

Are Your Engines



Compliant?

Karrie Williams

As part of an effort to reduce engine emissions, the U.S. Environmental Protection Agency (EPA) adopted new national emission standards for hazardous air pollutants (NESHAP) in 2010. The new regulations apply to existing stationary compression ignition (CI) and spark ignition (SI) reciprocating internal combustion engines at area and major sources of hazardous air pollutants (HAPs).

This regulation, known as RICE NESHAP, NESHAP Subpart ZZZZ, Quad-Z, or RICE MACT, will require sources to achieve emission limits reflecting the application of the maximum achievable control technology (MACT) consistent with Section 112(d) of the Clean Air Act.

Under RICE NESHAP, facilities with stationary engines are required to meet stringent emissions standards, verify compliance, perform maintenance activities and report their continued compliance to the EPA. The procedure for achieving compliance will require the implementation of new processes, methods and systems, each unique to the respective operator, operating conditions and locations. EPA set the following start dates for compliance with the national emission limits and operating limits:

- Non-Emergency Diesel (compression-ignition or CI) Engines by May 3, 2013.
- Non-Emergency Gas (spark-ignition or SI) Engines by Oct. 19, 2013.

With nearly 1.5 million stationary engines in the U.S. affected by this new ruling, there are lots of people searching for knowledge on the requirements. However, as with any federal regulations, the reading can be extensive, confusing and the process for achieving compliance quite intimidating.

SOME BACKGROUND ON THE RULE

On February 17, 2010, EPA finalized portions of the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (RICE). The rule was promulgated into existing RICE standards located in 40 CFR Part 63, Subpart ZZZZ on March 3, 2010. The newly incorporated standards were originally proposed on February 25, 2009, and apply only to stationary RICE. The proposed standards included provisions for RICE lo-

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cated at area sources of hazardous air pollutants (HAPs) and RICE with a site rating of ≤ 500 brake horsepower (bhp) located at major sources of HAPs. In addition, the proposal included stan-

dards for existing non-emergency compression ignition (CI) engines with a site rating of > 500 bhp at major sources and revised provisions related to startup, shutdown and malfunction (SSM) events for engines previously regulated under the rule.

Under the NESHAP, a major source is defined as a site that emits > 10 tons per year (tpy) of any single HAP or > 25 tpy of combined HAPs. An area source is a site that emits HAPs, but is not considered a major source. A list of pollutants considered to be HAPs can be found at epa.gov/ttn/atw/orig189.html.

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DO YOUR STATIONARY ENGINES FALL UNDER RICE NESHAP?

To determine if your engine(s) must comply with the new regulations, you need to know the following information:

- Horsepower of the engine(s).
- Annual hours of operation.
- Annual hours of operation for non-emergency purposes.
- Annual hours of operation for maintenance checks and readiness purposes.
- Date of engine manufacture.

Using this information, you can determine if your engine is classified as either an emergency or non-emergency engine, as well as its source group. The engines are distinguished as either a major source or area source of HAPs. A major source is an area that produces over 10 tons of carbon monoxide (CO) annually, while an area source is any engine not classified as a major

source. Once you have this information, you need to identify specific requirements for your specific engine/application.

WHAT ROLE DOES OIL ANALYSIS PLAY?

Following public comment on the proposed rule, EPA made a number of significant changes to the promulgated rule, including adding an option to the management of implementing oil analysis to extend the oil change frequencies listed in the final rule.

For those engines that require periodic oil changes, the schedule for changing engine oil can be extended if the oil is part of an oil analysis program. However, the oil analysis must be performed at the same frequency as specified for oil changes.

The oil analysis program must include the following parameters in order to qualify: Total base number (diesel engines), total acid number (natural gas engines), viscosity and percent water content. If certain limits are met during the analysis, then the owner or operator is not required to change the oil. However, if any of the limits are exceeded, the oil must be changed within two business days. The limits are shown in Table 1.

TABLE 1 - OIL ANALYSIS PROTOCOL	
Parameter	Condemning Limits
Total Base Number (TBN) (CI RICE only)	<30% of the TBN of the oil when new
Total Acid Number (TAN) (SI RICE only)	Increases by more than 3.0 mg of potassium hydroxide per gram from TAN of the oil when new
Viscosity	Changed by more than 20% from the viscosity of the oil when new
% Water Content by Volume	>0.5

RECORD-KEEPING AND REPORTING REQUIREMENTS

The EPA and state environmental agencies have the authority to request compliance records for a period of up to five years, so owners/operators must validate that management practices have been implemented and be able to supply accurate substantiating records in a timely fashion should a request be made by a regulatory agency.

It is not possible to address all applicable aspects of RICE NESHAP or the nuanced compliance issues related to it. It is highly recom-

mended that you review the regulations in detail and seek professional assistance if necessary. For more information or to view a copy of the final rule, go to epa.gov/ttn/oarpg/new.html.



Karrie Williams is the Marketing Director for TestOil headquartered in Cleveland, Ohio. In addition to overseeing the company's marketing initiatives, she has written several educational papers and recently co-authored the book, *Oil Analysis for Dummies*, which was developed to help readers better understand oil analysis and lubrication fundamentals. www.testoil.com

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