

**Bay Area Air Quality Management District
Public Workshop – April 14, 2008**

**Proposed Amendments to BAAQMD
Regulation 9, Rule 7: Nitrogen Oxides and Carbon
Monoxide From Industrial, Institutional and Commercial
Boilers, Steam Generators and Process Heaters**

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Background

- **Regulation 9, Rule 7:**
 - Applies to boilers, steam generators, process heaters
 - Current rule requires 1st generation NO_x controls:
 - 30 ppmv: gas-fired devices as small as 10 MM BTU/hr
 - 40 ppmv: non-gas-fired devices as small as 10 MM BTU/hr
- **Bay Area 2005 Ozone Strategy, Control Measure SS 12:**
 - Extend NO_x limits to gas-fired devices rated <10 MM BTU/hr;
 - Reduce NO_x limits to reflect current emission control technology



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Background

Since Bay Area exceeds California ozone concentration limits, state law requires:

- Emissions of “ozone precursors”, like NO_x, must be controlled “as expeditiously as possible” using “all feasible measures”
- “Transport” of NO_x to neighboring air districts that exceed state limits must be reduced



Proposed NO_x Limits

Size (million BTU/hr)	Current Limit	New Limit	Effective Date
1 to <10 (non-gas-fired)	None	40 ppmv	1/1/2011 OR 10 years after manufacture date if manufactured before 1/1/2011
>2 to 5 (gas-fired)	None	30 ppmv	
>5 to <10 (gas-fired)	None	15 ppmv	
10 to <20 (gas-fired)	30 ppmv	15 ppmv	1/1/2011 OR 5 years after manufacture date if manufactured before 1/1/2011
20 to <75 (gas-fired)	30 ppmv	9 ppmv	
75 and higher (gas-fired)	30 ppmv	5 ppmv	



Exemptions to Proposed NO_x Limits

Device using <10% of maximum rated fuel use every year:

- 1 to <10 MM BTU/hr (non-gas-fired) and >2 to <10 (gas-fired):
annual tune-up, fuel meter, fuel records
- 10 MM BTU/hr and higher (gas-fired):
30 ppmv NO_x, fuel meter, fuel records

Device using non-gas-fuel because of natural gas curtailment:

- 150 ppmv NO_x, fuel records

During Tune-Ups, Startups, Shutdowns:

- No NO_x limits (time limits apply)



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Exemptions to Proposed NO_x Limits

Load-following device, 20 MM BTU/hr and higher:

- 15 ppmv NO_x (subject to District approval on Permit to Operate)

Gas-fired, 10 MM BTU/hr & higher, firing landfill/digester gas:

- 30 ppmv NO_x



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Certification and Registration Gas-Fired Devices Rated <10 MM BTU/hr

Manufacturer Certification (effective 1/1/2011)

- Requires independent compliance testing of each heater model
- Not required for retrofit burner assemblies
- Valid for 3 years; no fees

Operator Registration (effective 1/1/2011)

- Required for new & existing devices
- Registration may be performed on District website
- One-time fees: \$425 per facility, \$50 per heater after 1st device



Energy Efficiency Measures

Insulation Requirement (Effective 1/1/2009):

- Exposed surfaces limited to 120°F

Stack Gas Temperature Limits (Effective 1/1/2011):

Heater Design	Maximum Temperature	
	Gas-Fired	Non-Gas-Fired
firetube	100°F over saturated steam temperature for steam boiler, 100°F over hot water temperature for hot water boiler OR 250 °F, whichever is higher	100°F over saturated steam temperature for steam boiler, 100°F over hot water temperature for hot water boiler OR 300 °F, whichever is higher
watertube	150°F over saturated steam temperature for steam boiler, 150°F over hot water temperature for hot water boiler OR 250 °F, whichever is higher	150°F over saturated steam temperature for steam boiler, 150°F over hot water temperature for hot water boiler OR 300 °F, whichever is higher



Energy Efficiency Measures

Annual Tune-Up:

- Applies to all heaters:
 - 1 MM BTU/hr and higher (non-gas-fired)
 - >2 MM BTU/hr (gas-fired)
- **Elements of Tune-Up:**
 - Compliance verification for insulation
 - Compliance verification for stack gas temperature
 - Minimization of Excess Air
 - Optimization of Liquid Blowdown



Monitoring

Initial Demonstration of Compliance with NO_x Limits:

- Devices rated 10 to <20 MM BTU/hr and higher:
 - within 1 year of new standard effectiveness
 - may be performed with approved hand-held analyzer
- Devices rated 20 MM BTU/hr and higher:
 - within 1 year of new standard effectiveness
 - requires standard District source test



Monitoring

Periodic Monitoring of Compliance with NO_x Limits:

Device Size (MM BTU/hr)	Testing Interval
10 to <20 (gas-fired)	Every 2 years
20 and higher (gas-fired)	Every year
1 and higher (non-gas-fuel)	Every year that non-gas-fuel is used, except for testing purposes



Emission Reductions & Next Steps

- Emission reduction:
 - Total Reg. 9-7 NO_x emissions reduced from 6.2 to 1.9 ton/day
- Written comments are requested no later than: **April 21, 2008**
- District will consider comments and amend proposed rule
- Prepare California Environmental Quality Act (CEQA) Analysis & Socio-Economic Analysis
- Propose to District Board of Directors for adoption: **Summer 2008**



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Public Comments / Further Information

- Comments are requested no later than: **April 21, 2008**
- Comments may be provided by e-mail or U.S. mail to **Julian Elliot**
at: **939 Ellis Street, San Francisco, CA 94109**
or: *jelliot@baaqmd.gov*
- Contact Julian Elliot for further information
at: **415 749-4705**
or: *jelliot@baaqmd.gov*