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Congress of the United States

House of Representatives

COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM

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January 15, 2010

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The Honorable Lisa P. Jackson
Administrator
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue
Washington, DC 20460

Dear Administrator Jackson,

According to EPA, dentists historically use about 34 tons of mercury per year to place or replace dental mercury fillings in Americans. Mercury contained in the existing dental fillings of Americans is, in fact, one of the largest reservoirs of mercury in the United States. According to one estimate, dental mercury comprises over half of all mercury in use today, amounting to over 1000 tons.¹ Dental mercury is also a source of mercury pollution. EPA has developed several emission factors for three routes of atmospheric emissions of mercury related to dental use of mercury. They are: sewage sludge incineration, cremation of human remains containing mercury fillings, and direct air emissions from dental offices.

However, we are concerned that EPA has underestimated the amount of pollution that dental mercury accounts for, thereby rendering this problem a lower priority than it would otherwise be. On the basis of testimony our subcommittee has received, and the findings of our investigation, there appears to be ample justification for EPA to revise its emissions data. As you are fully aware, improving the accuracy of the emissions data is an important first step in improving regulation of dental mercury-source pollution. Yet even while the emission release data is being updated, we strongly urge you to require meaningful reductions of dental mercury into the water and air through goal-based regulatory controls, including mandatory employment of best management practices and amalgam separators, which is similar to what you required earlier when you were Commissioner of the New Jersey Department of Environmental Protection.

¹ EPA International Mercury Market Study, cited in Mercury Policy Project, "Current Status of US Dental Mercury Reduction Initiatives," (Oct. 12, 2007).

Disparities in Data for Mercury Emissions Related to Dental Use of Mercury

At a November 14, 2007 hearing of the Domestic Policy Subcommittee, testimony from witnesses inside and outside the Agency revealed: 1) significant disparities between official EPA estimates and other, more recent emissions estimates, and 2) no emissions estimates for a number of significant additional pathways of dental mercury to the environment. For example, EPA has estimated airborne mercury attributable to wastewater sludge incineration to be 0.6 tons per year. Yet this figure, according to state regulatory officials and EPA itself, may significantly undercount sludge-related mercury pollution. In total, EPA earlier estimated mercury emissions from pathways related to dental use of mercury to be 1.5 tons per year, but in its March 6, 2008 response to my letter suggested that "...these emissions could be as much as two times higher..." Based on testimony provided to the subcommittee, a more realistic estimate for atmospheric emission of dental mercury could range from 7.1 tons per year to 9.4 tons per year, or up to six times official EPA estimates.²

The Northeast States for Coordinated Air Use Management (NESCAUM) estimated that mercury emissions from sludge incineration *in the northeast alone* amounted to 0.5 tons per year.³ According to a northeast state official, "Sewage sludge incinerators were estimated to be the third largest point source of mercury emissions in the northeast prior to regional requirements that dentists use amalgam separators, and accounted for over 1,100 pounds of mercury or 12% of total emissions. This estimate did not include releases from wastewater or land applied sewage sludge, which would significantly increase the total."⁴ Furthermore, EPA admits that its mercury emission data for sludge incineration is "poor," a deficiency it attributes to both the small number of facilities tested and the fact that these facilities were not a random sample of the industry.⁵

It also appears that EPA's estimate of mercury emissions from cremation significantly understates their actual magnitude. EPA estimated total mercury emitted as a byproduct of cremation of human remains to be around 0.3 tons per year. This official estimate is based

² Testimony of Michael Bender, before the Domestic Policy Subcommittee (Nov. 14, 2007).

³ NESCAUM, Inventory of Anthropogenic Emissions of Mercury, (Nov. 2005). Available at: <http://www.nescaum.org/documents/inventory-of-anthropogenic-mercury-emissions-in-the-northeast/>

⁴ Testimony of C. Mark Smith before the Domestic Policy Subcommittee, Oversight and Government Reform Committee, (Nov. 14, 2007).

⁵ Emission Factor Documentation for AP-42 Section 2.2, Sewage Sludge Incineration, Office of Air Quality Planning and Standards, EPA, pp. 3-5 and 4-98, Jul. 1993. Available at: <http://www.epa.gov/ttn/chief/ap42/ch02/bgdocs/b02s02.pdf>

