

**THE INDUSTRIAL BOILER &
PROCESS HEATER MACT
Final Rule
(40 CFR 63 Subpart DDDDD)**

**Indiana Chapter, Air & Waste Management
Association
Fall Technical Meeting
October 7, 2004**

IMPORTANT DATES

- Proposal Date – January 13, 2003
- Promulgation Date – September 13, 2004
- Effective Date – November 12, 2004
- Initial Notification Dates
 - March 12, 2005 - If startup before the effective date (November 12, 2004)
 - 15 days after startup - If startup on/after the effective date (November 12, 2004)
- Compliance Date
 - Existing units - September 13, 2007
 - New units – startup or November 12, 2004 whichever is later

INDUSTRIAL BOILER MACT

- Source categories included:
 - Industrial Boilers
 - Institutional/Commercial Boilers
 - Process Heaters
 - Indirect-fired – combustion gases do not come in contact with process materials.
- Major source MACT only

SUBCATEGORIES

- Three main subcategories:
 - Solid fuel units
 - Liquid fuel units
 - Gaseous fuel units
- Further subcategorized on size and use
 - Large (Greater than 10 MM Btu/hr heat input)
 - Small (all firetubes and others less than 10 MM Btu/hr)
 - Limited-use (less than 10% capacity factor)
- Total of 9 subcategories

WHAT UNITS ARE COVERED?

- All industrial boilers located at major sources
- All commercial and institutional boilers located at major sources
- All process heaters located at major sources

WHAT UNITS ARE NOT COVERED?

- Any boiler and process heater listed as an affected source under another MACT
 - For example,
 - Fossil fuel-fired electric utility boilers
 - Boilers burning municipal waste
 - Boilers burning hazardous waste
 - Boilers burning medical waste
 - Black liquor recovery boilers
 - Temporary/rental gas or liquid fuel boilers (<180 days)
 - Hot water heaters
 - Waste heat boilers
- Synthetic minors –becomes an area source

EMISSIONS LIMITS

Existing Units

- **Existing large solid fuel units**

PM -- 0.07 lb/million Btu, OR TSM – 0.001 lb/million Btu
HCl -- 0.09 lb/million Btu (~ 90 ppm)
Hg – 9 lb/trillion Btu

- **Existing limited use solid fuel units**

PM -- 0.21 lb/million Btu, OR TSM – 0.004 lb/million Btu

- **No emissions standards for:**

- existing small solid fuel units
- existing liquid fuel units
- existing gaseous fuel units

EMISSION LIMITS and WORK PRACTICE STANDARDS

New Units

- **New solid fuel units**

 - PM -- 0.025 lb/million Btu, OR TSM 0.0003 lb/million Btu

 - HCl -- 0.02 lb/million Btu (20 ppm)

 - Hg -- 3 lb/trillion Btu

 - CO -- 400 ppm @ 7% oxygen (NOT FOR SMALL UNITS)

- **New liquid fuel units**

 - PM -- 0.03 lb/million Btu

 - HCl -- 0.0005 lb/million Btu (large units)

 - 0.0009 lb/million Btu (small and limited use units)

 - CO – 400 ppm @ 3% oxygen (NOT FOR SMALL UNITS)

- **New gaseous fuel-fired units**

 - CO – 400 ppm @ 3% oxygen (NOT FOR SMALL UNITS)

Compliance Options

- Conduct stack emission tests
- Conduct fuel analysis
- Emissions averaging (large solid fuel units only)
- Health-based compliance alternatives for HCl and TSM

COMPLIANCE TESTING

- Performance tests (stacks tests)
 - Annual performance tests
 - Based on average of 3 test runs

OR

- Fuel analyses
 - Initial and every 5 years
 - Each new fuel type
 - Based 90% confidence level of minimum 3 fuel samples

COMPLIANCE MONITORING

- Continuous compliance based on monitoring and maintaining operating limits
- Operating limits
 - For PM, TSM and mercury limits
 - Opacity (for dry systems)
 - Existing units – 20% opacity (6 minute average)
 - New units – 10% opacity (1 hour block average)
 - Control device parameters (for wet systems)
 - Established during initial compliance test
 - Fuel (type or mixture)
 - When compliance based on fuel analysis
 - For HCl
 - Scrubber parameters (pH, pressure drop, liquid flow, sorbent injection rate)
 - Established during initial compliance test
 - Fuel (type or mixture)
 - When compliance based on fuel analysis

COMPLIANCE MONITORING (cont.)

