

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 defined as a facility with >10 tpy of any single HAP or >25 tpy of combined HAPs, and an Area Source is defined as 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 San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 4702 for 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 Rule 4702, and operators should be careful to comply with both Subpart ZZZZ and Rule 4702, 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 Rule 4702 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. Rule 4702 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 additional operational and maintenance requirements, along with recordkeeping, which Rule 4702 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/Permit to Construct (ATC/PTC) 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 SJVAPCD, 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 ATC/PTC 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: October 14 – October 15, 2014
<http://www.yorkeengr.com/AirQualityClasses.htm>

Upcoming Due Dates for 2014/2015

- CARB GHG Verification 9/2/2014
- CARB GHG Cap-and-Trade Annual Compliance Surrender 11/3/2014
- CARB On-Road Heavy-Duty Diesel Vehicle Reporting for Flexibility Options 1/31/2015
- 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

POTENTIAL PHASE I EVR UPGRADE EXEMPTION FOR EXISTING ABOVEGROUND GASOLINE STORAGE TANKS

In 2008, the California Air Resources Board (CARB) adopted a rule that established new vapor recovery standards for Aboveground Storage Tanks (ASTs) that include standing loss control, Phase I Enhanced Vapor Recovery (EVR), and Phase II EVR. The Phase I EVR requirements for existing ASTs have a compliance start date of July 1, 2014, which recently passed. CARB has found that the Phase I EVR upgrade costs are higher than estimated in 2008 and is currently working on an amendment to the AST EVR regulation.

In the meantime, CARB has issued an advisory to provide interim guidance while the rule is being amended to allow for flexibility and to avoid unnecessary upgrade expenses. Although the advisory is not a regulation, it was issued to provide a temporary relieve for the ASTs. The District is directed by CARB to use enforcement discretion for the July 1, 2014, compliance date. The advisory provides exemptions from Phase I EVR for existing ASTs in federal ozone attainment areas and low-throughput existing ASTs. For the SJVAPCD, to qualify for the Phase I EVR exemption based on low throughput, the existing AST must have an annual throughput of less than 18,000 gallons. The regulation is expected to be amended by November 2014.

UPCOMING REQUIREMENTS FOR BOILERS, STEAM GENERATORS, AND PROCESS HEATERS RATED BETWEEN 2-5 MMBTU/HR

On May 19, 2011, the SJVAPCD amended Rule 4307 to include emission limits for atmospheric combustion units located in an oilfield or re-

finery, glycol reboilers, and units currently limited by a Permit to Operate (PTO) or Permit-Exempt Equipment Registration (PEER) to less than 5.0 MMBtu per calendar year. Rule 4307 has separate emissions standard requirements for existing and new/replacement units. For existing units, on or after July 1, 2015, Rule 4307 requires each existing atmospheric unit operated in an oilfield or refinery, each glycol reboiler, or each unit limited to no more than 5.0 MMBtu per calendar year heat input pursuant to a PTO or PEER to demonstrate compliance with a NO_x limit of 30 ppm and CO limit of 400 ppm if natural gas-fired, or 40 ppm NO_x and 400 ppm CO if liquid fuel-fired.

Compliance can be demonstrated through source testing or certification. Facilities may choose to accept an annual fuel usage limit of 1.8 MMBtu per calendar year in lieu of meeting the NO_x and CO emission limits. A permit modification is needed to incorporate the fuel limit into the existing PTO or PEER. The deadline to submit an ATC application for permit modification to comply with Rule 4307 is before January 1, 2015, and the deadline to submit a PEER modification application is before April 1, 2015.

For new or replacement Rule 4307 atmospheric units, the NO_x limit of 12 ppm and CO limit of 400 ppm have to be met upon installation. However, if the units are located at a school, in an oilfield, or at a refinery, are glycol reboilers, or have a heat input greater

than 1.8 MMBtu but less than 5.0 MMBtu per calendar year, the compliance deadline is January 1, 2016.

For new or replacement Rule 4307 non-atmospheric units, the NO_x limit of 9 ppm and CO limit of 400 ppm have to be met upon installation. However, if the units are located at a school, in an oilfield, or at a refinery, are glycol reboilers, or have a heat input greater than 1.8 MMBtu but less than 5.0 MMBtu per calendar year, the compliance deadline is January 1, 2016.

In addition, a new Rule 4307 Particulate Matter (PM) compliance requirement will become effective July 1, 2015. Compliance can be met by choosing one of the following options:

1. Fire units exclusively on Public Utilities Commission (PUC)-quality natural gas, commercial propane, butane, liquefied petroleum gas, or a combination of these gases;
2. Limit fuel sulfur content to no more than 5 grains of total sulfur per 100 standard cubic feet; or
3. Install and operate an emission control system that reduces SO₂ emissions by at least 95% by weight or limit exhaust SO₂ to less than or equal to 9 ppmv corrected to 3.0% O₂.

Starting July 1, 2015, liquid fuel shall be used only during a PUC-quality natural gas curtailment period, provided it contains no more than 15 ppm sulfur and records of sulfur content, fuel amount, and duration of curtailment are being kept.

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.