NATURAL RESOURCES DEFENSE COUNCIL

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U.S. Environmental Protection Agency
Air and Radiation Docket and Information Center
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Re: **Comments on EPA's Proposed Rule Concerning Revisions to Lead Ambient Air Monitoring Requirements ("Proposed Rule"), 74 Fed. Reg. 69,050 (to be codified at 40 C.F.R. pt. 58) (EPA-HQ-OAR-2006-0735) (Exhibits A-I submitted via regulations.gov at EPA-HQ-OAR-2006-0735)**

We submit these comments on behalf of the Natural Resources Defense Council; the Missouri Coalition for the Environment; Physicians for Social Responsibility; the Coalition to End Childhood Lead Poisoning; American Bottom Conservancy; American Lung Association; Center on Race, Poverty & the Environment; Citizens Against Ruining the Environment; Clean Air Council; East Michigan Environmental Action Council; Learning Disabilities Association of America; New York City Environmental Justice Alliance; The Point; Public Interest Law Center of Philadelphia's Public Health and Environmental Justice Project; Respiratory Health Association of Metropolitan Chicago; Science and Environmental Health Network; Trust for Lead Poisoning Prevention; UPROSE; Utah Physicians for a Healthy Environment; Leslie and Jack Warden; WEACT for Environmental Justice; and the Wasatch Clean Air Coalition.

We believe EPA's proposed rule will help ensure that communities that face the risk of unhealthy levels of airborne lead pollution are adequately protected by monitoring for compliance with the National Ambient Air Quality Standards (NAAQS). We encourage EPA to adopt it, with some suggested improvements. For the reasons set forth in these comments, in addition to adopting the proposed monitoring threshold, we urge EPA (1) to amend the proposed language at subsection 4.5(a)(ii) of 40 C.F.R. Part 58, Appendix D to attach specific conditions to the issuance of waivers of the source-oriented monitoring requirements for lead and (2) to amend the proposed language at subsection 4.5(a) of 40 C.F.R. Part 58, Appendix D to provide more guidance to states concerning the kinds of sources that are "expected to or have been shown to contribute a maximum lead concentration in ambient air in excess of the NAAQS, taking into account the logistics and potential for population exposure."

I. In Establishing Monitoring Requirements Under the NAAQS, EPA Must Protect the Health of Sensitive Subpopulations With an Adequate Margin of Safety to Protect Against Uncertainties and Must Base its Decisions on the Latest Scientific Knowledge.

The Clean Air Act ("CAA") requires the EPA to set NAAQS at levels that protect public health with an adequate margin of safety. CAA § 109(b)(1). In its final rule on the NAAQS, EPA determined that an ambient standard of 0.15 $\mu g/m^3$ of lead is requisite to protect public health with an adequate margin of safety. National Ambient Air Quality Standards for Lead, 73 Fed. Reg. 66964, 67006 (Nov. 12, 2008). EPA has characterized the monitoring requirements as designed to provide the information necessary to assess compliance with that ambient standard and to identify violations. *See* 73 Fed. Reg. at 67024. Inadequate source-specific monitoring undermines the purpose of the NAAQS by making it more difficult, if not impossible, to assure that lead levels in the ambient air around major lead sources do not exceed the 0.15 $\mu g/m^3$ standard required to protect public health. Without adequate monitoring to identify areas of noncompliance and subsequent steps to ensure compliance, the NAAQS cannot serve its intended purpose of protecting health with an adequate margin of safety. As discussed further below, EPA's analysis shows that a monitoring threshold of 0.5 tons per year will likely capture all potential violations of the health-based NAAQS standard. It thus provides an adequate margin of safety to protect against uncertainties based on a scientific analysis, and we are pleased to support EPA's proposed threshold for monitoring.

II. To Protect Public Health with an Adequate Margin of Safety, EPA Should Adopt the Proposed Rule Provision that Would Require the Installation of Source Monitors Near Each Lead Source Which Emits 0.50 or More Tons Per Year of Lead.

The latest and best available scientific evidence supports the adoption of a near-source monitoring threshold of 0.50 tons per year of lead to protect public health with an adequate margin of safety. The available evidence demonstrates that facilities emitting 0.5 tons per year of lead or more have the potential to contribute to a violation of the NAAQS. According to the US EPA 2005 National Emissions Inventory (NEI), almost 600 tons of lead were released into the atmosphere from industrial facilities. The lead from these facilities can result in unsafe levels of lead in the air and, once deposited in the soils, represents a reservoir for future contamination of airborne dust. Multiple studies have documented elevated levels of lead in the soils surrounding industrial facilities.[1] [2] [3] Similarly, the existing network of monitors of airborne lead levels in the EPA Air Quality System have documented elevated levels of lead

[1] Young TM, Heeraman DA, Sirin G, et al. Resuspension of soil as a source of airborne lead near industrial facilities and highways. Environ Sci Technol 36(11): 2484-2490, 2002 (Attached as Exhibit A).

