Major Source Rule signed into law on January 31, 2013.

Area Source Rule signed into law on February 1, 2013.
Great Accomplishments

Selective Catalytic Reduction

Low NO$_x$ Burners

Flue Gas Recirculation
Regulated Pollutants

- **Major Source Rule**
  - PM
  - Hg
  - CO
  - HCl

- **Area Source Rule**
  - PM
  - Hg
  - CO

Hg: Mercury
HCl: Hydrochloric Acid
CO: Carbon Monoxide
PM: Particulate Matter
Targeted Fuels

Gas

Liquids

Biomass

Coal
What are some examples of gas, liquid, and biomass fuels?
### Gas
- Natural Gas
- Propane
- Process Gas
- Landfill & Digester Gas
- Coal Gas
- Refinery Gas
- Hydrogen
- Biogas

### Liquid
- Heavy and Light Oil (#6, #2)
- Kerosene
- LPG (Liquid Process Gas)
- Bio Diesel
- Alcohols

### Biomass
- Forest Residue
- Switch Grass
- Hemp
- Sorghum
- Sugarcane
The EPA Categories

**Major Source**
- Has the potential to emit ≥ 10 tons/yr single HAP or ≥25 tons/yr for combination of HAPs

**Area Source**
- Has the potential to emit <10 tons/yr single HAP and < 25 tons/yr for combination of HAPs

New (After June 4, 2010)
Existing (June 4, 2010 or before)

For help calculating your combustion level, go to
http://www.combustionportal.org/calculator.cfm
Examples

• **Major Source**
  - refineries
  - chemical plants
  - large mfg.
  - large universities

• **Area Source**
  - laundries
  - apartments
  - hotels
  - schools
  - hospitals
MAJOR SOURCE RULE: Key Dates

- **File Notice of Applicability**
  - **Existing**: May 31, 2013
  - **New**: Within 15 days after start-up

- **Key Dates**
  - **July 30, 2013 or 180 days after start-up** – most new, large units must meet emissions limit requirement for respective fuel type
  - **January 31, 2016** – existing units must have conducted an initial tune-up and energy assessment
  - **July 29, 2016** – existing, large units must meet emissions limit requirement for respective fuel type
AREA SOURCE RULE: Key Dates

• **File Notification of Applicability**
  • **Existing**: January 20, 2014
  • **New**: Within **120 days after start-up**

• **Key Dates**
  • **180 days after start-up** – large, new units are required to demonstrate compliance with emissions limit requirement for respective fuel type
  • **March 21, 2014** – deadline to meet initial tune-up requirement (for most existing units) and energy assessment requirement (for most existing, large units)
  • **September 17, 2014** – existing, large coal units are required to demonstrate compliance with emissions limit requirement
Major Source Exemptions

1. Steam/Electric Utility covered by subpart UUUUU of part 63 or MATS Rule
2. Electric boilers
3. Hot water heaters ≤120 gal. or hot water boilers <1.6 MMBtu
4. Boilers burning waste and covered under incinerator rule
5. Boilers used as control devices to comply with other standards provided at least 50% of the average annual heat input is provided by regulated gas streams subject to another standard
6. Supplemental fired boilers with 50% of energy coming from another source
7. Boilers subject to other NESHAP and Sec. 129 standards or hazardous waste boilers
8. Recovery boiler or furnace under subpart MM
9. Temporary boilers (max 12 months or need an extension grant)
10. R&D boilers
11. Residential boilers
Area Source Exemptions

1. Gas-fired boilers as defined by EPA
2. Electric boilers
3. Hot water heaters <120 gal. or hot water boilers <1.6 MMBtu
4. Boilers burning waste and covered under incinerator rule
5. Process Heaters
6. Boilers used as control devices to comply with other standards provided at least 50% of the average annual heat input is provided by regulated gas streams subject to another standard
7. Boilers subject to other NESHAP and Sec. 129 standards or hazardous waste boilers
8. Temporary boilers (max 12 months or an extension grant is needed)
9. R&D boilers
10. Residential boilers
Major Source Compliance Requirements

• **Tune-ups:**
  - *Annually* for boilers 10MMBtu/hr or more that are not equipped with O2 Trim
  - *Biennial* for boilers <10MM with heavy liquid or solid, and boilers 5-10 MM with gas and light liquid and **NO O2 Trim**
  - *Every 5 years*, new and existing boilers up to 5 MM with natural gas or light liquid or, units with O2 Trim and limited-use boilers
**Major Source** Compliance Requirements

**One-time Energy Assessment** for all existing boilers ≥10 MM except “limited-use” boilers. Must include:

- Visual inspection of boiler system
- Evaluation of operating characteristics of boiler system, specification of energy-use system, operating and maintenance procedures, and unusual operating constraints
- Inventory of major energy-use systems
- Review of architectural and engineering plans, facility operations and maintenance procedures and logs, and fuel usage
- List of major energy conservation measures
- List of energy saving potentials
- Comprehensive report detailing ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments
Subcategory

