error to prevent violations. Commenters stated that with activated carbon injection, the rate of injection (and therefore cost) will directly relate to the emission standard. Commenters stated that a lower standard means more carbon injected, and higher costs. Commenters also stated that existing plant configurations may not be able to accept higher rates of ACI due to operational constraints, further increasing costs. Commenters stated that these additional costs cannot be justified by any consideration of costs compared to risks because EPA already determined that the risks do not justify any additional controls at all.

Response 37:
Please refer to Response 12 regarding the findings of acceptable risk with and ample margin of safety determined from the 2020 RTR and the requirement to set MACT standards for unregulated pollutants as required by the *LEAN* decision.

Comment 38:
Commenter 0163 stated that that it does not appear that the EPA have fully assessed all costs in its proposed beyond-the-floor analysis for mercury for the dead burned dolomitic lime subcategory. Commenter stated that in evaluating this standard, the EPA failed to fully assess the actual costs of compliance, which would require installing ACI, and that the EPA instead relied on the assumption that these facilities would already be willing to install ACI to comply with the proposed THC standards. Commenter asserted that such an analysis is improper as it fails to account for cost, a necessary factor, in the beyond-the-floor analysis. Commenter also stated that the EPA had previously determined that the additional cost of installing controls is zero when the technology was already necessary to meet existing standards or was required to meet a proposed MACT floor for the same HAP, but that in this instance, the EPA improperly relies on the assumption that controls will be installed to address a proposed limit for a different HAP. Commenter stated that the EPA's consideration of cost for THC emission reduction does not absolve the EPA of its obligation to account for costs when considering what limits are achievable for mercury. Commenter stated that the costs of achieving the finalized beyond-the-floor mercury limits for the "dead burned dolomitic lime subcategory" will not be zero, and that the costs associated with additional reductions in mercury may not be cost-effective and therefore make it unreasonable to justify a beyond-the-floor standard.

Response 38:
The cost analysis has been updated in the February 9, 2024, supplemental proposal. The cost analysis was updated to more accurately reflect the cost of implementing and maintaining controls.

3.3 Subcategories

Comment 39:
Commenter 0159 stated that proposed subcategories for Hg are unlawful because they are not based on difference in the class, type, or size of kiln. Commenter stated that the Clean Air Act § 112(d)(1) allows EPA only to distinguish between "classes, types, and sizes" of sources in setting emission standards for a category. 42 U.S.C. § 7412(d)(1). Commenter stated that EPA has not specified any such difference for the Hg subcategories, particularly the DB subcategory.

Commenter stated that EPA has not shown that kilns producing different types of lime have any kind of design or technology difference, or that a kiln currently producing one kind of lime could not produce the other types of lime. Instead, the EPA stated that the production of DL, QL, and DB results in different residence times within the heating zone. Commenter stated that this is not a difference in the class, type, or size of kiln, but a choice the kilns' owners make about how to run their kilns. Commenter stated that the type of lime a kiln chooses to produce at any given time is not a valid basis for subcategorizing, as this is not a difference in the class, type, or size

of kiln. Commenter stated that the EPA did not explain how a lime kiln choosing to produce different lime products is a different class, type, or size or kiln.

Commentor stated that the subcategorizing by the type of lime exceeds the subcategorization authority provided to EPA in § 112(d)(1) and is similar to subcategorizing by pollution control device. Commentor summarized the 2004 Lime Kilns rule finding that subcategorizing by air pollution control device is legally impermissible. 69 Fed. Reg. 394, 403 (January 5, 2004).

Response 39:
The final rule does not include subcategories for mercury.

Comment 40:
Commenter 0159 stated that the D.C. Circuit has made clear that § 112(d)(3) requires limits that reflect the average emission level achieved by the relevant best sources, those with the lowest emission levels. Sierra Club v. EPA, 479 F.3d 875, 880-883. It does not matter how the best sources achieve those levels or whether they do through any intentional action. Id.; National Lime Ass'n v. EPA, 233 F.3d 625, 640 (D.C. Cir. 2000).

Commenter stated that subcategorizing by the lime produced, as EPA has done in this proposal, results in floors that do not reflect the emission levels achieved by the relevant best sources. Commenter stated that this is illegal, similar to subcategorizing by pollution control device.

Response 40:
Please refer to Response 39.

Comment 41:
Commenters 0166 (NLA and supporters) supported the EPA's proposal to establish subcategories for new and existing kilns manufacturing dead-burned dolomite based on data they provided to the Agency (EPA-HQ-OAR-2017-0015-0089).

Response 41:
The EPA acknowledges the commenter's support.

3.4 Significant Figures

Comment 42:
Commenters 0154 stated that given the lack of variability considered in the proposed standards, the EPA should round all Hg standard up to two significant figures (e.g., 24.9 lb/MMton should be 25 lb/MMton).

Response 42:
The EPA agrees with this commenter and has included standards in the final rule rounded to two significant figures for all standards.

3.5 Inadequate Data

Comment 43:
Commenter 0159 stated that the EPA failed to gather adequate emissions data for Hg. Commenter stated that the lack of data was exacerbated by the EPAs decision to subcategorize for Hg, which led to the EPA setting standards with 2 sources for each Hg subcategory. Commentor highlighted the DB Hg subcategory and stated that this lack of adequate data together with the agency's upper prediction limit (UPL) approach led to a floor (331 lb/MMton) that was almost 30% higher than the worst emission test result EPA had.

Response 43:
Please refer to Response 39.

Comment 44:
Commenter 0159 stated that the DB Hg standard does not reflects the average emission level achieved by the best performing "5 sources for which EPA has or could reasonably obtain emissions information," as required by § 112(d)(3)(B). 42 U.S.C. § 7412(d)(3)(B). Commenter stated that the EPA did not explain why they could not reasonably obtain emissions information for at least 5 DB kilns and summarized the EPA's authority under Section 114 of the Clean Air Act to obtain such information.

Response 44:
The data shows that there are only 2 DB kiln in the U.S.

4 Total Hydrocarbons and Organic Hazardous Air Pollutants

4.1 THC Should not be a Surrogate for Organic HAP

Comment 45:
Commenter 0159 stated that the proposed THC standard is not a valid surrogate for all the organic HAP that lime kilns emit and, as a result, EPA has not met its statutory obligation to set limits for all of these pollutants. Commenter stated that D.C. Circuit has explained repeatedly, using surrogates does not excuse EPA from its fundamental requirement to set § 112- compliant limits for each hazardous air pollutant a source category emits. See Sierra Club v. EPA, 353 F.3d 976, 984 (D.C. Cir. 2004); U.S. Sugar, 830 F.3d at 623; Sierra Club v. EPA, 884 F.3d 1185, 1195-1198 (D.C. Cir. 2018). Commenter cited prior mentioned cases multiple times to reinforce their position that THC is not a valid surrogate.

Commenter 0159 stated that the EPA has not justified that its THC limit reduces all the organic HAP emitted by lime kilns to the degree that § 112 requires. Commenter also stated that EPA does not discuss the technical basis for its claim that THC is a surrogate for any of the individual HAP that lime kilns emit, let alone explain why the proposed THC limit would reduce emissions of these pollutants to the levels achieved by the sources that are best performing with regard to them.

Commenter 0159 stated that there is reason to believe that the EPAs proposed THC limit would not reduce, in part or at all, each organic HAP emitted by kilns. Commenter stated that the proposed THC limit would allow kilns to comply by targeting high volume organic HAP (e.g., formaldehyde, xylenes, N-hexane, acetaldehyde, and benzene) or non-HAP without controlling lower volume HAP (e.g., pentachlorophenol, 4-nitrophenol, acetophenone, chlorobenzene, and phenol). Commenter cited the EPAs RTR assessment to demonstrate how targeting reductions of the high-volume HAP would allow kilns to comply with the proposed THC standard without addressing the low volume HAP. Commenter stated that the low volume HAP are required to be reduced by § 112(d).

Commenter 0159 cited additional information (studies and rule makings) to demonstrate that organic HAP surrogates are not effective at controlling certain HAP (i.e., polycyclic organic matter and polycyclic aromatic hydrocarbons). These examples were specific to other industrial sectors.

Commenter 0159 stated that the proposed THC standard does not identify the sources that are best achieving with regard to naphthalene and other POM and what they can achieve, especially for a category like Lime Kilns for which compliance or non-compliance with the THC standard can be determined largely or entirely by emissions of high-volume organic pollutants such as formaldehyde and benzene or emissions of hydrocarbons that are not hazardous air pollutants.

Response 45:
The final rule includes an organic HAP aggregate emission limit for new and existing sources, and no longer uses THC as a surrogate. Further comments and responses to the organic HAP standard are presented in Section 12.

Comment 46:
Commenters 0166 (NLA and supporters) stated that THC should not be used as a surrogate for organic HAP because emissions of THC do not correlate to emissions of organic HAPs. Commenters summarized the data that they provided to the EPA for 2017 ICR, the additional data they provide in December of 2021, and provided new data demonstrating that THC emissions do not correlate with organic HAP emissions. Commenters stated that the EPAs proposed THC standard is arbitrary and unlawful and that the EPA has not cited any data to support this surrogate.

Commenters 0166 (NLA and supporters) summarized their findings multiple times and stated that the EPA should not use THC as a surrogate due to a lack of correlation to organic HAPs.

Response 46:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

Comment 47:
Commenter 0164 stated that control relationship between THC and organic HAP does not meet the "context specific but demanding" test that "reducing surrogate emissions would 'invariably' and 'indiscriminately' reduce the corresponding HAP." Sierra Club, 884 F.3d at 1192.

Commenter 0164 stated that the majority of THC is methane and other light weight organic compounds that are not HAP. Commenter 0164 stated that ACI does not capture methane, lightweight alkanes, or formaldehyde at the baghouse inlet temperatures encountered at lime plants. Commenter 0164 stated that if a THC standard is applied, a plant emitting 5 ppm of THC with 90% methane and no organic HAP could not comply with the proposed "surrogate" standard because ACI will not capture the lightweight THC. Commenter stated that this demonstrates that THC is not an appropriate surrogate for organic HAP emitted from lime kilns because the control for organic HAP is not the control for THC.

Commenter 0164 reiterated that the majority of THC emitted from lime plants is methane, which makes use of an RTO senseless. Commenter 0164 stated that RTOs are designed for low effluent flow and high VOC concentration abatement, but lime kilns have high relative flow and low VOC concentrations. Commenter stated that an RTO would not be effective at achieving the THC surrogate standard or in destructing organic HAP.

Response 47:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

Comment 48:
Commenters 0166 (NLA and supporters) stated that by using a THC surrogate, the EPA has failed to identify the best performing 12 percent of sources at controlling organic HAPs. Commenters stated that there is no reason to believe that the lowest emitters of THC are also the lowest emitters of organic HAPs, because there is no correlation between those emissions.

Response 48:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

Comment 49:
Commenters 0166 (NLA and supporters) stated that the lack or correlation between THC and organic HAP is in part because THC emissions measured were dominated by methane (which is not a HAP), while organic HAPs were emitted at minimum method detection limit concentrations. Commenters stated that in regard to organic compounds, lime kilns emit mostly methane, with lesser quantities of ethane and propane (all of which are not HAP).

Commenter 0164 referenced the multiple performance test that were provided to the EPA and stated that the data shows organic HAP mainly below the detection limits of Methods 320 and 18, with methane reflecting the majority of the THC emissions. Commenter 0614 summarized previous data provided to the EPA, and provided new analysis (along with new 2022 test data) demonstrating that methane and propane contributions dominate THC values. Commenter 0164 noted that when organic HAP contributes more to THC than non-HAP organics (e.g., methane), it is because the non-detect values for organic HAP add up to more than the THC value.

Response 49:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

Comment 50:
Commenters 0166 (NLA and supporters) stated that the use of a THC surrogate is particularly problematic for vertical kilns. Commenters cited additional test data for vertical kilns (performed in January of 2022) that was performed using natural gas that was composed of greater than 98% methane, ethane, and propane (none of which are HAPs). Commenters compared the THC and organic HAP data from the 2017 ICR, December 2021 submittal, and this most recent testing from January 2022. Commenters noted that the data shows a very poor correlation between THC and organic HAP.

Commenters 0166 (NLA and supporters) highlighted the fact that the organic HAP testing for the vertical kilns showed an expected range of 1 – 3 ppmv at 7% O_2, which is similar to the range of 1 – 6 ppmv at 7% O_2 at the preheater and straight rotary kilns tested. Commenters noted that while the organic HAP emissions were similar, the THC emissions from the vertical kilns were

demonstrably higher in the range of 24 to 38 ppmv at 7% compared to the 0.9 to 10 ppmv at 7% O_2 at the preheater and straight rotary kilns tested.

Commenters 0166 (NLA and supporters) stated that THC emissions from vertical kilns are higher compared to the other calcining technologies. Commenters stated that this is due to incomplete combustion caused by the packed bed of stone in the vertical kiln. Commenters stated that this unburned fuel (primarily methane) will periodically exit the stack. Commenters stated that clean-burning vertical kilns may periodically emit unburned fuel during normal operations either as 1) countercurrent flow switches direction in twin-shaft vertical kilns, or 2) due to incomplete air-fuel mixing (i.e., fluidized bed characteristics) in single shaft kilns. Commenters stated that the release of non-hazardous unburned fuel during a compliance test could result in some vertical kilns failing the test, even if the emissions of organic HAPs are extremely low. Commenters stated that this problem will be exacerbated as aging rotary lime kilns in the U.S. fleet are retired and are replaced by state-of-the-art vertical kilns.

Commenters stated that unburned fuel can be managed to a certain extent by adding excess air to aid complete combustion, but complete combustion is often inhibited by packed bed characteristics of the stone in the vertical kiln. Commenters stated that using THC as a surrogate for organic HAP is not appropriate, especially for vertical kilns.

Response 50:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

Comment 51:
Commenters 0166 (NLA and supporters) stated that the EPA is incorrect in its assertion that compliance with a THC standard will limit and control emissions of total organic HAP because organic HAP and THC are controlled differently by the same candidate technologies. Commenters stated that the EPA has incorrectly assumed that all organic species will have the same destruction and removal efficiencies (DREs) with candidate technologies. Commenters stated that each organic HAP will be combusted in an RTO or absorbed by carbon differently (i.e., each pollutant will have a different DRE), and thus will not be the same for the broad collection of THCs. Commenters stated that species-specific DREs are increasingly critical at the very low levels of pollutants emitted by lime kilns.
Commenters 0166 (NLA and supporters) stated that for RTOs, the temperature and residence time required for destruction of organic HAP's is dependent on the molecular structure and composition of the molecule. Commenters cited documentation that they used to predict required incineration temperatures for 99% DRE for 10 of the 12 HAP species identified in the Lime MACT proposed rule. Commenters determined that the temperature for 99 % DRE was between 955 F (Acrolein) and 1395 F (Benzene), assuming a typical residence time of 0.5 seconds for an RTO. Commenters stated that aromatically structured organic HAP are shown to require a higher combustion temperature and residence time for destruction. Commenters stated that this analysis shows that organic HAP and THC species are not controlled identically by an RTO.

Commenters 0166 (NLA and supporters) stated that for control of THC and organic HAP using carbon adsorption, organic contaminants are classified as weakly, moderately, or strongly adsorbed. Commenters stated that organic HAP like nitro benzene are characterized as very strong adsorbers, whereas compounds like methane are very weakly adsorbed. Commenters stated that this shows that methane removal with activated carbon would not be cost effective, and that THC and organic HAPs are not similarly controlled by carbon absorption.

Response 51:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

Comment 52:
Commenters 0166 (NLA and supporters) stated that the benefits of the rule are minimal and are overstated by the EPA. Commenters stated that EPA determined total THC reductions to be 570 tons per year. Commenters stated that THC is not a HAP, but a surrogate that EPA intends to use for organic HAPs. Commenters stated that the if the EPA is claiming benefits of reducing HAPs, it is misleading to quantify THC reductions as "reduction of total HAP" without clarifying that actual organic HAP emission reductions from this rule would be a fraction of that amount.

Response 52:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

4.2 Request for an Aggregated Organic HAP Standard

Comment 53:
Commenters 0166 (NLA and supporters) stated that the EPA should set an aggregated organic HAP standard in lieu of a THC standard or offer it as an alternative to the THC standard. Commenter 0164 stated that a surrogate for THC is not appropriate because accurate test methods exist for all of the speciated organic HAP emitted from lime kilns. Commenters stated that the EPA has declined to propose an aggregated organic HAP standard on the grounds that the organic HAP data (2021 and 2022 testing provided to the EPA) was incomplete. Commenters noted that they originally targeted benzene, toluene, o/m/p-xylene, styrene, naphthalene (all by Method 18), formaldehyde, and acetaldehyde (both by Method 320).

Commenters (with consultants Alliance Analytical Services and Air Source Technologies) re-performed and submitted additional analysis of the organic HAP data testing done in 2021 and 2022. Commenters had the consultants review the Method 320 spectra in order to identify all detectable organic HAPs in the tests. Commenters 0166 (NLA and supporters) identified six additional HAPs (including four identified by EPA in the preamble) - 1,3-butadiene, acrolein, carbon disulfide, ethylbenzene, vinyl chloride, and methanol.

Commenters (with consultants Alliance Analytical Services) provided technical data supporting their development of representative method detection limits (RDLs) for the 13 compounds identified. Commenters stated that their proposed RDLs are commonly achievable detection limits using standard analytical equipment for each of the proposed organic HAP. Commenters noted that M320 data was collected on 0.5 wavenumber MKS 2030 FTIRs, with a nominal pathlength of 5.11 meters. Commenters stated that Alliance Analytical Services determined the RDL for each compound based on internal experience and overall achievability for the particular method. Commenters stated that the test data used for development is an amalgamation of results from multiple instruments across multiple sources. Commenters noted that in cases where no direct data exists, estimates were made by experts in spectroscopy based on the amount of absorbance exhibited by the compounds, and the potential for overlapping interferences.

Commenters 0166 (NLA and supporters) summarized their proposed RDL, 3 x RDL value, and frequency for each compound. Commenters summed all 3 x RDL values and stated that this value (8.5 ppmv at 7% O2 dry, assuming 10% moisture content) should be used as the standard (or alternative standard) for organic HAP.

Commenters 0166 (NLA and supporters) discussed the 12 additional HAP that were modeled for the 2020 final RTR rule but were not included in their list. Commenters noted that 5 of these compounds were analyzed but not detected and therefore should not be included in the aggregated organic HAP approach they developed. Commenters stated that the other 7 compounds were detected using method TO-15 but were not detected using either Method 18 or 320, and that they should not be included in the aggregated organic HAP approach. Commenters provide additional data for these 7 compounds and stated that adding them to their proposed aggregated organic HAP standard (which they do not recommend), would increase the limit from 8.5 to 19.1 ppmvd at 7% O2.

Response 53:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

Comment 54:
Commenters 0166 (NLA and supporters) stated that their proposed 8.5 ppmvd at 7% O2 aggregated organic HAP standard is comprehensive, defensible, and based on approved testing methods. Commenters reiterated that a THC standard is inappropriate and that their proposed aggregate organic HAP standard is more technically sound and consistent with the CAA. Commenters stated that an aggregated organic HAP standard allows the emission standard to be directly linked to the regulated pollutants and excludes irrelevant substances that THC would include.

Commenters noted that an aggregated organic HAP standard is consistent with the Portland Cement MACT and is also consistent with EPAs proposed standard for DF in Lime. Commenters noted that the DF limit is based on the aggregate amount of DF congeners and given their very low levels below detection limits, the use of 3xRDL is appropriate. Commenters stated that an aggregated organic HAP standard based on 3xRDL is also appropriate because of

the very low organic HAP emissions, the very low detection limits for many of the substances, the sporadic appearance of these substances (note that no HAP listed above appeared in all tests, and many were not detected in a majority of tests), and EPA's prior determination that risks from organic HAPs are acceptable with an ample margin of safety even with no additional controls at all.

Response 54:
Please refer to Response 45 and Section 12.

Comment 55:
Commenters 0166 (NLA and supporters) stated the EPA should only use the aggregated organic HAP approach as the emission standard for lime plants. Commenters stated that sources should perform 5-year compliance testing for all the organic HAPs on the list, and compliance would be based on the total aggregate detected being lower than the aggregate standard. Commenters stated that continuous compliance should be ensured by parametric monitoring of air pollution control devices.

Response 55:
Please refer to Response 45 and Section 12.

Comment 56:
Commenters 0166 (NLA and supporters) stated that while only a standalone aggregate organic HAP standard is legally and scientifically justified, EPA could consider two other approaches:

1. Establish two alternative standards, one for THC, and one for aggregated organic HAP, and allow achievement of either standard to constitute compliance.
2. Establish a THC standard, with an alternative scaled THC standard based on the organic HAP alternative (similar to the approach used in the cement MACT, but using the 13 organic HAP suggested by the commenter).

Commenters stated that although these options would be better than a THC standard alone, they still suffer from the fatal defect that THC is not a lawful surrogate for organic HAPs.

Response 56:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

4.3 Subcategories

Comment 57:
Commenter 0154 stated that the EPA should re-evaluate whether kilns should be subcategorized when developing the THC limit. Commenter stated that the preamble contains no justification for not establishing subcategories for THC, whereas there is significant discussion related to HCl. Commenter stated that the EPA highlighted that there are different kiln configurations that produce different products, have different operating temperature, feed stocks, and residence

times that all influence emissions. Commenter suggested that the same logic applies to THC emissions.

Commenter 0154 noted that RTOs are routinely designed to operate at a certain residence time and temperature, and therefore residence time and temperature within a lime kiln would impact THC/organic HAP emissions. Commenter noted that THC emission rates from the 34 kilns range from 0.71 to 71.43 ppmvd at 7% oxygen and that this shows that there is something operational that causes THC emissions from lime kilns to vary, especially as none of these kilns use THC emissions controls other than good operating practices. Commenter stated that the EPA should evaluate the operating characteristics of the kilns that supplied THC emissions data and create subcategories that result in emission standards that reflect the variability of the data set and kiln operation.

Response 57:
Please refer to Response 45. An organic HAP standard was proposed in the February 9, 2024, supplemental proposal, and further comments and responses to the proposed organic HAP standard are presented in Section 12.

4.4 Significant Figures

Comment 58:
Commenters 0154 stated that the new source standard for THC essentially prohibits THC emissions from new kilns, as it is set at 3 times the representative detection limit for the method. Commenter stated that because the standard was set using a very limited data set, the EPA should at least round the standard up to 1.9 ppmvd, assuming no additional THC data from this unit is available.

Response 58:
The EPA disagrees with the commenter that a standard set at three time the representative detection level (RMDL, the RDL analog for instrumental methods) essentially prohibits emissions. Given that, for measurements below the detection limit, emissions are reported at the detection limit, and the limit was set at three times the representative detection limit, which is greater than the UPL determined from reported emissions of the best performer, a standard set at three times the RMDL is not a prohibition on emissions from new sources. The EPA is however, not finalizing a THC standard in this rulemaking, and no changes were necessary as a result of this comment.

