

**SACRAMENTO METROPOLITAN  
AIR QUALITY MANAGEMENT DISTRICT**

For Agenda of **October 27, 2005**

**To:** Board of Directors  
Sacramento Metropolitan Air Quality Management District

**From:** Larry Greene, Air Pollution Control Officer  
Sacramento Metropolitan Air Quality Management District

**Subject:** 1. Amendments to Rule 411, NOx from Boilers, Process Heaters, and Steam Generators  
2. Amendments to Rule 301, Permit Fees – Stationary Source

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**Recommendations**

1. Determine that the amendments to Rule 411 and Rule 301 are exempt from the California Environmental Quality Act (CEQA);
  2. Approve the attached resolution adopting the amendments to Rule 411; and
  3. Approve the attached resolution adopting the amendments to Rule 301.
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**Executive Summary**

Staff is proposing to amend Rule 411, NOx from Boilers, Process Heaters, and Steam Generators, and Rule 301, Permit Fees – Stationary Source. The proposed changes are summarized below.

**Rule 411:** Rule 411 is being amended to comply with several requirements of state law and regulations to reduce NOx emissions, which will improve ozone and particulate matter air quality. The rule currently applies to new and existing units rated at or above 5 mmBtu/hr input. The proposed amendments will make small units (between 1 mmBtu/hr and 5 mmBtu/hr) subject to the rule, and will set more stringent standards for units rated at or above 5 mmBtu/hr. The following table summarizes the current and proposed NOx emission limits for units burning gaseous fuels:

Unit Size/Description (mmBtu/hr Input)	NOx Limits (ppmv @ 3% O <sub>2</sub> )	
	Current	Proposed
1 - <5	No Limit	30
5 – 20	30	15
>20	30	9
Load Following Units	30	15
Units Fired on Landfill gas	30	15
Reforming Furnaces	30	30

Rule 411 provides for an exemption from the proposed NOx limits based for units with low annual fuel usage. The exemption levels are divided into four tiers based on unit size.

**Rule 301:** Rule 301 sets the permit fees required of stationary sources. The rule is being amended in order to clarify the fees that will apply to small units that become subject to the new requirements of Rule 411. The proposed change does not set new fees, but clarifies that for initial compliance with Rule 411, owners and operators of small units are only required to pay a \$284 fee (same as permit renewal fee) per unit if they have to replace their units in order to comply with the new requirements in Rule 411.

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## Attachments

The table below identifies the attachments to this memo.

Item	Attachment	Page Number
Board Resolution – Rule 411	A	7
Board Resolution – Rule 301	B	10
Draft Rule 411	C	13
Draft Rule 301	D	34
Staff Report – Rules 411 and 301	E	42
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## Background

The District is currently designated as a “serious” nonattainment area for both the federal 8-hour ozone standard and the state ozone standard. Ozone is a strong irritant that attacks the respiratory system, leading to the damage of lung tissues. Ozone is a secondary pollutant formed from the reaction of volatile organic compounds (VOCs) and nitrogen oxides (NOx). Since NOx is a precursor to ozone, one of the strategies to control ozone is to reduce NOx emissions from existing stationary sources. The District is currently designated as a nonattainment area for the state and federal PM10 standard and has been designated nonattainment for the state PM2.5 standard. Since NOx is a precursor to PM10 and PM2.5, one of the strategies to control particulate emissions is to reduce NOx emissions.

Amendments to Rule 411 are necessary in order to comply with several provisions of state law and regulations, including Transport Mitigation Control Requirements (Title 17, California Code of Regulations (CCR), Section 70600), Best Available Retrofit Control Technology (BARCT) Requirements (California Health and Safety Code (HSC) Section 40919), SB 656 Particulate Matter Requirements (HSC Section 39614), and All Feasible Measures (HSC Section 40914(b)(2)). This rule was included in the District’s plans for

ozone and particulate matter, with the Triennial Report for ozone approved on April 28, 2005 and the SB 656 implementation schedule approved on July 28, 2005. In addition, the emission reductions resulting from the amendments to Rule 411 will be necessary to make progress toward meeting the federal 8-hour ozone standard.

