



UNDERSTANDING SCAQMD AIR QUALITY RULES FOR LARGE BOILERS OVER 2 MILLION BTU/HR

The following information is intended to help you understand the air quality regulations for boilers rated over 2 MMBtu/hr in the South Coast Air Quality Management District (SCAQMD). Please note: this brochure is for informational purposes only. The reader is responsible for consulting his or her own experts to interpret the SCAQMD rules. This fact sheet is divided into three sections for your easy reference:

- **Permitting a new boiler**
- **Rule compliance for existing boilers**
- **How much do the permits cost?**

Permitting a new boiler

What size boiler requires a permit?

All new and existing boilers with rated heat input of > 2 MMBtu/hr must have an air quality permit from the SCAQMD.

How do I get a permit?

Permit application packages are available from the SCAQMD, and can be requested by calling **1 (909) 396-2468**. If you need assistance with your permit application, Southern California Gas Company (SoCalGas®) offers PermitWorksSM, our air quality permitting service. To find out more about PermitWorks, call the SoCalGas Air Quality AnswerLine at **1 (562) 803-7428**.

How long does the permit process take?

The SCAQMD has 30 days in which to notify you if your application is complete and another 180 days to make a decision on issuing your permit. Find out which engineer at the SCAQMD has been assigned to your permit, and call regularly to inquire about its progress.

How much do the permits cost?

Permit fees are based on the rated capacity of your boiler. For current fees, please see SCAQMD Rule 301.

What emission limits will I have to meet?

The following are emission limit guidelines for new, modified, or relocated boilers and process heaters. Currently, the Best Available Control Technology (BACT) requirements for major and minor sources are the same. However, you should validate BACT at the time of your project. Also, if you feel that your situation is unique and cannot meet these limits,

you may be able to negotiate different limits for your specific application. Contact The Gas Company for assistance or check with SCAQMD for the latest limit.

Table 1
BACT Requirements

Equipment Size (MMBtu/hr)	Emission Limits (ppmvd @ 3% O ₂)		Technology	
	CO			
	NOx			
	Fire Tube	Water Tube		
< 20 MMBtu/hr	12	50	100	Low NOx Burner
≥ 20 MMBtu/hr	7	50	100	SCR
≥ 20 MMBtu/hr	9	50	100	Low NOx Burner

Insist on a NOx guarantee

Most boiler manufacturers will guarantee NOx emission values before purchase. Since you are required to guarantee the emissions to the SCAQMD, you should expect the same from your equipment vendor.

Rule compliance for existing boilers

General requirements for all boilers

CO emissions need to be below 400 ppm or 0.30 lb/MMBtu for all units. You can check your CO emissions either by source testing or by portable analyzer testing, using the same schedule as for NOx emission testing. The schedules are provided in this brochure based on equipment size and usage.

What are emission and monitoring requirements?

NOx emissions are covered by two different rules, based on equipment size. For details on NOx emission requirements, please see the following sections.

What rules apply to existing boilers?

Rule 1146 covers boilers, steam generators, and process heaters that are rated > 5 MMBtu/hr and used in all industrial, institutional and commercial operations except:

1. boilers used by electrical utilities to generate electricity,
2. boilers and process heaters > 4 MBtu/hr used in petroleum refineries,
3. sulfur plant reaction boilers.

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Rule 1146.1 covers boilers, steam generators and process heaters that are > 2 MMBtu/hr and < 5 MMBtu/hr used in any industrial, institutional, or commercial operation. Compliance requirements vary based on usage and year of installation, as described in the following two sections.

The information in this brochure is based on these rules as adopted on 9/5/2008.

What records need to be maintained?

Be sure to keep fuel use records, tune-up reports, and portable analyzer results for a rolling 24-month period. Title V facilities should keep records for 5 years.

Boilers rated > 2 MMBtu/hr and < 5 MMBtu/hr using > 18,000 therms/year, and all boilers in this size range which began operation after 9/5/08, regardless of fuel usage

What are the emission requirements?

NOx Emission Limits: Currently, the NOx emission limit for all boilers in this size range is 30 ppm or 0.037 lb/MMBtu. Table 2 summarizes upcoming emission limits.