5 Other Regulatory Text and Revisions

5.1 Plant-Wide Weighted Emissions Averaging

Comment 59:
Commenters 0166 (NLA and supporters) stated that if the EPA retains its proposed standards, it should allow emissions averaging for all regulated HAPs, similar to the existing averaging requirements for PM. Commenters stated that this will allow lime plants to more cost-effectively optimize controls to prevent excessive emissions across the entire facility. Commenters summarized the justification for allowing averaging in the 2004 rule, noting that averaging provisions were included as a result the RFA.

Commenters requested, for any limitation based on mass of HAP per ton of lime produced, where multiple kilns are complying with the same numerical standard, that the EPA authorize the weighted average methodology currently available for PM for compliance demonstration.

Commenters requested, for concentration-based standards, where multiple kilns are complying with the same numerical standard, that the EPA authorize a simple average of results for compliance demonstration.

Response 59:
The final rule includes provisions for emissions averaging for HCl and mercury.

5.2 Monitoring Requirements

Comment 60:
Commenters 0166 (NLA and supporters) stated, for both concentration-based standards and mass of HAP per ton of lime produced standards, that parametric monitoring requirements should be set at the injection rate associated with the tests used in the emissions "averaging" compliance demonstration.

Response 60:
The EPA agrees that parametric monitoring limits should be set based upon site-specific testing and is finalizing as proposed that injection rates for dry sorbent injection and carbon are set during the performance test.

Comment 61:
Commenters 0166 (NLA and supporters) stated that during periods of startup and shutdown, sorbent and carbon cannot be injected at the same rates as during normal operations, and operating conditions for RTOs differ as well. Commenters requested that the following language be added to address applicable operating limits during startup and shutdown:

- When a lime kiln is in startup or shutdown (as defined in section 63.7143), the operating limits for sorbent and/or carbon injection do not apply and the lime kiln operator shall ensure that sorbent or carbon injection is in operation until the unit is no longer in startup or shutdown. When a lime kiln is in startup or shutdown (as defined in section 63.7143),

the temperature limits for an RTO do not apply and the lime kiln operator shall ensure that the RTO is in operation until the unit is no longer in startup or shutdown.

Response 61:
Table 2 of 40 CFR part 63, subpart AAAAA includes procedures for proper sorbent and/or carbon injection operations, and for RTO operations, during periods of startup or shutdown.

Comment 62:
Commenters 0166 (NLA and supporters) stated the EPA should permit the use of approved monitoring approaches during startup and shutdown. Commenters noted that the 2020 rule incorporated new requirements for startup and shutdown of kilns as it related to existing visible emissions standards. Commenters stated that the final 2020 rule did not specify how kilns already using approved monitoring systems other than continuous opacity monitoring systems (COMS), such as bag leak detection systems (BLDS), during normal operations should comply during startup and shutdown events.

Commenters stated that kilns have used BLDS (and other approved methods) for continuous compliance standards under the Lime MACT since its original inception in lieu of COMS. Commenters noted that the EPA has disapproved applications for Alternative Monitoring approaches proposing that a BLDS, like a COM, be allowed during startup and shutdown events. Commenters requested that EPA allow approved methods, like BLDS, to be used during startup and shutdown events. Commenters requested that EPA add the following text to the rule:

- When a lime kiln is in startup or shutdown, a lime kiln may use any method approved for use to show continuous compliance during normal operations (such as a bag leak detection system) to demonstrate proper operation of the baghouse as a surrogate to demonstrating compliance with visible emission limits during these events.

Response 62:
The provision requested are noted but are beyond the scope of this action. The rule remains as finalized in the 2020 RTR.

Comment 63:
Commenters 0166 (NLA and supporters) supported EPA's proposal to establish 5-year stack testing and parametric monitoring as the monitoring requirements for emissions standards under the Proposed Rule. Commenters stated that this is consistent with existing PM requirements and that more rigorous requirements are not justified given that risks from the industry are acceptable with an ample margin of safety even without additional controls.

Response 63:
The EPA acknowledges the commenter's support.

Comment 64:
Commenters 0154 stated the EPA has included new procedures in Table 3 for establishing operating limits for sources that use DSI, ACI, and RTO. Commenter noted that a 3-hour average

parameter value must be maintained based on the value established during the most recent performance test. Commenter stated that emissions and throughput during startup and shutdown will be much lower than those during the most recent performance test and requiring the same sorbent or carbon injection rate during startup and shutdown will result in a waste of material.

Commenter 0154 stated that the EPA acknowledges in the current rule in Table 2 that wet scrubbers cannot meet the pressure drop operating parameter limit set during performance testing during startup and shutdown. Commenter stated that the EPA should adjust the rule to indicate that sorbent and carbon injection rate parameter limits only apply when the kiln is producing lime.

Commenter 0154 stated that the EPA should also acknowledge that sorbent or carbon injection rates will need to be adjusted based on the amount of material being fed to the kiln, similar to the concept of adjusting for load found in Boiler MACT.

Response 64:
Please refer to Response 61.

Comment 65:
Commenter 0148 stated that the proposed regulation does not contain provisions for monitoring mercury emissions from sources that are not equipped with addon mercury control devices. Commenter noted that mercury emissions may be highly variable based on variations in feed materials. Commenter stated that periodic performance tests are insufficient to ensure that mercury emissions are controlled. Commenter stated that mercury continuous emission monitors should be required for sources subject to mercury emission limits that are not equipped with add-on control devices.

Response 65:
The EPA has developed the MACT standards for mercury to account for variability in the emissions data gathered, and the variability in mercury content of the limestone feed to the kiln over geologic time. We have accounted for variability in our calculations, and therefore, performance testing of uncontrolled kilns is sufficient to demonstrate compliance with the standard set in the final rule, and continuous emission monitor systems (CEMS) are not necessary for these sources.

5.3 Compliance Requirements

Comment 66:
Commenters 0166 (NLA and supporters) stated that the EPA correctly proposed a three-year compliance period. Commenters summarized why the industry needs three years for compliance and reiterated that anything less jeopardize the industry's ability to comply with the proposed standard.

Response 66:
The EPA acknowledges the commenter's support.

Comment 67:
Commenters 0166 (NLA and supporters) and 0154 stated that the language in paragraph 63.7083(f)(1) in the redline rule language in the docket seems to indicate that the compliance period is only 180 days. Commenters cited 67.7083(f)(1) in the EPA redline document, which reads:

- If your affected source commenced construction or reconstruction on or before [INSERT DATE OF FINAL RULE PUBLICATION IN THE FEDERAL REGISTER], then the compliance date for the revised requirements promulgated on [INSERT DATE OF FINAL RULE PUBLICATION IN THE FEDERAL REGISTER] is [INSERT 180 DAYS AFTER THE DATE OF FINAL RULE PUBLICATION IN THE FEDERAL REGISTER].

Commenters stated that the language should be revised to delete the words [INSERT 180 DAYS AFTER THE DATE OF FINAL RULE PUBLICATION IN THE FEDERAL REGISTER] and insert [INSERT 3 YEARS AFTER THE DATE OF FINAL RULE PUBLICATION IN THE FEDERAL REGISTER] to make clear that existing kilns must comply within 3 years of the date of the final rule.

Response 67:
The final rule includes this correction as suggested.

Comment 68:
Commenters 0154 stated that 63.7112(b) states, "Beginning [DATE OF PUBLICATION OF THE FINAL RULE IN THE FEDERAL REGISTER], each performance test must include the methods specified in rows 19-24 of Table 5 to this subpart." Commenter stated that this could also be a source of confusion as to when performance testing to demonstrate compliance with the new standards is required. Commenter stated that the regulatory text should be clear on exactly what the new requirements are and that they will apply three years after the final rule is published for existing sources and upon startup for new sources.

Response 68:
The comment is noted, and the final rule provides clarity regarding the timeline for compliance with the new requirements for new and existing sources.

Comment 69:
Commenters 0166 (NLA and supporters) and 0154 stated that the EPA needs to clarify the definitions of "new" and "existing" kilns. Commenters noted that the current rule defines a new lime kiln (and its associated cooler), as one for which construction or reconstruction began after December 20, 2002. Commenters stated that an existing kiln (and its associated cooler), is one that does not meet the definition of a new kiln. Commenters noted that the for the proposed HCl, THC, Hg, and DF standards, the EPA uses the terms new and existing in Table 1, but that the current definitions of new and existing should not apply to any newly proposed standards.

Commenters stated that they assumed that the date of construction or reconstruction as defined by proposed conditions 63.7083(f)(1) and 63.7083(f)(2) are meant to establish existing and new source limits, respectively for HCl, THC, Hg, and D/F. Commenters stated that a kiln that was constructed or reconstructed between December 20, 2002, and the date of final rule publication in the *Federal Register* of this (2023) rule should be considered a new kiln for PM and an existing kiln for HCl, THC, Hg, and D/F. Commenters requested clarification of the definitions of "new" and "existing" kilns, as it relates to any new standards.

Response 69:
The final rule includes a clear definition of the terms "new" and "existing" sources in section 63.7082.

Comment 70:
Commenter 0144 provided the following question related to compliance demonstrations where multiple kilns vent to one stack:

- Can Eq. 5 of the proposed 40 CFR 63.7112(o) and the THC and D/F limits be applied to results from a combined stack since individual stone feed rates to each kiln do not need to be associated with emission concentrations from each kiln? Since the THC and D/F limits are concentration based and the limits do not depend on the type of kiln or type of lime produced, it seems the only potential issue with testing at a combined stack would be that a test result above the limit would lead to violations for multiple kilns rather than identifying a specific kiln or kilns.

Response 70:
The final rule includes provisions for kilns exhausting to a single stack, and other combined stack configurations.

Comment 71:
Commenter 0144 provided the following question related to compliance demonstrations where multiple kilns vent to one stack:

- How would Eq. 4 of the proposed 40 CFR 63.7112(n) need to be adapted if HCl and mercury emissions from individual kilns cannot be determined?

Response 71:
The final rule provides clarification for this situation.

Comment 72:
Commenter 0144 provided the following question related to compliance demonstrations where multiple kilns vent to one stack:

- Would common stack requirements similar to those described in 40 CFR 63.10009(k) through (n) be appropriate? If language similar to 40 CFR 63.10009(k) through (n) were to be included, does the option in 40 CFR 63.10009(m) to shut down units not to be included in emissions averaging constitute a representative test?

Response 72:
The final rule includes provisions for kilns exhausting to a single stack, and other combined stack configurations.

5.4 Operating Limits

Comment 73:
Commenter 0148 stated that the proposed regulation specifies that bag leak detectors or particulate matter detectors may be in alarm mode up to 5% of the time for each semi-annual period. Commenter stated that no justification is provided for allowing 9 days of continuous excess emissions in every six-month period. Commenter stated that this time period should be specified for existing sources based on the duration of the alarm periods reported by those sources upon which the proposed MACT floor particulate matter emission limit was based. Commenter stated that this time period should be specified for new sources based on the duration of the alarm periods reported by the source upon which the proposed MACT floor particulate matter emission limit was based.

Response 73:
The provision requested are noted but are beyond the scope of this action.

5.5 Stack Testing

Comment 74:
Commenters 0166 (NLA and supporters) agreed with the EPA that five-year stack testing is an appropriate monitoring requirement.

Response 74:
The EPA acknowledges the commenter's support.

Comment 75:
Commenters 0166 (NLA and supporters) stated that the EPA should provide that testing to reset operating limits does not violate standards. Commenters noted that the proposed rule requires that operating limits must be complied with at all times. Commenters noted that operators, when seeking to reset operating limits, require the ability to reset at the appropriate level at the time of the test, which may be at a lower level than the prior operating limit. Commenters stated that the rule should clarify that a source is allowed to deviate from an existing operating limit when conducting a subsequent engineering evaluation or performance test. Commenters recommended the adding the following language to the rule:

- When a lime kiln emissions control device is being evaluated for engineering purposes or for performance testing purposes, the existing operating limits for the control device do not apply and variance from current operating limits is not a deviation.

Response 75:
The EPA agrees with the commenter that, when performing testing to rest the operating limits during performance testing, a deviation from the preceding operating limits is not a deviation. The testing being performed at that time will clearly indicate if the emission limits are being exceeded, and so during that time the operating limits are not necessary to demonstrate compliance. We are clarifying in the final rule at section 63.7100(a) and in the definition for deviation at section 63.7143 that a facility may operate outside the operating limits during performance tests for the purpose of resetting emission limits. We are limiting this provision to during performance testing only, and not extending to the overly broad "engineering purposes," as deviations from the operating limits for "engineering purposes" is overly broad.

5.6 General Form of Standards

Comment 76:
Commenter 0153 stated that the EPA proposed emission limits on the lime produced (lbs emissions/ton lime) similar to the Portland cement plant MACT emission limits (lbs emissions/ton clinker). Commenter suggested that the EPA incorrectly assumed that lime kiln operation is the same as a cement kiln operation. Commenter stated that this is an incorrect assumption due to the differences in the Loss on Ignition (LOI) between cement kiln feed and lime kiln feed. Commenter stated that cement manufacturing has a higher denominator in the emission calculation (lb/ton of product).

Commenter 0153 stated that the emissions that the EPA is targeting are byproducts of combustion and not the result of the calcination process. Commenter stated that the LOI for limestone feed is 44% (i.e., 44% of the limestone mass will be lost to calcination), whereas standard cement kiln raw feed has a LOI of 35%, meaning a cement kiln will produce more material on a pound-for-pound basis.

Commenter 0153 stated that lime kiln feed cannot be adjusted to reduce its innate LOI. Commenter stated that cement kiln feed can be composed of pre-calcined material which lowers the LOI from standard. Commenter noted that increasing the clinker output reduces the kiln's calculated emissions output by increasing the emission calculation's denominator.

Response 76:
The pollutants being targeted by the Lime Manufacturing NESHAP are byproducts of the raw materials being heated, and not dependent of the fuel being burned.

5.7 Other Comments

Comment 77:
Commenters 0166 (NLA and supporters) stated that the proposed rule misconstrues the difference between a PM (typically venturi) type scrubber and a wet packed tower gas absorber (WPTGA) used to control acid gases. Commenters stated that this led the EPA to erroneously delete some references to PM in the rule language, when those references are intended to make clear that the provisions refer to scrubbers used to control PM. Commenters requested that the EPA:

- Clarify the proposed rule by retaining all references to PM scrubbers in the existing rule language
- Ensure that references to setting parameter limits for PM scrubbers or acid gas scrubbers explicitly state that establishing operating parameters only apply when conducting performance tests for the specific pollutant being measured. For example, in Table 5, lines 8, 9, 14, and 15, deleting the scrubber flow rate reference to PM could imply that the PM scrubber flow rate requirement is to be reset for a performance test of any regulated HAP in the rule when it should only apply when completing a PM limit performance test. The reference to PM should be retained in those sections.

Response 77:
The 2024 Final Rule amendments have restored the reference to PM. We note that the PM of interest in this industry is lime, and within the PM scrubber, there is co-control of HCl. Tables 3, 4, 5, and 6 have been updated to specify which operating parameters are associated with which pollutant.

Comment 78:
Commenters 0166 (NLA and supporters) stated that in the redline strike out, Table 5, row 6, has a callout labelled “Refer to Note 1” that appears to be incomplete or incorrect. Commenters stated that Note 1 on Table 5 relates to utilizing ASTM D6384-12e1 for HCl testing and does not appear to be relevant to Row 6. Commenters requested that the EPA clarify the intended reference for Note 1.

Response 78:
The final rule includes corrections to Table 5.

Comment 79:
Commenter 0148 stated that section 63.7112(n) refers to "stone production rate" rather than stone feed rate. Commenter noted that if this is intended, "stone production rate" should be defined, and provisions for measurement should be included.

Response 79:
To address other comments received on the January 5, 2023, proposal and February 9, 2024, supplemental proposal the term “stone produced” has been revised in the final rule to the term “lime produced”. Section 63.7112(n) now refers to the “lime production rate” in units of tons of lime produced per hour (ton/hr).

Comment 80:
Commenter 0148 stated that section 63.7112(o) omits explicit procedures for calculation of dioxin/furan toxic equivalence. Commenter noted that it appears from the table of emission limits that compliance is to be demonstrated on the basis of this parameter.

Response 80:
The EPA agrees with the commenter that calculations for TEQ should be added to section 63.7112. We have amended section 63.7112 to move the oxygen correction calculation for THC

and dioxin/furan TEQ to a new paragraph (p) and stipulated that this is for dioxin/furan TEQ, and revised paragraph (o) to incorporate details on the calculation of TEQ including how to deal with estimated maximum possible concentration and non-detect results.

Comment 81:
Commenter 0148 stated that Table 1 refers to "lime product" which differs from earlier provisions based on stone feed rate.

Response 81:
The final rule includes a definition of “stone production rate” for clarity.

Comment 82:
Commenter 0154 stated that their kiln is controlled by a wet scrubber, not a baghouse.

Response 82:
The EPA acknowledges the comment and has revied the final rule to include this revision.

6 Control Technologies and Cost Considerations

6.1 Regulatory Flexibility Act and Small Business Impacts

Comment 83:
Commenters 0166 (NLA and supporters) and 0152 stated that the EPA violated the Regulatory Flexibility Act (RFA) (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA)) by erroneously certifying that the rule will not have a significant impact on a substantial number of small entities. Commenters stated that the EPA has underestimated the cost of compliance, especially for small businesses. Commenters noted that the proposed rule imposes controls on four times as many pollutants (compared to the 2004 rule), has significantly lower standards that will be harder to meet, and will require small entities to install at least two new types of pollution control mechanisms at their lime operations. Commenters 0153, 166, and 0167 provided new cost estimates and detailed information on the ways that the EPA underestimated costs, miscalculated costs, incorrectly assumed technology transfer, and mis-projected removal efficiencies.

Commenters stated that revised cost estimates show that the EPA's economic analysis is an order of magnitude too low. Commenters stated that the proposed rule will have a significant economic impact on a substantial number of small entities. Commenter 0152 reiterated that all 3 small lime entities have stated that the EPA has significantly underestimated their cost for compliance and that the economic impacts will be significant under EPA's RFA guidance. Commenter 0152 stated that the RFA requires federal agencies to assess the impact of the proposed rule on small entities, consider less burdensome alternatives, and conduct a SBREFA Panel to consult with small entity representatives before issuing such an assessment. Commenters stated that small businesses have not been provided a meaningful opportunity to engage in the rule making process, as SBREFA requires.

Commenters 0166 (NLA and supporters) and 0152 stated that the EPA must resume its small business analysis by completing an initial regulatory flexibility analysis IRFA and convening a small business review panel to develop reasonable regulatory alternatives for consideration that will accomplish EPA's objectives under the Clean Air Act that are less burdensome to small businesses. *See* 5 U.S.C. §§ 601-612. Commenters stated that this is required by the RFA as amended by SBREFA. See 5 U.S.C. § 603. see also 5 U.S.C. § 609(b) & (d). Commenter stated that these actions must be taken in conjunction with the publication of the Proposed Rule and that the EPA must repropose the rule for public comment after doing a proper IRFA and receiving input from the small business panel process. See 5 U.S.C. § 603(a). Commenters stated that the EPA's failure to abide by the requirements of the RFA is subject to judicial review under the SBREFA. 5 U.S.C. § 609. *See* 5 U.S.C. § 611(a)(1) ("For any rule subject to this chapter, a small entity that is adversely affected or aggrieved by final agency action is entitled to judicial review of agency compliance with the requirements of sections 601, 604, 605(b), 608(b), and 610 in accordance with chapter 7.").

Response 83:
The February 9, 2024, supplemental proposal includes revised cost estimates based on the information received during the January 5, 2023, proposal comment period. The EPA determined that the revised estimates would have impacts on small businesses. The EPA published the February 9 supplemental proposal to address small business impacts and to revise the January 5 proposal to address regulatory flexibilities discussed during outreach to the small businesses impacted by proposed revisions to the Lime Manufacturing NESHAP in accordance with the Regulatory Flexibility Act.

6.2 Office of Management and Budget

Comment 84:
Commenters 0166 (NLA and supporters) stated that the EPA failed to submit the proposed rule to the Office of Management and budget (OMB). Commenters stated that in 2002, the EPA submitted its proposed rule to OMB for review under Executive Order 12,866. 69 Fed. Reg. at 410-411 (OMB notified EPA at proposal that it considered that rulemaking a "significant regulatory action" within the meaning of the Executive Order). Commenters stated that the EPA determined that the 2023 proposed rule was non-significant even though the proposed rule imposes more standards, requires more pollution control equipment, and will impose costs well over $100 million annually on the lime industry. Commenters provided estimated cost calculations to support their claims. Commenters stated that the EPA must submit the 2023 Proposed Rule to OMB for review because the costs are significant.

Response 84:
The Office of Management and Budget (OMB) determined the January 5, 2023, proposal was "insignificant", therefore, the proposal was not submitted to OMB for review. The February 9, 2024, supplemental proposal was determined to be "significant" and underwent OMB review.

6.3 Dry Sorbent Injection

Comment 85:
Commenters 0166 (NLA and supporters) stated that a 98% control efficiency for HCl using dry sorbent injection (DSI) was unrealistically high and underestimated the economic impacts. Commenters stated that the EPA did not provide reasonable justification that DSI can achieve 98% control efficiency in practice for all kilns that would require control. Commenters claimed that the EPA based its assumed control efficiency on data from tunnel kilns, cement kilns, and traditional combustion devices. Commenters summarized the ways that lime kilns are different from tunnel kilns and traditional combustion devices (i.e., lime kilns have different exhaust gas profiles, continuously recirculating loads, high particulate loading in flue gas, and high levels of dilution air). Commenters did not summarize the difference between lime kilns and cement kilns. Commenters stated that control efficiency data from these sources is not transferable to lime kilns.

Commenter 0162 discussed docket item EPA-HQ-OAR-2017-0015-0127 (Improved Dry Sorbent Injection (DSI) with Optimized Hydrated Lime) and stated that the EPA may have overestimated HCl removal efficiency if the removal efficiency used for the proposal was based "solely' on the

information provided in the docket item. Commenter 0162 stated that the information provided in the paper is accurate for the represented sources (i.e., boilers electric generating units and cement kilns) and configurations (e.g., baghouse filters and electrostatic precipitators). Commenter 0162 stated that the paper does not discuss the application of Sorbacal ® SP to lime manufacturing plants. Commenters 0162 stated that Sorbacal ® SP achieved approximately 90% reduction of HCl in cement kiln applications in "pursuit of achieving the relevant standards." Commenter 0162 requested that the EPA re-evaluate its assumed control efficiency for lime kilns.

Commenters 0166 (NLA and supporters) noted that the adsorption of HCl will compete with the adsorption of SO2. Commenter 0167 further elaborated on this issue, citing a study that shows that increasing SO2 has been shown to coincide with limited HCl uptake from DSI, requiring more lime to achieve the same (or similar) HCl removal rates.

Commenter 0167 referenced another study that shows that high levels of HCl control (i.e., in the 98% range) coincided with very high concentrations of HCl in the exhaust gas, such as those in incineration units. Commenter 0167 reiterated that operating temperatures also greatly impact the capture of HCl (i.e., increasing temperature equates to decreasing control of HCl). Commenter 0167 stated that lime kilns do not have high concentrations of HCl in their flue gas and often operate at temperatures that are not suited for DSI.

