

Utility Air Toxics Regulatory Finding

National Tribal
Environmental Council

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William H. Maxwell

U.S. EPA

OAQPS/ESD/CG

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Electric Utility Air Toxics Study

- Mandated by Clean Air Act, as amended
 - Section 112(n)(1)(A): EPA must perform study of, and report to Congress on, the hazards to the public health of HAP emissions from utility units
 - Based on the results of the study, EPA must determine whether HAP regulations for utility units are appropriate and necessary



Mercury is a Public Health Issue

- Methylmercury is highly toxic and biomagnifies
- Effects at low doses include
 - Neurotoxic effects, especially in children who were exposed *in utero*, are well documented
 - Credible studies also provide evidence of effects on cardiovascular, immune, and reproductive systems



Mercury is a Public Health Issue

- NAS estimated that more than 60,000 U.S. babies born each year are at risk for neurodevelopmental effects of methylmercury
- Recent data from NHANES published by CDC indicate that NAS estimate may be low
 - 10% of women of childbearing age have blood mercury levels in excess of EPA's acceptable limit
 - Could be as many as 375,000 U.S. babies born per year at risk



We're Doing it to Ourselves

- On average, 60% of the mercury in U.S. waters comes from anthropogenic sources within the U.S.; however, for the northeastern U.S., the average is 75%
- Mercury emissions to air are the largest source of mercury loadings to water and subsequent fish contamination
- Mercury is the most common cause for fish consumption advisories
 - 40 States have advisories because of mercury

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Other Large Sources are Regulated

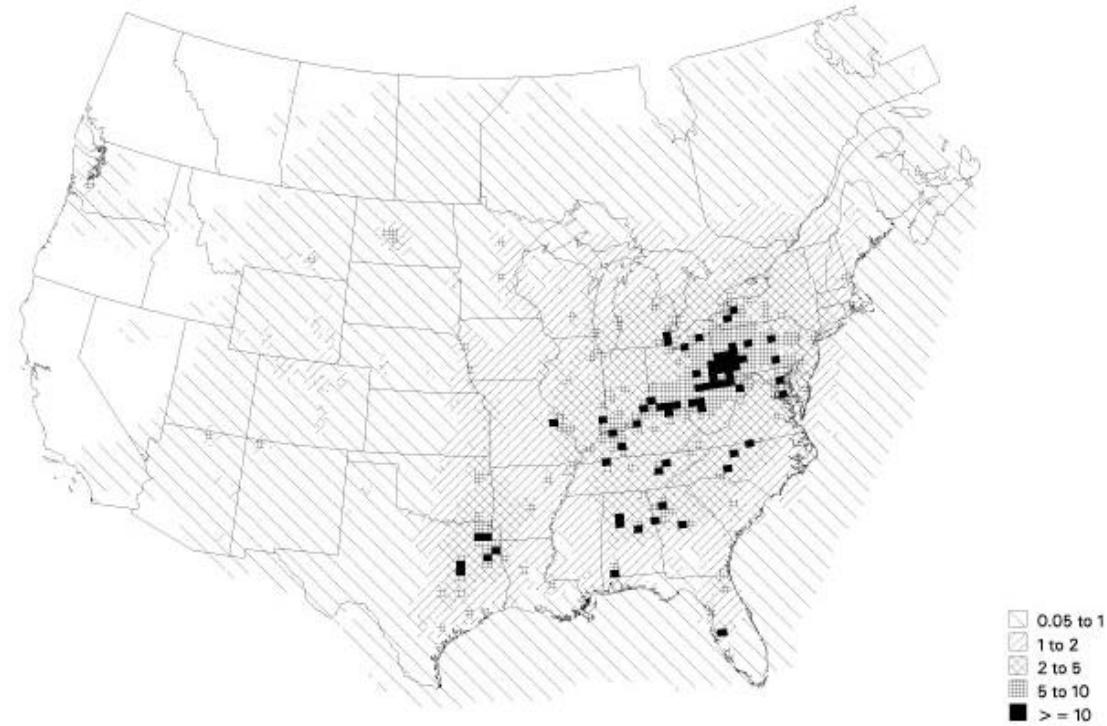
The largest sources of mercury emissions in the U.S. are:

	1993 NTI (tpy)	1996 NTI (tpy)	Projected (tpy)	Comments
Coal-fired electric utilities	51	52	48 (1999)	Unregulated
Municipal waste combustors	42	33	4	Regulation compliance date 12/19/00
Medical waste incinerators	50	0.02	0.02	Regulation effective 9/02
Hazardous waste combustors	7	4	3	Regulation effective 9/02
Chlor-alkali plants	10	3	-	Regulation proposal estimated 05/01