[2] Aelion CM, Davis HT, McDermott S et al. Soil metal concentrations and toxicity: associations with distances to industrial facilities and implications for human health. Sci Total Environ 407(7): 2216-2223, 2009 (Attached as Exhibit B).

[3] Diawara MM, Litt JS, Unis D, et al. Environ Geochem Hlth 28: 297-315, 2006 (Attached as Exhibit C).

downwind from industrial sources. 74 Fed. Reg. at 69052-53. The average of the maximum 3-month average lead concentration measured between 2001 and 2003 downwind from the seven facilities where EPA currently has adequate monitoring was 0.78 $\mu g/m^3$. This is approximately 3 times greater than the nationwide average measured during those same years and more than 6 times the current NAAQS.[4] Due to the elevated levels measured in the air and soils downwind of major lead emitting facilities, it is crucial that these areas be closely monitored so that unsafe levels of lead can be detected and measures taken to reduce the health threat to neighboring communities.

However, the existing monitoring network for lead is insufficient to adequately protect public health by monitoring for these potential violations of the NAAQS. While the 2005 NEI identifies approximately 100 sources emitting more than 1 ton of lead per year, only 7 of them currently have adequate downwind monitoring data. The expansion of the lead monitoring network contained in the proposed rule will provide crucial data on the concentration of lead in ambient air so as to protect vulnerable populations. EPA's evaluation of ambient lead levels measured downwind from major sources demonstrates that facilities with less than 1 ton per year of lead emissions have the potential to cause ambient lead levels in exceedence of the NAAQS. Therefore, monitoring downwind of facilities that emit between 0.5 and 1 tons per year of lead is necessary to provide sufficient information about airborne lead levels near these facilities in order to adequately enforce the NAAQS and to protect health with an adequate margin of safety. The addition of up to 161 additional source-oriented monitors, for a total of 272, will significantly expand public health protections for communities near large industrial sources.

The available evidence also supports the retention of the same monitoring threshold for airports which emit more than 0.5 tons per year of lead. Due to the continued use of leaded aviation gas, USEPA estimated that over 600 tons of lead were released from piston-engine powered aircraft in 2002.[5] Because piston-engine powered aircraft continue to be a significant presence at general aviation airports, these airports continue to be a source of lead emissions with the potential to result in lead concentrations in exceedence of the NAAQS. Although lead emissions from aircraft can be dispersed widely, evidence from studies suggests that the landing and take-off activities at general aviation airports increases pollutant levels in adjacent communities. In particular, spikes in particulate matter concentrations, which can carry the lead contamination, were associated with aircraft activity at a general aviation airport in Southern California.[6] In addition, due to their reduced size, general aviation airports are frequently in closer proximity to neighboring communities than larger airports,

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[4] US EPA. 2009. National Trends in Lead Levels 1980-2008. http://www.epa.gov/cgi-bin/broker?_service=data&_program=dataprog.aqplot_data_08.sas&parm=12128&stat=rqmax&styear=1990&endyear=2008&pre=val (last visited Feb. 16, 2009) (Attached as Exhibit I).

[5] USEPA. 2008. Lead Emissions from the Use of Leaded Aviation Gasoline in the United States. Technical Support Document. EPA420-R-08-020 (Docket No. EPA-HQ-OAR-2006-0735-5917) (Attached as Exhibit D).

[6] Hu S, Fruin S, Kozawa K, et al. Aircraft emission impacts in a neighborhood adjacent to a general aviation airport in southern California. Environ Sci Technol 43: 8039-8045, 2009 (Attached as Exhibit E).

thereby exposing populations to potentially unsafe pollutant levels.[7] All five of the studies EPA reviewed where lead was monitored downwind from airports found elevated lead concentrations and, where the monitoring was consistent with the NAAQS, the concentrations were significant.[8] The latest and best available data on downwind pollution from these airports thus supports the decision to consider them point sources analogous to industrial facilities with the potential to cause downwind lead concentrations exceeding the NAAQS. As the EPA points out, there is no evidence to support a departure from the monitoring threshold for industrial sources. Therefore, EPA is justified in requiring monitors downwind of airports with estimated emissions exceeding 0.5 tons of lead per year.

