REQUEST FOR PRESIDENTIAL EXEMPTION

***National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Technology Review*, EPA Docket No. OAR-2017-0015, RIN 2060-AV59, 89 Fed. Reg. 57,738: All Major Source Lime Manufacturing Facilities Listed on the Attached List**

Pursuant to Section 112(i)(4) of the Clean Air Act ("CAA"), the National Lime Association ("NLA") hereby requests and recommends that the President issue a two-year exemption from the current July 16, 2027, compliance date of emissions standards promulgated in the final rule *National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Technology Review* (the "Lime Rule"), published in the *Federal Register* at 89 Fed. Reg. 57,738 (July 16, 2024), extending the compliance date to July 16, 2029, for each major source lime plant subject to the rule, pending EPA's reconsideration of the rule. NLA members include all major source lime plants in the United States (except for one operated by a non-member steel company, Cleveland Cliffs, which will submit a separate request). NLA has submitted several rounds of extensive comments and scientific data and analysis on the EPA Lime Rule. All NLA's comments, reports, and submissions in the EPA Lime Rulemaking docket are hereby incorporated by reference herein.

A list of all 28 major source lime plants operated by NLA members is attached hereto. Also attached are letters from each NLA member company that operates major source lime plants delegating authority to NLA to submit this request. NLA asks that the requested exemption be granted to each lime plant listed, because all are affected as explained below.

This statement explains why an exemption is appropriate for sources impacted by the Lime Rule, because, as specified in section 112(i)(4), the technology to implement such standard is not available and an exemption is in the national security interests of the United States.

PROCEDURAL BACKGROUND

On July 16, 2024, EPA promulgated the final Lime Rule, revising maximum achievable control technology ("MACT") standards for hydrogen chloride (HCl), mercury, organic hazardous air pollutants ("oHAP"), and dioxins/furans ("D/F"). EPA claimed that this action was taken in response to the D.C. Circuit's decision in *Louisiana Environmental Action Network v. EPA* ("*LEAN*"), 955 F.3d 1088 (D.C. Cir. 2020). NLA filed a petition for review of the final Lime Rule in the D.C. Circuit. The Court has ordered that the case be held in abeyance, with a motion to govern further proceedings due by April 28, 2025. NLA also filed a petition for reconsideration of the rule with EPA, which was denied by the Acting EPA Administrator in the waning days of the Biden Administration on January 10, 2025.

On March 12, 2025, EPA announced its intention to reconsider the Lime Rule, citing numerous issues with a group of rules establishing or modifying various National Emission Standards for Hazardous Air Pollutants (NESHAP). EPA further indicated that the President was considering issuing exemptions from compliance dates under Clean Air Act Section 112(i)(4) where appropriate, and that affected sources should provide recommendations for such exemptions to EPA by March 31, 2025.

REGULATORY BACKGROUND

EPA's regulation of hazardous air pollutants ("HAPs") from lime manufacturing started two decades ago when, in 2004, EPA promulgated the National Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants. (40 CFR §§ 63.7080-7083.) In so doing, EPA noted that: "the purpose of the final NESHAP is to protect public health by reducing emissions of HAP from lime manufacturing plants." 69 Fed. Reg. 394, 395 (Jan. 5, 2004). EPA carefully evaluated the lime manufacturing sector and regulated HAP emissions by establishing a particulate matter ("PM") standard as a surrogate for non-volatile and semi-volatile metal HAPs. As part of this evaluation EPA addressed all four of the additional HAPs emitted by the lime industry: HCl, mercury, oHAP, and D/F. Based on this evaluation, EPA found that new regulations were not necessary for any of those additional HAPs based on the best available science. EPA's 2004 rule was not challenged by the lime industry or any environmental groups.

In 2020, EPA issued a final rule to fulfill its obligations under CAA sections 112(d)(6) and (f)(2), or the "risk and technology review" ("RTR"). Here, EPA found that "risks are acceptable and that the current NESHAP provides an ample margin of safety to protect public health," and therefore found that it was unnecessary to set standards for HCl, mercury, organics, or D/F, fulfilling its 112(f)(2) obligation. *National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Residual Risk and Technology Review*, 85 Fed. Reg. 44960 (July 24, 2020). EPA further determined that "[t]here are no developments in practices, processes, or control technologies that necessitate revisions to the standards," fulfilling its 112(d)(6) obligation. *Id.*