- Pulverized coal/solid fossil fuel
- Stokers-coal/solid fossil fuel
- Fluidized bed units-coal/solid fossil fuel
- Fluidized bed units with heat exchanger – coal/solid fossil fuel
- Stokers/sloped grate-wet biomass fuels
- Stokers sloped grate-kiln dried biomass
- Fluidized bed units-biomass/bio-based fuels
- Suspension burners-biomass/bio-based fuels
- Dutch ovens/pile burners-biomass/bio-based fuels
- Fuel cells-biomass/bio-based fuels
- Hybrid suspension/grate-biomass/bio-based fuels
- Heavy liquid fuel
- Light liquid fuel
- Non-continental liquid fuel
- Gas 2
**Major Source** Emission Limits, **Existing** Boilers

**Subcategory**
- Pulverized coal/solid fossil fuel
- Stokers-coal/solid fossil fuel
- Fluidized bed units-coal/solid fossil fuel
- Fluidized bed units with heat exchanger – coal/solid fossil fuel
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- Gas 2

**PM HCl Hg CO**
Major Source Compliance Requirements

• **Performance tests are required for units subject to emission limits.**
  - *Monthly fuel analysis* versus tests for chloride, mercury, and suspended metals
Area Source Compliance Requirements

• **Tune-ups:**
  - **Biennially**
    - Coal-fired boilers with a heat input capacity <10 MMBtu/hr that are not limited-use or have an O2 Trim system that maintains an optimum fuel-to-air ratio
    - Biomass-fired boilers that are not seasonal or limited-use, or have an O2 Trim system that maintains an optimum fuel-to-air ratio
    - Oil-fired boilers with a heat input capacity >5 MMBtu/hr that are not seasonal or limited-use, or have an O2 Trim system that maintains an optimum air-to-fuel ratio
  - **Every 5 years**
    - Seasonal boilers
    - Limited-use boilers
    - Oil-fired boilers with a heat input capacity ≤5 MMBtu/hr
    - Boilers with an O2 Trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a 2-year tune-up
Area Source Compliance Requirements

One-time Energy Assessment for all existing boilers ≥10 MM except “limited use” boilers. Must include:

- Visual inspection of boiler system
- Evaluation of operating characteristics of boiler system, specification of energy-use system, operating and maintenance procedures, and unusual operating constraints
- Inventory of major energy-use systems
- Review of architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage
- List of major energy conservation measures
- List of energy saving potentials
- Comprehensive report detailing ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments
Area Source Emission Limits, New & Existing Boilers

• Boilers 10 MM or larger
  • New:
    - Coal fired (Hg, CO, & PM)
    - Biomass (PM)
    - Oil (PM)
  • Existing:
    - Coal fired (Hg & CO)

• Limited-use and Seasonal boilers are not subject to emission limits

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>Hg, lb/MMBTU</th>
<th>CO, ppm @3% O₂</th>
<th>PM, lb/MMBTU</th>
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<tbody>
<tr>
<td>New oil-fired ≥10 MMBTU/hr</td>
<td>---</td>
<td>---</td>
<td>0.03¹</td>
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<tr>
<td>New biomass-fired ≥10 MMBTU/hr</td>
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<td>0.03 (≥30 MMBTU/hr)</td>
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<td>0.07 (≥10 to &lt;30 MMBTU/hr)</td>
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<td>420²</td>
<td>0.03 (≥30 MMBTU/hr)</td>
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<td></td>
<td></td>
<td></td>
<td>0.42 (≥10 to &lt;30 MMBTU/hr)</td>
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<tr>
<td>Existing coal-fired ≥10 MMBTU/hr</td>
<td>0.000022</td>
<td>420²</td>
<td>---</td>
</tr>
</tbody>
</table>
Area Source Compliance Requirements

• **Performance tests on units 10 MMBtu/hr or greater**
  • Compliance may be demonstrated using fuel analysis versus performance tests for Hg emission limit
Record Keeping

- Maintain and file periodic reports
- Filing varies
- Maintain 5 years (can be off site)
- Instant access for 2 years (on-site)
- Examples:
  - Performance test notification
  - Initial compliance
  - Curtailment; alternate fuel firing
  - Solid waste firing
  - Different sub-category of fuel firing
  - Performance tests
  - Compliance results
A Tour of CB’s EPA Compliance Webpage
Final Summary

• Final Rules for Major Source and Area Source boilers are in effect
• Pollutants with emission limits include PM, HCl, Hg & CO
• Fuels include Gas, Liquids, Biomass, & Coal
• Major Source is \( \geq 10 \text{T/yr} \) single or \( \geq 25 \text{T/yr} \) combination of HAPs
• Area Source does not meet criteria for Major Source
• A New Source is after June 4, 2010
• An Existing Source is on or before June 4, 2010.
• Notification of Applicability is due dates
• Tune-ups, Energy Assessments and Performance Test requirements
• Exemptions
• Recordkeeping
EPA Contacts

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Or you may contact Cleaver-Brooks at eparegulations@cleaverbrooks.com
Questions?