Low NOx emission requirements for boilers, in some cases including small boilers, have been adopted by the South Coast Air Quality Management District, Ventura County Air Pollution Control District, and Santa Barbara Air Pollution Control District. Additionally, San Joaquin Valley Unified Air Pollution Control District recently adopted low NOx requirements for boilers rated at or above 5 mmBtu/hr input and are currently working on regulations that will affect units down to 2 mmBtu/hr input.

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### Impact on Businesses

Rule 411 applies to boilers, steam generators and process heaters. These units are used by large and small businesses. Some of the public schools also have units between 1 and 5 mmBtu/hr input although most schools appear to be exempt.

The total lifetime costs for all sources' compliance with the rule amendments are estimated to be \$13.9 million. This includes the costs for retrofitting/replacing existing units, fuel meters, testing, and permit modifications. The ranges of annualized costs for units identified within the District are listed in the table below.

<b>Unit Size Range (mmBtu/hr Input)</b>	<b>Annualized Cost Range (\$/year per unit)</b>
1 - < 5	\$4,039 - \$8,870
5 - <10	\$7,199 - \$8,516
10 - <50	\$8,845 - \$13,787
50 - <100	\$14,885 - \$27,182
≥100	\$48,591 - \$53,642

The overall cost effectiveness of the rule amendments is \$13.90 per pound of NOx reduced. This value is within the range of costs imposed by previous District rules (\$1/lb to \$17/lb in today's dollars).

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### District Impacts

The cost to the District consists of the additional staff time needed to evaluate the applications for Authority to Construct and Permit to Operate for retrofitting the existing units and the time needed to observe and later evaluate the initial source tests. Staff estimates the proposed amendments will result in additional need for one FTE (one full time equivalent) in the Permitting section and 0.65 in the Compliance Assistance section. The permitting impact should be limited in time until all permits are processed (12 months after date of amending this rule).

## **Emission Impacts**

The proposed amendments will achieve an emission reduction of at least 33.5 tons per year of NO<sub>x</sub> based on historical actual fuel usages. Amendments to Rule 301 are administrative and do not impact emissions.

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## **Environmental Review and Compliance**

The amendments to Rule 411 do not create new requirements that may have an adverse effect on the environment. Pursuant to state CEQA Guidelines, the District's Environmental Coordinator finds that the adoption of the proposed rule is exempt from CEQA (Class 8 Categorical Exemption, Action by Regulatory Agencies for Protection of the Environment; §15308 State CEQA Guidelines).

California Public Resources Code (Section 21159) requires an environmental analysis of the reasonably foreseeable methods of compliance. The proposed amendments to Rule 411 will not increase emissions and will not cause any significant adverse effects on the environment; therefore the Environmental Coordinator has concluded that no environmental impacts will be caused by compliance with the proposed rule.

Rule 301 is a fee rule. Public Resources Code section 21080(b)(8) and section 15273 of the state CEQA Guidelines provide that the adoption or amendments of fee rules are not subject to CEQA. To claim this exemption, the District must find that the amendment is for the purpose of meeting operating expenses. The purpose of the fees specified in Rule 301 is to recover the cost of administering the permit program; therefore, the Environmental Coordinator finds that the adoption of the proposed amendments to Rule 301 is exempt from CEQA.