EPA's findings were based on solid scientific analysis finding that both cancer and noncancer risks from the lime industry are exceedingly low. In the agency's own words, "EPA's estimated baseline maximum inhalation cancer risk (MIR) posed by the source category is 1-in-1 million based on actual emissions, and 2-in-1 million based upon MACT- allowable emissions. The total estimated cancer incidence based on actual emission levels is 0.001 excess cancer cases per year, or one case every 1,000 years. The total estimated cancer incidence based on allowable emission levels is 0.003 excess cancer cases per year, or one case every 333 years." EPA also noted: "The maximum chronic noncancer TOSHI [Target Organ-Specific Hazard Index] values for the source category were estimated to be less than 1 (0.04) based on actual emissions and less than 1 (0.05) based upon allowable emissions."[1]

In the rulemaking process that led to EPA's 2024 Lime Rule, EPA performed a full risk assessment for all four pollutants (HCl, mercury, oHAP, and D/F), and yet again determined that emissions of all these pollutants from the lime industry presented an acceptable risk with an ample margin of safety, *without any additional controls*. NLA provided detailed comments explaining why EPA should decline to set new standards, or in the alternative, should set standards that were reasonable, less costly and more likely achievable by the industry. Nevertheless, EPA promulgated the final Lime Rule imposing onerous, unreasonable and

[1] *National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Residual Risk and Technology Review* 84 Fed. Reg, 48722, 48723 (Sept 16, 2019).

extremely costly standards for all four of these pollutants. EPA's own regulatory impact analysis found that the rule would cost in excess of $2 billion for the lime industry, while the benefits are too negligible to monetize. This is because even without additional controls risks are already acceptable with an ample margin of safety, and thus the Lime Rule provides no quantifiable benefits.

NLA strongly supports EPA's plan to reconsider this final regulation, for numerous legal and technical reasons previously raised in NLA's comments during the notice and comment period preceding the Lime Rule, in NLA's lawsuit, and in NLA's petition for reconsideration.

A. TECHNOLOGY TO IMPLEMENT THE LIME STANDARDS IS UNAVAILABLE

1. Technology to Implement the Standard May Not Be Fully Available by the Current Compliance Date

EPA identified three different candidate control technologies as necessary for lime kilns to comply with the rule. Installation and use of these technologies will require significant research and development, pilot plant experimentation, and great expense (and uncertainty). Furthermore, as discussed further below, the candidate technologies' application to achieve the very low levels of HAP emissions from lime kilns is far from demonstrated in practice and may not be achievable for many lime kilns.[2]

The standards promulgated by EPA will require major sources in the lime industry to make substantial capital expenditures, and to purchase and install major pieces of emissions treatment equipment at the same time numerous other industries will also be installing similar equipment. At present, lime plants are utilizing control technology to address PM as required in the original 2004 rule, but no lime plant in the United States is using any technology to control any of the four pollutants covered by the Lime Rule. All controls will have to be newly installed. These will require substantial physical changes to lime plants, including major capital expenditures.

In addition, sources will need to hire and train additional personnel to operate this equipment, and will need to retain outside experts, such as analytical laboratories and others, to comply with the standards. Some of the equipment that will be required to implement the standards will require permits from state and/or federal permitting authorities. The current compliance date, July 16, 2027, is a little over two years away, an extremely short period to marshal capital expenditures of $485 million (the amount estimated by EPA) for such a small industry. Furthermore, it would be unreasonable, and unfair, to require lime producers to begin expending substantial financial and other resources to prepare for compliance with the Lime Rule at a time when EPA intends to reconsider the rule.

Accordingly, even for technologies that theoretically exist and could potentially be installed at lime plants, the standard of unavailability in section 112(i)(4) is met due to the short time frame for compliance, and the two-year exemption is necessary.

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[2] *See National Lime Association comments on EPA Lime Rule* EPA-HQ-OAR 2017-0015 (Feb. 21, 2023) at p. 59. NLA's comments are incorporated herein by reference.

2. EPA's Rulemaking Standard Does Not Establish That Standards in the Lime Rule Are Achievable with Available Technology

As noted above, EPA imposed standards requiring use of multiple control technologies, even though none of these technologies were in use at any U.S. lime plant as EPA developed its rule. This means that the efficacy of these technologies in actual lime plants is speculative, and will need significant testing and piloting before compliance can be assured, and in some cases, there is serious doubt about whether compliance is possible at all. The record is thus insufficient to demonstrate that these technologies are available to implement the standards. Issues specific to the four HAPs are outlined below.

Dioxins/Furans (D/F)

The extremely low standard set by EPA for D/F was based on a single stack test, because the agency rejected other available test results for technical reasons. EPA also rejected NLA's assertion that additional data would be needed to set a valid standard. The standard based on a multiple of the extremely low detection limit for D/F will be very difficult for lime plants to meet consistently with any existing technology, and some plants believe that it will be impossible to guarantee compliance because the generation of D/F at very low levels (in the parts per billion) can vary significantly. EPA set the D/F standard at the lowest level its policies allow such a standard to be set. EPA rejected NLA's requests for a reasonable work practice standard or for an alternative compliance method.