entirely on a single test conducted at a single crematorium 10 years ago, and fails to explain the difference between the amount of mercury in fillings and the amount of mercury measured in crematorium emissions.⁶ However, an article published in 2007 authored by an EPA environmental scientist estimates mercury emissions from cremation at about 3 tons per year, ten times the earlier EPA estimate.⁷ According to the Cremation Association of America, there are about 1,900 crematoria in the US. Nationally, over 30% of Americans are now cremated, a figure that is anticipated to rise to 43% by 2025. The 1998 Northeastern States Mercury Study estimated that each person cremated had an average of 2.9 grams of mercury in fillings, and this figure is still widely considered to be in the right range.⁸ From 2005 data, it is estimated that about 3.3 tons of mercury were emitted by crematoria that year.⁹ In the model used, 25% of these emissions were assumed attached to particulates, which would settle to the ground locally and be classified as land deposition, and 75% assumed to be elemental mercury emissions to the atmosphere. Based on a literature review including ground deposition studies in New Zealand and Norway¹⁰, it appears justifiable to allocate up to 90% of the mercury entering crematoria as emissions to the atmosphere, with some of the balance retained, at least temporarily, in combustion equipment and the stack.

During the next 25 years, emissions from crematoria are expected to rise considerably. There are two simultaneous trends contributing to this: a rise in the average number of fillings per person cremated (better dental health care has resulted in the retention of more teeth, and more fillings, as people age), and a rise in the number of cremations. This will only eventually be counter-balanced by the gradually increasing replacement of amalgam fillings with mercury-free alternatives.

EPA has not developed emissions factors for a number of additional pathways

As pointed out in a letter to EPA dated February 11, 2008, there are a number of other dental mercury-related air emissions for which EPA has not developed emission factors, including dental mercury:

⁶ Appendix A: NEI Nonpoint HAP Source Estimates – Human Cremation, Footnote 3.

⁷ Alexis Cain et al. “Substance Flow Analysis of Mercury Intentionally Used in Products in the United States,” *Journal of Industrial Ecology*, Volume 11, Number 3 (2007).

⁸ J Reindl, Summary of References on Mercury Emissions from Crematoria, Dane County, (Nov. 3, 2008), available at: <http://www.ejnet.org/crematoria/reindl.pdf>

⁹ A Cain, S Disch, C Twaroski, J Reindl and CR Case, Substance Flow Analysis of Mercury Intentionally Used in Products in the United States, *Journal of Industrial Ecology*, Volume 11, Number 3.

¹⁰ *Id.*

- in sludge that is landfilled or spread on agricultural or forest land, or that is dried before it is used as fertilizer;
- in infectious and hazardous waste; in general municipal waste;
- in human respiration;
- in waste removed as grit and fines at wastewater treatment plants and disposed of in a variety of ways, and
- in combined sewer overflows.

EPA has Statutory Authority to Revise and Improve Emissions Data

As you know, EPA is required by the Clean Air Act (CAA) (codified at 42 U.S.C. §7401-7671) to monitor emissions and develop emission standards for a number of hazardous air pollutants, including mercury. Section 114 authorizes EPA to conduct inspections and to require monitoring at emission sources for developing emission standards, determining violations and "carrying out any provision of this Act." Section 130 requires the Agency to "permit any person to demonstrate improved emissions estimating techniques, and following approval of such techniques, the Administrator shall authorize the use of such techniques." Under the CAA, EPA is moving forward with MACT standards to control releases from coal-fired power plants. EPA has also recently published emission standards for mercury and other pollutants originating in hazardous waste incinerators, mercury-cell chlor-alkali plants, iron and steel foundries, and industrial boilers. But in spite of glaring deficiencies in its appreciation of the extent of emissions that relate to dental mercury, EPA has chosen not to revise and improve its data as the circumstances call for, and as the law requires.

Subcommittee Requests

We believe there is ample justification for EPA to invoke its authority to reevaluate and update its own emissions estimating techniques, and to consider the whole range of mercury emission sources attributable to dental applications. We call upon EPA to do so in a timely manner, and the Subcommittee looks forward to learning of EPA's work plan and schedule to address this issue.

To that end, we request that EPA provide the Subcommittee with a plan, complete with projected dates, by which it will reevaluate and update its own mercury emissions factors for wastewater sludge incineration and crematoria, and establish mercury emissions factors for: sludge that is landfilled or spread on agricultural or forest land, or that is dried before it is used as fertilizer; infectious and hazardous waste; general municipal waste; human respiration; waste removed as grit and fines at wastewater treatment plants and disposed of in a variety of ways, and combined sewer overflows. We request that EPA provide this plan to the Subcommittee **no later than Tuesday, February 16, 2010 at 5:00 p.m.**

The Honorable Lisa P. Jackson
January 15, 2010
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The Oversight and Government Reform Committee is the principal oversight committee in the House of Representatives and has broad oversight jurisdiction as set forth in House Rule X.

If you have any questions regarding this request, please contact Jaron Bourke, Staff Director, at (202) 225-6427.

Sincerely,



Dennis J. Kucinich
Chairman
Domestic Policy Subcommittee



Diane E. Watson
Member
Domestic Policy Subcommittee