

3-22-15

Gina McCarthy  
Administrator  
U.S. Environmental Protection Agency

Re: Docket ID No. EPA-HQ-OAR-2010-0108 (40 CFR Part 50, National Ambient Air Quality Standards for Lead; Proposed Rule - Federal Register / Vol. 80, No. 2 / Monday, January 5, 2015, p 278-324.)

In October of 2014, at the LEAD<sup>1</sup> conference in Georgetown, your speech contained the following,

*“...because we took action, our kids won’t grow up breathing toxic leaded gas fumes.”<sup>2</sup>*

Unfortunately, this statement is not true for kids who live near lead emitting smelters, other lead emitting industries, and around numerous airports where leaded aviation fuel is still used. These children continue to breathe air tainted with lead. Because you have judged to leave the NAAQS for lead at 150 ng/m<sup>3</sup> (0.15 ug/m<sup>3</sup>) these children, albeit “*a small percentile of the population*”<sup>3</sup>, will not be protected with “*an adequate margin of safety.*”<sup>4</sup>

I submit this letter of comment on behalf of Stephanie who is 13 months old. Stephanie lives near the largest facility source of lead pollution in Oregon, the Hillsboro Airport.<sup>5</sup> Stephanie’s blood lead level is 1,200 ng/dl.<sup>6</sup>

To be compliant with the Clean Air Act<sup>7</sup>, I believe the information and analysis contained in the current review materials makes it requisite to lower the NAAQS for lead. Not lowering the NAAQS for lead because there are some “data gaps and uncertainties”<sup>8</sup> is irresponsible. While we are waiting for absolute certainty, some children are at risk. To clear up these “data gaps and uncertainties” will require, if they are even done, a decade or two of studies evaluating maternal and fetal blood lead levels, maternal lead burden at time of conception, ambient air [Pb] levels, consideration of other multimedia lead sources, and correlation with later neurocognitive function (IQ, ADHD, Conduct Disorders, etc.).

Assuming that such studies started tomorrow, the “gaps and uncertainties” will not be eliminated until perhaps 2025 to 2035. That will be too late for Stephanie and the other children that live near sources of lead air pollution. Given what is presently known about lead, including animal and plant studies, waiting for “certainty” is most disheartening, a classic case of “analysis paralysis”<sup>9</sup>.

The current standard does not provide “*an adequate margin of safety*” for **all** of the public<sup>10</sup>.

If there was a known threshold for the toxicity of lead then not lowering the NAAQS might be defensible. That, however, is not the case. The 2014 Policy Assessment for the Review of the Lead National Ambient Air Quality Standards (PA) recognizes that neurocognitive effects of lead have been demonstrated at the lowest blood levels so far studied.<sup>11</sup> The current review of the NAAQS for lead concludes that no threshold for lead’s toxicity has been established<sup>12</sup>, though not precluded.<sup>13</sup> EPA’s Integrated Risk Information System (IRIS) also concludes there is no threshold for lead’s toxicity.<sup>14</sup>

Without a toxicity threshold, not lowering the current NAAQS for lead continues to allow, and can in fact, facilitate<sup>15</sup> **increased** lead emissions.

The 2014 Policy Assessment (PA) states,

*“Relative to the previous Pb NAAQS [1.5 ug/m<sup>3</sup>], substantial reduction in estimates of air-related risk is demonstrated across the full set of potential alternative standards simulated (Table 3-10).”<sup>16</sup>*

Please note that the lowest alternative standard simulated was 0.02 ug/m<sup>3</sup>.<sup>17</sup>

The 2014 PA also states,

*“The median air-related IQ loss estimate for the current standard [0.15 ug/ m<sup>3</sup>], in the Generalized (local) Urban Case Study, newly derived by interpolation from 2007 REA results, falls somewhere within the lower and upper bounds of 1.5 and 3.4 points IQ loss<sup>18</sup>, respectively (Table 3-11).”<sup>19</sup>*

In comparison, the lowest alternative standard simulated, 0.02 ug/m<sup>3</sup>, estimates a median air-related IQ loss which falls somewhere within the lower and upper bounds of 0.3 and 2.6 IQ points<sup>20</sup>, a significantly lower loss range than that which is estimated to occur with the current standard of 0.15 ug/m<sup>3</sup>. The delta of IQ loss between the current standard of 0.15 ug/ m<sup>3</sup> and the lowest alternative standard simulated of a 0.02 ug/ m<sup>3</sup> is 1.2 (low boundary) and 0.8 (high boundary) IQ points.