Activated Carbon Injection (ACI) was identified by EPA as the technology to control D/F emissions. There are numerous known challenges to using ACI to control D/F in lime kilns, especially with the extremely low limits set in the standard. Notably, no current lime kiln is using ACI technology to control D/F, so there will be additional challenges that will appear.

ACI is known to exhibit reduced effectiveness at temperatures above 350 degrees F. Most lime kilns operate at temperatures higher than 450 degrees F. To address this issue, cooling of kiln gases would be required, with unpredictable effects (although it is expected that this cooling would place additional strain on the kiln system and reduce lime production). In addition, cooling kiln gases to reduce D/F emissions may complicate addressing other HAP standards.

D/F control effectiveness is also influenced by the relative concentration of the type of D/F in the flue gas stream. In a lime kiln, formation of the D/F 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, lengthy and costly program of stack testing would be needed for each lime kiln to define the ACI rate and required gas stream temperature for control to determine if ACI would be feasible. Also, the extremely low concentrations of D/F known to be present in lime kiln exhaust gas makes effective ACI control even more challenging and problematic.

EPA relied, in part, on information from Portland cement kilns for its evaluation of ACI for use in lime kilns. However, the MACT limit for cement kilns is roughly 10 times higher than the limit EPA set for lime kilns, so it is unclear if results in cement kilns can accurately predict efficacy in meeting the much lower lime D/F standard for the lime industry.

EPA's finding that the extremely low D/F standards it set are achievable for the lime industry using untested ACI technology was unreasonable, and thus the technology should be deemed unavailable.

Organic Hazardous Air Pollutant (oHAP) Emissions

EPA has also set an extremely low standard for oHAPs. Emission of these pollutants can vary widely, even in a single kiln, due to differences in the raw materials and fuels used. Even with very low emissions – and acceptable risk with an ample margin of safety – an unusual "spike" of one organic material could cause exceedance of the oHAP standard even when treatment technology is in use.

Regenerative Thermal Oxidation (RTO) is the control technology that EPA states would be used to control oHAP emissions. RTOs have not been installed on any lime kiln in the United States for oHAP control. RTOs have multiple technical issues which make their use impractical and technically infeasible. For example, sulfur dioxide (SO_2) in the kiln exhaust may 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. Most lime kilns do not currently utilize a wet scrubber.

The normal maximum RTO operating temperature is between 1600 and 1700 degrees F. Thus, the flue gas from a lime kiln will need to be reheated following the cooling gas treatment for D/F described above. 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. 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. In some cases, new natural gas pipelines would need to be constructed and permitted, and easements obtained to bring the fuel to the lime plant across private or public lands or national forests. An RTO will also require additional power demand and infrastructure that may not be available at a given lime plant. An RTO will also require permitting.

Thus, at present, it has not been established that effective technology is available to implement the standards EPA set for oHAPs.

Hydrogen Chloride (HCl)

To treat HCl, EPA finds that lime plants will need to use dry sorbent injection (DSI), in which lime product is injected into the kiln gases to remove HCl. While this technology has been used in other industries to treat HCl, prior to EPA's final rule it was not in use in the United States at any lime kiln. This means that EPA's projections of the feasibility and costs of using this technology were not based on data from lime kilns, and thus are speculative.[3]

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[3] In its comments on EPA's proposed rule, NLA pointed out that EPA should not attempt to set MACT floor standards where no sources were actually controlling for the pollutant in

(Continued ...)

In its comments submitted to EPA, with support from its technical consultants, NLA identified numerous technical problems with EPA's prediction of the efficacy of DSI for control of HCl in lime kilns. For example, EPA assumed an unreasonably high control efficiency for this technology (98%), whereas NLA's consultants project control efficiency as likely less than 90%. Many lime kilns may require redesign of ducting and/or relocation of the existing PM control devices (at great expense) to attempt to reach reasonable control efficiencies. Injection of a sorbent may interfere with lime plants' ability to meet the existing PM standard, and thus may require replacement of existing PM control equipment resulting in increased costs and additional technical challenges above that estimated by EPA.

Accordingly, even though DSI can theoretically be installed at lime plants to control HCl, the parameters and efficacy of that application are unknown until actual testing is done. This will take a significant amount of time, and thus it is unknown if this technology can be consistently installed at lime plants and successfully achieve the HCl standards before the current compliance date. Thus, this technology should be deemed currently unavailable.