Commenter 0167 stated that the EPA has failed to account for actual variables present at lime kilns, and instead opted without basis to assume that DSI can achieve 98% removal of HCl regardless of the type of kiln or its configuration. Commenter 0167 cited another study that showed that DSI achieving a 98% reduction of HCl emissions for a waste incinerator (which has high HCl concentration at the point of injection) did not reduce the emission of HCl to the levels that EPA has proposed for lime kilns. Commenter 0167 stated that the EPAs assumption of an across the board 98% removal of HCl is unsupported based on the studies that they independently identified. Commenter 0167 noted that this is particularly true for lime kilns, where large quantities of readily available reactant (lime) are available for in situ capture of HCL in existing baghouses, yet HCl emissions persist at varying levels across the industry.

Commenters 0166 (NLA and supporters) suggested that EPA should use a value of 83% removal efficiency for HCl. Commenter 0167 stated that they can only reasonably assume 60% control of HCl using DSI due to low initial HCl concentrations and high temperatures. Commenters 0166 (NLA and supporters) noted that this will increase the estimated number of wet scrubbers needed to demonstrate compliance with the proposed standards.

Response 85:
After receiving comments on the January 5, 2023, proposed rule regarding the removal efficiency of DSI controls for removing HCl, the EPA consulted with vendors, and assumed a removal efficiency of 83 percent in the February 9, 2024, supplemental proposal. No additional data was provided by the commenter in support of a removal efficiency less than 83 percent.

Comment 86:
Commenters 0166 (NLA and supporters) stated that DSI will increase the inlet grain loading to existing fabric filters resulting in increased static pressure loss and potentially compromise compliance with the current Lime MACT PM standard. Commenters stated that increased grain loading may require more frequent filter replacement, additional filter modules, or polishing filters. Commenters stated that many kilns will likely require redesign of ducting and/or relocation of fabric filters. Commenters stated that the EPA has not accounted for these costs.

Response 86:
The EPA revised our cost estimates based on public comment received on the January 5, 2023, proposal. We revised our costs following the guidance from the EPA Air Pollution Control Cost Manual and afterwards found that the revisions more closely aligned with example cost estimates received from public comments. Based on these revisions, the EPA determined the proposed rule amendments would have economic impacts on small businesses and subsequently convened a small panel to discuss these impacts. The supplemental proposal and final rule include considerations discussed during the small business panel, including the use of an IQV factor in the mercury standard, and an aggregated organic HAP limit. The EPA believes that the cost revisions performed in support of the February 9, 2024, supplemental proposal more accurately reflect costs not previously considered in the January 5, 2023, proposal.

Comment 87:
Commenters 0167 stated that their estimated cost for the DSI system alone is $3.4 million per kiln (not accounting for temperature cooling). Commenter stated that this estimate includes $750,000 (average of two vendor quotes) for a hydrated lime silo, gravimetric feed system, and blower package with motor control. Commenter stated that their costs also include engineering, design, pilot testing, project management fees, and other ancillary costs.

Commenter provided technical literature from Babcock Wilcox supporting their claim that HCl control using DSI is most effective at temperatures around 200F. Commenter noted that while lower temperatures are better for adsorption of pollutants, operational concerns related to corrosion of system components imposes limits on temperature controls and can require significant system redesigns. Commenter estimated that either a water spray cooling system, or a bleed air cooling system would be needed for proper operation of the DSI system (to achieve 98% control using DSI). Commenter estimated that a water spray cooling system would cost $1 million per kiln based on known costs for injection pumps, nozzles, and insulation. Commenter estimated that a bleed air cooling system would cost $7.2 million for both kilns, which is more costly due to the need to expand baghouse capacity, replace or upgrade kiln fans, and modification of the stack to accommodate larger air volume.

Commenter stated that their analysis shows that 500 lb/hr and 750 lb/hr of hydrated lime may be required to comply with the proposed standards (because HCl control using DSI is dependent on initial HCl concentration, residence and mixing time, temperature, and SO2 competition). Commenter noted that this is far in excess of the EPAs estimates of 3 lb/hr. Commenter noted that this combined total of hydrated lime is 15 ton/day and represents 8% of their total annual production and would therefore result in $1 million in lost revenue each year.

Commenters stated that their total cost estimate for a hydrated lime DSI system is $4.4 million per kiln (including the water spray cooling system), whereas EPA has estimated $97,988 per kiln. Commenter did not account for polishing bag houses (which may also be needed), or additional costs associated with increasing well pumping capacity or procuring additional water for a cooling system. Commenter stated that the EPAs cost estimates do not reflect reality and that the EPA should rerun their cost estimates considering the information provided.

Response 87:
Please refer to Response 86.

Comment 88:
Commenter 0155 provided DSI cost information (2016 dollars) to help the EPA better gauge the cost impacts to affected sources. Commenter provided actual industry-derived information regarding purchased-equipment capital costs and annualized costs for various DSI systems and applications. Commenter noted that the capital costs represent purchased equipment and do not assess costs associated with delivery, installation, or commissioning. Commenter noted that recent inflationary costs for raw materials and fabrication expenses have significantly escalated the purchased equipment costs they provided.

Commenter 0155 provided costs ranged from approximately $555,000 – $3.7 million for total capital investment and approximately $243,000 – $6 million for annualized costs. Commenter provided costs for a cement application of approximately $1.25 million for total capital investment and approximately $1.6 million for annualized costs.

Commenter noted that other costs must also be considered, including engineering, site preparation, foundation, utility tie in, environmental permitting costs, delivery of equipment and sorbents, as well as the current protracted equipment order/construction time schedule. Commenter stated that these factors will increase their cost estimates and are likely to be a burden to small businesses.

Commenter noted that activated carbon is typically 5 to 10 times more expensive than acid gas sorbent.

Response 88:
Please refer to Response 86.

Comment 89:
Commenter 0155 stated that the algorithm shown to be applied to compute the “Total Capital Invested” value for DSI is unclear, both in the current document and the referenced 2002 source document. Commenter noted that sources unfamiliar with this algorithm-based methodology may be significantly disadvantaged in evaluating the impacts to their small business entities. Commenter requested that the EPA explain the basis for this cost methodology.

Response 89:

The EPA revised our cost estimates based on public comment received on the January 5, 2023, proposal. The updated costs followed guidance from the EPA's Air Pollution Control Cost Manual. Section 1, Chapter 2 (*Cost Estimation: Concepts and Methodology*) of the manual outlines the methodology and elements used to determine total capital investment and total annualized cost. Please refer to this section of the Control Cost Manual for more detail regarding the elements and methodologies used in the 2024 supplemental proposal.

6.4 Activated Carbon Injection – General Comments

Comment 90:
Commenter 0167 stated that the EPAs costs for ACI are significantly lower than the costs that they obtained from ACI vendors. Commenter stated that vendors estimated the total capital investment for an ACI system at $2.8 million per kiln. Commenter stated that EPAs cost estimates do not account for the numerous physical constraints that they (and others) are forced to contend with to make room for additional pollution controls and additional equipment. Commenters stated that their facility has extremely limited space that would require excavation of steep topography surrounding its operations in order to install new equipment. Commenter stated that additional electrical upgrades may be needed as well.

Response 90:
Please refer to Response 86.

Comment 91:
Commenters 0154 stated that the capital cost that the EPA is using to estimate ACI is flawed. Commenter stated that instead of either adjusting the power plant mercury control estimates or getting a current vendor estimate, EPA relies on a phone conversation conducted in 1991 between EPA contractors as documented in the July 1994 document "Medical Waste Incinerators – Background Information for Proposed Standards and Guidelines: Model Plant Description and Cost Report for New and Existing Facilities."

Commenter noted that this phone conversation indicated that during EPA-sponsored stack testing at a facility with a medical waste incinerator where they were evaluating ACI as a mercury control, the cost of installing a bin to inject carbon was $4,500. This cost estimate is not believable as a representation of the true capital cost to install a permanent ACI system at an industrial source, and it appears that EPA has been using this same base cost estimate for multiple rulemakings over the past 30 years without bothering to use information available to the agency to estimate a more realistic cost.

Commenter stated that EPA's costs for do not hold up to scrutiny and that a phone call to control equipment vendors would have informed EPA that the installed cost of an ACI system without a polishing baghouse can be up to $500,000.

Response 91:
Please refer to Response 86.

Comment 92:
Commenter 0153 stated that lime kiln dust (LKD) produced by the lime manufacturing process and collected in dust control systems is a marketable product. Commenters 0153 stated that ACI upstream of the dust control system contaminates the LKD rendering it unusable for its highest and best use in the current marketplace and would require the commenter to develop alternate markets that would allow for contaminants, or to landfill the material at significant additional expense. Commenter state that for them to maintain their current market for LKD, it will be necessary to install ACI downstream of the existing baghouse and install polishing dust control downstream of the ACI, along with supplemental blower capacity and ancillary equipment. Commenter stated that the EPA's assumed costs for ACI are much lower than would be realized for any operators marketing LKD as a product.

Response 92:
The EPA revised our cost estimates based on public comment. The revised cost estimates included consideration of the loss of lime kiln dust as product versus the installation of a polishing baghouse and included either a loss of revenue or costs for the inclusion of a polishing baghouse in our calculations.

Comment 93:
Commenters 0154 stated that when a scrubber is used for particulate control, or the ESP cannot handle additional particulate load from ACI, the EPAs power plant mercury control model (referenced by the EPA for the 90% control claim) includes the addition of a polishing baghouse. Commenter stated that their facility is equipped with a wet scrubber for PM control and the scrubber blowdown is sent back to the process, not wasted. Commenter stated that injecting carbon prior to the wet scrubber, besides not being likely to achieve significant control of mercury emissions, would contaminate the process stream. Commenter stated that a polishing baghouse would be need for ACI and that the EPA has not accounted for this additional cost.

Response 93:
Please refer to Response 92.

6.5 Activated Carbon Injection for THC Control

Comment 94:
Commenters 0166 (NLA and supporters) stated that a 60% control efficiency for THC using activated carbon injection (ACI) was unrealistically high and underestimated the economic impacts. Commenters stated that the EPA offered no data that this has ever been achieved in practice on a process where the technology is transferable. Commenters stated that the EPA's use of an ACI supplier to justify the 60% control efficiency is not an independent technical source. Commenters summarized the information in EPA-HQ-OAR-2017-0015-0133. Commenters stated that this information shows that on most lime kilns, use of ACI to control THC is not achievable at 60% control efficiency because the ICR and EPA's own economic model indicate that the exhaust gas temperatures in the majority of lime kilns is well in excess of 350F. Commenters highlighted that the data from this memo shows that a control efficiency of 10% percent would conservative for a lime kiln when temperatures are above 350 F. Commenters

stated that engineering studies are required to define injection rates and removal efficiencies and would be kiln-specific depending on the organic HAP profile.

Commenter 0167 stated that the EPA drastically overestimated THC reductions from ACI systems and significantly underestimated the costs of ACI systems. Commenter 0167 stated that activated carbon more readily adsorbs to heavier hydrocarbons and that carbon adsorption is favored at lower temperatures. Commenter 0167 cited the 2008 Waste Combustors NESHAP and noted that the EPA acknowledged at that time the limitation of activated carbon for adsorbing compounds with low molecular weight and boiling points. Commenter 0167 stated that EPA also documented (at that time) that an ACI systems efficiency "dramatically drops with lower temperatures" and lower inlet concentrations of pollutants. Commenter 0167 stated that methane has a low molecular weight and boiling point, and that activated carbon is ineffective at removing methane. Commenter 0167 noted that the EPA has used 10% reduction for compounds like methane using ACI in other rule makings. Commenter 0167 stated that test reports in the docket support that THC from lime kiln flue gas contains significant amounts of methane.

Commenters 0166 (NLA and supporters) suggested that EPA should use a value of 30% removal efficiency for THC. Commenter 0167 suggested that 10% control of THC using ACI is more reasonable. Commenter 0167 stated that it is only reasonable to assume that lime kiln exhaust will contain significant amounts of methane, that ACI cannot effectively control methane, and that RTO's will be required for compliance with the THC standard. Commenters stated that the EPA has significantly underestimated the number of RTO's needed to demonstrate compliance with the proposed standards because ACI cannot achieve 60% reduction of THC.

Response 94:
The February 9, 2024, supplemental proposal includes a standard for organic HAP and no longer includes a standard for THC. This comment no longer applies.

Comment 95:
Commenters 0166 (NLA and supporters) and 0152 summarized specific technical challenges and issues that inhibit the effectiveness of ACI for THC control. Commenters provided this information in the context of control costs and stated that these issues make the control of THC using ACI infeasible, either technically or economically. Commenters noted the following bulleted items:

- According to EPA's source document on THC control ACI, a supplier indicated capture to be 50-60% at gas temperatures in the range of 300-350F and as low as 10% at temperatures above 350F. Lime kilns operate at temperatures above 350F prior to the PM control device. Therefore, engineering studies would be required to define injection rates and removal efficiencies and would be kiln-specific depending on the organic HAP profile.
- If exhaust quenching would be necessary, costs due to lost production would occur. A lime kiln relies on an induced draft (ID) from a fan that moves combustion air and CO_2 released from the decarbonization of limestone through its PM control device and ultimately the kiln's exhaust vent or stack. The ID fan is designed to meet the maximum air volume needed to meet nominal production from the kiln in terms of the expected gas

characteristics (i.e., temperature, actual volume, gas composition, etc.). To achieve rapid gas cooling, methods generally include use of ambient air or water sprays to induce or promote adiabatic cooling over a short gas path length. Put more simply, rapid cooling of the exhaust gas stream results in larger loads on the ID fan that will consume any available ID fan capacity and force a reduction in process gas loading -- thus creating a process bottleneck meaning lower lime production rates from the kiln can occur than would otherwise be possible. This is another significant cost EPA failed to account for.

- The influence of SO_2, HCl, and Hg in the gas steam of a lime kiln will reduce the effectiveness of ACI for THC.

Response 95:
The February 9, 2024, supplemental proposal includes a standard for organic HAP and no longer includes a standard for THC. This comment no longer applies.

6.6 Activated Carbon Injection for Hg Control

Comment 96:
Commenters 0166 (NLA and supporters) and 0152 summarized specific technical challenges and issues that inhibit the effectiveness of ACI for Hg control. Commenters provided this information in the context of control costs and stated that these issues make the control of Hg using ACI infeasible, either technically or economically. Commenters noted the following bulleted items:

- ACI control effectiveness decreases above 300 F to about 30%. If exhaust quenching would be necessary, costs due to lost production would occur due to impacts to the ID fan.
- The absorption mechanisms differ between the elemental or oxidized form of mercury. Each kiln would need to be studied for the form(s) of mercury in the exhaust to determine potential control alternatives. Activated carbon can be used for capture of the elemental form of mercury whereas brominated carbon is used for capture of ionic form. Brominated carbons are significantly more expensive.
- Water vapor above 50% relative humidity and the presence of SO_2 in the gas stream reduces control effectiveness by 50% percent or more requiring a higher injection rate.

Response 96:
The February 9, 2024, supplemental proposal includes revised costs, and verified these costs with control equipment vendors who also verified assumptions made in our calculations, including the removal efficiency of ACI as control of mercury emissions.

Comment 97:
Commenters 0154 stated that the EPA has assumed that ACI will achieve 90% reduction in Hg emissions if it is used prior to any type of PM control device at the same injection rate. Commenter stated that the EPA has not justified this assumption and that the EPAs documentation for EPA's Power Sector Modeling Platform (referenced by the EPA for the 90% control claim) contradicts this assumption. Commenter summarized this documentation and noted that the model uses different injection rates for baghouses (have better control due to filter

cake on bags) and ESPs (lesser control due to in-flight capture) due to the different residence times in each control. Commenter noted that the EPAs cost estimates for Lime assume a flat value for all kiln configurations (3 lb ACI per million acfm). Commenter stated that the EPA has underestimated cost by not accounting for each kiln configurations control type, as it relates to ACI rates.

Response 97:
Refer to Response 96.

6.7 Activated Carbon Injection for DF Control

Comment 98:
Commenters 0166 (NLA and supporters) summarized specific technical challenges and issues that inhibit the effectiveness of ACI for DF control. Commenters provided this information in the context of control costs and stated that these issues make the control of DF using ACI infeasible, either technically or economically. Commenters noted the following bulleted items:

- ACI has been demonstrated to be effective in capture of DF at temperatures below 300 F but is less effective as temperatures exceed 350 F. Most preheater or rotary kiln flue gases are higher than 450 F.
- Control effectiveness is influenced by the relative concentration of the congeners which may be present in the flue gas stream. In a lime kiln, formation of the DF species is complex and is influenced by temperature profile, residence time at critical temperatures, presence of chloride ions and aromatic organics as precursors. A detailed program of stack testing would be needed for each application to define the ACI rate and required gas stream temperature for control to determine if ACI would be feasible.
- In a study at a preheater/pre-calciner cement kiln, DF removal between 55% and 91% with injection rates of between 1.1 and 5.08 lb/mm acfm was indicated.
- Several studies at portland cement plants have shown that DF can be reduced by control of flue gas temperature using rapid cooling to reduce the flue gas temperature using atomized water sprays. However, the MACT limit for cement kilns is roughly 10 times higher than the proposed limit for lime kilns, so it is unclear if such reductions would be sufficient to meet the lower lime D/F standard.

Response 98:
The February 9, 2024, supplemental proposal includes revised costs, and verified these costs with control equipment vendors who also verified assumptions made in our calculations, including the removal efficiency of ACI as control of D/F emissions.

6.8 Regenerative Thermal Oxidizers

Comment 99:
Commenters 0166 (NLA and supporters) summarized specific technical challenges and issues that inhibit the effectiveness of RTOs for THC control. Commenters provided this information in the context of control costs and stated that these issues make the control of THC using RTOs infeasible, either technically or economically. Commenters noted the following bulleted items:

- RTOs have not been installed on any lime kiln for THC or organic HAP control. The largest RTO installations commonly available are about 100,000 actual cubic feet per minute (acfm), therefore multiple vessels with two chambers would be required for larger kiln systems to consider use of RTOs.
- SO_2 in the kiln exhaust will need to be removed by a wet scrubber to prevent oxidation of SO_2 to SO_3 in the RTO combustion chamber and creating acid mist and visible emissions. In an RTO, SO_3 combines with water vapor at less than 500F forming sulfuric acid. At the RTO exit, and in the exhaust plume, the acid vapor reacts with water to form sulfuric acid mist ($H_2SO_4*2H_2O$) which is a PM2.5 aerosol.
    - This SO_2 reduction is of importance both for the purpose of pollution reduction and to meet the EPA's own stated requirements for reducing regional haze within PSD Class I Areas.
- Cement kiln applications of RTOs have been shown to require wet scrubbers to reduce sulfur to avoid contamination of RTOs.
- RTO vendors typically guarantee an outlet THC concentration of about 30 parts per million (ppm) as carbon (C1) which is about 8.2 ppm as propane. The DRE for specific pollutant species is usually quoted at 95-98% using EPA Method 18. The proposed MACT THC concentration is lower than the THC levels guaranteed by commercial RTO designs. Therefore, even if an RTO were applied, obtaining a vendor guarantee at the level of the proposed THC limit may be impossible.
- Regenerator operation is not a steady state but relies on cycling gas flows between at least two fixed packed beds, such that one is an inlet bed, and one is an outlet bed at any given point in system operation (VOC Control Technology: Regenerative Oxidation. Pro-Environmental, Inc., 2009). The THC testing duration is a 1-hour average concentration which includes multiple chamber changeover events (depending on operating temperature). During a changeover event, there is a spike in emissions as the poppet valve re-seats in the RTO. The spike can be a concentration that is multiple times higher than during steady state operation thus compromising the ability to demonstrate compliance with the proposed standard.
- The normal maximum RTO operating temperature is between 1600 and 1700F. Given the need to scrub the exhaust gas to remove SO_2 before the RTO, a large amount of clean fossil fuel energy (e.g., natural gas) will be required to reach the RTO minimum operating temperatures.
- As a result of combustion of natural gas, THC is expected to also be generated from the combustion chamber of the RTO, thus potentially compromising compliance with the proposed THC standard.
- Greenhouse gases (CO_2 and CH_4), NO_x and CO will be generated by the RTO installation.
- Many lime plants may have insufficient or unavailable supplies of natural gas to support the use of an RTO. This will require adding infrastructure at additional and substantial cost.
- Destruction efficiency for RTO performance is based on chemical species being destroyed, not THC itself. Thus, it is unclear, and it may be kiln dependent, as to whether the MACT THC level is achievable by an RTO.

- An RTO will also require additional power demand and infrastructure that may not be available at a given lime plant.
- An RTO will require permitting.

Response 99:
The February 9, 2024, supplemental proposal includes a standard for organic HAP and no longer includes a standard for THC. The cost estimates of the February 9, 2024, supplemental proposal does not recommend the use of RTO except in situations where extreme levels of pollutants are needed to be removed.

Comment 100:
Commenter0164 stated that RTOs are known to emit methane slip, CO_2, CO, NO_x and potentially formaldehyde depending on efficiency. Commenter stated that the proposed rule's use of an RTO would increase, and not decrease, overall pollutants emitted by lime kilns.

Response 100:
Please refer to Response 99.

Comment 101:
Commenters 0153 and 0152 stated that the EPA has underestimated the cost of RTO systems because it did not account for the fact that some facilities do not have access to a natural gas pipeline, or that existing pipelines may need upgrades to support RTO operation. Commenter 0152 noted that two of the affected small businesses believe that they need to install RTOs for compliance. Commenter 0153 stated that given the insufficient data to provide cost estimates, they must assume the worst-case scenario for control, which would be RTO.

Commenter 0153 stated that the cost to install a natural gas line at its Laramie, WY facility would be approximately $5.8 million based on a 4-inch line cost of $450,000 per mile and the highway distance to the existing pipeline is 12.9 miles. Commenter 0153 noted that its Rapid City, SD facility does currently have natural gas service, but would require a capacity upgrade to accommodate the demand of an RTO. Commenters stated that the EPA must account for these costs in its analysis.

Commenter 0167 stated that they use coal as the sole fuel source for their kilns and diesel for startup. Commenter 0167 stated that they would need and 8-mile-long pipeline through a national forest to supply natural gas to the facility. Commenter estimated that the capital cost for this pipeline would be approximately $29 million. Commenter noted that this is economically infeasible and that further, it may not be feasible for them to obtain the necessary easements, access rights, permits, and other regulatory approvals to install a pipeline. Commenter noted that an RTO would be needed to comply with the proposed THC standard.

Response 101:
No small businesses were identified in the lime manufacturing source category that would require RTO as controls to comply with the emission standards as proposed.

Comment 102:
Commenter 0167 stated that the EPAs costs for RTOs are significantly lower than the costs that they obtained from RTO vendors. Commenter stated that vendors estimated the total capital investment for RTO systems at $17 million (not including a natural gas pipeline). Commenter stated that installation of an RTO at their facility will be more costly due to extremely limited space, steep topography, and limited facility access.

