

# UNDERSTANDING SCAQMD AIR QUALITY RULES FOR ENGINES

The following information is intended to help you understand the air quality regulations for natural gas-fired engines rated > 50 BHP 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 five sections for your easy reference:

- Permitting a new engine
- Rule compliance for existing engines
- Ongoing compliance
- How much do the permits cost?
- Strategies

## Permitting a new engine

#### What size engines require a permit to operate?

Anyone planning to install a new gas engine rated > 50 BHP must apply for a permit from the SCAQMD before installation.

#### What do I need to provide the SCAQMD to obtain a permit?

To obtain a Permit to Operate you need to provide the SCAQMD with certain specific information about your engine and its use. 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 PermitWorks,<sup>SM</sup> our air quality permitting service. To find out more about PermitWorks, call the SoCalGas Air Quality Answer Line at **1 (562) 803-7428**.

## What emission limits will my new engine have to meet?

The following are emission limit guidelines for new, modified, or relocated engines. Currently, 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 SoCalGas for assistance or check with the SCAQMD for the latest limit.

Nitrogen Oxides (NOx):	0.15 gm/BHP-hr
Carbon Monoxide (CO):	0.60 gm/BHP-hr
Volatile Organic Compounds (VOC):	0.15 gm/BHP-hr

# What if my new engine drives a non-emergency electrical generator\*?

In this case, you will need to meet the following concentration limits<sup>\*\*</sup>, even if your facility is in the REgional CLean Air Incentives Market (RECLAIM):

Nitrogen Oxides (NOx):	0.070 lb/MW-hr
Carbon Monoxide (CO):	0.20 lb/MW-hr
Volatile Organic Compounds (VOC):	0.10 lb/MW-hr

\*For engines producing combined heat and electrical power, additional requirements apply. \*\*These limits do not apply to engines installed or issued a permit to construct and install before February 1, 2008. For additional exemptions, please see SCAQMD Rule 1110.2.

#### How can an engine meet these standards?

One way to meet these standards is to install a rich-burn engine with a nonselective catalytic reduction system (NSCR). NSCR is similar to the emission control system in your automobile. When using lean burn engines, a selective catalytic reduction system (SCR) is used to control emissions in conjunction with an oxidation catalyst. SCR employs the injection of ammonia or a similar agent to neutralize NOx.

Lean burn engines can now also utilize NSCR when combined with Exhaust Gas Recovery (EGR) technology. The EGR technology provides the efficiency advantage of a lean burn engine combined with the cost advantage of NSCR.

# Are there monitoring and record keeping requirements for new engines?

In general, new engines must meet requirements for Inspection and Maintenance (I&M) Plans and monitoring provisions when they begin operation. You will need to provide the information needed for an I&M Plan with your permit applications. For more information on these topics, see Rule Compliance for Existing Engines, below.

# Rule compliance for existing engines

## Which SCAQMD rule targets engines?

SCAQMD Rule 1110.2 regulates emissions from internal combustion engines.

#### What size engines must comply with these rules?

All stationary and portable engines with a rated capacity > 50 HP must comply with this rule. Note: stand-by engines operating less than 200 hours per year, as determined by an elapsed operating time meter and documented in an operating permit condition, are exempt.

What are the emission requirements and compliance dates for my existing engine? See Table 1 below:

## Table 1

## Concentration limits for existing engines<sup>1</sup>

	Compliance date <sup>2, 3</sup>		
Engine Size	Prior to	Ву	Ву
	July 1, 2010	July 1, 2010	July 1, 2011
BHP < 500	NOx: 45	No change	NOx: 11
	VOC: 250		VOC: 30
	CO: 2,000		CO: 250
BHP > 500	NOx: 36	NOx: 11	No change
	VOC: 250	VOC: 30	
	CO: 2,000	CO: 250	

Note: RECLAIM facilities are not subject to the NOx emission limits in Rule 1110.2.

# Ongoing compliance

How do I know my engine is meeting the emission limits? Rule 1110.2 includes several requirements for maintaining your engine and measuring emissions.