■ Monitoring

- Opacity (by COM) – dry control systems
- Fuel (monthly records)
- Scrubber parameters
- CO (new units only)
 - CEM for large units > 100 million Btu/hr
 - Annual CO tests for other new units
 - Exempt data from <50% load and based on 30-day average.

What Subcategories Have Limited Requirements?

- Subject to ONLY Initial Notification
 - Existing large and limited use gaseous fuel units
 - Existing large and limited use liquid fuel units
 - New small liquid fuel units that do not burn residual oil
- NOT subject to Initial Notification or any other requirements in General Provisions
 - Existing small solid fuel units
 - Existing small liquid fuel units
 - Existing small gaseous fuel units
 - New small gaseous fuel units

Additional Compliance Provisions

- Emission Averaging
 - Only existing large solid fuel units
 - Initial compliance based on maximum capacity
 - Continuous compliance on a 12-month rolling average basis
 - Each monthly calculation based on monthly fuel use and previous compliance test results for each boiler
 - Must submit emission averaging plan
 - Must maintain, at a minimum, the emission controls employed on the effective date

Additional Compliance Provisions

- **Health-based HCl compliance alternative**
 - **Alternative to complying with HCl MACT limit**
 - Must include appropriate units covered by subpart DDDDD
 - Those that emit HCl and/or Cl₂
 - Must conduct HCl and chlorine emission tests or fuel analyses
 - When conducting fuel analysis must assume any chlorine is emitted as Cl₂
 - Must calculate total maximum hourly mass HCl-equivalent emission rate
 - **Compliance determine by using:**
 - Lookup table
 - Average stack height of appropriate subpart DDDDD units
 - Minimum distance of any appropriate subpart DDDDD unit to property boundary
 - Site-specific compliance demonstration
 - Hazard Index (HI) can not exceed 1.0

Additional Compliance Provisions

- **Health-based TSM compliance alternative**
 - **As alternative to complying with TSM limit based on 8 metals, may demonstrate compliance with TSM limit based on 7 metals by excluding manganese**
 - Must include appropriate units covered by subpart DDDDD
 - Must conduct manganese emission tests or fuel analyses
 - Must calculate the total maximum hourly mass manganese emission rate
 - **Eligible for demonstrating compliance based on 7 metals excluding manganese by using:**
 - Lookup table
 - Average stack height of appropriate subpart DDDDD units
 - Minimum distance to property boundary
 - Site-specific compliance demonstration
 - Hazard Quotient (HQ) can not exceed 1.0

Additional Details of Health-Based Compliance Alternatives

- Demonstrations filed with permitting authority and EPA along with certification of authenticity and accuracy
 - No review or approval required; EPA, permitting authority may audit a percentage
- Facility must apply for Title V permit modification to include parameters that defined the source (fuel type, control devices, stack parameters)
- Non-compliance with permit conditions, falsifications or errors in demonstration could result in enforcement action
- Facilities must submit demos within 2 years, one year prior to compliance date

Changes to Final Rule

- Revised definition of affected source to broad definition as in General Provisions (collection of all units within the subcategory).

INFORMATION AND CONTACT

- Implementation tools (timelines, initial notification, state/local contacts, Q/A) and information on the MACT rulemaking for industrial, commercial, and institutional boilers and process heaters is available on EPA's web site at:
 - www.epa.gov/ttn/atw/boiler/boilerpg.html
- An electronic version of public docket (including public comments) is available at:
 - www.epa.gov/edocket/
 - Search for docket ID No. OAR-2002-0058
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ANY
QUESTIONS?