Response 102:
Refer to Response 99.

6.9 Revised Cost Estimates from Industry

Comment 103:
Commenters 0166 (NLA and supporters) revised the proposed costs using the EPA's "Proposed Control Cost Spreadsheet" (EPA-HQ-OAR-2017-0015-0134). Commenters changed the control efficiency for DSI (for HCl control) from 98% to 83% and the control efficiency for ACI (for THC control) from 60% to 30%. Commenters demonstrated that with only these two changes, the EPA's own costing spreadsheet show total capital investments of approximately 250 million and total annualized costs of 100 million. Commenters stated that this demonstrates that the costs to the industry are much greater than EPA estimated, even without addressing numerous other economic factors and issues that the EPA failed to address. Commenters detailed numerous other economic factors and issues that the EPA failed to account for, including:

- Did not account for the costs and time related to the research and development necessary to implement the application of EPA's proposed control technologies.
- Did not account for lost opportunity costs for small businesses – large companies can accommodate kiln shutdowns while maintaining product shipment (from other kilns or plants), whereas small businesses would have to buy and ship product from a competitor to maintain customer shipments.
- Incorrectly assumed that existing venturi wet scrubbers in the lime industry are packed bed type scrubbers, thus underestimating costs to comply for scrubber equipped kilns necessary to control acid gases.
- Incorrectly assumed that the use of ACI and DSI will not require improvements or upgrades to existing, or the addition of new PM control devices (i.e., increased grain loading may necessitate more frequent filter replacement, additional filter modules, or polishing to comply with current PM standards).
- Did not account for redesign, re-ducting, or relocation of existing fabric filter devices.
- Did not account for engineering, design, and construction costs to install control devices at plants with physically constrained layouts (i.e., retrofitting) and existing PM air pollution control equipment.
- Incorrectly assumed that a single form of carbon can achieve reductions simultaneously for Hg, THC and DF via ACI.
    - This underestimates economic cost estimates, especially EPA's claim that Beyond the Floor MACT limits can be achieved at no additional costs.

- RTO costs ignored the requirement to remove most of the SO_2 from the exhaust gas stream prior to the RTO (and related natural gas use and emissions) to avoid acid mist and visible emission formation in an RTO installation on a lime kiln.
- RTO costs ignored the requirement for permitting.
- Did not account for upgraded utility infrastructure (e.g., availability of natural gas, increased electric supply and transmission) needed to install and operate proposed controls.
- Failed to account for dramatic and current inflationary effects. The interest rate used in the EPAs cost analysis is too low. These could underestimate actual costs by 10% and likely more by the time compliance for existing sources is required.

Commenters 0166 (NLA and supporters) provided their own cost estimates, using data from EPA's "Proposed Control Cost Spreadsheet" (EPA-HQ-OAR-2017-0015-0134) and data provided to EPA pre-proposal (EPA-HQ-OAR-2017-0015-0091, 92, 93, and 94). Commenters analysis found that the total capital investment for affected kilns would be 924 million and the total annualized costs would be 180 million. Commenters stated that the EPA's proposed costs are significantly understated.

Response 103:
The February 9, 2024, supplemental proposal includes revised costs that include factors identified by commenters of the January 5, 2023, proposal, including items identified in this comment.

Comment 104:
Commenter 0153 stated that the EPA's compliance costs for their facilities are grossly underestimated compared to costs that they developed. Commenter provided compliance costs estimates (developed by vendor LDX Solutions) that included many costs that the EPA did not account for, such as:

- Lost revenue due to kiln shutdowns (required to install control systems) that disproportionately affect small businesses.
- Lost revenue due to contamination of LKD.
- Costs for polishing baghouses. If not used, lost revenue will occur. If used, LKD revenue can be retained at the expense of a baghouse.
- Site specific vendor costs for ACI, and DSI.
- Engineering and design costs and site augmentation costs.
- Costs for ducting to achieve sufficient residence time, turbulence, and mixing.

Commenter 0153 did not estimate RTO costs (even though they stated that they must assume an RTO would be required) because pipeline installation and upgrades would be economically infeasible and did not account for gas conditioning to optimize control with DSI and ACI. Commenter noted that these costs would increase their estimates even further. Commenter stated that the lowest costs per kiln would be approximately $2.3 million (capital) and $1.0 million (annualized) and that the highest costs would be approximately $6.9 million (capital) and $2.7 million (annualized) depending on the final control scenario employed.

Commenter 0153 include the percent of annual sales per kiln for each control option evaluated. Commenter noted that every control option (with or without a polishing baghouse) is greater than the 1% of annual sales revenue with the lowest being 2.24% and the largest being 7.83%. Commenter stated that impacts would be significant and potentially worse than they have stated. Commenter stated that the EPA should consider more realistic and industry-involved approaches to enforcing a solution.

Response 104:
Please refer to Response 103.

Comment 105:
Commenter 0167 stated that they hired an outside consultant (ZAP Engineering and Construction Services) and determined that for control device installation and site upgrades, total capital costs are approximately $60.1 million, and total annualized costs are $6.1 million (assuming an 8% interest rate). Commenter noted that their annualized cost is well above the $3 million annualized cost that the EPA used for small business screening purposes and is nearly 20% of their annual sales revenue (well above 1%).

Commenter included costs for water sprays/insulation for flue gas cooling, DSI for HCl control, ACI for mercury and DF control, an RTO for THC control (as they believe this would be required to meet the proposed standards), and natural gas piping to operate the RTO. Commenter reiterated that costs must consider and RTO for compliance with the proposed THC standard. Commenter stated that the EPA has significantly undervalued the actual costs required to comply with the proposed standards.

Response 105:
Please refer to Response 103.

6.10 Other Small Business Concerns

Comment 106:
Commenter 0152 stated that they consulted with the three small businesses impacted by the rule and that two of these businesses believe that they will need to install RTO systems to comply with the proposed standards. Commenter noted that the third small business was still in the process of evaluating whether an RTO may be needed for compliance. Commenter noted that the EPA did not account for this cost in its analysis.

Response 106:
No small businesses were identified in the lime manufacturing source category that would require RTO as controls to comply with the emission standards as proposed.

Comment 107:
Commenter 0152 stated that the EPAs use of industry averages to develop costs hides the disproportionate effect on small businesses, as small businesses have significant disadvantages that raise costs and make compliance more challenging than for large businesses in the same industry. Commenter highlighted the following examples:

- When a new regulation requires additional human resources, identifying, hiring, and retaining employees becomes a major concern for small entities, especially in the current tight labor environment.
- Larger businesses have the size and scale to offer benefits packages that smaller businesses generally cannot offer, which may lead to higher search costs for small businesses. Paid leave, quality of healthcare, and other benefits packages are also more generous at larger businesses, leaving smaller businesses at a disadvantage when hiring compliance staff.
- Small businesses have expressed concern that when new regulations require the purchase and installation of new equipment, they are last in line with suppliers. They also believe that they pay more per unit because they are generally purchasing fewer identical items and require more customization per installation.
    - For example, small businesses that need to install one or two ACI systems will be at a disadvantage compared to a large business that may be installing six to ten systems. The large business will get a more competitive price and likely priority on equipment and labor for the installation.
- Small business will also lose more revenue during installation of control equipment, both in absolute terms and as a share of their business, since they have fewer kilns across which to spread the lost production.

Response 107:
The EPA has developed the final emission standards of this rule with the consideration of regulatory flexibilities discussed during the August 2023 outreach with small businesses. These flexibilities included consideration of subcategorization for each pollutant being regulated, an intra-quarry variability factor applied to the mercury new and existing emission standards, an aggregated organic HAP emission limit, and 5-year compliance testing requirements.

6.11 Other Cost Related Comments

Comment 108:
Commenter 0153 noted that the EPA selected Trona as an acid gas sorbent. Commenter stated that Trona is introducing a sodium product into a calcium process when a calcium-based sorbent could be used. Commenter stated that hydrated lime is a preferred sorbent as it offers a high specific surface area. Commenter stated that Trona (sodium bicarbonate) can also be used although Trona has more handling/feeding problems and is a higher cost per ton.

Response 108:
The EPA based its cost estimates for DSI using Trona, because it has a higher cost per ton ($170/ton) compared to hydrated lime ($150/ton) based on the data available to the EPA at the time of the supplemental proposal. This was done to provide conservative estimates of sorbent costs and was not meant to prescribe a specific sorbent for use in controlling emissions of acid gasses.

7 Other General Legal Comments

7.1 Sources Excluded from Subpart AAAAA

Comment 109:
Commenter 0159 stated that it is unlawful for the EPA to exclude (from Subpart AAAAA) lime kilns operated at pulp and paper mills and beet sugar factories as well as those that use only calcium carbonate waste sludge from water softening processes as feedstock. Commenter stated that *LEAN* confirms that the Clean Air Act requires EPA to conform its emission standards for a category to the Act's requirements when it conducts § 112(d)(6) rulemakings. 988 F.3d at 1098.

Response 109:
The EPA disagrees with the comment. The *LEAN* decision did not speak to the need to regulate processes that are not part of a regulated source category. As discussed in the February 9, 2024, supplemental proposal, lime manufacturing operations at pulp and paper mills are subject to the NESHAP for combustion sources at kraft, soda, and sulfite pulp and paper mills. Lime manufacturing operations at beet sugar processing plants are not subject to the Lime Manufacturing NESHAP because beet sugar lime kiln exhaust is typically routed through a series of gas washers to clean the exhaust gas prior to process use.

Comment 110:
Commenter 0159 stated that there does not appear to be to be either a § 112(c) source category for beet sugar factories or any § 112(d) emission limits for these sources in EPA's standards for other categories. Commenter stated that the EPA's exclusion of these sources leaves them unregulated and their toxic pollution entirely uncontrolled. Commenter estimated that there are at least 30 of these kilns based on the EPA's 2004 analysis. 69 Fed. Reg. 394, 401 (January 5, 2004). Commenter stated that the EPA must revise its emission standards to eliminate the exclusion for lime kilns operating at beet sugar factories that are major sources of hazardous air pollutants.

Response 110:
Please refer to Response 109.

Comment 111:
Commenter 0159 stated that the EPA's emission standards for paper mills appear to include standards for lime kilns that are operated at paper mills, however, they do not include emission limits for all HAP, such as mercury, dioxins, polycyclic organic matter, hydrogen chloride, and hydrogen fluoride. Commenter stated that the existing standards for these kilns do not satisfy the requirements of the Clean Air Act. Commenter stated that the EPA must revise Subpart AAAAA to set limits for HAP that are emitted by these kilns, but not are not covered by the paper mills rule.

Response 111:
These kilns are regulated by another subpart and not the subject of this action.

Comment 112:
Commenter 0159 stated that the EPA has not provided an explanation for the exclusion of lime kilns that use only carbonate waste sludge from water softening processes in its current proposal, or in its previous proposed and final rules for lime kilns. Commenter stated that this exclusion is unlawful, and that the EPA must remove it. See LEAN, 955 F.3d at 1098. Commenter stated that if the EPA believes these lime kilns do not emit any hazardous air pollutants, it needs to explain that belief in the record and support it with test results.

Response 112:
Please refer to Response 109.

7.2 Limits for Kilns with Wet Scrubbers Previously Installed and Operating

Comment 113:
Commenter 0159 stated that the current rule allows lime kilns that had installed and were using wet scrubbers prior to January 5, 2004 to meet a PM emission limit of 0.60 pounds of PM per ton of stone feed (0.60 lb/tsf) instead of the 0.12 lb/tsf limit that the EPA set for the category. Commenter stated that §112(d) requires that all sources in a category or subcategory must meet limits that require the maximum degree of reduction that is achievable considering cost and are at least as stringent as the emission level achieved by the relevant best performing sources in the same category or source category. Commenter stated that allowing any source in a category or subcategory to meet emission limits that are less stringent than those that apply to that category or subcategory is unlawful.

Commenter 0159 stated that lime kilns that were using wet scrubbers prior to January 5, 2004, are not a separate subcategory of sources. Commenter noted that in the 2004 rule making, the EPA expressly rejected comment urging it to create a subcategory for these kilns. 88 Fed. Reg. at 809. Commenter noted that the EPA correctly refused to subcategorize on the basis of pollution controls because "The problem with subcategorizing on the basis of pollution control device, quite simply, is that it leads to situations where floors are established based on performance of sources that are not the best performing." 69 Fed. Reg. at 403.

Commenter 0159 stated that despite this, the EPA set a higher limit for kilns with wet scrubbers because the EPA assumed that if those kilns were required to meet the lower limit, they would remove or turn off their wet scrubbers and switch to dry controls. Commenter stated that the EPA claimed (based on the assumption of kilns switching from scrubbers to dry controls) that while this would result in reductions of coarse particulate, emissions of fine particulate would increase. 69 Fed. Reg. at 404. Commenter stated that regardless of this policy argument, allowing any lime kilns to avoid meeting the 0.12 lb/tsf PM limit and meet a far weaker 0.60 PM limit instead is unlawful.

Commenter 0159 stated that the EPA provided no reason in 2004 why any kiln would remove or turn off its wet scrubber because it needed to install some other form of control to meet the 0.12 lb/tsf PM limit. Commenter 01059 stated that this policy argument was flawed in 2004 but is more flawed now that the EPA has proposed limits for HCl. Commenter noted that the kilns operating wet scrubber now appear to be among the sources that are already in compliance with

the proposed HCl limit, so they would have no reason to remove or turn off their wet scrubbers now.

Response 113:
This comment addresses aspects of the rule that have been proposed and finalized in previous rulemaking and is beyond the scope of this action.

7.3 Failure to Set Limits for Every HAP

Comment 114:
Commenter 0159 stated that the EPA has failed to propose limits for hydrogen fluoride (HF) and hydrogen cyanide (HCN). Commenter stated that the EPA received data from industry indicating that limestone contains fluoride at levels as high as 3,000 milligrams per kilogram. EPA-HQ-OAR-2017-0015-0013, Attachment 2. Commenter stated that because there is fluoride in limestone, lime kilns emit HF.

Commenter stated that EPA's failure to set limits for HF violates the agency's obligation to set limits for each HAP that lime kilns emit and, as explained in *LEAN*, EPA needs to fix this defect in its RTR for lime kilns by setting limits for HF and, if lime kilns emit it, HCN.

Response 114:
The EPA has no data to indicate that lime kilns emit hydrogen cyanide (HCN) or hydrogen flouride (HF). Though we do not dispute that limestone contains flouride, HF is an extremely reactive gas and HF formed would be expected to react with the lime particulate in the flue gas. We are aware the HCN can be emitted in measurable quantities from cement kins (a similar source), however, HCN formation in a cement kiln is believed to be due to conditions that are not expected to occur in a lime kiln, such as areas of combustion under reducing conditions in a precalciner.

7.4 Clean Air Act Does not Require EPA to Regulate Unregulated HAP

Comment 115:
Commenters 0166 (NLA and supporters) stated that the only reason the EPA has proposed this rule is that environmental petitioners requested that it do so following the following the DC Circuit's opinion in *Louisiana Environmental Action Network v. EPA*, 955 F.3d 1088 (D.C. Cir. 2020) ("LEAN"). Commenters stated that environmental petitioners are time-barred from challenging the underlying lime MACT standard because they failed to do so within the 60-day time period following promulgation of the original MACT standard in 2004.

Commenters 0166 (NLA and supporters) stated that Section 307(b) of the Clean Air Act requires any party to initiate a challenge for the EPA's failure to set HAP standards within 60 days from promulgation of the original MACT standard. Commenters stated that this requirement is jurisdictional, and a court cannot waive or lengthen it. *Med. Waste Inst. & Energy Recovery Council v. EPA*, 645 F.3d 420, 427 (D.C. Cir. 2011); NRDC v. EPA, 571 F.3d 1245, 1265 (D.C.

Cir. 2009). Commenters stated that the LEAN court acknowledged the argument but did not address it or rule on its merits. Commenters stated that this limitation on judicial review of EPA actions serves an "important reason[]: to enforce repose so that the rulemaking process is not crippled by surprise challenges to matters that were rightfully presumed settled . . . ." *EME Homer City Generation, L.P. v. EPA*, 696 F.3d 7, 38 (D.C. Cir. 2012), rev'd on other grounds, 572 U.S. 489 (2014) (Rogers, J., dissenting).

Commenters 0166 (NLA and supporters) stated that this jurisdictional timeline protects the regulated industry by allowing industry to plan for compliance obligations. C*f. Lead Indus. Ass'n, Inc. v. EPA*, 647 F.2d 1184, 1186 (D.C. Cir. 1980) (observing that the CAA's strict deadlines for completing the steps to promulgate ambient air quality standards, and the limitation on stays pending petitions for reconsideration in CAA section 307(d)(7)(B), are evidence of "a strong congressional desire that the procedure for establishing air quality standards be completed expeditiously and with considerable finality").

Commenters stated that the challenge to EPA's RTR rule (challenging EPA's decision not to regulate additional HAPs in the original MACT rule) was not filed until September 22, 2020, over 16 years beyond the 60-day judicial review period established by Congress. Commenters stated that their time-barred argument is stronger in the context of the lime MACT standard than it was in the LEAN case, because all the pollutants addressed in this new rulemaking were explicitly addressed in the original lime MACT rulemaking in 2004. Commenters stated that this is not a case in which HAPs were ignored or inadvertently omitted, but rather a case in which EPA specifically decided that regulation was not necessary, a decision that was not challenged at the time.

Commenters 0166 (NLA and supporters) summarized the key findings from EPA's 2004 final rule (and supporting technical memorandum) for HCl, Hg, organic HAP, and dioxin furans, that support their argument.

- HCl – "We are not regulating HCl emissions from lime kilns in the final NESHAP. Under the authority of section 112(d)(4) of the CAA, we have determined that no further control is necessary because HCl is a ''health threshold pollutant,'' and HCl levels emitted from lime kilns are below the threshold value within an ample margin of safety." Commenters provide further summary of EPA 2004 rule. Commenters noted that the EPA explicitly stated that it was making its determination under the authority of section 112(d)(4) and that it was not a matter of the Agency simply deciding that it did not need to regulate HCl because of low risk. Commenters stated that because the EPA explicitly found in 2004 that HCl was a threshold pollutant, that the criteria of section 112(d)(4) were satisfied, and no one challenged the rule, that any legal challenge to that determination is now time-barred.
- Commenters noted that the EPA addressed mercury in its 2004 rule, choosing not to issue a mercury standard because: "The only control technique would reflect control of the raw materials and/or fossil fuels. This control is not duplicable or replicable. We also determined that an emissions limit for mercury based on a beyond-the-MACT-floor option is not justified after consideration of the cost, energy, and non-environmental

impacts." 69 Fed. Reg. 398. Commenters stated that the EPA received no adverse comments on this approach and the final rule was not challenged.

- Commenters noted that the EPA's contractor at the time (in memorandum) stated that there was essentially no data suggesting organics were emitted, ""[o]nly one test reported any emissions of organic HAPs from lime manufacturing…" Docket No. A-95-41, Item No.II-B-121 at 1.
- Commenters noted that the EPA's contractor at the time (in memorandum) stated that "Emissions of dioxin and furan congeners are well-documented, but are shown to be emitted in extremely small quantities; therefore, dioxin and furan data were not collected in this search."

Commenters stated that there is no legal obligation for EPA to undertake this rulemaking. Commenters stated that the EPA addressed all these HAPs in the 2004 MACT rulemaking, and its determinations were unchallenged until this effort to bootstrap such challenges into the RTR rulemaking. Commenters stated that the EPA should rely on its prior reasonable decisions and reject any effort to bring challenges that are now legally time-barred.

Response 115:
The EPA disagrees with the commenter's first statement. In 2000, the D.C. Circuit held that the EPA has a clear statutory obligation to set emission standards for each listed HAP emitted from a major source. *National Lime Ass'n v. EPA, 233 F.3d 635; Sierra Club v. EPA,* 479 F.3d 875 (D.C. Cir. 2004). In the *LEAN* decision referenced by the commenter, issued on April 21, 2020, the D.C. Circuit held that the EPA has an obligation to address unregulated HAP emissions from a major source category when the Agency conducts the 8-year technology review required by CAA section 112(d)(6). Emissions data collected from lime manufacturing kilns in the source category have demonstrated that HCl, mercury, organic HAP, and D/F are emitted during manufacturing operations. Since these four pollutants are emitted from the lime manufacturing source category, and they were not previously regulated by the NESHAP, pursuant to the *LEAN* decision, the EPA is required to set emission standards as part of the CAA section 112(d)(6) technology review for the source category. Specifically, the EPA is required to establish new MACT standards pursuant to CAA sections 112(d)(2) and (3).

The EPA disagrees with comments suggesting that the EPA establish a *de minimis* exception. . The D.C. Circuit rejected the notion of a *de minimis* exception for a MACT standard in *Nat'l Lime Ass'n v. E.P.A.*, 233 F.3d 625, 640 (D.C. Cir. 2000), as amended on denial of reh'g (Feb. 14, 2001). In response to the NLA's assertion that "[t]he EPA should read a *de minimis* exception into the requirement thatit regulate all hazardous air pollutants emitted by major sources." The D.C. Circuit, quoting the EPA's response to comments, said:[t]he EPA reasonably rejected this argument on the ground that the statute "does not provide for exceptions from emissions standards based on *de minimis* principles where a MACT floor exists." *Id.*
The court left the *de minimis* argument at that, showing the argument's futility.

The EPA disagrees with the comment that this petition for review is time-barred from challenging the underlying lime MACT standard because CAA section 307(b) requires a challenge to the EPA's failure to set HAP standards to be filed within 60 days from promulgation of the original MACT standard in 2004, and the petitioners had not.

With respect to the assertion that environmental petitioners are time-barred because they did not petition for review within 60 days after the 2004 rulemaking, CAA section 307(b) requires a petition for review of an EPA action to be filed within 60 days after notice of the action is published in the Federal Register. It makes no mention of an "original standard." The action at issue here is this rulemaking – these amendments to the Lime NESHAP. Any petition for review of this action had to have been filed within 60 days from the date notice of this action was published in the Federal Register, and the petitions for review of this action were timely filed. Petitioners are not challenging the underlying MACT standard.

Commenters refer to *Med. Waste Inst. & Energy Recovery Council v. EPA*, 645 F.3d 420 (D.C. Cir. 2011), in a vain attempt to support their reading of CAA section 307(b). There, petitioners challenged the EPA's longstanding interpretation of the CAA that, in setting MACT standards, the EPA determines the level of emissions control achieved by "the best controlled similar unit" based on top-performing units for each individual pollutant instead of choosing one unit that was the best controlled overall. *Id.* at 426. The D.C. Circuit did not consider that issue, as the petitioners had not challenged the interpretation in the original rule, which had been promulgated in 1997. *Id.* at 426-27. That statutory interpretation in 2009 was no different from the 1997 interpretation. The court pointed out that the petitioners had the opportunity to challenge that interpretation when the original rule was promulgated. Because the petitioners had failed to challenge that interpretation the first time it was applied, they had forfeited their ability to challenge it in 2009. *Id.* at 427.