The 2015 Proposed Rule states,

*“Based primarily on studies of FSIQ [full scale IQ], the assessment of the currently available studies, as was the case in the last review, continues to recognize a nonlinear relationship between blood Pb and effects on cognitive function, with a greater incremental effect (greater slope) at lower relative to higher blood Pb levels within the range thus far studied, extending from well above 10 µg/dL to below 5 µg/dL (2013 ISA, section 4.3.12).”<sup>21</sup>*

In 2008, previous EPA Administrator Johnson stated,

*“Ideally air-related (as well as other) exposures to environmental Pb would be reduced to the point that no IQ impact in children would occur.”<sup>22</sup>*

Unfortunately, even though Administrator Johnson lowered the NAAQS for lead ten-fold in 2004, he did not lower the standard sufficiently to achieve that ideal. Your judgement in the present Proposed Rule is to not revise the current NAAQS for lead – citing “gaps and uncertainties”. While there are “gaps and uncertainties” the science to date overwhelming points to the almost certain conclusion that lead’s toxicity respects no threshold. The “gaps and uncertainties” excuse for not seeking the ideal, for not doing all within your power to protect, with “*an adequate margin of safety*”, those children living near lead emitting sources rings hollow.

A decade ago, in 2005, the CDC stated,

*“Ultimately, **all nonessential uses of lead should be eliminated**...all levels of government share responsibility for primary prevention of childhood lead poisoning.”<sup>23</sup>*

Not lowering the NAAQS for lead does not facilitate the CDC's recommendation. Rather, to the contrary, it can do just the opposite. In Hillsboro, Oregon, the Hillsboro Airport was estimated, according to the National Emissions Inventory, to have emitted 0.68 tons of lead in 2008<sup>24</sup>. With a newly constructed additional runway the Federal Aviation Administration (FAA) estimates that lead emissions will increase to 0.9 tons per year.<sup>25</sup> In defense of their "Finding of No Significant Impact" (FONSI) for the additional runway the FAA cited the NAAQS for lead of 0.15 ug/m<sup>3</sup> to support their FONSI from lead pollution due to an additional runway. The FAA relied on the airport owner's consultant's modeling, which estimated air concentrations below the NAAQS of 0.15 ug/m<sup>3</sup>.<sup>26</sup>

I urge the Administrator to consider those children still at risk of lead's extreme toxicity, to consider that any amount of lead in a fetus or child's body is likely deleterious and to consider the damage that will occur while we wait for more studies to close the "gaps" and remove the "uncertainties". Please reconsider your judgement not to revise the NAAQS for lead. The PA, ISA, IRIS, and CDC all provide justification for lowering the standard if you should so judge that lowering the standard is "requisite".

Please lower the NAAQS for lead to 0.02 ug/m<sup>3</sup>, or better yet, lower the NAAQS for lead to what the EPA has indicated is the "average pristine ambient lead concentration" of 0.0005 ug/m<sup>3</sup>.<sup>27</sup> Our society has waited much too long to begin to write the final chapter on lead emissions.

Considering "Environmental Justice"<sup>28</sup>,

*"[Environmental Justice<sup>29</sup>] will be achieved when everyone enjoys the same degree of protection from environmental and health hazards." (EPA Website 3-21-2015<sup>30</sup>)*

*"This February [2014] we're launching a yearlong effort to highlight our leadership on environmental justice through our actions and partnerships nationwide. We'll show the progress we've made on Plan EJ 2014 - our roadmap to integrate environmental justice throughout all of EPA's programs and policies. Each office across the country plays a critical role in strengthening our mission to protect health and environment for every American. At EPA and across the federal family I'm convinced we'll continue our unwavering pursuit of environmental justice to secure the basic promise of equal opportunity for all."*

(EPA Administrator 2-5-2014)

I would submit that those children, such as Stephanie, who are on welfare living near lead sources, are not receiving environmental justice.