III. To Protect Public Health With an Adequate Margin of Safety, EPA Should Revise the Proposed Waiver Language at Subsection 4.5(a)(ii) to 40 C.F.R. Part 58, Appendix D to Attach Specific Conditions to the Issuance of Waivers.

Subsection 4.5(a)(ii) to 40 CFR Part 58, Appendix D allows monitoring agencies to request a waiver of the source-oriented lead monitoring requirement if they can demonstrate that a lead source will not contribute to a maximum lead concentration in ambient air in excess of 50 percent of the NAAQS (based on historical monitoring data, modeling, or other means).

When performed with robust lead emissions data, modeling can help agencies evaluate the impact of factors such as meteorology and terrain on ambient lead concentrations. However, poorly rated emission factors or other unreliable lead emissions estimates should not be used in modeling for waiver requests. The EPA has previously acknowledged in the context of waivers "the possibility that faulty or uncertain modeling demonstrations or past monitoring programs would be the basis for not monitoring sources that are the most likely to cause NAAQS violations." Proposed Rule for National Ambient Air Quality Standards for Lead, 73 Fed. Reg. 29184, 29263 (May 20, 2008). Given this acknowledgement and the range of reliability in lead emissions estimates, EPA must place further limitations on the grant of waivers in order to protect public health with an adequate margin of safety. EPA should limit the use of lead emissions estimates in modeling for waiver requests to site specific emissions data or independently verified lead emissions estimates in light of its statement that many NEI lead emission estimates can be improved with site specific data. 73 Fed. Reg. at 67026. Without these limitations to prevent the use of unreliable lead emission estimates, monitoring requirements may inappropriately be waived for sources that contribute to a maximum ambient air lead concentration of over 50 percent of the NAAQS.

In addition, although the EPA has stated that the "purposes of the monitoring network would be undermined if multiple sources in a single area were able to receive

[7] *Ibid.*

[8] Cavender. 2009. Review of Pb Monitoring Conducted Near General Aviation Airports (Docket No. EPA-HQ-OAR-2006-0735-5919).

waivers, with the result that no monitor was required even though Pb concentrations in the area were in excess of 50 percent of the standard," 73 Fed. Reg. at 67027, it has not added any limitations in the waiver provision to ensure that this will not occur. Instead, in the preamble to the final rule, EPA states that it "*expects* that Regional Administrators, in deciding whether to grant waivers, will take into account whether other waivers have been granted or sought for sources in the same area, and whether the cumulative emissions of the sources in the area warrant at least one monitor being sited." 73 Fed. Reg. at 67027 (emphasis added). EPA should also add language to the waiver provision to ensure that lead concentrations from multiple sources adding up to more than 50% of the NAAQS are adequately captured, especially given EPA's proposal to dispense with population-based monitors in urban areas. In light of that proposal, it is even more important to ensure that waivers do not prevent urban areas from being adequately monitored. The other limitations on waivers suggested above will also help achieve this objective by strengthening health-protections in the waiver provision.

IV. EPA Should Require Lead Monitoring at All NCore Sites to Gather Data on Multi-Pollutant Exposures Across the Country, Including Lead, But Must Create Other Mechanisms to Meet the Other Objectives of Population-Based Monitoring and to Protect Public Health With an Adequate Margin of Safety.

We support the inclusion of lead in the proposed NCore monitoring network because including lead in the network will provide valuable data on multi-pollutant exposures in cities and towns across the county.

However, the inclusion of lead monitoring in the NCore network does not sufficiently address all of the original objectives of the population-based monitoring that EPA seeks to replace with the proposal on the NCore network. EPA required population-based monitoring to achieve three objectives: 1) to measure neighborhood scale lead concentrations in urban areas impacted by resuspended dust from non-inventoried sources such as roadways, closed industrial sources which previously were significant sources of lead, hazardous waste sites, construction and demolition projects, or other fugitive dust sources of lead; 2) to assist in determining nonattainment boundaries; and 3) to help in better characterizing population exposure to ambient air related lead. 74 Fed. Reg. at 69055. EPA suggests in its proposal that the NCore network can help achieve these objectives and that of supporting the development of long-term trends at typical concentration sites. *Id.* at 69056.

However, the NCore network is ill-equipped to achieve the first and second objectives. The spatial heterogeneity of current day and past emissions and lead contamination reservoirs in soils due to legacy pollution means that the these monitors will not be sufficient to capture all areas of elevated lead concentrations. In particular, the potential for re-suspension of lead contaminated soils to result in an ongoing public health threat will not be adequately addressed and monitored through the inclusion of lead in the NCore monitoring network because the NCore network monitoring locations

are not chosen on the basis of potential lead exposure. NCore network monitors, thus, are likely to be of limited help in determining attainment boundaries as well. Moreover, the network also covers many fewer urban areas (50 as opposed to the 101 covered by population-based monitoring). *Id.* at 69055-56.