This action does not involve matters that could – or should - have been raised in a previous rulemaking. The petitioners are not now raising issues that should have been raised in previous Lime NESHAPs. They challenged this regulation within 60 days after it was published in the Federal Register, as required be CAA section 307(b).

The comments included the EPA's findings from the 2004 rule. The EPA is not considering those, because the 2004 rule is not at issue here. Those comments are beyond the scope of this rulemaking. Commenter's mention of challenging the EPA's failure to set HAP standards is irrelevant as well. This action is a rulemaking under CAA section 307(d).

Comment 116:
Commenters 0166 (NLA and supporters) stated that LEAN determined that "…because the Act necessitates section 112 compliant emission standards for each source category, and section 112(d)(6) requires EPA at least every eight years to review and revise emissions standards 'as necessary,' EPA's section 112(d)(6) review of a source category's emission standard must address all listed air toxics and source category emits." LEAN, 955 F.3d at 1091. Commenters stated that under that decision, EPA must "address" whether any further regulation of listed air toxics is "necessary," in its discretion.

Commenters 0166 (NLA and supporters) stated that the EPA has substantial discretion to consider all relevant factors to determine whether standards for unregulated HAPs are

"necessary" in an RTR rulemaking. Commenters summarized a variety of factors that the EPA should consider (with regard to a necessary finding) including:

- The proposed rule has exorbitant costs.
- The EPA has conducted two risk assessments determining that emissions from the lime industry are acceptable with an ample margin of safety.
- The proposed standards are unnecessary for reducing risk with an ample margin of safety.
- All pollutants in the proposed rule were addressed in the 2004 rule.
- Regulation of the HAP in the proposal would have de minimis environmental benefits.

Commenters 0166 (NLA and supporters) stated that the EPA has already "addressed" the pollutants of concern in the 2004 rule, and determined in the 2020 lime RTR, that there were no residual risks and no technological advances of note, and therefore no reason to revise the MACT standard for the source category. Commenters stated that for the consideration noted above and because these pollutants have already been addressed, the EPA should conclude that it is not "necessary" to revise the MACT standard any further, consistent with LEAN.

Response 116:
Please refer to Response 115.

Comment 117:
Commenters 0166 (NLA and supporters) stated the plain language of section 112(d)(6) requires only technology review. Commenters stated that section 112(d)(6) cannot be used to "fix" unregulated HAPs from a MACT standard – other provisions of the statute (sections 112(d)(2) and (3)) fulfill that purpose. Commenters stated that Section 112(d)(6) is meant to be a review only of any technological advances in the eight years after promulgation of a MACT standard, and nothing more. Commenters stated that the courts have agreed with this reading of the Clean Air Act and have found that the focus of the section 112(d)(6) periodic review is on new developments in pollution control or prevention technologies since the prior promulgation. See, e.g., Nat'l Ass'n for Surface Finishing v. EPA, 795 F.3d 1, 5 (D.C. Cir. 2015) and Blue Ridge Envtl. Def. League v. Pruitt, 261 F. Supp.3d 53, 56 (D.D.C. 2017). Commenter stated that the approach to HAP regulation that Congress established does not provide for a constant ratcheting-down of MACT standards via section 112(d)(6). See Surface Finishing, 795 F.3d at 8-9; Ass'n of Battery Recyclers v. EPA, 716 F.3d 667, 673-74 (D.C. Cir. 2013).

Response 117:
Please refer to Response 115.

Comment 118:
Commenters 0166 (NLA and supporters) stated that LEAN did not overrule the seminal D.C. Circuit decision of Alabama Power v. Costle, 636 F.2d 323, 360 (D.C. Cir. 1979), which held, in the context of the Clean Air Act's PSD regulations, that every rule inherently contains a de minimis criterion. Commenter stated that regulation of unregulated HAPs in the proposed rule would only have de minimis environmental benefits given the lack of residual risk or technology

improvements. Commenters stated that it is not necessary for the EPA to impose additional controls as it "addresses" such HAPs.

Commenters 0166 (NLA and supporters) stated that although the EPA has taken the position that section 112(d)(6) does not allow for a de minimis exception (See e.g., EPA Response to Comments for Portland Cement Industry NESHAP, 64 Fed. Reg. 31898, 31911 (June 14, 1999)), the Supreme Court has held that the de minimis doctrine is a legal principle that forms part of the established background against which all statutes are enacted (Wisc. Dep't of Rev. v. William Wrigley, Jr., Co., 505 U.S. 214, 231 (1992)), and this has been subsequently reiterated by the D.C. Circuit. New York v. EPA, 443 F.3d 880, 888 (D.C. Cir. 2006) ("de minimis requirements serve to alleviate severe administrative and economic burdens by lifting requirements on 'minuscule' emission increases") (internal quotations omitted).

Response 118:
Please refer to Response 115.

Comment 119:
Commenters 0166 (NLA and supporters) stated that Congress amended the Clean Air Act (specifically 112(d)(2) and (3)) because it determined that the EPA was too slow in assessing risks, adopting air emission standards, and it wanted to ensure that risks from such emissions were acceptable with an ample margin of safety. Commenters stated that that there are two risk assessments that have determined that the emissions from the lime industry are acceptable with an ample margin of safety. Commenters stated that it is not only "unnecessary" for EPA to issue MACT floor standards, but irrational and contrary to the intent of the Act, specifically 112(d)(2) and (3). Commenters stated that issuing standards that the EPA knows to be unnecessary to protect the public health and the environment is arbitrary and capricious and cannot be consistent with what Congress intended in the Clean Air Act.

Response 119:
Please refer to Response 115.

Comment 120:
Commenters 0166 (NLA and supporters) stated that Congress clearly expressed its view in Clean Air Act § 112(f)(2) that additional regulation in the absence of risk is unnecessary. Commenters reiterated that there are two risk assessments that have determined that the emissions from the lime industry are acceptable with an ample margin of safety. Commenters stated that since the EPA's own scientific findings demonstrate that promulgating new standards is not "required" to provide an ample margin of safety to protect public health, there is no statutory basis for EPA to revise the lime manufacturing sector's MACT standards by regulating four additional HAPs.

Response 120:
Please refer to Response 115.

Comment 121:
Commenters 0166 (NLA and supporters) stated that no lime plants currently use any add-on control technology to control emissions of any of the four HAPs involved in the proposed rulemaking. Commenters stated that the difference in emissions between kilns are not the result of controls, but rather result from differences in feedstocks (stone and fuel), and operation of lime plant equipment. Commenters stated that sources with lower concentrations of HAP (due to low concentrations in raw feed and fuel) should not be considered the best performers in terms of controlling emissions of that HAP. Commenters stated that it is improper to set a MACT floor based on such emissions data.

Response 121:
The EPA disagrees with this comment. CAA section 112(d)(1) requires the EPA to set standards even for facilities that do not have control technology. In *Nat'l Lime Ass'n v. E.P.A.*, 233 F.3d 625, 634 (D.C. Cir. 2000), as amended on denial of reh'g (Feb. 14, 2001). The EPA had set emission floors of "no control" for HCl, mercury, and total hydrocarbons (a surrogate for organic HAPs other than dioxin/furan) because it had not found technology-based control devices at portland cement manufacturing plants. 233 F.3d at 633-635. The court rejected this approach, stating that "the absence of technology-based pollution control devices for HCl, mercury, and total hydrocarbons did not excuse EPA from setting emission standards for those pollutants," and remanding the standards to the EPA. Based on the language of 112(d)(2)(A) and legislative history from the 1990 CAA Amendments, the court concluded that the EPA should consider emissions data from sources that generate fewer HAPs in setting MACT standards. *See id.*at 634 *(quoting* S. Rep. 101-228 at 168.).

Comment 122:
Commenters 0166 (NLA and supporters) stated that the EPA should have approached regulation of the four HAPs using a beyond the floor approach that would have allowed consideration of costs and risks.

Response 122:
The EPA has developed an approved methodology for setting MACT standards. The methodology includes reviewing beyond-the-floor options and evaluating the costs to implement beyond-the-floor standards and determining the cost effectiveness of setting beyond-the-floor standards. The EPA disagrees with the commenters that part of the beyond-the-floor analysis includes an analysis of risk. Refer to Response 115 for a discussion regarding the requirements of the *LEAN* decision, and the purpose of this action, and how the decision relates to the residual risk analysis performed in 2020.

Comment 123:
Commenters 0166 (NLA and supporters) stated that the LEAN decision must be read in the context of the Supreme Court's recent opinion in West Virginia v EPA. Commenters stated that the Supreme Court held that for major questions – like the scope of EPA's authority to issue greenhouse gas regulations for existing power plants under section 111(d) of the Clean Air Act – the EPA must demonstrate that Congress gave it specific authority for its regulatory action. *West Virginia v. EPA*, 142 S. Ct. 2587 (2022). Commenters stated that the question of whether EPA can reach back decades in an RTR proceeding (under sections 112(f) and 112(d)(6)) and find that

a provision of the Clean Air Act that was designed to require review for technological advances somehow compels EPA to reopen a MACT standard (issued under sections 112(d)(2) and (3)) is a major one. Commenters stated that Congress did not give EPA that authority and that the EPA's Proposed Rule is unlawful.

Response 123:
Please refer to Response 115. The EPA disagrees with the commenters' interpretation of *West Virginia v. EPA*, 142 S.Ct. 2587 (2022). The Supreme Court viewed the regulation at issue there as "an 'extraordinary case,' in which the 'history and the breadth of the authority that [the agency] has asserted,' and the 'economic and political significance' of that assertion, provide a 'reason to hesitate before concluding that Congress' meant to confer such authority. *Id*.at 2608. This is no "extraordinary case." The EPA is fulfilling an obligation that Congress placed upon it in CAA section 112(d)(6).

7.5 Clean Air Act Section 307

Comment 124:
Commenters 0166 (NLA and supporters) and 0163 stated that the EPA violated the Clean Air Act by not publishing the proposed rule language in the Federal Register. Commenters stated that the EPAs red line strike out version of the proposed rule is not a lawful substitute for publishing the actual amendatory text. Commenters stated that the industry must comply with the rule text, not the preamble or the red line strike out version of the proposed rule. Commenters stated that the EPAs failure to publish the amendatory text violates section 307(d)(3) of the Clean Air Act, which states that "notice of proposed rulemaking shall be published in the Federal Register".

Response 124:
The EPA disagrees with this comment. The CAA requires a "notice of proposed rulemaking ... accompanied by a statement of its basis and purpose...." Both the notice of proposed rulemaking and the supplemental notice of proposed rulemaking contain the elements required under CAA section 307(d)(3). Further, the amendatory text is available in the docket for this rulemaking: Docket ID No. EPA-HQ-OAR-2017-0015-0139.

Comment 125:
Commenters 0166 (NLA and supporters) stated that the EPA violated the Clean Air Act statement of basis and purpose requirement to include a summary of the major legal interpretations and policy considerations underlying the proposed rule. CAA § 307(d)(3). Commenters stated that the proposed rule reverses important determinations made in the original lime MACT standard issued in 2004 without mention, comment or explanation by the Agency. Commenters stated that the EPA's failure to explain its reasoning for abandoning its previous legal and policy interpretations related to these four HAPs (DF, Hg, HCl, and THC surrogate) is a clear violation of the Clean Air Act.

Commenters stated that the EPA must repropose the rule to provide an explanation of its position, including the reversals and errors, on the four HAPs (DF, Hg, HCl, and THC surrogate)

See *Motor Vehicle Mfrs. Assn. v. State Farm*, 463 U.S. 29, 49 (1983) ("We have frequently reiterated that an agency must cogently explain why it has exercised its discretion in a given manner") ("…an agency changing its course by rescinding a rule is obligated to supply a reasoned analysis for the change beyond that which may be required when an agency does not act in the first instance.") Id. at 42.

Response 125:
Please refer to Response 115. In the January 5, 2023, proposal, and in the February 9, 2024, supplemental proposal, the EPA explained the findings of the *LEAN* decision, and the reasons for proposing amendments to the Lime Manufacturing NESHAP to include new emission standards for the 4 previously unregulated pollutants.

Comment 126:
Commenters 0166 (NLA and supporters) stated that the proposed rule does not contain a section 112(d)(4) health-based standard for HCl. Commenters stated that this is a reversal of EPA's longstanding position in the 2004 MACT standard and was not even mentioned in the 2023 Proposed Rule. See 69 Fed. Reg. at 398 (the EPA states that "under the authority of section 112(d)(4) of the CAA, we have determined that no further control is necessary because HCl is a ''health threshold pollutant").

Commenters 0166 (NLA and supporters) noted that the 2023 proposed rule states that: "In response to the 2017 questionnaire, we received HCL emissions data that EPA did not have when we developed the 2004 NESHAP. Therefore, we are proposing a standard pursuant to CAA section 112(d)(2) and (d)(3), as described further in section IV.A.1 of this preamble." 88 Fed. Reg. 809. Commenters stated that these statements are misleading because they imply that the EPA has obtained new emissions information (that justified new HCl regulation) that was not available in 2004. Commentators stated that the EPA had ample HCl information for its initial MACT rulemaking when it determined that:

- The results of the exposure assessment showed that exposure levels to baseline HCl emissions from lime production facilities are well below the health threshold value. Additionally, the threshold values, for which the RfC and AEGL values were determined to be appropriate values, were not exceeded when considering conservative estimates of exposure resulting from lime kiln emissions as well as considering background exposures to HCl and therefore, represent an ample margin of safety. Furthermore, no significant or widespread adverse environmental effects from HCl is anticipated. Therefore, under authority of section 112(d)(4), we have determined that further control of HCl emissions from lime manufacturing plants is not necessary. 67 Fed. Reg. 78,057 (December 10. 2002).

Commenters stated that the EPA has not identified any new data from the 2017 ICR that is so fundamentally different (from 2004) that it justifies regulation of HCl from lime manufacturing plants. Commenters stated that to the contrary, the 2017 ICR data was used to affirm the acceptability of risks from all HAPs, including HCl, as recently as 2020. 85 Fed. Reg. 44,960 (July 24, 2020) ("We are finalizing our proposed determination that the risks are acceptable and that the current NESHAP [which excludes HCl controls] provides an ample margin of safety.").

Commenters stated that all the data from the 2017 questionnaire on HCl was available to EPA when it performed the risk assessment that the Agency used as the basis for its 2020 determination that HCl risks are acceptable and that the existing regulations provide an ample margin of safety. Commenters stated that EPA has failed to explain its reasoning for abandoning its previous legal and policy interpretations for HCl as required by CAA § 307(d)(3).

Response 126:
The EPA disagrees with this comment. In the preamble to the proposed rule, and throughout the docket for this rulemaking, the EPA has explained the rationale for this rulemaking. The commenter's assertion that HCl risks in the 2020 rule were acceptable and provided an ample margin of safety is not a sufficient justification for establishing an emission standard under CAA section 112(d)(4) rather than a technology-based MACT standard. In *Sierra Club v. EPA*, the D.C. Circuit told the EPA that it had not shown that HCl was a threshold pollutant having an ample margin of safety. 895 F.3d 1, 11 (D.C. Cir. 2018). The EPA has adopted legal and policy interpretations that are consistent with *Sierra Club*. Its positions in previous rulemakings are not relevant to this action.

Comment 127:
Commenters 0166 (NLA and supporters) stated that **t**he EPA proposed a beyond-the floor standard for mercury, reversing its position in the original MACT standard without comment or explanation in the new proposal. In 2004, EPA stated that: "[A]n emissions limit for mercury based on a beyond-the-MACT-floor option is not justified after consideration of the cost, energy, and non-environmental impacts"). Commenters stated that EPA has failed to explain its reasoning for abandoning its previous legal and policy interpretations for Hg as required by CAA § 307(d)(3).

Response 127:
The EPA disagrees with the commenter's statement that the EPA failed to explain its reasoning for abandoning pervious policy interpretations for mercury. As stated in the January 5, 2023, proposal, and in the February 9, 2024, supplemental proposal, we are setting MACT standards for the four previously unregulated pollutants in a response to the *LEAN* decision, which now requires the EPA to take this action regardless of previous policy interpretations.

Comment 128:
Commenters 0166 (NLA and supporters) and 0163 stated that the EPA did not provide a "reasonable period" for public participation to respond to the proposed rule, as required by CAA §307(h). Commenters stated that the 2004 rule allowed 60 days for comment after a year-long full SBREFA panel and review of a draft rule that only involved standards for particulate matter (PM). Commenters stated the EPA rejected its requests for extension of the comment period in violation of its obligations under Executive Order 13563, which requires EPA to "afford the public a meaningful opportunity to comment" on proposed rules, "with a comment period that should generally be at least 60 days." 76 Fed. Reg. 3821 (Jan. 21, 2011). Commenters stated that additional time was needed because the EPA did not propose amendatory text, had different standard listed for DF in the preamble and red line strike out, had incorrect standard calculations, and improperly certified that there would be no small business impacts.

Commenter 0163 stated that the Administrative Procedure Act (APA) requires that the EPA provide sufficient notice and opportunity to comment on proposed rules. Commenter stated that under the APA, agencies must include "either the terms or substance of the proposed rule or a description of the subjects and issues involved" in a Federal Register notice of proposed rulemaking. Commenter also stated that if an agency chooses to publish only the description of the subjects and issues involved as the EPA did here, the information contained in the notice must offer stakeholders a meaningful opportunity to offer informed comments. Commenter asserted that the EPAs proposal failed to provide such an opportunity.

Response 128:
The EPA does not agree with this comment. The EPA published a notice of proposed rulemaking on January 5, 2023 (88 Fed. Reg. 805). The comment period was more than 40 days. The EPA published a supplemental notice of proposed rulemaking on February 9, 2024. (89 Fed. Reg. 9088). Its 30-day comment period is consistent with EPA practice. Judging by the number of comments submitted, including those submitted by commenter, the EPA provided a meaningful opportunity to comment. Further, the level of detail in comments demonstrates that shows that the notices provided ample explanation of the substance and issues involved. Because of their level of detail and opportunities for public comment, the EPA's opportunities for public comment satisfied the requirements of the APA and of CAA section 307(d)(3).

Comment 129:
Commenters 0166 (NLA and supporters) and 0163 stated that the EPA proposed two different standards for DF in the preamble and red line strike out. Commenters states that it was not clear which standard the EPA was actually proposing. Commenters stated that this required them to do additional work to analyze each standard. Commenters stated that the EPA's failure to correct and repropose the rule with the correct standard has compromised their ability to properly analyze the costs, benefits, and implications associated with the DF standard. Commenters stated that this deprived them of meaningful opportunity to comment on the proposal.

Response 129:
A corrected version of the redline/strikeout of the rule text is included in the docket for the final rule (EPA-HQ-OAR-2017-0015)

7.6 Limited Data is not Representative of Emissions Variability.

Comment 130:
Commenter 0164 stated that the EPA has not sufficiently explained how its statistical methodology is reasonably applied to the limited data sets available for lime kilns. Commenter summarized a variety of court case decisions and stated that the EPA must exercise "reasoned decision making", "justify its statistical analysis, explain how its estimates "reasonably represents the emissions level achieved by the average source", and "justify its statistical analysis." Commenter noted that this is especially true for estimates that are based on limited data sets. Commenter suggested that the EPA needs to develop a memo to adequately explain how UPL is an appropriate statistical model for limited data sets.

Response 130:
Please refer to the memorandum "Approach for Applying the Upper Prediction Limit to Limited Datasets" included in the docket for both the January 5, 2023, proposal and the February 9, 2024, supplemental proposal (Docket ID No. EPA-HQ-OAR-2017-0015-0137).

Comment 131:
Commenter 0163 stated that the EPA's MACT floor analysis relied on limited emissions data from stack tests performed, in some cases, more than two decades ago and ignored historically valid test data. Commenter stated that the D.C. Circuit has recognized that "it would be arbitrary and capricious for EPA to set a MACT floor based on intentionally skewed data." Commenter also noted that the EPA's data collection does not have to result in a perfect dataset, but that the process must be reasonable, and that it does not appear to be reasonable in this case. Commenter stated that the current proposal relied on a very small data set that appears to skew inferences about the best-performing units, in contrast to the EPA's dataset in the NESHAP for electric generating units that was determined to be reasonable in White Stallion, which involved data collection from over 300 emitting units. Commenter asserted that EPA must base the MACT floor on the best performing 12 percent for which EPA has emissions information for categories or subcategories containing 30 or more sources, but that because the EPA relied on an unreasonably limited dataset, EPA has proposed MACT floors for some subcategories based on data from far less than 12 percent of the sources in the subcategory. Commenter specified the mercury limit for the "quick lime dolomitic lime subcategory" reflected a floor determination based on only two tests and the HCl limit for the "preheater rotary kiln quick lime subcategory" is based on a single test from a single source. Commenter asserted that for categories or subcategories containing less than 30 sources, EPA must base the MACT floor on the five best performing sources, and that EPA's limited dataset resulted in MACT floors for these smaller subcategories being based on far fewer than five sources.

Response 131:
Please refer to Response 75 regarding the test data determined to be valid. In addition, refer to sections 1.1, 2.3 and 3.5 of this document.

8 Miscellaneous Comments

8.1 Other Regulatory Comments

Comment 132:
Commenter 0148 stated that the EPA should consider expanding the applicability requirements in section 63.7082 to regulate sources of mercury and dioxin/furan located at area sources of hazardous air pollutants. Commenter stated that these are highly toxic persistent air pollutants with potentially high health impacts.

Response 132:
Addressing emissions from area sources was not the purpose of this action, but EPA will take this comment under consideration for a future action.

Comment 133:
Commenter 0163 stated that subcategorization based on kiln configuration, and informed by discussions with lime industry representatives, is well within the EPA's statutory authority and warranted by the circumstances. Commenter summarized the requirements of 112(d)(1) that allow for subcategorizes. Commenter also stated that major source categories can encompass facilities of varying sizes with significantly different designs and varying operational practices necessary to manufacture product meeting unique specifications Commenter stated that these differences impact facility emissions and may also affect effluent gas stream conditions and compatibility and efficiency of potential control technologies. Commenter stated that it is critical that the EPA take key factors fully into account so that emissions are appropriate for the characteristics of each subcategory. Commenter also noted that failure to consider subcategorization may result in inappropriate emission limits for some sources, including emission limits and compliance requirements for sources that do not emit any of the targeted HAP.

Response 133:
The EPA acknowledges the commenter's general support for subcategorization.

8.2 General Support/Opposition

Comment 134:
Commenter 0159 supported the EPA's recognition that its previous rule violated the Clean Air Act and the agency's efforts to correct the rule's defects.

Response 134:
The EPA acknowledges the commenter's support.

Comment 135:
Commenters 0165, 0168, and 0169 expressed supported the EPA's proposal.

Response 135:
The EPA acknowledges the commenter's support.

SECTION 2: January 31, 2024 Supplemental Proposal

Purpose and Background

Section 2 summarizes and responds to the comments received on the 2024 supplemental proposal. It should be noted that some comments received on the 2024 supplemental proposal were duplicative of comments received on the 2023 proposal. Where this occurred, the comments are only addressed in Section 1 of this document. The final rule preamble also contains discussions of several of these topics (as annotated below). All comments are contained in Docket EPA-HQ-OAR-2017-0015.