In closing, I will quote another statement from your 2014 LEAD conference speech.

*"...let's remind ourselves what we're capable of."<sup>31</sup>*

Please accept this letter of comment as a "reminder".

Thank you,

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<sup>1</sup> The acronym “LEAD” stands for “Leadership Experience and Development”. (Initially I thought this was a conference about lead pollution because of the conference name and because lead pollution was mentioned a lot, but later I realized it was a “leadership” conference, not a conference about lead pollution.) Some references to lead pollution in the speech include the following: “...*It was the auto industry that set the pace of the American economy. Unfortunately, also in the 60’s, our rivers were burning, future superfund sites were popping up all over, smokestacks were spewing black soot, and cars were fueled by leaded gasoline. All the progress was great but folks began to realize that it came at too high a cost. Sure, leaded gasoline was affordable and reliable; but its full cost didn’t show up at the pump. Toxic leaded gas fumes and other pollutants choked our cities, impairing public health. Lead fumes even threatened brain development in our children.* [JIM LUBISCHER - ACTUALLY LEAD FUMES WERE NOT JUST A THREAT TO BRAIN DEVELOPMENT. KNOWLEDGE STARTING IN THE 1970’s HAS SHOWN THAT LEAD FUMES MOST CERTAINLY CONTRIBUTED TO BRAIN DAMAGE OF NUMEROUS CHILDREN.] *The, quote, ‘price of progress’ proved too much to pay. Millions of people demanded cleaner fuel for their cars, and EPA responded. Despite special-interests disputing the science and the costs, EPA phased out leaded gas. And because we took action, our kids won’t grow up breathing toxic leaded gas fumes. We can, and must, take on climate change the same way. Acting on climate change is not just a responsibility we must accept for the sake of our children; it’s an opportunity we should seize, to retool and resurge with new technologies, new industries, and new jobs... This is our new catalytic-converter-moment. As we work to build a cleaner, low-carbon energy future—let’s remind ourselves what we’re capable of.*” EPA Administrator Gina McCarthy remarks at the Georgetown LEAD Conference, As Prepared, on 10-24-2014.

<http://yosemite.epa.gov/opa/admpress.nsf/8d49f7ad4bbcf4ef852573590040b7f6/ca425d96d817267585257d7b005c8f40!opendocument> □ (or try: [EPA Home](#) > [N](#) > [Newsroom](#) > Administrator’s Speeches > 10/24/2014 Administrator Gina McCarthy, Remarks at Georgetown LEAD Conference, As Prepared)

<sup>2</sup> EPA Administrator Gina McCarthy remarks at the Georgetown LEAD Conference, As Prepared, on 10-24-2014.

<http://yosemite.epa.gov/opa/admpress.nsf/8d49f7ad4bbcf4ef852573590040b7f6/ca425d96d817267585257d7b005c8f40!opendocument> □ ([EPA Home](#) > [N](#) > [Newsroom](#) > Administrator’s Speeches > 10/24/2014 Administrator Gina McCarthy, Remarks at Georgetown LEAD Conference, As Prepared) Also see some excerpts of the speech in footnote #1 above.

<sup>3</sup> “Thus, we conclude that the current evidence, as considered within the conceptual and quantitative context of the evidence-based framework, and current air monitoring information indicates that the current standard would be expected to achieve the public health policy goal recommended by CASAC in the last Pb NAAQS review that IQ loss on the order of one to two IQ points be ‘prevented in all but a small percentile of the population’ (73 FR 67000).” (2014 EPA Policy Assessment for the Review of the Lead National Ambient Air Quality Standards, p 4-32)

<sup>4</sup> Clean Air Act Section 109(b)(1): “National primary ambient air quality standards, prescribed under subsection (a) shall be ambient air quality standards the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health.”

<sup>5</sup> National Emissions Inventory 2008, 2011.