U.S. Emissions Readily Linked to Utility Sources

Wet+Dry Deposition - Total Hg from Coal Utilities (Hg0, Hg++, HgP)
Micrograms per Square Meter per Year



max=73.47 is at cell col = 102 and row = 47
variable totcoal from dsr = \$PMR/14Nov1997-13:14:35/wducyrrc.ssd



Mercury Emissions Can Be Reduced

- Electric utility mercury emissions can be reduced
 - Technologies currently being used to control criteria pollutants (SO₂, NO_x, PM) reduce mercury emissions to some extent, providing potential significant co-benefits
 - FGD
 - SCR/SNCR
 - ESP and FF
 - Research into combining or augmenting these controls specifically for mercury looks promising
 - Powdered activated carbon
 - Increased use of SCR/SNCR



Positive Impacts of Reducing Mercury Emissions

- Reducing mercury emissions will reduce mercury deposition and fish mercury levels
 - Swedish data confirm mercury deposition reductions following shutdown of eastern European sources
 - New Florida TMDL effort shows direct and linear relationship between mercury emissions reductions and lowered fish mercury concentrations



Conclusions

- Mercury is highly toxic
- The largest source of mercury exposure in the U.S. results from air emissions from coal-fired electric utilities
- Mercury can be controlled from coal-fired electric utilities at reasonable costs without economic dislocation
- Reduced mercury emissions will result in reduced population exposure



Regulatory Finding

- EPA announced finding on 12/14/2000
 - Regulation not necessary for gas-fired boilers
 - Gas-fired finding does not apply to combustion turbines being covered under another rulemaking
 - Proposal expected in next several months
 - Regulation necessary for oil- and coal-fired boilers
 - Based on
 - Public health concerns
 - Mercury emissions from power plants
 - Information that mercury from power plants can be controlled



Section 112 Rule

- “Best of the best” for new sources
- Average of the top performing 12 percent (e.g., top 6 percent) for existing sources
- Allows for subcategorization
- Listing decision triggers section 112(g) case-by-case MACT determinations for new coal- and oil-fired sources



Section 112 Focus

- Most of attention has been on mercury from coal-fired units
- Also concerned about
 - Other HAP from coal-fired units
 - Nickel from oil-fired units



Timing

- Settlement agreement provides for
 - Proposal of section 112 regulations by 12/15/2003
 - Promulgation of section 112 regulations by 12/15/2004
- Compliance date of 12/15/2007



Current Activities

- Stakeholder meetings
- Data analyses
- Coordination activities
- Additional activities



Stakeholder Meetings

- Continue the open process outlined at the June 2000 Public Meeting
- Meetings with stakeholder groups to obtain input
 - Possibly establish a workgroup under existing Permits, NSR, and Toxics Subcommittee of CAAAC
 - Meetings at stakeholder request
 - Stakeholder groups
 - State/local/tribal
 - Industry
 - Environmental



Data Analyses

- Further analyze data for the purpose of establishing section 112 standards
 - Floor
 - Best performing
 - Preliminary analyses indicate that mercury content of coal does not necessarily dictate level of mercury emissions
 - Develop tool for use in case-by-case MACT determinations



Coordination Activities

- Continue coordination with ORD, DOE, EPRI, UNDEERC, et al. on on-going mercury control research
 - More testing on existing control devices and enhancements
 - More testing on SCR/SNCR installations
 - Fly ash issues
 - Control device cost analyses



Additional Activities

- More sophisticated deposition analyses using REMSAD and new mercury emissions data
- Analyses using IPM looking at the costs and market impacts of a variety of potential levels of mercury control



Website

- Utility MACT information located at:
 - <http://www.epa.gov/ttn/uatw/combust/utiltox/utoxpg.html>
 - Announcements of new postings, upcoming activities
 - Background material
 - Coal data for 1999
 - List of plants
 - Speciated mercury emission test reports
 - Summary analyses of speciated emission data