EPA received 30 comment letters on the 2024 proposal (eight requests for a comment period extension, 20 comments on the proposal, and 2 comments unrelated to the Lime NESHAP). The commenter and item number in Docket ID No. EPA-HQ-OAR-2017-0015 are listed in Table 2.

It should be noted that lime manufacturers are represented by the National Lime Association (NLA) trade association. NLA submitted extensive comments on the proposed rule. These comments were supported by and incorporated by reference by Carmeuse Americas (0227), Graymont (0233), Greer Lime Company (0224), Lhoist North America (0226), Mississippi Lime Company (0230), Pete Lien & Sons, Inc. (0225), and RHI Magnesita Refractories Company (0231).

For the remainder of Section 2, these commenters will be referred to as **Commenters 0228 (NLA and supporters)** where NLA comments are summarized.

Table 2. List of Commenters (Supplemental Proposal)

Document ID	Commenter Name	Affiliation	Abstract	Individual Comments on Proposal	NLA Endorsement	SBA Endorsement
0218	Jorge Sarmiento	N/A	Comment Letter	X		
0219	Max Pan	N/A	Comment Letter	X		
0220	Wyatt Chapman	N/A	Comment Letter	X		
0221	Anonymous	N/A	Comment Letter	X		
0222	Anonymous	N/A	Comment Letter	X		
0223	Anonymous	N/A	Comment Letter	X		
0224	Robert Gwynne	Greer Lime Company	Comment Letter		X	
0225	Brian Tideman	Pete Lien & Sons, Inc	Comment Letter		X	
0226	Justin Andrews	Lhoist North America	Comment Letter	X	X	
0227	Jack Fahler	Carmeuse Americas	Comment Letter		X	
0228	Jordan Laster	National Lime Association (NLA)	Comment Letter		X	
0229	Thomas P. Hogan	Waste to Energy Association	Comment Letter	X	X	

Document ID	Commenter Name	Affiliation	Abstract	Individual Comments on Proposal	NLA Endorsement	SBA Endorsement
0230	Kimberly S. L. Bauman	Mississippi Lime Company	Comment Letter		X	
0231	LeAnn Caviness	RHI Magnecita Refractories Company	Comment Letter		X	
0232	Nick Goldstein	U.S. Small Business Administration	Comment Letter	X		X
0233	N/A	Graymont	Comment Letter	X	X	
0234	Sean O'Neill	Portland Cement Association	Comment Letter	X		
0235	Paul Balserak	American Iron and Steele Institute	Comment Letter	X	X	
0236	Ryan Steadley & Joe Casper	The Air Advocacy Coalition	Comment Letter	X		
0237	N/A	California Communities Against Air Toxics, Sierra Club, and Earth Justice	Comment Letter	X		
0238	Syndi Smallwood	National Tribal Air Association	Comment Letter	X		
0239	Anne Mellinger-Birdsong	N/A	Comment Letter	X		

9 Dioxin Furans

9.1 Inadequate Data

Comment 136:
Commenters 0228 (NLA and supporters) and 0232 reiterated comments submitted in response to the 2023 proposal regarding the lack of sufficient data on dioxins and furans for EPA to set a MACT floor for the industry. Commenter cites Chem. Mfg. Ass'n v EPA, 28 F.3d 1259, 1268 (C.D. Cir. 1994) that it is arbitrary for EPA to list MDI as high-risk pollutant based on the RfC for MDI. Commenters stated EPA should withdraw the proposed D/F standard and issue a new ICR to make a statistically valid determination of a proper MACT standard. Additionally, commenter reccomends EPA consider setting no standard for D/F at all, as they have established D/F emissions from lime manufacturing are negligible de minimis emissions and do not require a standard. *Alabama Power Co. v. Costle,* 636 F.2d 323, 400 (D.C. Cir. 1979)

Response 136:
For responses to duplicative comments made on the 2023 proposal in response to the 2024 supplemental proposal, please refer to Section 1.1.

9.2 EPA Should Promulgate Work Practices or No Standard

Comment 137:
Commenters 0228 (NLA and supporters) and 0232 reiterated comments submitted in response to the 2023 proposal regarding the use of a work practice standard in lieu of an emission standard for D/F. Commenters stated considering EPA has found risks from D/F to be extremely low (more than 55% of D/F tests were non-detect) a work practice standard requiring sources to properly maintain existing air pollution control devices in place for particulate matter are sufficient to ensure risks from D/F emissions remain low. Commenters referenced a suggested work practice submitted with comments on the 2023 proposal.

Response 137:
For responses to duplicative comments made on the 2023 proposal in response to the 2024 supplemental proposal, please refer to Section 1.2.

9.3 EPA Should Provide an Alternative Compliance Method

Comment 138:
Commenters 0228 (NLA and supporters) suggested if EPA does not provide a work practice standard for D/F, EPA consider offering an alternative parametric monitoring approach to ongoing compliance demonstrations. Commenters suggested that a source may conduct annual performance testing for a period of three years to establish site-specific temperature(s) of the gases entering the inlet to the air pollution control device(s) at which the numerical standard for D/F is met. Subsequently, the source may rely on parametric temperature monitoring on a 30-day rolling average, and further performance testing would not be required. Commenters emphasized that the approach should only be offered as an alternative to periodic stack testing as some plants

will be able to meet the numerical D/F limits without temperature control, others may need to utilize add-on controls.

Response 138:
Please refer to Response 4 regarding work practice standards.

9.4 Technical Revisions

Comment 139:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal regarding the need for corrections to the EPA proposed toxicity equivalence factors (TEF) in the preamble and the redline strike out. Commenters stated that the values in the red line strike out are from 1989 and are incorrect (no longer applicable). Commenters stated that the EPA needs to correct the TEF values.

Commenters 0228 (NLA and supporters) noted that in the definitions at § 63.7143, the definition of TEQ refers to Table 10 and should be corrected to Table 11.

Commenters 0228 (NLA and supporters) commended EPA for correcting the sample collection volume, thereby correcting the D/F limit to 0.037 ng/dscm in the 2024 supplemental proposal.

Response 139:
The EPA agrees with the commenter that the 1989 TEF values were inadvertently included in Table 11 and acknowledges their support for the correction in sample volume. Table 11 has been updated to include the correct TEF values from the reference in 40 CFR 63.7143, EPA/100/R-10/005, "*Recommended Toxicity Equivalence Factors (TEFs) for Human Health Risk Assessments of 2, 3, 7, 8-Tetrachlorodibenzo-p-dioxin and Dioxin-Like Compounds*", December 2010 and have corrected the typographical error.

10 Hydrochloric Acid

10.1 Health Based Standard for HCl Pursuant to CAA Section 112 (d)(4)

Comment 140:
Commenter 0237 stated the EPA is unlawfully proposing to use a weaker HBEL for HCL They suggest the agency has lost track of the core mission of protecting human health and the environment, as evidenced in EPA's biased favor of a HBEL and failure to issue one that the agency defended for industrial boilers, *US Sugar v. EPA*, 830 F.3d 579, 624 (D.C.Cir.2016). Commenter argues that there is no text to support setting less stringent limits provided by §112(d)(2)-(3) and the only text citing less stringent limits come from Senator Durenberger's floor statement. They state EPA applies 112(d)(4) to HAPs that are not carcinogens but have failed to recognize HCL as non-carcinogenic, therefore making the issuance of a HBEL for HCL unlawful, see Sierra Club b. EPA, 895 F.3d 1, 10-11 (D.C. Cir. 2018). Commenter states EPA has now claimed carcinogens can be threshold pollutants although this conflicts with Congress' intent that carcinogens are considered non-threshold pollutants. Additionally, commenter states EPA determines a carcinogen has a threshold if it is not mutagenic, but EPA has not provided "substantial evidence" that HCL is not mutagenic.

Response 140:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Comment 141:
Commenter 0237 states that EPA's proposed risk approach to assess a health-based emission limitation for HCL is weak and unsubstantiated. Commenter suggests use of OEHHA REL for HCL and that refusing to do so does not align with EPA's direction to use best available science. Commenter claims EPA underestimates acute health hazards of regulated facilities' emissions and is willingly exposing low-income and communities of color to increased HCL exposure. Commenter suggests that EPA consults science on impacts of early exposure of HCL to children and until this is conducted, they should apply an uncertainty factor of at least 10 to account for increased risk.

Response 141:
The EPA disagrees with commenters assertions that the EPA did not adequately consider the best available science by deciding to use the EPA IRIS reference concentration (RfC) instead of the California EPA risk exposure level (REL) for HCl[3]. As the EPA explained in the February 9, 2024, supplemental proposal (89 FR 9088):

[3] In Toxicology, the potency indicates the amount of a chemical needed to produce an observable effect. California EPA's approach resulted in HCl being more potent because it requires a lower concentration to cause an observable effect. For this reason, California EPA value is considered more stringent because it protects against HCl with the highest potency. Although EPA's approach reflects less potency of HCl, it considered all the lung regions that showed hyperplasia after HCl exposure. Therefore, EPA's approach better reflects the results reported in the scientific literature.

> "While the EPA and California EPA values were derived using the same principal study and similar methodologies, there was a significant difference in the derivation of each value, which led to the California EPA value being more stringent. The principal driver for this difference was the California EPA's exclusion of mid-respiratory tract (*i.e.*, trachea) effects from its dosimetry adjustment calculations[4]. By contrast, the EPA incorporated both upper- (*i.e.*, nose, mouth) and mid-respiratory tract effects. California EPA's sole rationale for the exclusion of mid-respiratory tract effects was based on the prediction that humans are expected to be relatively more susceptible in the upper-respiratory tract.
>
> Although the predominant effects of inhaled HCl are expected to occur in the upper respiratory tract, the EPA disagrees with the California EPA's exclusion of mid-respiratory tract effects and believes that California EPA's approach is inconsistent with the EPA's own guidelines for deriving inhalation reference concentrations. The principal study relied upon by the EPA and California EPA reported that rats exposed to HCl developed a higher incidence of hyperplasia in both upper- and mid-respiratory tracts. Furthermore, the EPA guidelines establish that when effects are observed in the mid-respiratory tract, this region should also be considered in the dosimetry adjustment calculations[5]. Therefore, the EPA approach to derive the RfC is more robust because it better represents the observed respiratory effects reported in the scientific literature."

The EPA position on this matter has not changed since the February 9, 2024, supplemental proposal.

The EPA also disagrees with comments regarding application of an additional uncertainty factor (UF) of at least 10 to account for increased risk in children following early-life exposure to HCl. The EPA IRIS Assessment for HCl applied the maximum default intra-human uncertainty factor of 10 in the derivation of the RfC to account for the variation in sensitivity among the members of the human population, including children. Therefore, no additional UF is necessary.

Comment 142:
Commenters 0228 (NLA and supporters), 0229 and 0232 supported EPA regulating HCl by means of a HBEL in this rulemaking under the CAA Section 112(d)(4). The commenters 0228 (NLA and supporters) reiterated viewpoints expressed in their response to the 2023 proposal in that EPA is not constrained by the Brick/Clay MACT case because Lime Manufacturing is clearly distinguishable key facts and conclusions. The commenters noted that EPA reaffirmed HCl is a threshold pollutant and that a HBEL under 112(d)(1) would be justified. In the 2024 supplemental proposal, while EPA does not propose to set a HBEL, EPA does indicate what the standard would be and requested comment on setting such a standard. The commenters believe a HBEL is justified because EPA was correct in its evaluation of the available science that HCl is a

[4] U.S. EPA, 1994. *Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry* [See section 4.3.9.2. Assignment of Confidence Levels, p. 4–80–82].
[5] U.S. EPA, 2009. *STATUS REPORT: Advances in Inhalation Dosimetry of Gases and Vapors with Portal of Entry Effects in the Upper Respiratory Tract.* U.S. Environmental Protection Agency, Washington, DC.

threshold pollutant and the risk assessments conducted illustrate the risks from lime plant HCl emissions have a more than adequate ample margin of safety.

Commenter 0229 also stated that EPA properly concluded that *Sierra Club v. EPA*, 895 F.3d 1 (D.C. Cir. 2018) does not prevent EPA from issuing an HBEL standard for the reasons identified in the preamble to the proposed rule. The commenters therefore conclude the suggested HBEL of 300 tons per year, not to exceed 685 pounds per hour will also provide an ample margin of safety—because one already exists.

Commenters 0228 (NLA and supporters) stated EPA should seek to preserve its regulatory authority/flexibility by setting a HBEL in this case. Commenters believe if EPA concludes to the contrary, it is hard to see how EPA could ever demonstrate a health threshold under section 112(d)(4). Lastly, the commenter argues the use of a HBEL would simplify compliance because there would be a single standard rather than multiple subcategories, and it would also simplify the issue of emissions averaging for HCl, because the health-based standard EPA suggests would be a facility-wide standard, and not a standard for each individual kiln.

Commenters 0232 supported EPA's arguments in *Sierra Club v. EPA*, that EPA provided ample evidence to support HCL as a threshold pollutant. Additionally, commenters state EPA has considered methods using CalEPA methodology to evaluate emissions and did not find unacceptable risk levels of HCl.

Response 142:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Comment 143:
Commenters 0235 and 0236 write in support of EPA's decision to establish HBELs to HCL emissions. Commenters recommend HBELs should be more widely used to reduce over-regulation of other source categories.

Commenter 0235 fully supports NLA's comments on the proposal. Commenter also agrees with EPA's assertations that HCL is non-carcinogenic.

Commenter 0236 provides additional support of EPA's responses to D.C. Circuit's objections in *Sierra Club v. EPA*, 895 F.3d 1(D.C. Cir 2018) to HBEL for HCL that was established in 2015.

Response 143:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment. The EPA disagrees with the commenters statement that the EPA has asserted in the 2024 supplemental proposal that HCl is non-carcinogenic. The EPA decided that additional time is needed to evaluate the existing body of evidence regarding carcinogenicity of HCl as well as additional MOAs that could potentially lead to cancer and non-cancer adverse effects in order to determine whether there is an existing threshold for HCl. For this reason, the EPA decided not to promulgate an HBEL for HCl at this time.

10.2 Classifying Cancer Risk

Comment 144:
Commenter 0237 stated the EPA has not been consistent in abiding its own guidelines to classify genotoxic and mutagenic carcinogens; lacking a toxicological risk assessment that would evaluate HCL for its carcinogenic potential. They also state that to set a health-based exposure level on the presumption of an existing threshold does not align with guidelines, given that it has been EPA's policy to presume genotoxic carcinogens do not have a known threshold.

Response 144:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

10.3 Threshold Pollutant Classification

Comment 145:
Commenter 0237 argues the EPA has not provided substantial evidence that HCL can be treated as a threshold pollutant. They state EPA's IRIS system did not assess HCL for carcinogenic risk from oral or inhalation exposure and only references a single animal study to derive a noncancer reference. Commenter claims absence of genotoxicity data on HCL does not support EPA's conclusion of an existing threshold. Additionally, they draw attention to a "fatal flaw" that EPA rated its HCL database as "low confidence" in being able to accurately estimate noncancer risk value.

Response 145:
The EPA disagrees with comments that critique the “low confidence” label on the HCl database used to derive the RfC value. As the EPA explained in the February 9, 2024, supplemental proposal :

> “The EPA had previously explained in its *Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry* and *Guidelines for Carcinogenic Risk Assessment* that the Agency derives RfC only when there are enough data to designate a pollutant as having a threshold and there are enough data to set a numerical RfC. Also, after deriving an RfC, the EPA evaluates the data used to derive the RfC and assigns confidence levels of high, medium, or low to each of its reference concentrations based on the completeness of the supporting data base[6]. A “low confidence” label in the RfC is applied to a derivation that is based on several data extrapolations and a less complete data base than those with a “high confidence” or “medium confidence” labels. Therefore, a “low confidence” RfC value indicates that it may change if additional supporting data become available. It does not mean that the current available data base is weak or unreliable. In fact, the principal and supporting studies selected to derive the RfC for HCl meet the data base criteria for estimation of an

[6] U.S. EPA, 1994. *Methods for Derivation of Inhalation Reference Concentrations and Application of Inhalation Dosimetry* [See section 4.3.9.2. Assignment of Confidence Levels, p. 4–80–82].

> RfC which means that the data base is adequate and acceptable. Therefore, a "low confidence" RfC value indicates an estimate that may change if additional supporting data become available. It does not mean that the current available data base is weak or unreliable. In fact, the principal and supporting studies selected to derive the RfC for hydrogen chloride meet the data base criteria for estimation of an RfC which means that the data base is adequate and acceptable."

The EPA position on this matter has not changed since the supplemental proposal.

Comment 146:
Commenter 0239 argues that EPA does not provide enough evidence to demonstrate HCL is noncarcinogenic. Commenter states EPA's explanation that HCL is not carcinogenic because it only causes hyperplasia is not logical. Commenter suggests a larger margin of safety be provided for children and stronger limits. They request that the proposal be reconsidered, and the Scientific Advisory Board review the proposal.

Response 146:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

10.4 Subcategories

Comment 147:
Commenters 0228 (NLA and supporters) stated that if EPA pursues non-HBEL standards, they support the establishment of the six subcategories as proposed. Commenters further note support for the technical corrections EPA made to the subcategory analysis and MACT floors. Commenter pointed to Sierra Club v. EPA, 895 F.3d 1 (D.C. Cir. 2018) and U.S. Sugar Corp. v. EPA, 830 F.3d 579 (D.C. Cir. 2016) as lending legal support for subcategorization.

Response 147:
The EPA acknowledges the commenter's general support for subcategorization of HCL emission standards.

10.5 Technical Revisions

Comment 148:
Commenters 0228 (NLA and supporters) stated that EPA has made necessary corrections to several of the MACT floor calculations in response to comments submitted on the 2023 proposal, however, corrections are still necessary to the existing straight rotary kiln producing quicklime calculation. Commenters argued EPA has arbitrarily deviated from prior UPL calculation precedent by applying a new procedure to set this UPL limitation for existing straight rotary kilns producing quicklime. Commenters believe it was unnecessary and unreasonable for EPA to use the Shapiro-Wilk test to conclude the dataset is skewed rather than using its traditional UPL Calculation tool which would conclude the dataset is lognormal. Commenters argue the Shapiro-Wilk test results in a much lower UPL limitation of 0.52 lb/ton lime produced

whereas the UPL Calculation tool results in a limitation of 2.58 lb/ton lime produced for this subcategory.

Response 148:
As noted in the memorandum "Approach for Applying the Upper Prediction Limit to Limited Datasets" included in the docket for both the January 5, 2023, proposal and the February 9, 2024, supplemental proposal (Docket ID No. EPA-HQ-OAR-2017-0015-0137), the following methodology is used when evaluating the data and setting standards:

> When a MACT floor for either existing or new sources is based on fewer than 7 data points, we will further evaluate each individual dataset in order 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 in the emissions of those units. The evaluation will include one or more of the following, depending on the specific dataset: confirming that the data distribution was selected correctly; after confirming the data distribution, ensuring that we use the most appropriate UPL equation 10; 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.

When developing MACT standards using the UPL methodology, the EPA has discretion when evaluating the UPL distribution. Please refer to the memorandum, "Final Maximum Achievable Control Technology (MACT) Floor Analysis for the Lime Manufacturing Plants Industry", which is available in the docket for this action.

Comment 149:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal regarding the use of Methods 26/26A to measure HCl. Commenters expressed that the FTIR methods are costly, and the use of Methods 26/26A was recently allowed in the taconite rule.

Response 149:
Please refer to response 28. With respect to the use of EPA Methods 26 and 26A in taconite, the emissions matrix for taconite sources do not have the complication of lime deposition depositing on the walls of the probe and on the filter that can cause scrubbing of HCl within the probe and filter prior to the sample collection area as is present at lime kilns. Consequently, as noted in Response 28, we are not allowing the use of EPA Methods 26/26A for this subpart. Additionally, we have made it clear in item 19 of Table 5 that HCl must be used for analyte spiking, and a surrogate may not be used when using EPA Method 320 or ASTM Method D6348-12e1.

10.6 Option for Continuous HCl Monitoring

Comment 150:
Commenter 0233 supports NLA's comments to set an HBEL for HCL of 300 tpy, not to exceed 685 pounds per hour. They request EPA provide operators with a regulatory alternative of

installation and operation of a CEMS with a 30-day rolling average. Commenter suggests EPA use discretion to give sources additional flexibility as supported in NACWA, 734 F.3d at 1115.Commenter claims current proposal's procedures does not guarantee future compliance with standard if stack HCL concentration is variable. Commenter also raises concern over operators using HCL CEMS creating an HCL emission limit violation of any 3-hour block average. Commenter 0233 suggests EPA provide operators with an alternative 30-day rolling average limit that install and operate a certified HCL CEMS. They also suggest the addition to tables 1, 5 and 6 to support Part 63, Subpart AAAAA as follows:

Table 5 addition:

For...	You must...	Using...	According to the following requirements
20. Each lime kiln equipped with dry sorbent injection that is controlled by an outlet HCL CEMS feedback control loop	Continuously monitor lime production rate and HCL mass emission rate	An HCL CEMS and flow monitor installed, certified, and maintained consistent with the applicable requirements of 40 CFR Part 60 Appendix B, PS-15 or PS-18, PS-6, and 40 CFR 60 Appendix F, Procedure 1.	In lieu of a five-year performance test, the operator may elect to use an HCL CEMS to demonstrate continuous compliance with a 30-day rolling average

Table 6 addition:

For...	For the following operating limit...	You must demonstrate continuous compliance by...
8. Each lime kiln equipped with dry sorbent injection that is controlled by an outlet HCL CEMS feedback control loop	Maintain the sorbent injection rate such that the stack HCL concentration remains below the 30-day rolling HCL emission limit	Collect and retain the HCL CEMs data. The HCL CEMS must be certified and maintained consistent with the applicable requirements of 40 CFR Part 60 Appendix B, PS-15 or PS-18, PS-6, and 40 CFR 60 Appendix F, Procedure 1.

Response 150:
The EPA is not setting a health-based emission limit for HCl in the final rule; therefore, the comment is not relevant.

11 Mercury

11.1 Intra-quarry Variability Factor

Comment 151:
Commenters 0228 (NLA and supporters), 0229 and 0232 supported the use of an intra-quarry variability factor (IQV) for mercury but commented that the proposal should be adjusted to allow sources more flexibility in meeting the mercury standards. Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal regarding how the IQV should be calculated, that EPA should use the calculations provided by NLA. Commenters stated that EPA's methodology is not technically sound and does not properly reflect the variability of mercury content in limestone. Commenters disagreed with EPA's approach of using a weighted average mercury content rather than individual test values. Commenters stated that a consequence of sample weighting is to lower the standard deviation of the data set, and lower the relative standard deviation, which significantly reduces the IQV and corresponding emission rate, as much of the variability in the data set is averaged out. A data set of 70 data points was reduced to only 7 with EPA's approach, thus mathematically suppressing the natural variability that the IQV must account for.