<sup>6</sup> I am a pediatrician and Stephanie (name changed to protect identity) is a 13-month-old patient of mine who lives 0.4 miles away from the largest facility source of lead in Oregon. Stephanie is one of those children who make up “a small percentile of the population” that will not be protected with “an adequate margin of safety” by your judgement to leave the NAAQS for lead at 150 ng/m<sup>3</sup> (0.15 ug/m<sup>3</sup>). Stephanie has a blood lead level of 1,200 ng/dl (1.2 ug/dl). Everyday, Stephanie and her siblings breath air contaminated by aviation leaded gas emissions from “...one of the largest airplane and helicopter training schools in the United States.” ( [http://www.flyhaa.com/en/page/about\\_us](http://www.flyhaa.com/en/page/about_us) ) Stephanie lives in a rental house built in 2004. Stephanie’s mother told me she would move her children if she could, but she can’t. Stephanie’s family is on welfare. [Please note that when I last ran the numbers, 85% of my young patients have detectable levels of lead in their blood.]

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<sup>7</sup> Clean Air Act Section 109(b)(1): “National primary ambient air quality standards, prescribed under subsection (a) shall be ambient air quality standards the attainment and maintenance of which in the judgment of the Administrator, based on such criteria and allowing an adequate margin of safety, are requisite to protect the public health.”

<sup>8</sup> “3. CASAC Advice ‘...[a]lthough the current review incorporates a substantial body of new scientific literature, the new literature does not justify a revision to the standards because it does not significantly reduce substantial data gaps and uncertainties (e.g., air-blood Pb relationship at low levels; sources contributing to current population blood Pb levels, especially in children; the relationship between Pb and childhood neurocognitive function at current population exposure levels; the relationship between ambient air Pb and outdoor dust and surface soil Pb concentrations).’ In recognition of these limitations in the available information, the CASAC provided recommendations on research to address these data gaps and uncertainties so as to inform future Pb NAAQS reviews.” Federal Register / Vol. 80, No. 2 / Monday, January 5, 2015, p310

<sup>9</sup> “**Analysis paralysis or paralysis of analysis** is an anti-pattern, the state of over-analyzing (or over-thinking) a situation so that a decision or action is never taken, in effect paralyzing the outcome...The phrase applies to any situation where analysis may be applied to help make a decision and may be a dysfunctional element of organizational behavior. This is often phrased as paralysis by analysis, in contrast to extinct by instinct (making a fatal decision based on hasty judgment or a gut-reaction).” Wikipedia ([http://en.wikipedia.org/wiki/Analysis\\_paralysis](http://en.wikipedia.org/wiki/Analysis_paralysis) )

<sup>10</sup> Pursuant to Section 109(b)(1) of the Clean Air Act, the Administrator shall establish a NAAQS for lead that “is requisite to protect the ‘public health’”. A strict, and morally applicable, interpretation of “public” health would be the health of all citizens, every member of the state: The legal definition of “public”, as found in Black’s law dictionary [ <http://thelawdictionary.org/public/> ], is:

“Pertaining to a state, nation, or whole community; proceeding from, relating to, or affecting the whole body of people or an entire community. Open to all; notorious. Common to all or many; general; open to common use. *Morgan v. Cree*, 46 Vt. 786, 14 Am. Rep. 640; *Crane v. Waters* (C. C.) 10 Fed. 621; *Austin v. Soule*, 36 Vt. 650; *Appeal of Eliot*, 74 Coun. 586, 51 Atl. 558; *O'Hara v. Miller*, 1 Kulp (Pa.) 295. A distinction has been made between the terms “public” and [sic] “general.” They are sometimes used as synonymous. The former term is applied strictly to that which concerns all the citizens and [sic] every member of the state; while the latter includes a lesser, though still a large, portion of the community. 1 Greenl. Ev.”

<sup>11</sup> “...in the case of the current standard level of 0.15 µg/m<sup>3</sup>, multiplication by the air-to-blood ratio of 7 yields a mean air-related blood Pb level of 1.05 µg/dL, which is half the level of the lowest blood Pb subgroup of pre-school children in which neurocognitive effects have been observed (Table 3-2 above; Miranda et al., 2009) and well below the means of subgroups for which continuous CR functions have been estimated (Table 3-3 above).<sup>15</sup> Such an extension below the lowest studied levels may be viewed as appropriate given the lack of identified blood Pb level threshold in the current evidence base for neurocognitive effects and the need for the NAAQS to provide a margin of safety.<sup>16</sup> We note, however, that the framework IQ loss estimates for still lower potential standard levels represent still greater extrapolations from the current evidence base with corresponding increased uncertainty.” EPA Policy Assessment for the Review of the Lead National Ambient Air Quality Standards, 2014, p 4-33.

