

Air Quality Update

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GET YOUR ZZZZ'S: Rest Easier Understanding 40 CFR 63, Subpart ZZZZ: NESHAP for Reciprocating Internal Combustion Engines

The Code of Federal Regulations (CFR) Title 40 Part 63, Subpart ZZZZ National Emission Standard for Hazardous Air Pollutants (NESHAP) is a federal regulation consisting of a set of standards for reciprocating internal combustion engines (RICEs) that were developed over several years. The first rule regulates RICEs with output ratings >500 hp, only at facilities designated as Major Sources of Hazardous Air Pollutants (HAPs). The second rule incorporated RICEs with ratings ≤500 hp at facilities designated as Major Sources, as well as facilities designated as Area Sources with RICEs >500 hp. The last two rules regulate RICEs ≤500 hp at Area Sources. A Major Source of HAPs is a facility with >10 tpy of any single HAP or >25 tpy of combined HAPs, and an Area Source is a facility that isn't a Major Source (i.e., <10 tpy of any single HAP and <25 tpy of combined HAPs).

If facilities operate a RICE and are in compliance with Bay Area Air Quality Management District (BAAQMD) Regulation 9 Rule 8 for Stationary Internal Combustion Engines, the engine may be in compliance with the requirements in Subpart ZZZZ, but there can be some gaps. Some engines have Subpart ZZZZ emission limits that are lower than those required in Regulation 9-8, and operators should be careful to comply with both Subpart ZZZZ and Regulation 9-8, as they apply.

For example, a non-emergency, non-black-start stationary diesel RICE between 100 and 300 hp located at a Major

Source of HAP emissions is required to limit CO to 230 ppmvd or less at 15% O₂. A non-emergency, non-black-start stationary diesel RICE between 300 and 500 hp located at an Area Source of HAP emissions is required to limit CO to 49 ppmvd or less at 15% O₂. In both instances, the limit for an equivalent engine in Regulation 9-8 is higher (more than six times higher, in the latter case).

Subpart ZZZZ requires existing non-emergency, non-black-start stationary four-stroke rich-burn RICEs between 100 and 500 hp located at a Major Source to limit emissions of formaldehyde to 10.3 ppmvd or less at 15% O₂. Regulation 9-8 does not have formaldehyde limits for existing RICEs.

For RICEs subject to federal emission limits, an initial performance test may be required to show compliance with the limits. In some situations, a petition to the administrator may be needed before testing to establish operational limitations during the initial performance test, for continuous monitoring, or for approval of no operating limitations.

In addition to the differences in emission limits, most subject RICEs, including emergency standby engines, have operational and maintenance requirements, along with recordkeeping, which Regulation 9-8 does not have. For emergency diesel engines, the operational limits include minimizing the engine's time spent at idle and the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. Maintenance requirements include changing the oil and filter every 500 hours or annually, inspecting the air cleaner every 1,000 hours or annually, and replacing as necessary and inspecting all hoses and belts every 500

hours or annually. In lieu of periodic oil changing, the operator may utilize an oil analysis program. Recordkeeping involves recording the maintenance events.

Air Quality Tip

For an Authority to Construct (A/C) that requires initial source testing, the source test is to be conducted and completed within a certain time period (startup period), as stated in the permit condition. For the BAAQMD, the source testing guideline states that the startup time period starts after the equipment has commenced any operation. Sources requiring a startup period longer than allowed by the A/C should contact the District to obtain approval for extension.

Upcoming Training Offered by Yorke Engineering:

- California Multi-Media Environmental Regulations: Permitting, Compliance, and Reporting Seminar: September 24 – September 25, 2014
- Bay Area Air Quality Regulations, Permitting, and Compliance Seminar: October 1 – October 2, 2014
<http://www.yorkeengr.com/AirQualityClasses.htm>

Upcoming Due Dates for 2014/2015

- CARB On-Road HD DV* Reporting for "Work Truck Phase-In" Compliance Option.....7/31/2014
- CARB GHG Verification9/2/2014
- CARB GHG Cap-and-Trade Annual Compliance Surrender11/3/2014
- CARB On-Road HD DV* Reporting for Flexibility Options1/31/2015
- Semi-Annual Title V Report..... Semi-Annually
- Annual Title V Compliance Certification..... Annually
- Title V – Application for Permit Renewal – Due 180 Days Prior to Permit Expiration