Yet, it is crucial to achieve both these objectives of the population-based monitoring system to ensure that the health threat of airborne lead exposures in those areas burdened with extensive lead contamination will be adequately monitored and evaluated. Monitoring airborne lead pollution from non-inventoried sources is particularly important to ensure the protection of vulnerable communities.

EPA proposes to address the non-inventoried sources under the catch-all provision for source-oriented monitoring. However, without further guidance to the states, as discussed further below, the catch-all provision is not adequate to achieve the objectives that the population-based monitoring sought to achieve. That is because, without the specific requirement of siting monitors in urban areas to evaluate non-inventoried sources (as required for population-based monitoring), *id.* at 69055, monitoring of these sources is not required and is thus unlikely to materialize.

a. To Protect Public Health With an Adequate Margin of Safety, EPA Should Revise the Proposed Language at Subsection 4.5(a) to 40 C.F.R. Part 58, Appendix D to Provide More Guidance to States on the Kinds of Sources "Which Are Expected to Or Have Been Shown to Contribute to" NAAQS Violations.

The re-suspension of lead contaminated soils has been found in multiple studies to be a major contributor to airborne lead concentrations. Moreover, higher airborne lead concentrations were measured near areas impacted by historic lead pollution such as near roadways and previous industrial activities. [9] [10] [11] The proposed rule recognizes the potential threat posed by these sources and refers to them as "non-inventoried sources," stating that "[s]ome sources of lead which are not in the current NEI that could result in ambient lead concentrations in excess of the lead NAAQS have been identified." 74 Fed. Reg. at 69055. Research, such as the study conducted by Young et al. (2002), where contaminated soils were analyzed for their potential to contribute to airborne lead concentrations have demonstrated the potential for these areas to result in concentrations that could exceed the NAAQS.[12] However, the proposed monitoring rule is not sufficient to ensure that monitoring of these sites is included in state monitoring plans. The monitoring rule should be revised to provide specific guidance

[9] Young, 2484-2490 (Attached as Exhibit A).

[10] Pingitore NE, Clague JW, Amaya MA, et al. Urban airborne lead : x-ray absorption spectroscopy establishes soil as dominant source. Public Library of Science 4(4) : e5019 : 1-8, 2009 (Attached as Exhibit F).

[11] Krudysz MA, Froines JR, Fine PM, et al. Intra-community spatial variation of size-fractionated PM mass, OC, EC, and trace elements in the Long Beach, CA area. Atmos Environ 42: 5374-5389, 2008 (Attached as Exhibit G).

[12] This study found the potential for 3-300 ng of PM_{10} Pb/m^3 as a result of the resuspension of contaminated soils near industrial facilities and highways.

to states on the development of monitoring plans that include non-inventoried sources such as areas heavily impacted by historic lead emissions. Community level studies have demonstrated that these areas include those near roadways that received heavy traffic before the phase out of leaded gasoline and closed industrial facilities. [13] [14] [15] Guidance could require, for instance, the review of relevant databases (such as those listing Superfund and brownfield sites or other assessments of contaminated sites) and studies (including academic and community level surveys) to identify those areas with documented lead contamination, and particular vigilance for sites likely to pose a threat of airborne lead pollution.

V. Conclusion

We support EPA's decision to lower the monitoring threshold in light of the available data and EPA's analysis showing facilities emitting more than 0.5 tons per year of lead can result in an exceedence of the NAAQS. We also support the application of the same monitoring threshold to airports emitting more than 0.5 tons of lead a year. The lowering of the monitoring threshold will ensure that the monitoring is adequate to protect public health with an adequate margin of safety. We also urge EPA to attach conditions to the data used in the issuance of waivers to ensure that waivers are based on reliable data. Finally, we urge EPA to provide greater guidance to states in developing their monitoring plans to account for the consideration of non-inventoried sources under the catch-all provision of the source-oriented monitoring provision and thus to ensure that the health of vulnerable communities in urban areas is protected with an adequate margin of safety.

Sincerely,

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[13] Brown RW, Gonzales C, Hooper MJ, et al. Soil lead (Pb) in residential transects through Lubbock, Texas: a preliminary assessment. Environ Geochem Hlth 30: 541-547, 2008 (Attached as Exhibit H).

[14] Pingitore, e5019: 1-8 (Attached as Exhibit F).

[15] Diawara, 297-315, 2006 (Attached as Exhibit C).

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