Commenters 0228 (NLA and supporters) further stated that EPA's proposal to not use the best performing emission source to set the mercury limit for new kilns is arbitrary and unlawful. Commenter noted EPA based the mercury emission limit for new kilns using the second-best performing source (Carmeuse's Maysville Plant) rather than the best performing source (Graymont's Eden Plant).

Commenters 0228 (NLA and supporters) stated that setting an emission limit for new sources that is not based on the best-performing emission unit does not align with EPA policies and precedent. The Eden Plant kiln is the best-performing emission unit and based on available mercury data for the Eden quarry this unit itself cannot be reasonably assured to comply with the proposed emission limit for new kilns.

Response 151:
Please refer to the memorandum "Final Maximum Achievable Control Technology (MACT) Floor Analysis for the Lime Manufacturing Plants Industry", which is available in the docket for this action, for detailed information on how the IQV factor was calculated.

Comment 152:
Commenter 0233 supports EPA's proposal to use an IQV to reflect Hg variability. Commenter claims in order to accurately estimate quarry variability, EPA should use 77 individual samples rather than weighted averages of boreholes to allow for a more accurate, non-variability suppressed treatment of data.

Response 152:
Please refer to Response 151.

11.2 Beyond the Floor Limits

Comment 153:
Commenter 0234 supports EPA's decision to decline to set beyond the floor limits for Mercury. They claim EPA's original proposal was flawed in assuming "zero" cost of compliance, making a comment against the original 2023 proposal.

Response 153:
The EPA acknowledges the commenter's general support.

12 Organic Hazardous Air Pollutants

12.1 THC Should not be a Surrogate for Organic HAP

Comment 154:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal that Total Hydrocarbons (THC) cannot be used as a surrogate for organic HAPs (oHAPs) because THC emissions do not correlate with emissions of organic HAPs. Commenters supported EPA's approach in the 2024 supplemental proposal to not use THC in that way.

Response 154:
The final rule does not use THC as a surrogate for organic HAP, therefore, the comment is not relevant to the final action.

12.2 Technical Corrections

Comment 155:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal that the organic HAPs standard should be based on an aggregate of all oHAPs detected using analytical methods M.18 and M.320, which would expand the list of parameters from 8 organic HAPs to 15. Using this approach, the commenters calculated the aggregated oHAP standard for 15 oHAPs to be 8.5 ppmvd @ 7% O_2.

Response 155:
The EPA disagrees with the commenter that the list of pollutants should expand to 15 pollutants. The EPA reviewed the full list of detected pollutants in all tests and noted the occurrence of the 7 additional pollutants did not contribute meaningfully to the total organic HAP on a consistent basis. The EPA notes that the additional organic HAP were only seen in only a few of the tests, and that with each compound added, the addition of that particular compound's 3xRDL value increases the total more than the potential contribution of these organic HAP. The EPA is not making any changes to the organic HAP standard as a result of this comment.

Comment 156:
Commenters 0228 (NLA and supporters) stated the representative detection limits (RDLs) used for EPA's proposed RDLs for formaldehyde and acetaldehyde differ substantially from the RDLs calculated and submitted in a December 6, 2021, memorandum (EPA-HQ-OAR-2017-0015-0068). Commenter notes these differences appear to stem from differences in how detection limits are set for HAPs measured using Method 320 and those measured using Method 18. With Method 18, each analytical laboratory typically uses a standard detection limit, with little variability across the analytical service industry. Commenter states that with Method 320, a detection limit is calculated with respect to each test that is performed, and it can vary substantially, particularly if proper procedures are not followed in determining the detection limit.

Commenters argued that EPA's RDL development approach produced anomalous results for Method 320 due to factors other than the lab's capability. Commenters 0228 (NLA and

supporters) and 0232 believe a more representative approach for the Method 320 tests would be for EPA to average all of the detection limits. Commenters stated EPA should follow the precedent set in the cement rule.

Commenters 0228 (NLA and supporters) stated EPA should use method detection limits determined only using the MDC#2 approach. Commenters stated the MDC#1 calculation, which measures the detector noise in a pure blank sample, within the analytical region for a given compound, is useful to determine the analytical uncertainty of a value, but it is commonly understood to not speak to actual detector sensitivity. Commenters stated the MDC#2 calculation, which similarly measures the noise of the detector, but with the inclusion of major matrix interference, is generally regarded as a more appropriate MDL determination since FTIR is an optical measurement, and elevated absorbances from interference can significantly impact the analyzer's ability to measure small changes in absorbance (and thereby concentration).

Commenters stated the reports including MDC#1 returned lower MDLs than the reports including MDC#2. EPA's calculation of an appropriate MDL seems to consider these four reports, plus one MDC#2 calculated report in the determination of the proposed measurement limit. Commenters requested EPA revise the MDL values considered here to conform to EPA's standard directive of using MDC#2 calculated results to determine an appropriate calculation of a representative detection limit. Commenters noted when only MDC#2 results are used, higher average values for both formaldehyde and acetaldehyde are produced.

Response 156:
The EPA agrees with the commenters that there are differences between EPA Method 320 and EPA Method 18. However, the EPA disagrees with the conclusion that the relatively consistent detection limit of EPA Method 18 is meaningful in this fashion as each the detection limit for each analysis is dependent upon matrix effects and dilution, these impacts can be seen graphically in the figures in the *Final Lime Organic HAP RDL Memo*. Similarly, each test for EPA Method 320 accounts for the matrix impacts and the particular path length of the cell with which the FTIR is equipped. The EPA has however reviewed the tests utilized in determining the RDL for the EPA Method 320 and eliminated or replaced certain MDL values from the determination of RDL. The MDC#2 value has been used where available, and values for two additional test were identified within the dataset beyond those found by the commenter. The EPA is continuing to follow the process in more recent rulemakings, such as the RDL for carbonyl sulfide and carbon disulfide in the integrated iron and steel rulemaking (https://www.regulations.gov/document/EPA-HQ-OAR-2002-0083-1459), for PAH in in the proposed RTR for plywood and composite wood products (https://www.regulations.gov/document/EPA-HQ-OAR-2016-0243-0280), and for formaldehyde in electric generating units (https://www.regulations.gov/document/EPA-HQ-OAR-2018-0794-0011) where a subset of the detection limits were used to determine the representative detection limit where values deviated significantly from the better analytical performers and to eliminate those not following proper procedures or using substandard analysis techniques.

Comment 157:
Commenters 0228 (NLA and supporters) stated that the MDLs should be summed on the same basis of moisture and oxygen. Commenters stated that the detection limit values do not appear to

contain a correction for moisture, which can cause a significant difference in the final result which is to be added to other components. Similarly, as the final results are all to be corrected to a 7% oxygen concentration, an average oxygen concentration adjustment should also be made to the MDL values used for the floor calculation. Commenters argue that as this total result may contain some mix of detected and non-detected compounds, the MDLs used for this standard setting should include this adjustment criteria. These corrections are included in the discussion of a bulk correction factor below.

Response 157:
The EPA agrees with the commenters that the RDL for the EPA Method 320 results should be adjusted to dry (EPA Method 18 results are already dry), and that the final organic HAP RDL should be corrected to 7 percent oxygen prior to comparing to the UPL. We have revised the memo and the RDL accordingly as well as correcting the emission limits for the new value.

Comment 158:
Commenters 0228 (NLA and supporters) stated EPA should use a bulk average correction factor of 1.217 to the RDL calculations for formaldehyde and acetaldehyde. Commenters noted values included in the summation must reflected on a dry ppm basis, corrected to 7% oxygen. Commenters believe in order to set an emissions limit that includes detection limits, those limits must be adjusted and corrected to match before including them in the sum. Commenters noted the average combined correction factor results in an increase of 22% to the results but this is based on a source-specific correction factor depending on the moisture and oxygen content native to the source. Commenters recommend taking a bulk average correction factor to the MDLs used in calculating the standard. Commenters performed two calculations of a bulk average correction factor. First, by separately averaging the moisture and the oxygen to determine an average correction factor for each, then the average factors were combined for a total correction factor. The second calculation determined the total correction factor for each source, then looks at an average. Commenters noted that both approaches result in nearly an identical value; 1.217 for the total combined CF, and 1.218 for the average of total factors from each report.

Commenters 0228 (NLA and supporters) stated that EPA should use corrected Method 320 MDLs. Commenters' analysis indicates that accounting for the corrections identified by commenter to all formaldehyde and acetaldehyde data for summation, results in a standard minimum reportable concentration of 0.88 ppmvd @7% O_2 formaldehyde, and 0.94 ppmvd @7%O_2 for acetaldehyde. Commenters believe EPA should adopt these RDLs for use in the aggregated oHAP limit, which would result in an aggregated emission limit of 5.9 ppmvd @ 7% O_2 for the 8 oHAPs.

Response 158:
The EPA agrees with the commenters that the RDL needs to be corrected to dry and to 7 percent oxygen to more accurately compare with the UPL. The EPA however has not applied a generic 1.217 or 1.218 factor to determine this. As water vapor can cause matrix impacts upon the measurement of the individual pollutants, we corrected each individual detection limit used in the determination of the RDL to dry using the actual moisture measured at that particular lime kiln. We did however use the average oxygen content measured to correct the summed ppmv dry

oHAP to 7 percent oxygen. While this approach and that of the commenter differ slightly, the net result is almost identical in terms of the magnitude of the correction. As different wet RDL values and additional determinations of detection limit were used however, the end result is not identical to that proposed by the commenter. For details see the memorandum "Final Lime Organic HAP RDL Memo" in the docket for this rulemaking.

Comment 159:
Commenters 0228 (NLA and supporters) stated EPA should allow the use of "zero" for non-detected oHAPs and should revise the definition of total organic HAPs. Commenters believe it is unreasonable use the method detection level as the measured emissions level, as applied to non-detect results. Commenters argue that the approach would guarantee that each measurement would result in a total of at least one third of the standard, even if no oHAPs were detected. Commenters stated that for the 8 oHAPs EPA proposes to use in the aggregate standard, only two were found in more than half of the tests reviewed, and no oHAP was found in all tests. Commenters further noted that using "zero" would be consistent with the method EPA applies with dioxin/furan congeners that are below the detection limit.

Additionally, commenters stated the definition of "Total Organic HAP" should not refer to "method detection levels," and rather, it should refer to the Representative Detection Limits (RDLs) as discussed in the preamble. Commenters requested that if EPA declines to use "zero" for non-detects, then it should include the table of RDLs in the final rule language and should revise the provision above to read "...you must use the method detection level or the representative detection level (RDL) as listed in Table __, whichever is lower, as the measured emissions level for that pollutant…." The lower of these two figures should be used, because the RDL is the source of the standard, and undetected levels should not be presumed to be higher than the RDL.

Response 159:
The EPA disagrees with the commenters that the use of zero would be appropriate for below detection limit results of any of the speciated organic HAP. The method detection limit is the level to which the laboratory can guarantee it is not there. We would also point out that EPA Method 23 has been revised, and that section 9.1.7.2 of EPA Method 23 now indicates that the estimated detection level (EDL) should be used in the determination of 2,3,7,8-tetrachlorodibenzodioxin equivalents for standards developed after March 20, 2023 (or as indicated in that particular standard). While some of the oHAP were not detected in a given sample, when the UPL was determined the minimum detection level was used, and in the determination of 3xRDL, the RDL for each of the eight compounds was used. The use of the MDL for each compound when the result is below the detection limit is therefore appropriate rather than zero.

It would be inappropriate to use the RDL in place of the MDL measured during that specific test. For example, if a facility performed a test where the MDL for a particular compound was twice that of the RDL, for that particular test it has not been demonstrated that emissions are any lower than that of the actual test specific MDL. Allowing a facility to use an artificially lower detection limit in the calculation of emissions would incentivize analysis at the highest detection level possible in order to ensure a result that equated to the RDL.

The EPA is making no changes to the final rule as a result of this comment.

13 Other Regulatory Text and Revisions

13.1 Plant-Wide Weighted Emissions Averaging

Comment 160:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal that EPA should allow for plant-wide averaging for all HAPs covered by the rule. Commenter stated general support, with some exceptions, for the 2024 supplemental proposal for EPA allowing for HCl and Hg emissions to be averaged, but that EPA should allow for averaging for organic HAPs and for dioxins and furans.

Response 160:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Comment 161:
Commenters 0228 (NLA and supporters) stated that for purposes of HCl, plant-wide averaging could be further enhanced by allowing existing kilns, regardless of their subcategories, to be averaged across a single plant. The commenters offered a regulatory approach where a sitewide limit would be established using the annual production capacity by subcategory, the sitewide production capacity by lime type, and the respective subcategory emission limits. Compliance would be demonstrated by multiplying the lime production for each month by lime type times the respective HCl limit (or most recent HCl performance test value as available) to compute the tons of HCl emitted during the month. Add this result to the prior 11 calendar month period to compute a 12-month total HCl actual emissions level which is then compared to the site-wide allowable HCl limit. The commenters believe this approach is more restrictive than an HBEL because the sitewide HCl limit would be based on the facility's potential to emit (PTE) HCl using the HCl limits in the rule.

Response 161:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Comment 162:
Commenters 0228 (NLA and supporters) stated that EPA should allow for emissions averaging for organics and dioxins and furans. NLA states that members have reported similar kilns of the same size and type, using the same limestone feedstock and fuel, often have significantly different oHAP or D/F test results and that allowing averaging would help provide compliance flexibility. Commenters argue that because EPA has found that lime industry emissions are acceptable with an ample margin of safety even in the absence of controls, no harm to human health and the environment would result from averaging. Commenters recognize the limits for organics and D/F are concentration based but does not believe that to be a be a legal or technical obstacle and offers a methodology for averaging.

Response 162:
Please refer to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

13.2 Emissions Averaging Between New and Existing Kilns

Comment 163:
Commenters 0228 (NLA and supporters) stated that EPA currently allows lime plants to average particulate matter (PM) emissions between new and existing kilns. However, the proposed rule does not allow for emissions averaging between new and existing kilns for HCl and mercury. Commenters request that EPA allow for such averaging for all HAPs as it did for PM, so long as the new kiln does not exceed the standard for new kilns.

Response 163:
Please refer to section III. of the preamble to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Commented [XX5]: Here and below; where in the final rule?

Commented [SB6R5]: EPA Response: Revised to include reference to the section of preamble.

13.3 Requirement for Emissions Averaging Plan for Approval

Comment 164:
Commenters 0228 (NLA and supporters) stated that the requirement to submit an emission averaging plan for approval is unnecessary and unduly burdensome. Commenters argue that sources subject to this rule are already required to prepare an OM&M Plan, various performance test protocols and notification documents. Commenters suggest that EPA allow lime producers to document the emissions averaging plan requirements in their OM&M Plan, without preparing a separate plan, and without submitting it for pre-approval. Commenters argue that inclusion of a pre-approval process injects a level of complexity and need for official action that is excessive, given the fact that emissions from the industry are already so low that risks are acceptable with an ample margin of safety without any new standards.

Response 164:
Please refer to section III. of the preamble to the Lime Manufacturing NESHAP 2024 Final Rule for a detailed response to this comment.

Comment 165:
Commenter 0226 requested EPA adjust the deadline for submitting the implementation plan from 180 days to 60 days before the compliance demonstration to 60 days. Commenter stated that in order to meet the 180-day timeframe, a facility would need to contract with a stack testing company approximately one year prior to the compliance demonstration date. Commenter believed that 60 days allowed the regulatory authority sufficient time to review the plan for adequacy.

Response 165:
The EPA has considered this comment and has adjusted the requirement as suggested to 60 days.

13.4 Monitoring Requirements

Comment 166:
Commenters 0228 (NLA and supporters) stated in some cases, manufacturers' procedures and specifications are unavailable or out of date or are otherwise incomplete or inapplicable. The commenters request EPA add the phrase "or other applicable procedures (such as industry standards or best practices) to ensure proper operation of the device" to §63.7113(h)(2) and (3).

Response 166:
The EPA disagrees with the commenter that the suggested phrase should be added to section 63.7113(h)(2) and (3), and no changes to the amendatory text have been made based on this comment.

Comment 167:
Commenters 0228 (NLA and supporters) requested that in §63.7113(i)(3) EPA call for the measurement to be "calibrated to a National Institute of Standards and Technology traceable certified reference thermocouple," because such traceable certified reference thermocouples are more readily available. Commenters 0228 (NLA and supporters) also recommended in §63.7113(4), the term "and other temperature sensors" be deleted because the commenter is not aware of temperature sensors other than thermocouples in use in this application.

Response 167:
The EPA agrees with the commentors that a NIST traceable certified reference thermocouple would be acceptable and have made added that as an option for the final rule. The EPA disagrees with the commentors that "and other temperature sensors" should be deleted and is retaining the option in the final rule, to allow for future temperature measurement alternatives, as well as existing options such as a resistance temperature detector (RTD).

Comment 168:
Commenter 0226 requested clarification on establishing parametric monitoring requirements during performance tests in Tables 3, 4, 5, and 6.

Response 168:
The EPA agrees with the commentor that Table 3 was unclear as to which parameters are associated with which pollutant when performance tests may not be conducted simultaneously. As discussed further in response to comment 196, Table 3 has been amended to associate particular pollutants with operating parameters. The EPA has also updated Tables 4, 5, and 6 to provide the same clarity and to incorporate missing fields.

13.5 Compliance Requirements

Comment 169:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal regarding the need to clarify the use of "new" and "existing" kilns and offered additional comments on the 2024 supplemental proposal. Commenters identified two problems with the proposal. First, there is no language in the docket redline with definitions of "new

source" and "existing source" that matches the language in the preamble. Second, the commenters stated disagreement with January 5, 2023, as the relevant date for what constitutes an existing or new kiln. Commenters argue the 2024 supplemental proposal sets new standards for the first time for all four HAPs and believes that if the date for determining if a kiln is "new" is to be based on the proposed rule date, the relevant date should be February 9, 2024.

Response 169:
The EPA agrees with the commenter and have made revisions to section 63.7082 to clarify "new" and "existing" sources as related to the 2024 Final Rule requirements.

Comment 170:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal regarding the need to correct the redline rule language in the docket to reflect a 3-year compliance period. Commenters noted the redline proposed regulatory language is inconsistent with the preamble in that it refers to 180 days instead of 3 years.

Response 170:
The EPA has made this change in the final amendatory text and redline/strike out.

13.6 PM Standards Should Apply Only to Coolers

Comment 171:
Commenters 0228 (NLA and supporters) noted that as written, the HAP standards, other than PM, would apply to kilns and the associated coolers. Commenters request the language be revised and the definitions be clarified. Commenters stated that limestone is calcined in a heated kiln, and it is the emissions in the kiln exhaust that contain the HAPs (HCl, mercury, organic HAPs, and D/F). After the kiln, the lime is transferred to a cooler where it is cooled by the introduction of ambient air. Pulling in ambient air may result in particulate matter in the cooler exhaust. Commenters believe this is why EPA established the PM standards applicable to coolers in the original lime rule. Commenters noted it is only important to distinguish between cooler exhaust gases venting to the atmosphere separately from kiln gases. Commenters believe it is only necessary to test for PM at the cooler vent stacks, because the other HAPs will not be present. Where exhausts from the cooler(s) and kiln(s) are combined into a single stack, the kilns will have to meet all of the HAP standards at the stack.

Commenters suggest modifying the definition of "Lime Cooler" in §63.7143 as follows:

> *Lime cooler* means the device external to the lime kiln (or part of the lime kiln itself) used to reduce the temperature of the lime produced by the kiln. For the purposes of this regulation, a cooler is associated with a lime kiln with respect to particulate matter (PM) emissions, but is not associated with a lime kiln for the purposes of standards for additional air pollutants added to the regulation on [ADD DATE OF FINAL RULE].

Commenters also recommend that references to coolers be removed from §63.7112(o), and Table 1, Lines 13, 14, 15, and 16. And, lastly, in Table 4, Line 1, the term PM be restored to the

parenthetical, because only PM emissions from separate coolers need to be summed with kiln emissions.

Response 171:
The EPA has ensured that the final rule clearly identifies the pollutants associated with the lime kilns, and the pollutants associated with the lime coolers. No revisions to the definition of lime cooler is needed.

13.7 Startup and Shutdown Events

Comment 172:
Commenters 0228 (NLA and supporters) stated the proposal does not appropriately address how operating limits will be met during lime kiln startup or shutdown for kilns using dry sorbent injection, ACI or thermal oxidizers. Commenters argued that during these periods, sorbent and carbon cannot be injected at the same rates as during normal operations, and operating conditions for RTOs differ as well. Commenters offered the following language to be added to Table 2 to address applicable operating limits during startup and shutdown.

5. All new and existing lime kilns that use dry sorbent injection or carbon injection during startup and shutdown	When a lime kiln is in startup or shutdown (as defined in section 63.7143), the Table 3 operating limits for sorbent and/or carbon injection do not apply and the lime kiln operator shall ensure that sorbent or carbon injection is in operation until the unit is no longer in startup or shutdown. During startup and shutdown, the control device shall be operated in accordance with manufacturer's recommendations or by a site-specific operating procedure for startup and shutdown events.
6. All new and existing lime kilns that use a thermal oxidizer during startup and shutdown	When a lime kiln is in startup or shutdown (as defined in section 63.7143), the Table 3 temperature limits for a thermal oxidizer do not apply and the lime kiln operator shall ensure that the thermal oxidizer is in operation until the unit is no longer in startup or shutdown. During startup and shutdown, the control device shall be operated in accordance with manufacturer's recommendations or by a site-specific operating procedure for startup and shutdown events

Response 172:
The suggested revisions have been included in the 2024 Final Rule amendments.

Comment 173:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal regarding the monitoring approaches during startup and shutdown events. Commenters point to the use of alternate approaches to continuous opacity monitoring systems (COMS), such as bag leak detection systems, under the Lime MACT since its original inception during normal operation. Commenters requested that EPA clarify in the rulemaking that systems such as a BLDS would be approvable to be used during startup/shutdown events.

Response 173:
The requirement for conditions during startup and shut down were discussed and established during the 202 RTR rule development and final rule respectively. The commenter's request is beyond the scope of this action.

13.8 Stack Testing

Comment 174:
Commenters 0228 (NLA and supporters) expressed strong support for EPA's proposal to establish 5-year stack testing and parametric monitoring requirements.

Response 174:
The EPA acknowledges the commenters' support.

Comment 175:
Commenters 0228 (NLA and supporters) requested EPA clarify §63.7112 such that it not be read to require that performance tests for all HAPs, including PM, be performed at the same time. strong support for EPA's proposal to establish 5-year stack testing and parametric monitoring requirements. Commenters noted that sources may have done PM performance tests less than 5 years before the issuance of the final rule governing additional HAPs, and thus testing for PM could be on a different 5- year schedule than testing for the additional HAPs.

Response 175:
The EPA agrees with the commenter that the testing for all HAP does not need to be conducted simultaneously and have added language to that effect in section 63.7112. However, there are control devices that control more than one pollutant, as discussed in Comment 196, Tables 3, 4, and 5 has been amended to add which pollutants impact a particular control device operating parameter and to stipulate how to determine the operating limits when testing is performed at a different time for multiple impacted pollutants.