<sup>12</sup> Federal Register / Vol. 80, No. 2 / Monday, January 5, 2015: “...within the range of blood Pb levels investigated in the available evidence base, a threshold level for neurocognitive effects was not identified (73 FR 66984, November 12, 2008; 2006 CD, p. 8-67).” p287; “...as in the last review, a threshold blood Pb level with which nervous system effects, and specifically cognitive effects, occur in young children cannot be discerned from the currently available studies (ISA, sections 1.9.3 and 4.3.12).” p294; “...the PA notes that the evidence in this review, as in the last, does not establish a threshold blood Pb level for neurocognitive effects in young children (ISA, sections 1.9.4 and 4.3.12).” p307; “...given the lack of identified blood Pb level threshold in the current evidence base for neurocognitive effects...” p312.

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<sup>13</sup> “As concluded in the ISA, however, ‘the current evidence does not preclude the possibility of a threshold for neurodevelopmental effects in children existing with lower blood levels than those currently examined’ (ISA, section 4.3.13)”. 2015 Proposed Rule, Federal Register / Vol. 80, No. 2 / Monday, January 5, 2015, p 294.

<sup>14</sup> EPA’s Integrated Risk Information System (IRIS) finds it “inappropriate” to specify an RfD (and by extension an RfC) for lead because no threshold for lead’s toxicity has been established; that, “It appears that some of these effects [of lead], particularly changes in the levels of certain blood enzymes and in aspects of children’s neurobehavioral development, may occur at blood lead levels so low as to be essentially without a threshold”; and that “Lead bioaccumulates in the body...” EPA’s Integrated Risk Information System (IRIS) concludes it would be “inappropriate” to estimate an RfC for lead because no threshold for toxicity has been shown. See link @ <http://www.epa.gov/iris/subst/0277.htm#refinhal> IRIS states, “I.B.1 Inhalation RfC Summary. No RfC is available. See Section I.A for additional information.” Section I.A details why IRIS does not give an RfD (Reference Concentration for Chronic Oral Exposure) for lead and by extension for RfC (Reference Concentration for Chronic Inhalation Exposure). In short, no RfD (and by extension RfC) for lead is given because RfD and RfC are estimates that are “likely to be without an appreciable risk of deleterious effects during a lifetime.” The RfD and RfC are both “based on the assumption that thresholds exist for certain toxic effects”. IRIS goes on to explain, “EPA considered providing an RfD for inorganic lead in 1985, and concluded that it was inappropriate to develop an RfD, as documented online in the following statement in 1988: A great deal of information on the health effects of lead has been obtained through decades of medical observation and scientific research. This information has been assessed in the development of air and water quality criteria by the Agency’s Office of Health and Environmental Assessment (OHEA) in support of regulatory decision-making by the Office of Air Quality Planning and Standards (OAQPS) and by the Office of Drinking Water (ODW). By comparison to most other environmental toxicants, the degree of uncertainty about the health effects of lead is quite low. It appears that some of these effects, particularly changes in the levels of certain blood enzymes and in aspects of children’s neurobehavioral development, may occur at blood lead levels so low as to be essentially without a threshold. The Agency’s RfD Work Group discussed inorganic lead (and lead compounds) at two meetings (07/08/1985 and 07/22/1985) and considered it inappropriate to develop an RfD for inorganic lead.” [ The IRIS report is available @ <http://www.epa.gov/iris/subst/0277.htm#refinhal> ]

<sup>15</sup> In Hillsboro, Oregon, the Hillsboro Airport was estimated, according to the National Emissions Inventory, to have emitted 0.68 tons of lead in 2008. With a newly constructed additional runway the Federal Aviation Administration (FAA) estimates that lead emissions will increase to 0.9 tons per year. [see footnote #25] In defense of their “Finding of No Significant Impact” (FONSI) for the additional runway the FAA used the NAAQS for lead of 0.15 ug/m<sup>3</sup> to support their FONSI from lead pollution due to an additional runway. The FAA relied on the airport owner’s consultant modeling which estimated air concentrations lower than the NAAQS of 0.15ug/m<sup>3</sup> and so stated that they were below the NAAQS. [see footnote #26]

<sup>16</sup> 2014 Policy Assessment for the Review of the Lead National Ambient Air Quality Standards, p3-61.