Category	NOx limit ¹	Application due date	Compliance
Atmospheric Units	12 ppm or 0.015 lbs/MMbtu Btu	1/1/2013	1/1/2014
Boilers ²	9 ppm or 0.011 lbs/MMbtu Btu	1/1/2011	1/1/2012
Boilers at Schools and Universities ²	9 ppm or 0.011 lbs/MMbtu Btu	1/1/2013	1/1/2014

1. If you choose the lb/MMBtu option, you must install a non-resettable totalizing fuel meter for each type of fuel used by each individual unit.
2. Excluding thermal fluid heaters

If your unit was installed or modified before 9/5/08 and emits 12 ppm NOx or less, you can defer compliance with these limits until your burner is replaced. You can also choose to de-rate your boiler, but may not de-rate it to less than 2 MMBtu/hr. You will need to obtain a new manufacturer’s rating plate and update your permit.

What are the ongoing compliance requirements?

Source testing: You will need to source test your equipment’s NOx once every five years. Contact the SCAQMD or check the SoCalGas website for a list of certified source testers.

Portable analyzer testing: Beginning on 7/1/09, check NOx emissions quarterly, or every 2,000 operating hours, whichever comes later. If your unit meets the emission limits for four consecutive tests without any adjustments to the oxygen sensor setpoints, you can reduce testing frequency to semi-annually or every 4,000 operating hours. However, if a subsequent test shows that emissions exceed the limit, you’ll need to go back to the more frequent testing schedule. SCAQMD must certify the technician and equipment conducting the testing. SoCalGas can help with this requirement. Contact your representative for details.

Boilers rated > 2 MMBtu/hr and < 5 MMBtu/hr using ≤ 18,000 therms/year, in operation before 9/5/08

What are the emission requirements?

If your boiler uses less than 18,000 therms/year, you will need to meet the requirements described below.

NOx emission limits

To meet rule requirements, you may:

- Limit NOx emissions to no more than 30 ppm or 0.037 lb/MMBtu, or
- Meet the rule’s emission limits as described in Table 2, or
- Maintain stack oxygen ≤ 3%. This option will require O2 source testing every 5 years. Or,
- Tune up unit at least twice per year, at intervals from 4 to 8 months apart.

Whichever option you choose, you will need to meet either the 30 ppm or the 0.037 lb/MMBtu NOx limit by 1/1/15 or after burner replacement, whichever comes later.

What are the ongoing compliance requirements?

Portable analyzer testing: On 1/1/15 or after burner replacement, whichever comes later, you will need to begin checking emissions with a portable analyzer. Follow the same schedule you use for tune-ups.

Exceeding low-usage limit: In the future, if your unit uses more than 18,000 therms per year, you will need to submit a Permit to Construct within four months and comply with limits within 18 months.

Rule 1146 covers boilers, steam generators, and process heaters that are rated ≥ 5 MMBtu/hr and used in all industrial, institutional and commercial operations except:

1. boilers used by electrical utilities to generate electricity,
2. boilers and process heaters > 4 MBtu/hr used in petroleum refineries,
3. sulfur plant reaction boilers.

Boilers rated ≥ 5 MMBtu/hr using $> 90,000$ therms/year, and all boilers in this size range which began operation after 9/5/08, regardless of fuel usage

What are the emission requirements?

NOx Emission Limits: Currently, the NOx emission limit for all large boilers is 30 ppm or 0.037 lb/MMBtu. Table 3 summarizes upcoming NOx emission limits.

Table 3
Upcoming NOx emission limits

Category	Limit ²	Compliance plan due date	Application due date	Compliance due date
Atmospheric units	12 ppm or 0.015 lb/MMBtu	1/1/2010	1/1/2013	1/1/2014
Group 1: Units rated ≥ 75 MMBtu/hr ¹	5 ppm or 0.0062 lb/MMBtu	N/A	1/1/2012	1/1/2013
75% of Group II Units: those rated < 75 MMBtu/hr and ≥ 20 MMBtu/hr ¹	9 ppm or 0.011 lbs/MMBtu	1/1/2010	1/1/2011	1/1/2012
Remaining Group II Units ¹	9 ppm or 0.011 lbs/MMBtu	1/1/2010	1/1/2013	1/1/2014
75% of Group III Units: those rated < 20 MMBtu/hr and ≥ 5 MMBtu/hr, or operated at schools and universities rated ≥ 5 MMBtu ¹	9 ppm or 0.011 lbs/MMBtu	1/1/2011	1/1/2012	1/1/2013
Remaining Group III Units ¹	9 ppm or 0.011 lbs/MMBtu	1/1/2011	1/1/2014	1/1/2015

1. Excluding thermal fluid heaters
2. If you choose the lb/MMBtu option, you must install a non-resettable totalizing fuel meter for each type of fuel used by each individual unit.

