



April 21, 2006

Mr. Donald R. Arbuckle  
Acting Administrator  
Office of Information and Regulatory Affairs  
White House Office of Management and Budget  
Washington, DC 20503

Dear Mr. Arbuckle,

The Integrated Waste Services Association (IWSA), on behalf of the U.S. Conference of mayors, the waste-to-energy industry and all associated municipalities, would like to thank you for the opportunity to present information on the proposed amendments to the large MWC rule. We appreciated the opportunity to share with you our concerns related to the costs and flawed methodology associated with the proposed rule.

As promised during the meeting, I would like to provide further detail in response to a question posed by Mr. Edmond Toy. Mr. Toy asked whether EPA's outlier procedure discarded both high and low pollutant test values or only high values. The answer is that EPA discarded *all* data at a facility for that pollutant if the difference between the high and low value exceeded the statistical "outlier" metric. *The effect of this action is to inappropriately alter the natural variability of the data, without any apparent need or reason.* In fact, this statistically imposed bias would have occurred regardless of whether the EPA rejected high or low values, or all data at a facility, as was the case here. The end result of any rejection of values is the same: disruption of the natural variability.

We believe that the data screening procedure used by EPA created an artificial metric for each pollutant (the mean + one standard deviation). If the difference between the high and low value at a facility was greater than the EPA metric then all data was rejected. The total amount of data rejected depended upon the number of units at the "outlier" facility. If there were two units – the high and low were discarded. If there were four units, the high, low and two intermediate values were discarded. This rejection of data reduced the natural data scatter by disproportionately removing more of the data from both the high and low ends of the data distribution. As a result, EPA's procedure artificially reduced the standard deviation of the data, and all resulting calculations yielded artificially low proposed MACT emission limit values.

Our conclusion remains the same as stated in our previously submitted comments. All performance data submitted for the year 2000 was from compliance test programs and that entire data base should be used in any analysis of a new MACT emission limit. The removal of data creates an artificial subset of data that does not include normal variability

attributable to the process and test methodology and hence leads to artificially low emission limits. The correct approach is to use all valid performance data in any analysis.

Thank you again for taking the time to consider our perspective.

Sincerely,

A handwritten signature in black ink, appearing to read "Ted Michaels". The signature is written in a cursive style with a large, sweeping flourish at the end.

Ted Michaels  
President

cc: Mr. Arthur Fraas, OMB  
Mr. Edmond Toy, OMB  
Mr. Walt Stevenson, EPA

# Large MWC MACT: Proposed Rule

---

Meeting with the  
White House Office of Management and  
Budget

April 19, 2006



# Attendees

<b>Name</b>	<b>Affiliation</b>
Ted Michaels	Integrated Waste Services Association (IWSA)
Judy Sheahan	U.S. Conference of Mayors
Robin Davidov	Northeast Maryland Waste Disposal Authority
Brian Bahor	Covanta Energy Corporation
Tim Porter	Wheelabrator Technologies Inc.
Anetha Lue	Montenay Power Corporation
Kent Burton	National Environmental Strategies
Ed Krenik	Bracewell & Giuliani

## WTE Emissions Reductions --- EPA's Estimates

<i>Pollutant</i>	<i>1990 Emissions</i>	<i>2000 Emissions</i>	<i>Percent Reduction</i>
CDD/CDF, total mass basis	218,000 g/yr	679 g/yr	99 +
CDD/CDF, TEQ basis *	4,260 g/yr	12.0 g/yr	99 +
Mercury	45.2 tons/yr	2.20 tons/yr	95.1
Cadmium	4.75 tons/yr	0.333 tons/yr	93.0
Lead	52.1 tons/yr	4.76 tons/yr	90.9
Particulate Matter	6,930 tons/yr	707 tons/yr	89.8
HCl	46,900 tons/yr	2,672 tons/yr	94.3
SO <sub>2</sub>	30,700 tons/yr	4,076 tons/yr	86.7
NO <sub>x</sub>	56,400 tons/yr	46,500 tons/yr	17.6

June 2002 Walt Stevenson memo to Docket A-90-45 (Large MWCs).

# Large MWC MACT Proposed Rule

## Summary of Comments

---

1. EPA correctly interpreted Section 129 regarding the 5-year review and revision of emission standards. *No need to review MACT floor*
2. We disagree with how EPA derived the revised standards –
  - The removal of performance data as outliers removed natural variability of emission data. *17% of data were excluded as outliers*
  - EPA made statistical errors in establishing the new limits
3. EPA failed to fully recognize cost impacts of its proposal.
4. EPA's proposed alternative monitoring is inappropriate because it does not meet 129 (c) requirements.
5. EPA should include a reasonable compliance schedule in the final rule.

