

THE INDUSTRIAL BOILER & PROCESS HEATER MACT Final Rule



Air Toxics Workshop
April 15, 2004
Research Triangle Park, North Carolina

IMPORTANT DATES

- Final rule signed by Administrator on February 26, 2004
- Promulgation Date – date of publication in Federal Register (?)
- Effective Date – 60 days after publication
- Compliance Date (existing units) – 3 years after promulgation

Industrial Boiler MACT

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

Subcategories

- Three main subcategories based on fuel type:
 - Solid fuel units
 - Liquid fuel units
 - Gaseous fuel units
- Each fuel subcategory further subcategorized based 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 does the MACT cover?

- 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 does the MACT not cover?

- 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
 - Hot water heaters
 - Waste heat boilers

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 or any existing liquid and gaseous fuel units**

Emission Limits – 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)

Testing and Monitoring Requirements

- **Testing:**
 - Initial compliance tests
 - Performance tests (stacks tests) OR fuel analyses
 - Annual performance tests
 - Fuel analysis every 5 years or each new fuel type
- **Monitoring**
 - Process parameters (opacity, pressure drop, CO, sorbent injection rate, fuel, etc.)
 - CO CEM only for new large units > 100 million Btu/hr
 - Annual CO tests for other new units
- **Continuous Compliance**
 - Demonstrated by maintaining operating limits

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 Provisions

- **Health-based HCl compliance alternative**
 - As alternative to complying with HCl MACT limit, may demonstrate compliance with a health-based HCl equivalent allowable limit
 - Must include all affected units covered by subpart DDDDD
 - Must conduct HCl and chlorine emission tests
 - Must calculate the total maximum hourly mass HCl-equivalent emission rate
 - **Compliance determine by using:**
 - Lookup table
 - Average stack height
 - Minimum distance to property boundary
 - Site-specific compliance demonstration
 - Hazard Index (HI) can not exceed 1.0

Additional Provisions (cont.)

- **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 all affected units covered by subpart DDDDD
 - Must conduct manganese emission tests
 - 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
 - Minimum distance to property boundary
 - Site-specific compliance demonstration
 - Hazard Quotient (HQ) can not exceed 1.0

Additional Provisions (cont.)

- Emission Averaging
 - Only existing large solid fuel units
 - Initial compliance based on maximum capacity
 - Continuous compliance on a 12-month rolling average basis
 - Must submit emission averaging plan

Changes to Final Rule

- Exempting all existing small units from all reporting requirements and require for existing large gas and oil units only initial notification (no SSM plan)
- Health-based compliance alternatives added
- Revised definition of affected source to the broad definition as in General Provisions (all units within the subcategory).
- Added emission averaging provision
 - Allowed only among existing sources in same subcategory
- Mercury emission limit revised based on redoing MACT floor analysis with new additional (3) emission data. Limit went slightly higher to 9 lbs/TBtu.

Changes to Final Rule (Cont.)

- CO limit and monitoring requirement
 - Clarified that exceedance is not an emission violation but a deviation and a trigger for corrective action.
 - Revised rule to require CO CEM for only larger units (>100 MMBtu/h), smaller units required to conduct annual CO test.
 - Allow for effect of operating at low loads and weather. Exempt data from <50% load and based on 30-day average.
- Revised to allow option of either fuel analysis or stack testing to demonstrate compliance.
- Revised to require new fuel analysis only for new fuel type
 - Revised to require fuel analysis testing every 5 years.
- Opacity operating limits set at NSPS levels (20% on 6-minute average)

INFORMATION AND CONTACT

- 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
- **Contact:**
 - Jim Eddinger
 - 919-541-5426
 - eddingejim@epa.gov

ANY
QUESTIONS?