**Inspection and Maintenance (I&M) plan:** Each facility operating an engine subject to Rule 1110.2 needs an I&M plan. The plan must include descriptions of the engine, control equipment, and operating plans which, together, will ensure the emission limits and other rule requirements are met. I&M plans need to have been implemented by 12/1/08. If your plan has not yet been approved by the SCAQMD, you should implement it as submitted until you receive approval. Engines with Continuous Emission Monitoring System (CEMS) do not need to be included in the I&M plan. If you have 15 or more engines that need to be included in the plan, you could have delayed preparing the plan for up to half of the engines until 2/1/09. You would then begin implementing that portion of the plan by 6/1/09.

**Portable analyzer testing:** Emissions need to be tested weekly or every 150 operating hours, whichever occurs later. Once you have conducted three tests that show compliance, you can reduce testing frequency to once a month. SCAQMD must approve both your testing equipment and operator. SoCalGas can help with this requirement. Contact your representative for details.

**Air-to-Fuel Ratio Controllers (AFRC):** Engines without CEMS (see below) need to have had installed AFRCs on each engine by 2/1/09.

**Source testing:** Emissions need to be measured periodically by a source test. Source testing is a specific testing procedure in which both the individual conducting the test and the equipment used must be certified by the State of California. Generally, new engines must be source tested after installation but before the final permit to operate is issued. In addition, engines must be source tested

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1. ppmvd @15% O2

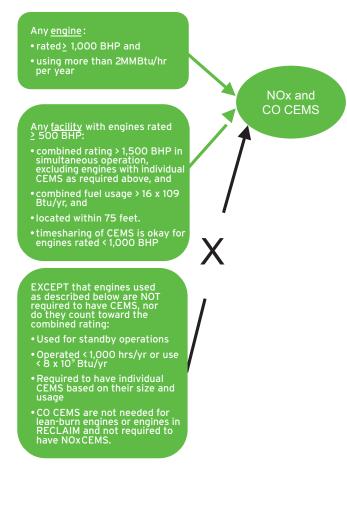
<sup>2.</sup> If your engine operates less than 500 hours per year or using less than 1 x 109 Btu per year, it does not need to meet the limits effective on 7/1/10 and later.

However, if your engine usage exceeds these limits in the future, the concentration limits must be met within 2 years of the exceedance.

<sup>3.</sup> Under certain circumstances, you may be able to demonstrate that the CO and VOC limits are not achievable and seek lower limits.

every two years or 8760 hours, whichever occurs first. By 2/1/09, you need to have installed any necessary sampling ports, equipment access, and utilities to allow source testing to be completed. Some low-usage engines may be able to source test less frequently. Contact the SCAQMD or check the SoCalGas website for a list of certified source testers. Additional monitoring may be imposed on a case-by-case basis.

<u>Continuous Emissions Monitoring System</u>: Some larger engine operators will be required to install continuous emissions monitors. The chart below summarizes CEMS requirements and applicability.



Applications for new or modified CEMS for engines rated > 750 BHP were due on 8/1/08. If you need CEMS, you will need to complete installation and begin to meet all other operating, calibrating and reporting requirements within 180 days of application approval. Certification tests are due 90 days later, and final approval one year from that date. Due dates for engines rated < 750 BHP are one year later than those described above.

Note: If your engine was exempt from CEMS requirements because of low usage, and the low-usage limit was later exceeded, you will need to install CEMS. Submit the application within 18 months of the exceedance. Please see Table VII in Rule 1110.2 for additional due dates.

#### Do I have to keep any records?

You'll need a non-resettable totalizing time meter, which is sometimes provided with the engine. You'll also need to keep a monthly operating log including total hours of operation, type of fuel used, fuel consumption, and cumulative hours of operation since the last source test was conducted. If you're generating electricity in non-emergency situations, record your net electrical output. Some engine parameters need to be monitored and recorded daily, including operating hours and engine load or fuel flow rate. Keep all records for at least five years.

## How much do the permits cost?

Permit fees are based on the size of your engine. For current fees, please see SCAQMD Rule 301.

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# **Strategies**

#### Shop around

Conduct a survey of available engine systems or hire a consultant to do it for you. There are currently many equipment vendors, so competition is strong.

#### Insist on a NOx guarantee

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

#### Know the system

The SCAQMD has 30 days to tell 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 for information about its progress.

## Call us!

If you have questions or need any further information, contact your representative at The Gas Company or contact us below.

## For more information

SCAQMD: **1 (909) 396-2000, 1 (800) CUT SMOG** (288-7664) or *www.aqmd.gov* 

SoCalGas Air Quality Answer Line: 1 (562) 803-7428 or www.socalgas.com

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