Mercury

As with D/F, the technology identified by EPA for treatment of mercury is ACI. As with all the technologies addressed here, ACI has not been used at lime plants in the United States to treat mercury. Once again, EPA's projections of the feasibility and costs of using this technology were not based on data from lime kilns, and thus are speculative. With mercury, an added challenge is that the same technology is to be used to treat both mercury and D/F, and testing will be required to make sure that parameters can be set so that both standards are met in the same device. Again, this will require extensive testing, to be carried out in equipment that currently does not exist.

NLA's comments cited additional technical issues with treatment of mercury in lime kilns with ACI. For example, 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. In addition, specific conditions in each kiln can significantly affect ACI's effectiveness, including the presence of water vapor or sulfur dioxide, requiring adjustment of injection rates.

Testing to determine how to treat mercury in each lime kiln will take a significant amount of time, and thus it is unknown if this technology can be consistently installed at lime plants and successfully achieve the mercury standards before the current compliance date. Thus, this technology should be deemed currently unavailable.

Overall, EPA's candidate control technologies identified as necessary for lime kilns to comply with the Lime Rule will require significant research and development, pilot plant

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question, because where no sources are controlling, it is nonsensical to refer to the "best performers." The speculative nature of EPA's technology predictions adds focus to this issue.

experimentation, and great expense (and uncertainty). Furthermore, their application to achieve the very low levels of HAP emissions from lime kilns is far from demonstrated in practice and may not be achievable for many lime kilns.[4] Accordingly, a two-year extension of time for compliance is clearly appropriate for all affected sources in the lime industry.

3. The Technologies That Would Be Required Under the Rule Will Cause More Environmental Harm Than Benefit

As noted above, EPA found that to comply with the standards for organic HAPs some sources would need to install RTOs. These units require substantial energy to operate, normally provided by natural gas. Combustion of gas in these units will generate tens of thousands of tons of carbon dioxide and other greenhouse gases, as well as NOx and carbon monoxide that would be released into the atmosphere. In addition, any natural gas unnecessarily consumed in this process would be a wasted resource that could have been used for another beneficial purpose such as heating homes, producing cleaner electricity, or storage for future use. Since EPA's risk assessment shows that use of these devices is not necessary to address any unacceptable risk, their operation will result in more potential harm to the environment than benefit.

The treatment technology that will be needed to address D/F and mercury is ACI. Use of this technology is likely to result in carbon residues appearing in lime kiln dust, which is a byproduct of lime manufacturing, and which is typically sold in commerce. The presence of carbon residues in this material may render it unusable and thus unsalable, increasing the amount of solid waste that would require disposal. This constitutes another unnecessary harm to the environment.

To control HCl, EPA finds that lime plants will need to use DSI, in which lime product is injected into the kiln gases—wasting that product. Lime is a valuable resource that can be used for many environmentally beneficial purposes. But EPA's rule would force lime companies to use significant amounts of their own product to reduce HCl emissions that EPA has twice found to pose acceptable risk with an ample margin of safety. Instead of using that lime for unneeded HCl emissions reductions, that same lime could be used to make other much more significant environmental improvements. For example, lime is used to scrub sulfur dioxide emissions, to treat drinking water, to treat acid mine drainage, and in many other applications.

EPA's own analysis acknowledged that the imposition of new emissions standards will result in secondary impacts from projected controls required for compliance. EPA expects lime plants to use 1.12 million additional gallons of water per year to address HCl controls with wet packed tower gas absorbers ("WPTGAs"). EPA predicts that solid waste from WPTGAs, Dry Sorbent Injection, and Activated Carbon Injection will increase solid waste by 13,500 tons per year. And finally, EPA states that all types of pollution controls installed under the rule (including WPTGAs, Dry Sorbent Injection; Regenerative Thermal Oxidizers; Activated Carbon

[4] For additional information on issues with control technologies in the lime industry, *see Appendix A of the National Lime Association comments on EPA Lime Rule,* EPA-HQ-OAR 2017-0015 (Feb. 21, 2023).

Injection; and Heat Exchangers) will collectively use an additional 1.77 ***trillion*** Btu's of energy annually (equivalent to unnecessarily burning about 88,000 tons of coal annually).[5] This wasteful use of natural resources constitutes environmental harm.

NLA believes that a technology should not be considered "available" if its use would cause more harm to the environment that the benefits it would confer.

