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Stationary Engine Rules

Top 5 Compliance Tips
NSPS IIII, JJJJ, NESHAP ZZZZ



REGFORM
Missouri Air Compliance Seminar
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Agenda - Top 5 Lessons Learned

1. General compliance issues
2. Stationary vs. nonroad and temporary units
3. Consequences of emergency provisions
4. Expiration of certificates
5. Test method and CPMS concerns

QUAD-ZILLA





1. General Compliance Issues

- > Non-resettable hour meter
- > Maintenance
 - ❖ MACT - Prescribed
 - ❖ NSPS - Manufacturer's written instructions
 - ❖ Oil analysis program
- > Run Logs
 - ❖ Record each time the engine operates
 - ❖ State the purpose
 - ◆ Emergency - Why is it an emergency?
 - ◆ Non-emergency - e.g., monthly maintenance check

2a. Stationary vs. Nonroad

- > “Nonroad” engines are not “stationary” and are therefore not subject to IIII, JJJJ, & ZZZZ
 - ❖ EPA 420-F-02-034 (9/2002) for definition of “stationary”
- > Nonroad engine means any ICE that is in or on a piece of equipment that is...
 - ❖ self-propelled; or propelled while functioning; or
 - ❖ portable or transportable
 - ◆ *Designed to be moved*, e.g., on wheels or skids
 - ◆ *And actually is moved routinely*
 - ◆ Portability is moot if it remains [*in service*] at a location (building, structure, facility, or installation)...
 - *for more than 12 months...or...*
 - *for seasonal sources, for the entire season (3 months or more) for at least 2 years*

2b. Back door to a temporary unit exemption?

- > There is no exemption for temporary units, but...
 - ❖ a temporary engine used for a temporary purpose is not a stationary engine if it does not remain in the location for more than 12 months
- > Two big caveats:
 1. Replacing one temporary engine with another to be used for the same purpose does not restart the 12-month clock
The 12-month clock applies to the location and purpose, not a particular engine
 2. An engine to be used temporarily in place of a stationary engine (e.g., while it is being overhauled) is considered a stationary engine
The location and purpose is stationary even if it consists of more than one engine over time

3a. Can you use emergency engines to *prevent* an emergency?

- > A facility uses pumps during heavy rains to prevent flooding
- > EPA says NO - the operation counts towards the allowable 50 hours of non-emergency operation
- > Same determination for other emergency *anticipation* situations
 - ❖ Example - Process power back-up engines started as a storm approaches

3b. What if you operate an emergency engine more than the allowable non-emergency hours?

- > Based on EPA's April 2, 2013 Q&A document, it is then forever a non-emergency engine
- > Based on EPA's RTC 10.2.1 published with the 2013 rule preamble, a decision will be made on a "case-by-case" basis

3c. Emergency Engine Example

- > A power generation facility is planning a 3-day (72-hour) outage for switchyard maintenance to comply with new NERC standards
- > Power for critical systems will need to come from engines
- > Existing, on-site emergency engines could accommodate the need, but 72 hours of operation in a single year would potentially make them non-emergency forever
- > To maintain existing engines as emergency, site was instructed to bring in portable engines...which is potentially worse for the environment
 - ❖ Potentially higher emitting design
 - ❖ Extra fuel storage and transportation

3d. Is it always worth the hassle?

- > No, for several types of engines, it is easier to comply with non-emergency provisions than with emergency provisions
 - ❖ Maintenance requirements only v. maintenance requirements + hours records
- > These engines include:
 - ❖ Major source existing RICE < 100 hp
 - ❖ Area source existing CI RICE < 300 hp
 - ❖ Area source existing 4S RICE < 500 hp
 - ❖ Area source existing 2S RICE
 - ❖ Area source existing 4S remote RICE
- > Remember the impact on PTE

4. What happens when your certificate expires?

- > The easiest compliance requirement for many NSPS engines is to purchase a certified engine
- > But these certifications expire
 - ❖ Some certificates have a disclaimer that certified emissions are only good for X hours of operation
- > Neither document expiration nor operation limitation exceedances results in noncompliance with the NSPS rules
- > The NSPS requirements are to (1) purchase a certified engine and (2) operate and maintain it according to manufacturer instructions
 - ❖ See RTC for July 11, 2005 proposed III rule

5a. Test Method Concern

- > Mass emission rates are directly proportional to exhaust gas velocity (flow) so accurate measurements of velocity are critical
- > Method 2 is ~10% error in ideal conditions and worse for engine exhaust
 - ❖ Velocities tend to be large and variable
- > Consider Method 19 (F-Factor), you will need:
 - ❖ Fuel flow meter
 - ❖ Site-specific fuel analysis
 - ❖ Excess air (from CO₂ / O₂ concentrations)
 - ❖ <https://www3.epa.gov/ttn/emc/methods/method19.html>

5b. CPMS Deviation Reporting

- > Any 4-hour rolling average temperature out of range (450°F to 1350°F) is a deviation
 - ❖ No allowances
 - ❖ Averages span shutdown periods
 - ❖ 30 minutes allowed for startups

* 4-hour rolling averages are based on four 1-hour block averages, each from four 15-minute readings



Bonus Tips

1. De-rating an engine
2. Rich vs lean burn
3. Relying on a no-requirements determination
4. Understanding the NESHAP/NSPS gap
5. Reconstructing on purpose!?
6. Engine modeling issues
7. Use caution when applying exemptions
8. What if my leasing company takes care of compliance?

Questions and Contact Info

> Contact Information

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> Upcoming *Understanding Engines* course offerings:

- ❖ March 24, 2016 - Wichita, KS
- ❖ May 5, 2016 - Fargo, ND
- ❖ October 5, 2016 - Tulsa, OK
- ❖ In 2017 - St. Louis, MO