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## **Public Outreach**

Below is a summary of the public outreach undertaken by Staff to ensure that affected businesses are aware of the proposed amendments to Rules 411 and 301:

- Staff conducted a public workshop on December 1, 2004. Staff published the notice of public workshop in the Sacramento Bee, and sent the notice to all affected sources. Staff also conducted three presentations before professional organizations (i.e., American Society of Heating, Refrigerating and Air-Conditioning Engineers, California State Hospital Engineers, and Association of Mechanical Engineering Contractors).
- Staff contacted sources that were expected to have high compliance costs. Staff also sent follow-up certified letters to sources that did not call back or did not attend the public workshop inviting them to have one-on-one meetings with the District.
- Staff had several telephone conversations with affected facilities and discussed the different alternative methods for compliance with the rule.

- Staff surveyed affected sources to determine if they have boilers rated at 1 mmBtu/hr input or above and also to determine the annual fuel usage for each boiler.
  - The revised rules and the staff report were sent to all attendees of the public workshop and other parties who commented on the rule after the public workshop. Staff conducted many follow-up discussions with these parties.
  - A notice for the public hearing was published in The Daily Recorder and the Sacramento Bee on September 26, 2005. The notice was also mailed to all attendees of the public workshop, all owners of permitted boilers, school districts, and all persons who have requested rulemaking notices.
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### **Public Comments**

Staff received several comments at the workshop and written comments after the public workshop. These comments, together with the Staff responses, are presented in Attachment E of the Staff Report (page 83 of this Board Package). Several changes were made to the proposed rule and staff report in response to these comments:

- Extended the compliance timeline from one year to 2-4 years (depending on the number of affected units at the facility) to allow sources with multiple units to complete the retrofit or replacement of affected units.
- Added separate (higher) NO<sub>x</sub> limits for load following units, reforming furnaces, and units that burn a combination of landfill and utility gases.
- Added an exemption for standing pilot flame burners used in load following units that allows the units to sustain low firing rates during periods of minimal steam demand.
- Added two levels for low fuel usage exemption to provide an opportunity for sources with small units, such as public schools, that generally operate their units during the heating season, to utilize this exemption.
- Increased the low fuel usage exemption level to 300,000 therms for units rated at 100 mmBtu/hr and above to allow these large units more flexibility.
- Added a new, less costly alternative for verifying NO<sub>x</sub> emissions from small units by using a portable analyzer in lieu of an emissions source test.

On September 28, 2005, subsequent to the public hearing notice, Staff met with representatives from the Sacramento County Regional Sanitation District regarding Rule 411. Staff had previously met with these representatives and they had indicated that their three boilers would be exempt from the rule based on low fuel usage. However, after further consideration, they are concerned about exceeding the exemption level if the Carson cogeneration plant has an extended outage. Carson provides steam to meet Regional Sanitation's routine steam demands. They also provided source test information that shows their current boilers do not meet the proposed NO<sub>x</sub> limits (9 ppmv) when firing on natural gas or digester gas.

The Regional Sanitation representatives requested that the District consider basing the low usage exemption on the average fuel usage over the previous 5 years. Staff is not proposing to revise the rule in this manner because it could allow usages above the exemption levels for almost 6 years before retrofits would be required.

Staff discussed the options for minimizing the cost impacts: 1) rotating usage among their three boilers - only one is needed to meet steam demands when Carson is offline, 2) taking advantage of timeframes the rule allows for coming into compliance (up to 1 year after the calendar year when/if they exceed the low usage threshold) 3) retrofitting one boiler to provide the needed operational capacity, and 4) alternative compliance to avoid retrofit (costs vary depending on whether they would accept a lower limit than their current 30 ppmv permit limit, but would likely be lower than retrofit costs.)

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### **Conclusion**

The proposed amendments to Rule 411 will achieve necessary NOx emission reductions. The amendments to Rule 301 will clarify the fees required of sources with small affected units. Therefore, staff recommends that the Board approve Rules 411 and 301 as proposed.

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Respectfully Submitted

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Larry Greene; Air Pollution Control Officer  
Sacramento Metropolitan  
Air Quality Management District

Approved as to form:

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Kathy Pittard, District Counsel  
Sacramento Metropolitan  
Air Quality Management District

Attachments