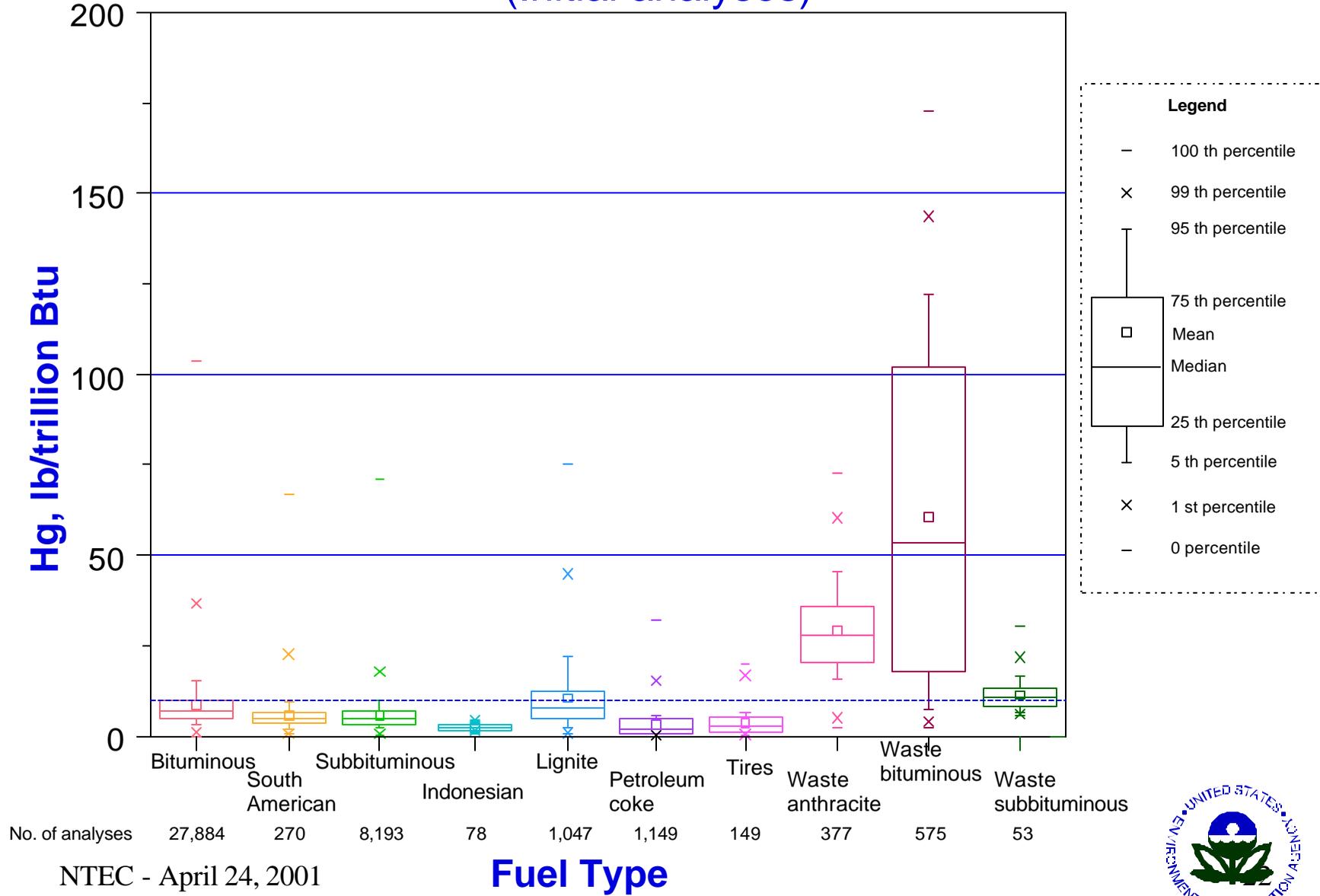
Utility MACT Contact

William Maxwell, U.S. EPA
OAQPS/ESD/CG MD-13
Research Triangle Park, NC 27711
maxwell.bill@epa.gov
phone: 919-541-5430
fax: 919-541-5450



1999 ICR Data Analyses - Mercury in Fuels

(Initial analyses)



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Existing Controls - Hg Removal

Control technology *

Average mercury control, percent

	Bituminous	Subbituminous	Lignite	Waste coals
Cold-side ESP	29 (18)	3 (9)	3 (5)	NA
Hot-side ESP	11 (9)	0 (12)	NA	NA
Cold-side FF	89 (6)	73 (6)	NA	NA
PM scrubber	12 (3)	0 (15)	33 (3)	NA
SDA + ESP	45 (3)	0 (9)	NA	NA
SDA + FF	93+ (9)	23 (9)	17+ (9)	NA
Cold-side ESP + FGD	78 (6)	16 (9)	42 (6)	NA
Hot-side ESP + FGD	39 (9)	8 (9)	NA	NA
FF + FGD	97 (6)	NA	NA	NA
FBC + CS-ESP	NA	NA	40 (3)	NA
FBC + FF	NA	NA	57 (3)	99 (6)

* Preliminary estimates from ICR data on PC boiler unless otherwise noted. Based on inlet and outlet of last control device. () indicates total number of tests for each category

NA = not available

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