# Overview of Major Issues

---

Comments are organized into three areas -

## A. Data base for standards development

- Several corrections to the EPA data base are needed
- EPA's outlier approach is arbitrary and inconsistent with other EPA outlier guidance

## B. EPA Statistical Procedures

- Statistical terms are used improperly
- Statistical calculations are erroneous in some instances

## C. Erroneous EPA Assumptions

- EPA projected there will be no additional impacts to air, water, and energy.
- EPA projected there will be no additional costs and economic impacts. 5

# MACT Data Base – Outlier Issues

---

## **EPA erred in removing performance test data on the basis of certain data being “outliers.”**

1. All performance test data was certified by the generator as being representative of normal operating conditions and was previously accepted by EPA for compliance purposes.
2. The statistical test used by EPA to identify outliers is arbitrary.
  - a. It is inconsistent with standard EPA procedures for determining outliers.
  - b. It has never been used before in deriving a regulatory limit in any industry and has not been subject to any internal or external peer review.
  - c. It introduces bias, such that the amount of data that is rejected depends on the number of units at a facility. (See next slide)
3. Removing 14 % of data as outliers is unusually high, and closer inspection shows that the true range was 6 to 20%. (See next slide).

## **Conclusion:**

All performance data should be included so that the final emission limits represent known variability introduced by 1) the process and 2) EPA test methods.

# MACT – Data Base - Outlier Issues

**Bias Introduced By EPA Outlier Metric: More units = More Data = Greater Variability**

<b>Number of MWC units at a facility</b>	<b>Number of plants in EPA data</b>	<b>Number having at least one outlier</b>	<b>Chance of having an outlier according to EPA metric</b>
<b>2</b>	23	9	39%
<b>3</b>	16	10	63%
<b>4</b>	2	2	100%

**Percent of Data Rejected by EPA Metric – Pollutant by Pollutant**

<b>MACT</b>	<b>PCDD</b>	<b>PM</b>	<b>Cd</b>	<b>Pb</b>	<b>Hg</b>	<b>HCl</b>	<b>SO2</b>	<b>NOX</b>	<b>All</b>
<b>Existing</b>	20	20	20	13	20	17	20	20	19
<b>New</b>	7	15	19	6	9	20	15	14	13

# MACT – Statistical Issues

EPA was not consistent in how it derived new limits:

Pollutants	Probability	Statistic
PCDD/F, PM, Cd, Pb	99	Percentile
Hg, HCl and SO <sub>2</sub> %	99.7	Confidence Interval

The statistic used to derive a new emission limit must be consistent with field compliance requirements:

Statistic	99 % Confidence Interval	99.7 Percentile
<b>Definition</b>	The probability that the interval includes the <b>true mean</b> is 99 %	99.7 % of <b>observations</b> fall below the 99.7 <sup>th</sup> percentile
<b>Equation</b>	$\text{Mean} + [\text{STD DEV} / (\text{Count}^{0.5})] * t \text{ statistic}$ = Upper Confidence Interval	$\text{Mean} + \text{STD DEV} * t \text{ statistic}$ = Percentile

The 99.7 percentile is the correct statistic for determining a continuously achievable emission limit.

## MACT – Statistical Issues

---

Statistical calculations ignore the limitations of the process and equipment. The following table identifies specific issues at a New York facility:

Regulatory Reference	SO2 Performance Standard	
	ppmdv at 7 % O2	Removal Efficiency as %
Original Permit	35	65
1995 subpart Cb	29	75
EPA's Proposed Cb limit	23	80

The air pollution control system was designed for a specific service defined by environmental emission limit – the size and design of the system is not considered in the proposed standards.

# MACT Results – SO<sub>2</sub>

---

**EPA created an artificial data set to derive the SO<sub>2</sub> standard.**

Stack concentration: 1990 CEM based variability factor + mean of 2001 stack test data- Two independent data sets were mixed.

Removal efficiency : separately derived from 2001 stack test data.

Stack concentration and removal limit cannot be derived independently of each other, nor can data from different time periods be utilized.

This synthesis of data along with an inappropriate statistic (confidence interval) yields a limit that cannot be continuously achieved in practice.

**The 2004 CEM data submitted to EPA and a 99.7 percentile is more appropriate because:**

- The data base is more robust (692 days vs 12) for existing units.
- The 99.7 percentile yields a true standard that can be continuously achieved in practice.

## Overview of Comments on EPA's Approach in Analyzing Stack Reference Method Data

Step	Task	Comments
1	Group data by pollutant	Agree
2	Group data by MWC plant	Agree
3	Calculate the difference in emissions, based on an assumption of similar emissions from similar units.	Disagree 1. Similar units have variability in emissions due to the process and test methods as proven by the EPA data base. 2. All performance (compliance) data is representative.
4	Screen the data to identify outliers	Disagree 1. Never checked data distribution before determining outliers. 2. Outlier test is unique and flawed due to bias. 3. Approach contradicts EPA guidance on outliers.
5	Analyze data for "normal" or "log-normal" distribution	Agree
6	Apply statistics	1. Calculation is labeled as 99 % upper confidence limit (UCL) but the calculations are for a percentile. 2. We agree with percentile but 99.7 % is correct value.