*Heavy-Duty Diesel Vehicle

BAAQMD REGULATION 9 RULE 7: NO_x AND CO FROM INDUSTRIAL, INSTITUTIONAL AND COMMERCIAL BOILERS, STEAM GENERATORS AND PROCESS HEATERS

The purpose of Regulation 9 Rule 7 is to limit nitrogen oxides (NO_x) and carbon monoxide (CO) from industrial, institutional, and commercial boilers, steam generators, and process heaters. The rule affects boilers, steam generators, and process heaters with a rated heat input of 1 million British thermal units per hour (MMBtu/hr) or greater. Boilers, steam generators, and process heaters with a rated heat input of 2 MMBtu/hr or less are exempt from the rule if fired exclusively with natural gas, liquefied petroleum gas, or any combination of the two. Other exemptions and limited exemptions are provided in Sections 110 through 117 of the rule.

The table below provides the final emission limits and the dates these limits are effective.

Once an effective date is established,

the initial demonstration of compliance is required within 1 year of the effective date. Aside from initial demonstration of compliance, periodic testing is also required, in most cases once per calendar year, except for units firing non-gaseous fuels. These units require testing within 60 days of the first use of non-gaseous fuel in any calendar year in which non-gaseous fuel is used (and each calendar year thereafter). Units with a rated heat input under 10 MMBtu/hr may be tested with a portable analyzer.

Records are required to be maintained for a minimum of 24 months for initial and periodic testing, tune-ups required under the low fuel usage limited exemption, non-gaseous fuel use during a natural gas curtailment or testing, and operating hours for units fired or co-fired by digester or landfill gas.

For boilers with heat input greater than 2 MMBtu/hr but less than 10 MMBtu/hr, which are not required to hold a District Permit to Operate, a registration with the District is required.

Facilities that elect to use an effective date that is based on the original manufacture date of the device (last column in the table below) need to have the original manufacture date of the device on the original manufacturer's identification, a rating plate permanently fixed to the device, or the same information on a copy of the manufacturer's invoice.

For multi-unit facilities, compliance/effective dates are spread over 2 years, based on the percentage of devices that are required to be in compliance. The last effective date for 100% compliance for multi-unit facilities is January 1, 2015.

Yorke Engineering, LLC specializes in air quality and environmental consulting for stationary and mobile sources, including dispersion modeling, health risk assessments, permitting, emission inventories, air quality compliance systems, etc. Yorke Engineering has assisted over 400 customers, including a wide variety of industrial facilities and government organizations throughout California.

Regulation 9 Rule 7 Final Emission Limits				Regulation 9 Rule 7 Compliance Schedule			
Rated Heat Input (MMBtu/hr)	Fuel	NO _x Limit (ppmv, dry at 3% O ₂)	CO Limit (ppmv, dry at 3% O ₂)	By Percentage / Size			By Original Manufacture Date, <u>Plus 10 Years</u> ¹ <u>If Manufactured Prior To:</u>
				At Least 33% of Devices at a Single Facility	At Least 66% of Devices at a Single Facility	100% of Devices at a Single Facility	
>2 to 5	Gaseous, except landfill or digester gas	30	400	1/1/2013	1/1/2014	1/1/2015	1/1/2011
>5 to <10		15	400				1/1/2012
10 to <20		15	400				1/1/2012 ²
20 or more, load-following unit		15	400				
20 to <75		9	400				
75 or more		5	400				
1 or more	Landfill or digester gas	30	400	1/1/2013 for devices with rated input <10 MMBtu/hr; 7/30/2008 for devices with rated input >10 MMBtu/hr	1/1/2014 for devices with rated input <10 MMBtu/hr; 7/30/2008 for devices with rated input >10 MMBtu/hr, which may not be grouped	1/1/2015 for devices with rated input <10 MMBtu/hr; 7/30/2008 for devices with rated input >10 MMBtu/hr, which may not be grouped	Same as above for respective rated heat input
1 or more	Non-gaseous	40	400				
1 or more	Multiple fuels	Heat-input weighted average limit	400				

1. If this is later than the normal effective date.

2. Effective date is 5 years after the original manufacture date, if this is later than the effective date.