4. <u>The Standards Cannot Be Implemented with Cost-Effective Technology</u>

No *cost-effective* technology is available, or could be available, to implement the standards established in the Lime Rule. EPA estimates that the rule will cost the industry up to $2.4 billion over the next 20 years ($485 million in capital investment) or $175 million annually. (NLA's cost estimates are even higher: $924 million capital investment and $180 million annually.) As noted above, EPA's own risk assessment showed that even without controls, emissions from the industry presented an acceptable level of risk with an ample margin of safety. As a result, any costs expended to meet these standards are unreasonable, and, by definition, not cost-effective. This factor is particularly significant for small business sources that cannot spread compliance costs across multiple locations, and the U.S. Small Business Administration's Office of Advocacy raised serious concerns about the Lime Rule's feasibility and cost, leading EPA to reopen the rule for additional proceedings to address issues affecting small businesses.

For all the reasons stated above, none of the technologies identified to implement standards in the Lime Rule are available within the period between the present and the compliance date of July 16, 2027, and an exemption should be granted extending the compliance date until July 16, 2029, to all the sources on the attached list, while EPA reconsiders the rule.

B. IT IS IN THE NATIONAL SECURITY INTERESTS OF THE UNITED STATES TO PROVIDE AN EXEMPTION FROM THE LIME RULE COMPLIANCE DATE

Lime production is essential to the national security of the United States. EPA's Lime Rule, if implemented, would both increase the cost of lime, and restrict the availability of lime products. This would have a negative impact on multiple other industries and activities, harming the national security interests of the United States.

The U.S. Geological Survey has noted that the major markets for lime, in descending order of consumption are "steelmaking, chemical and industrial applications (such as the manufacture of fertilizer, glass, paper and pulp, and precipitated calcium carbonate, and in sugar refining), flue gas treatment, construction, water treatment, and nonferrous-metal mining." These are all essential industries.

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[5] *See Regulatory Impact Analysis for the Final Amendments to the National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants,* EPA-452/R-24-014 (June 2024) at pp. 29-30.

For steel production lime is used as a flux and slagging agent to remove impurities. The steel industry accounts for approximately 30% of all lime sold or used in the United States. Lime is also used in nonferrous metallurgy, such as in the production or recovery of copper, zinc, alumina, magnesia, uranium, nickel, gold, and silver. Lime is also used widely in construction, including in the building of roads and airports.

Lime is used across the United States to treat drinking water, and to treat sewage. Lime is an essential element in the production of numerous materials that would be needed during any medical crisis, such as paper products (including toilet paper), as well as latex and glass products used in medical applications. Lime products are also used in the production of animal feed, food and medicinal products (antacids, stabilizers, vitamins, etc.). Lime is also essential for the treatment of air emissions from numerous industries, including flue gas desulfurization in coal-fired power plants.

During the COVID-19 pandemic, many state governors issued emergency orders instructing industrial plants to shut down operations to control the spread of the virus. Lime plants were routinely exempted from these emergency state orders because lime is considered essential to public health and welfare due to its use in ensuring adequate supplies of clean drinking water, wastewater treatment, and addressing acid mine drainage in rivers and streams.[6] In addition, there was a recognition that lime was an essential ingredient for a variety of critical uses, including manufacture of metal, paper, and chemical products, animal feed, pollution control, road construction, and stabilization of earthen dams.

Lime products are typically not stored or stockpiled for a long period of time, with most of the industry practicing on-demand production and delivery. If lime production were to be disrupted, stocks of lime for all the uses mentioned above would be rapidly depleted, in some cases in a matter of days.

More details on the essential uses of lime can be found in U.S. Geological Survey documents at https://pubs.usgs.gov/myb/vol1/2019/myb1-2019-lime.pdf.

Accordingly, the Lime Rule implicates national security interests because lime products are essential to an array of essential industries and activities, including steelmaking, clean drinking water, and many others.

For all the reasons stated above, NLA urges the issuance of a 2-year exemption from the current July 16, 2027, compliance date of the final Lime Rule *National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Technology Review* (the "Lime Rule"), published in the *Federal Register* at 89 Fed. Reg. 57,738 (July 16, 2024), extending the compliance date to July 16, 2029, pending EPA's review of the rule for possible revision. Attached is a list of all the major sources in the lime industry that require a two-year extension of the compliance date.

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[6] *See, e.g., Pennsylvania Governor Wolf's Listing of Life-Sustaining Businesses*, (Including Lime)(March 24, 2020). PA-List-of-Life-Sustaining-Businesses-Updated.pdf.

If EPA requires any further information to support this request, or requires information in a different format, please contact NLA staff members Hunter Prillaman (hprillaman@lime.org) or Bradford Frisby (bfrisby@lime.org) and we will promptly supply additional information.

Respectfully submitted,

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