## EPA's Assumptions-No Impact on Costs

---

### **Erroneous assumptions --**

- EPA assumes the amendments will have no additional impacts to air, water, or energy since the same air pollution control technology will be used.
- For the same reason, EPA assumes no additional costs or economic impacts.

### **EPA failed to consider --**

1. The cost of noncompliance: tighter standards without facility modifications = increased risk = increased cost.
2. Tighter standards can require equipment modifications or redundancy.
3. Operating costs will increase ( e.g., more lime must be used to continuously achieve tighter HCl / SO<sub>2</sub> standards).
4. Higher duty cycles on equipment = higher maintenance costs
5. Additional costs will directly affect local municipalities and its taxpayers.

## EPA Assumptions – HCl Removal

---

A 97 % HCl removal requirement creates operating problems including:

1. 97 % removal is greater than the 95 % design used for existing units and there will be more variability of the process at this elevated performance level.
2. Removal of more HCl must require more lime reagent.

The consequences of more lime include -

1. Increase reagent cost.
2. Increased burden on the fabric filter including more frequent cleaning or an increase in fan operating costs.
3. Increased duty cycles on acid gas removal systems = higher maintenance costs
4. Increased particulate burden to an ESP will increase stack particulate.
5. Increase amount of ash residue with an increase in truck traffic and transportation and disposal costs.

### **Summary**

There *will be* increased costs to achieve EPA's proposed limits.

# MACT – Operating Issues – Alternative CEM

---

**EPA's suggestion that alternative CEM for particulate matter (PM) can be used instead of EPA Reference Method 5 is flawed.**

1. CAA Section 129(c) requires that all monitoring for MWCs be validated at a MWC – this has never been done.
2. EPA did not provide any data that supports the use of PM CEM.
3. The suggestion that PM CEMs are available will mislead state agencies.

## **Conclusion**

- All references to alternative CEM (including PM, HCl, metals, etc.) should be removed in their entirety unless EPA satisfies Section 129(c) and other EPA CEM requirements.
- EPA failed to recognize the additional cost impact for alternative CEMs.

## MACT – Operating Issues – CEM Availability

---

**EPA has proposed to increase CEM availability from 90 to 95 % of the hours per quarter. This proposal has several flaws.**

1. There must be an adequate compliance margin for a facility to meet state and federal requirements.
2. Many facilities will have to install redundant analyzers to avoid noncompliance or shutdown.

### **Conclusion**

- The appropriate availability is 90 %. Any higher number would require installation of redundant analyzers or significant changes to facility operations.
- Additional costs for redundant CEMs will be substantial and were not recognized by EPA.

## MACT – Operating Issues – Dioxin Test Waiver

---

**EPA has complicated the existing waiver by creating a dual standard (Hg and PCDD vs. PCDD only).**

1. PCDD emissions are a function of EPA's Good Combustion Practices, whereas Hg emissions are fuel dependent.
2. In practice, the proposal will significantly limit the benefit of the dioxin test waiver, because it is tied to an independent variable not related to dioxin emissions.

### **Conclusion**

The existing waiver should be retained, and the final rule should provide an independent waiver for mercury.

Changing the test waiver could substantially increase stack testing costs.



## MACT – Implementation Cost Issues

---

- ❑ Local governments and companies spent over \$1 billion to implement the first MACT standards by 2000.
- ❑ The costs of retrofitting a plant are onerous. For example, it could cost Charleston, SC an estimated \$10 million to switch from an ESP control to a fabric filter to comply with the new standard.
- ❑ The increased operating costs to comply with the new MACT standards are significant. For example, increased lime costs at a facility could amount to \$220,000 per year. In addition, the costs of stack testing, continuous monitoring, ash disposal, etc will all increase.
- ❑ Municipalities and taxpayers will incur most of these costs.

## Summary of MACT Comments

---

1. EPA correctly interpreted Section 129 regarding the 5-year review and revision of emission standards.
2. We disagree with how EPA derived the revised standards –  
The removal of performance data as outliers removed natural variability of emission data.  
EPA made statistical errors in establishing the new limits
3. EPA failed to fully recognize cost impacts of its proposal.
4. EPA's proposed alternative monitoring is inappropriate because it does not meet 129 (c) requirements.
5. EPA should include a reasonable compliance schedule in the final rule.

## Conclusion

---

- The WTE industry has already retrofitted to comply with the 1995 MACT standard and demonstrated significant reduction in air emissions through retrofits costing more than \$ 1 billion.
- The extensive data base of actual WTE emissions is unique, and provides an opportunity to set appropriate standards that are both stringent and achievable.
- Municipalities and industry need an adequate compliance schedule to meet the proposed Emission Guidelines – capital equipment changes and/ or operating changes will be necessary.
- WTE is a clean and reliable source of renewable energy, with existing 2800 MW of installed capacity being 4 % of total generated renewable power in the USA while only processing about 10 % of the MSW.