<sup>17</sup> 2014 Policy Assessment for the Review of the Lead National Ambient Air Quality Standards, Table 3-10, p3-60.

<sup>18</sup> The numbers used are the “estimates generated [are] using the C-R function in which we have the highest overall confidence (the log-linear with low-exposure linearization).” (2014 Policy Assessment for the Review of the Lead National Ambient Air Quality Standards, Table 3-11, p3-61)

<sup>19</sup> 2014 Policy Assessment for the Review of the Lead National Ambient Air Quality Standards p3-62.

<sup>20</sup> 2014 Policy Assessment for the Review of the Lead National Ambient Air Quality Standards, table 3-11, p3-61.

<sup>21</sup> 2015 Proposed Rule, Federal Register / Vol. 80, No. 2 / Monday, January 5, 2015, p 294.

<sup>22</sup> Federal Register / Vol. 73, No 98 / Tuesday, May 20, 2008, p 29242.

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<sup>23</sup> Preventing Lead Poisoning in Young Children. A Statement by the Centers for Disease Control and Prevention, August 2005, U.S Department of Health and Human Services, Public Health Service, p5.

<sup>24</sup> National Emissions Inventory 2008.

<sup>25</sup> Hillsboro Airport Parallel Runway 12L/30R Final Supplemental Environmental Assessment, Volume 1, Table 6-3, p 30.

<sup>26</sup> Hillsboro Airport Parallel Runway 12L/30R Final Supplemental Environmental Assessment, Volume 1, p 38-40.

<sup>27</sup> See page 72 of EPA's 2010 Development and Evaluation of an Air Quality Modeling Approach for Lead Emissions from Piston-Engine Aircraft Operating on Leaded Aviation Gasoline done at Santa Monica Airport in California. (EPA-420-R-10-007, February 2010): "The combined impacts from on-roadway mobile source Pb exhaust and entrained Pb emissions were shown to be less than the average pristine ambient background concentration of 0.5 ng/m<sup>3</sup> and are therefore not expected to be a significant contributor to ambient Pb concentrations levels."

<sup>28</sup> "J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations -

*The EPA believes that this action will not have disproportionately high and adverse human health or environmental effects on minority, low-income or indigenous populations. The action proposed in this notice is to retain without revision the existing NAAQS for Pb based on the Administrator's conclusion that the existing standards protect public health, including the health of sensitive groups, with an adequate margin of safety. As discussed earlier in this preamble (see section II), the EPA expressly considered the available information regarding health effects among at-risk populations in reaching the proposed decision that the existing standards are requisite."* (Federal Register / Vol. 80, No. 2 / Monday, January 5, 2015, p321)

<sup>29</sup> "Environmental Justice is the fair treatment and meaningful involvement **of all people** regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved **when everyone enjoys the same degree of protection from environmental and health hazards** and equal access to the decision-making process to have a healthy environment in which to live, learn, and work." ( EPA Website 3-21-15 <http://www.epa.gov/environmentaljustice/> )

<sup>30</sup> <http://www.epa.gov/environmentaljustice/>

<sup>31</sup> EPA Administrator Gina McCarthy remarks at the Georgetown LEAD Conference, As Prepared, on 10-24-2014. <http://yosemite.epa.gov/opa/admpress.nsf/8d49f7ad4bbcf4ef852573590040b7f6/ca425d96d817267585257d7b005c8f40!opendocument> □ (EPA Home > N > Newsroom > Administrator's Speeches – By Date > 10/24/2014 Administrator Gina McCarthy, Remarks at Georgetown LEAD Conference, As Prepared) Also see some excerpts of the speech in footnote #1 above.