Comment 176:
Commenters 0228 (NLA and supporters) believe the language on test duration in §63.7112(d) could cause some confusion and recommends it be revised to read "Each test run must last at least 1 hour for PM testing or as specified in Table 5 to this subpart for HAPs other than PM." Commenters suggest an alternative where EPA could incorporate the 1 hour test run requirement for PM testing into Table 5, and revise the language in (d) to "The duration of each test run shall be as specified in Table 5 to this subpart."

Commenter 0226 identified what they believe is a typo. Commenter suggests Table 5, Item 20 be revised to read:

> …. **For Method 29 and ASTM D6784-16, the** ~~The~~ test duration must be at least two hours and ~~for Method 29 and ASTM D6784-16~~ the sample volume must be at least 1.70 dscm (60 dscf)…..

Response 176:
The EPA agrees with the commenter that the language it Table 5 as in the proposal could be confusing. For the final rule, the text has been amended for clarity.

13.9 General Form of Standards

Comment 177:
Commenters 0228 (NLA and supporters) requested EPA express the standards in terms of "lime produced" instead of "stone produced." Commenters stated that EPA should consistently use the term "lime produced" to refer to quicklime and dolomitic lime produced in lime kilns. Limestone is the stone feedstock used to make lime (which is why some other standards are based on "stone feed.") Commenters noted that the lime products are not limestone/stone. Commenters stated that limestone is a sedimentary rock composed primarily of calcium carbonate and/or calcium-magnesium carbonate, while lime is calcium oxide or calcium-magnesium oxide, a different compound and structure entirely. The commenters believe intertwining the use of stone for limestone is likely to create confusion and that the term "stone produced" should be replaced with "lime produced" in all instances if the reference is to lime product produced at the kiln.

Response 177:
The final rule includes referring to the standards in terms of "lime produced" as suggested.

13.10 Other Comments

Comment 178:
Commenter 0226 requested clarification as to why EPA is requesting facilities to provide information on fuel types that will be used in the implementation plans. Commenter wanted to know what EPA intends to use the information for and what the implications are should a facility change fuel types.

Response 178:
Although the Lime Manufacturing NESHAP regulates emissions from the kiln with the assumption that HAP emissions are primarily driven by the raw materials fed to the kiln in the lime manufacturing process, it is also recognized that lime kilns ~~can be fuel by~~use ~~very~~ different fuel~~s sources~~ (*e.g.*, coal and natural gas). The requirement to include the types of fuels to be burned in the kiln being identified in the emissions averaging implementation plan is to help regulatory authorities in their assessment of whether emissions averaging is appropriate for the requested sources.

Commented [XX7]: I am not sure this aspect is described in the preamble or RIA. Can EPA provide more context on this requirement? How are most powered? Please describe in the RtC here as well.

Commented [SB8R7]: EPA Response: The RTC is not the place to repeat the description of the industry. The industry is described in detail in the preamble section II.B.

14 Other General Legal Comments

14.1 Rule is Not Necessary Because Benefits are De Minimis

Comment 179:
Commenters 0228 (NLA and supporters) stated that the seminal D.C. Circuit decision of *Alabama Power v. Costle*, 636 F.2d 323, 360 (D.C. Cir. 1979), held, in the context of the Clean Air Act's PSD regulations, that every rule inherently contains a de minimis criterion. Commenters concluded as a result then if regulation of additional HAPs in this revised lime rule only has de minimis environmental benefit, it is not necessary for EPA to impose additional controls to "address" such HAPs. Commenters argued the U.S. Supreme Court held the de minimis doctrine is a legal principle that forms part of the established background against which all statutes are enacted. *Wisc. Dep't of Rev. v. William Wrigley, Jr., Co.*, 505 U.S. 214, 231 (1992), and this has been subsequently reiterated by the D.C. Circuit. *New York v. EPA*, 443 F.3d 880, 888 (D.C. Cir. 2006).

Response 179:
Please refer to Response 115.

14.2 Clean Air Act Does not Require EPA to Regulate Unregulated HAP

Comment 180:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal that EPA must reasonably conclude that it is not necessary to revise the Lime MACT. Commenters stated that EPA already addressed all listed air toxics under the 2004 rulemaking. Commenters stated that EPA's scientific assessment confirmed in 2020 that emissions from lime manufacturing are acceptable with an ample margin of safety.

Response 180:
For responses to duplicative comments made on the 2023 proposal in response to the 2024 supplemental proposal, please refer to Section 7.4.

Comment 181:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal that EPA should consider cost and acceptable risk to determine that revisions to the Lime MACT are not necessary. Commenters pointed to EPA's analysis that the rule will impose costs on 34 major sources of between $2.01 billion and $2.43 billion, whereas the U.S. Geological Service estimates the industry receives $2.3 billion in annual revenues. Commenters stated that the benefits of the rule are so negligible that EPA did not attempt to quantify them.

Response 181:
For responses to duplicative comments made on the 2023 proposal in response to the 2024 supplemental proposal, please refer to Section 7.4.

Comment 182:
Commenters 0228 (NLA and supporters) stated that on a net basis, the rule will do more environmental harm than good. Commenters recognized the rule may result in minimal reduction in HAPs, but remarked the rule will result in 1) an increase in greenhouse gas emissions; 2) waste of lime products that could be used to address other environmental problems; 3) additional landfill waste; and 4) wasted water and energy resources to operate pollution control devices.

Commenters 0228 (NLA and supporters) stated that the employment of regenerative thermal oxidizers (RTOs) to control organic hydrocarbon emissions would directly result in tens of thousands of tons of CO_2 to be released into the atmosphere, contributing to climate change. Commenters stated that the rule would force lime companies to use significant amounts of their own product to reduce HCl emissions, resulting in less lime product being available in the supply chain for other environmentally beneficial purposes increasing the cost of lime to all users. As examples, the commenters noted that lime is used to reduce SO_2 emissions in the flue gas desulfurization process and in water treatment plants to soften drinking water.

Commenters 0228 (NLA and supporters) stated that the use of activated carbon injection (ACI) to control HAP emissions would result in a significant new waste stream that will need to be landfilled. Commenters noted that EPA should minimize waste streams, not increase them, particularly where EPA has previously determined that existing air emissions are acceptable with an ample margin of safety, even without new standards.

Commenters 0228 (NLA and supporters) stated that the secondary impacts from the rule will result in 1.12 million additional gallons of water used annually from wet packed tower gas absorbers (WPTGAs); solid waste from WPTGAs, DSI and ACI will increase solid waste by 13,400 tons per year; and the energy use to operate new pollution controls collectively will be an additional 696 BBtu/year.

Response 182:
The EPA recognizes that each air pollution control device has ~~an opportunity costs that considers the~~ advantages and disadvantages in availability, operating costs, operating efficiency, and other considerations. The EPA considers these factors when evaluating the use of control devices, and when assessing the costs of controls. The EPA believes the health benefits of reducing approximately 900 tons per year of HAP emissions from the lime manufacturing industry to be significant in terms of emissions reductions having beneficial effects on air quality and public health for populations exposed to emissions from lime manufacturing facilities which ~~, and~~ outweigh ~~any of~~ the potential disadvantages of operating controls.

Commented [XX9]: Suggest that EPA clarify what significant means; in terms of what? reduced

Commented [SB10R9]: EPA Response: Revisions accepted

Comment 183:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal that EPA must read the LEAN decision in the context of the Supreme Court's recent opinion in *West Virginia v. EPA*. Commenters restated their beliefs that the question of whether EPA can reach back decades in an RTR proceeding (under sections 112(f) and 112(d)(6)) and find that a provision of the Clean Air Act that was designed to require review for technological advances somehow compels EPA to reopen a MACT standard (issued under sections 112(d)(2)

and (3)) is a major one. Commenters stated that Congress did not give EPA that authority and that the EPA's Proposed Rule is unlawful.

Response 183:
For responses to duplicative comments made on the 2023 proposal in response to the 2024 supplemental proposal, please refer to Section 7.4.

14.3 Clean Air Act Section 307

Comment 184:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal regarding whether EPA is legally obligated to undertake this rulemaking. Commenters stated that the only reason the EPA has proposed this rule is that environmental petitioners requested that it do so following the following the DC Circuit's opinion in *Louisiana Environmental Action Network v. EPA*, 955 F.3d 1088 (D.C. Cir. 2020) ("LEAN"). Commenters stated that environmental petitioners are time-barred from challenging the underlying lime MACT standard because they failed to do so within the 60-day time period following promulgation of the original MACT standard in 2004. Commenter stated that the EPA should rely on its prior reasonable decisions and reject any effort to bring challenges that are now legally time barred.

Response 184:
For responses to duplicative comments made on the 2023 proposal in response to the 2024 supplemental proposal, please refer to Section 7.5.

Comment 185:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal that EPA violated the CAA by not publishing the proposed rule language in the Federal Register

Response 185:
For responses to duplicative comments made on the 2023 proposal in response to the 2024 supplemental proposal, please refer to Section 7.5.

Comment 186:
Commenters 0228 (NLA and supporters) reiterated comments submitted in response to the 2023 proposal that EPA violated the CAA by not providing a statement of basis and purpose with the rulemaking which is to include the major legal and policy considerations underlying the proposed rule.

Response 186:
For responses to duplicative comments made on the 2023 proposal in response to the 2024 supplemental proposal, please refer to Section 7.5.

14.4 Exercise Authority to Allow Additional Year to Comply

Comment 187:
Commenters 0228 (NLA and supporters) requested EPA add language to the preamble to encourage permitting authorities to allow sources an additional year to install new controls as allowed pursuant to 42 USC § 7412(i)(3)(B). Commenters argued the additional year will be necessary given the entire industry will be installing new controls simultaneously, but that no harm will come to public health or the environment because the emissions from lime kilns are already acceptable with an ample margin of safety.

Response 187:
The EPA continues to work with state permitting agencies when interpretation of the rule is required. There is no need to make the addition of language into the preamble as suggested. Although an additional year may be warranted, the EPA will leave any determination of the conditions of an extension to the state agencies.

Commented [XX11]: What are those conditions? Please clarify.

Commented [SB12R11]: EPA Response: The conditions of an extension will be up to the individual state requirements. The state will determine the conditions on a case-by-case basis.

14.5 Could Not Legally Establish MACT Floors for Any Pollutants

Comment 188:
Commenters 0228 (NLA and supporters) believe EPA should withdraw the proposal and abandon its MACT floor approach to the lime industry. Commenters argue the CAA refers to "best performing" not "lowest emitting" when setting the MACT floor. Commenters believe that because none of the sources are controlled for the additional HAPs, no sources can be considered "best controlled." Commenters stated that if EPA decides to set standards for the additional HAPs, EPA should use 42 U.S.C. § 7412(d)(2) instead of 42 U.S.C. § 7412(d)(3)(A), so that EPA considers the "cost of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements" when no technology controls are in place. Commenters do not believe that this is inconsistent with *National Lime Ass'n v. E.P.A*, 233 F.3d 625 (D.C. Cir. 2000), or *Sierra Club v. E.P.A.*, 479 F.3d 875 (D.C. Cir. 2007).

Response 188:
Please refer to Response 123.

Comment 189:
Commenter 0233 states that if individual oHAP and D/F cannot be quantified in stacks due to limited test data, the resulting MACT floor "do[es] not, as the CAA requires, represent a reasonable estimate of emissions achieved by the best-performing sources." *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855,865 (D.C.Cir. 2001). They argue EPA is not justified in the use of representative method detection level (3X RDL) for MACT floors.
They state, according to Nat'lAss'n of Clean Water Agencies v. EPA (NACWA), 734 F.3d 1115, 1131 (D.C. Cir. 2013), that the courts "have not given EPA free reign in its estimation techniques" to use the UPL detection method without justification of statistical analysis. Commenter argued the existence of non-detects for D/F in lime kilns is a result of no oHAP available to react with HCL and that EPA's rough estimate of reducing oHAP by 20 ton/yr is not grounded on reliable methods, given that it is not detectable.

Response 189:

The EPA disagrees with the commenter that the mere existence of non-detect results for one or more D/F congeners~~s~~ in some of the test runs in the D/F test data pool indicates that dioxins are not present. Dioxins and furans emissions are composed of multiple individual congeners, and to determine whether a particular sample run is below detection level, we follow the procedures outlined in the memo "Determination of "non-detect" from EPA Method 29 (multi-metals) and EPA Method 23 (dioxin/furan) test data when evaluating the setting of MACT floors versus establishing work practice standards" (Johnson, 2014) available in the docket (EPA-HQ-OAR-2017-0015-0117). This memo stipulates that we compare the total toxicity equivalent mass against the estimated detection level (EDL) in the memo to determine if a particular test run is below detection level. For the dioxin/furan data set for lime kilns, only 50% were below detection level. For lime kilns, there is not a clear majority of data below the detection level, and a numerical standard is, therefore, appropriate. This methodology is the same that used in the Sewage Sludge Incinerators rule, and the issue was challenged and upheld in the court case noted by the commenter, *NACWA v. EPA* (August 20, 2013). Specifically, the court upheld the use of the UPL and the 3xRDL in MACT standard setting, stating the following:

> "We agree with EPA that its method of incorporating non-detect data is reasonable, and not arbitrary or capricious. We do not expect EPA to perform the impossible, see Cement Kiln, 255 F.3d at 871, and that includes recording emission levels that are not accurately detectable with its current emissions testing technology. As EPA explains the issue, emission levels from zero up to some value above the method detection level cannot be stated with accuracy. Because any emission level EPA selects at that point will necessarily be an estimate, EPA adopted a method to account for measurement imprecision that has a rational basis in the correlation between increased emission values and increased testing precision.
>
> Although Sierra Club argued in its comments that the EPA should have at the very least assumed that non-detect data was at the detection limit, it did not offer any evidence that the EPA was incorrect in explaining why, given the measurement imprecision at the MDL, a non-detect test run would always yield emissions data below the MDL. Because we owe significant deference to the EPA in areas of its technical expertise, we reject Sierra Club's challenge to the EPA's method of addressing non-detect data."

Further, the predominance of measurements that are BDL does not mandate a work practice, CAA section 112(h) states "…if it is not feasible in the judgement of the Administrator to prescribe or enforce an emission standard for control of a hazardous air pollutant or pollutants the Administrator **may**, in lieu thereof promulgate a design, equipment, work practice, or operational standard, or combination thereof…" (emphasis added). This clearly indicates that, even in the presence of a clear majority of measurements that are BDL, a work practice is not required, and a numerical standard may be used.

Commented [XX13]: Does the mere existence of non-detects mean there is indeed detects in the D/F test data pool? I am confused by this framing.

Commented [SB14R13]: EPA Response: Revised for clarity

14.6 Beyond the Floor Limits

Comment 190:
Commenters 0228 (NLA and supporters) expressed strong support for EPA's decision not to set beyond the floor standards in supplemental 2024 proposal. Commenters stated that imposing

standards beyond the floor would impose unnecessary additional costs on sources without health or environmental benefit.

Response 190:
The EPA acknowledges the commenters' support.

15 Miscellaneous Comments

15.1 Other Regulatory Comments

Comment 191:
Commenters 0228 (NLA and supporters) stated the equation for calculating HCl and Mercury lbs/ton of lime produced emission rates should be corrected. Commenters determined, after their review, that the conversion factor units for HCl and mercury are incorrect. Also, as noted in section IX above, calculation of HAP emission rates from coolers other than PM is unnecessary and should be deleted. Therefore, the commenters suggested the following revisions to the equation:

$$E = \frac{K(C_k Q_k)}{P}$$

where,
K = Conversion factor
Mercury conversion factor = 2.2×10^{-9} **lb/µg**.
HCl conversion factor = 9.20×10^{-8} **lb/dscf HCl per ppmvd HCl**.
Other terms are as defined above.

The commenters noted the corrected equation includes K in the numerator, not the denominator, emissions rate calculations from coolers have been dropped, and conversion factor units have been corrected.

Response 191:
The EPA agrees with the commenters that the values listed for the conversion factor were inverted. However, to maintain consistency in the rule with Equation 1, we are finalizing the rule with K in the denominator, and replacing the K factor values with the correct values, 4.45×10^{8} µg/lb for Hg and 1.09×10^{7} ppmvd HCl per lb/dscf HCl for HCl.

Comment 192:
Commenters 0228 (NLA and supporters) stated that EPA should provide that performance testing to reset operating limits does not violate standards. Commenters argue that operators require the ability to reset operating limits at the appropriate level at the time of the test, which may be at a different level than the prior operating limit. The commenters provided the following language for in §63.7100 (a), and in the definition of "Deviation" in 63.7143:

> *"However, when a lime kiln emissions control device is being evaluated for engineering purposes or for performance testing purposes, the existing operating limits for the control device do not apply and variance from current operating limits is not a deviation."*

Response 192:
Please refer to Response 75.

Comment 193:
Commenters 0228 (NLA and supporters) stated that EPA should correct the language referring to scrubbers. Commenters stated that EPA misconstrues the difference between a PM (typically venturi) type scrubber and a WPTGA used to control acid gases. EPA erroneously deleted PM references when those references are intended to make clear that the provisions refer to scrubbers used to control PM.

Commenters stated EPA should clarify the language by retaining all references to PM scrubbers in the existing rule language and ensure that references to setting parameter limits for PM scrubbers or acid gas scrubbers explicitly state that establishing operating parameters only apply when conducting performance tests for the specific pollutant being measured.

Response 193:
Please refer to Response 77.

Comment 194:
Commenters 0228 (NLA and supporters) identified an error in Row 6 on Table 5 (addressing PM), third column, where there is a comment "Refer to Note 1." Commenters stated Note 1 relates to utilizing ASTM D6384-12e1 for HCl and organic testing and does not appear to be relevant to Row 6. The commenters request the reference in Row 6 be corrected or deleted.

Response 194:
The EPA agrees with the commenters that the reference to Note 1 is erroneous. We have corrected item 6 of Table 5 to correctly refer back to item 5 of the table for volume and sampling time requirements, as well as restored the inadvertently deleted text from that cell.

Comment 195:
Commenters 0228 (NLA and supporters) requested the definition of dry sorbent injection be simplified to refer only to HAPs being regulated in this rule, and therefore read "to react with and neutralize HCl, Hg, organic HAP, or dioxins and furans" instead of "to react with and neutralize acid gases (such as SO_2 and HCl), Hg, organic HAP, or dioxin furans."

Response 195:
The EPA has decided to leave the definition in the final rule as proposed.

Comment 196:
Commenters 0228 (NLA and supporters) requested Table 3, 4 and 6 be revised to include parallel language on requirements. Specifically, the commenters suggested the following changes: 1) Line 7 of Table 3 be revised to require "flow rate greater than or equal to the flow rate operating limit," to parallel similar language in Line 8; 2) Table 3, Lines 7 and 8 be revised to add the words "for the applicable pollutant" to the end to reflect that not all pollutants will necessarily be tested in each performance test; 3) the word "applicable" be added to Table 4, Line 1, before the term "performance test"; and 4) Table 6, Lines 7 and 8, the word "applicable" be added before the term "performance test."

Response 196:
The EPA agrees in part with the commenters as to the necessary revisions. We have revised items 2b, 7 and 9 of Table 3 to add "or equal to" to reflect that compliance was demonstrated at those levels. We have revised items 7, 8, and 9 to state "according to 40 CFR 63.7112(j) rather than to directly reference the performance test itself. Finally, rather than just indicate "applicable pollutant" we have revised the table to incorporate for each item the particular pollutant(s) that are applicable. Since, as noted by the commenters, these pollutants may be tested at different times, where multiple pollutants are controlled by the same control device we indicated that the greater (as all of the limits are minimums) of the most recent performance test for each parameter shall be used – that is the most conservative operating parameter determined when comparing the most recent test for each parameter (e.g.; the most recent test for total organic HAP and dioxin/furans with respect to the combustion chamber temperature of a thermal oxidizer, the most recent test for particulate matter and HCl with respect to the wet scrubber (which also captures acid gases)) is the operating limit. Tables 4, 5, and 6 have also been updated similarly.

Comment 197:
Commenters 0228 (NLA and supporters) requested Table 5 be revised for clarity. Specifically, the commenters requested Table 5, Line 20, be revised to make clear that there are different required test durations for different test methods.

Response 197:
The EPA agrees with the commenters that Table 5 Row 20 as proposed needs to be edited for clarity. We have reorganized the wording to more clearly indicate the different sample times and volumes apply to the different methods.

Comment 198:
Commenters 0228 (NLA and supporters) identified a typo. Table 4, Line 1 refers to measuring mercury using "Method 29 or 30B 5D in appendix A to part 60" and measuring Total Organic HAP "using Method 18 5D in appendix A to part 60". Commenters noted that in both cases the use of 5D appears to be a typographical error and should be deleted.

Response 198:
The EPA agrees with the commenters that this is a typographic error. With the redesign of Table 4, this is no longer an issue.

15.2 General Support/Opposition

Comment 199:
Commenters 0218, 0219, 0220, 0221, 0222, 0223, and 0238 expressed general support for the proposal.

Commenter 0221 agreed installation of equipment will take time and money but allowing the full three years to come into compliance seemed excessive. Commenter suggested EPA propose a staggered approach giving manufacturers smaller goals and benchmarks throughout the three-year compliance window.

Response 199:
The EPA acknowledges the commenters' support.

Although the EPA appreciates the suggestion of a staggered approach to the 3-year compliance window, the EPA is not incorporating this suggestion of a staggered approach into the final rule.

15.3 Other Small Business Concerns

Comment 200:
Commenter 0224 restated support for the comments it submitted in August 2023 following the Small Business Advocacy Review Panel meeting with EPA. Commenter also strongly urged EPA to provide small businesses the maximum amount of flexibility possible to comply. Commenter argued flexibility was warranted given EPA acknowledges there is already acceptable risk with an ample margin of safety to protect public health for all HAPs and that the 2024 supplemental proposal will cause significant economic impacts to small businesses.

Commenter 0225 also requested EPA provide small businesses the maximum amount of flexibility possible, in particular with regards to compliance timelines.

Response 200:
For responses to duplicative comments made on the 2023 proposal in response to the 2024 supplemental proposal, please refer to Section 7.4.

Comment 201:
Commenter 0232 stated the three-year compliance deadline would not be enough time for small businesses to comply with the rule. Commenter noted that small businesses will have more difficulty securing vendors and consultants need to support compliance with the rule. Commenter stated that the EPA should provide small businesses more time~~,~~ but did not state a specific time.

Response 201:
The EPA is providing all sources in the lime manufacturing source category three years to comply with the final rule amendments. If a facility has specific concerns or difficulties with this three-year schedule, the facility can discuss the issues with its state agency, who can then determine if an extension of time is warranted.

Commented [XX15]: When the regulated entity discusses the issues with its state agency, who can then determine if an extension of time is warranted; how is the extension of time determined to be warranted? Is being a small business one of the reasons?

Commented [SB16R15]: EPA Response: According to section 112(i)(3)(B), "The Administrator (or a State with a program approved under title V) may issue a permit that grants an extension permitting an existing source up to 1 additional year to comply with standards under subsection (d) if such additional period is necessary for the installation of controls." Solely being a small business is insufficient grounds for granting the extension.