Group III units installed before 9/5/08 and meeting 12 ppm or less of NOx can defer compliance with the above limits until the unit's burner(s) replacement. You can also choose to delay emission reduction for Group II units, but will need to meet lower emissions limit shown in Table 4. Also, the limits in Table 4 apply if permit applications or compliance plans aren't submitted by the due dates shown in Table 3. You can also choose to de-rate your boiler, but you may not de-rate it to less than 2 MMBtu/hr. You will need to obtain a new manufacturer's rating plate and update your permit.

Table 4
Alternate compliance requirements

Category	Limit ²	Compliance plan due date	Application due date	Compliance due date
75% of Group II Units, < 75 MMBtu/hr and ≥ 20 MMBtu/hr ¹	5 ppm or 0.0062 lbs/MMBtu	1/1/2011	1/1/2013	1/1/2014
Remaining Group II Units, < 75 MMBtu/hr and ≥ 20 MMBtu/hr ¹		1/1/2011	1/1/2015	1/1/2016

1. Excluding thermal fluid heaters
2. If you choose the lb/ MMBtu option, you must install a non-resettable totalizing fuel meter for each type of fuel used by each individual unit.

What are the ongoing compliance requirements?

Continuous Emission Monitoring System (CEMS): If your boiler is ≥ 40 MMBtu/hr and uses $> 200,000$ MMBtu/yr, you will need to have CEMS. Keep records for two years.

Source testing: You will need to source test your equipment's NOx emissions as follows:

Boilers ≥ 10 MMBtu/hr every 3 years (except those requiring CEMS)

Boilers ≥ 5 and < 10 MMBtu/hr every 5 years

Contact the SCAQMD or check The Gas Company's website for a list of certified source testers.

Portable analyzer testing: Beginning on 7/1/09, check NOx emissions monthly or every 750 operating hours, whichever occurs later. If your unit meets the emission limits for 3 consecutive tests without any adjustments to the oxygen sensor setpoints, you can reduce testing frequency to

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quarterly or every 2,000 operating hours, whichever comes later. However, if a subsequent test shows that emissions exceed the limit, you'll need to go back to the more frequent testing schedule. SCAQMD must certify the technician and equipment conducting the testing. The Gas Company can help with this requirement. Contact your representative for details.

Boilers rated \geq 5 MMBtu/hr using \leq 90,000 therms/year, in operation before 9/5/08

What are the emission requirements?

If your boiler uses 90,000 therms/year or less, you will need to meet the requirements listed below.

NOx emission limits:

To meet rule requirements, you may:

- Meet 30 ppm or 0.036 lb/MMBtu NOx, or
- Meet the rule's emission limits as described in Table 3 or 4, or
- Maintain stack oxygen at 3%. This option will require source testing every 3 years for boilers \geq 10 MMBtu/hr, and every 5 years for boilers \geq 5 and $<$ 10 MMBtu/hr, or
- Tune up unit at least twice per year, at intervals from 4 to 8 months apart.

Whichever option you choose, you will need to meet either the 30 ppm or the 0.037 lb/MMBtu NOx limit by 1/1/15 or after burner replacement, whichever comes later.

What are the ongoing compliance requirements?

Portable analyzer testing: On 1/1/15 or after burner replacement, whichever comes later, you will also need to begin checking emissions with a portable analyzer. Follow the same schedule you use for tune-ups.

Exceeding low-usage limit: If, in the future, your unit uses more than 90,000 therms/year, you will need to submit a Permit to Construct within 4 months and comply with limits within 18 months.

What information is covered in this brochure?

This brochure provides information on boilers rated over 2 MMBtu/hr are covered in this brochure. For smaller boilers, see our brochure, "Understanding SCAQMD Air Quality Rules for Small Boilers and Water Heaters."

For more information

SCAQMD: 1 (909) 396-3113 or www.aqmd.gov

SoCalGas Air Quality AnswerLine:

1 (562) 803-7428 or www.socalgas.com/business/

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