Overview of Federal RICE Requirements

What You Need to Know to Implement the Federal Regs (well, not really…)

EPA's RICE Regulations

- Brief Overview of the Regulations
- Local Air Agency Role
- Tools / Resources
- Specific Examples

The RICE Regulations

- New/Existing Engines > 500 bhp at Major HAP Sources
  - CI/SI Engines: NESHAP ZZZZ (June 15, 2004)
- New Engines Subject to NSPS
  - CI Engines: NSPS IIII (Jul 2006)
  - SI Engines: NSPS JJJJ (Jan 2008)
- Existing Engines Subject o NESHAP
  - CI Engines: NESHAP ZZZZ (Mar 2010)
  - SI Engines: NESHAP ZZZZ (Aug 2010)

What's the Purpose

- The NESHAPs rule is intended to reduce emissions of toxic air pollutants such as formaldehyde, acetaldehyde, acrolein, methanol and other air toxics from stationary engines. The NSPS are focused on criteria emissions (+HAPs)
- CO is used a surrogate (in most cases).
- Implementation by 2013
  - May 3, 2013 for CI engines
  - October 19, 2013 for SI engines

Basic Requirements

- Warning: Requirements differ based on size, age, fuel, type and whether located at a major HAP source
- Ultra-low sulfur diesel
- Certain engines must meet CO concentration or removal efficiency standards
- Oxidation catalysts and parametric monitoring equipment (pressure drop and temperature).
- Includes work practices for engine operators. Changing oil/filter at specified times; inspecting air cleaner, hoses and belts.
- Some engines must also be equipped with closed or open crankcase filtration system in order to reduce metallic HAP emissions.

Basic Requirements

- Has built-in startup provisions. Minimize emissions not to exceed 30 minutes.
- Certain engines require performance testing.
- Emergency CI engines at Residential, Commercial or Institutional facilities only requirement is limit on hours of non-emergency use.
- Other CI ES engines must: change oil/filter every 500 hours*, inspect air cleaner every 1,000 hours*, inspect hoses and belts every 500 hours*.

* or annually, whichever is first.

Emission Standards – Existing RICE Located at Major Sources

HP	Engine Subcategory					
	Non-emergency					Emergency
	CI	SI 2SLB	SI 4SLB	SI 4SRB	SI LFG/DG	
<100	Work practice standards					Work practice standards
100-300	230 ppm CO	225 ppm CO	47 ppm CO	10.3 ppm CH_2O	177 ppm CO	
300-500	49 ppm CO or 70% CO reduction					
>500	23 ppm CO or 70% CO reduction	No standards (2004 rule)	No standards (2004 rule)	350 ppb CH_2O or 76% CH_2O reduction (2004 rule)	No standards (2004 rule)	No standards (2004 rule)

Limits in yellow are expected to require emissions control retrofit

Note: Existing limited use engines >500 HP at major sources do not have to meet any emission standards. Existing black start engines ≤500 HP at major sources must meet work practice standards.

Emission Standards – Existing RICE Located at Area Sources

HP	Engine Subcategory					
	Non-emergency					Emergency or Black start
	CI	SI 2SLB	SI 4SLB	SI 4SRB	SI LFG/DG	
≤300	Mgmt practice standards	Mgmt practice standards	Mgmt practice standards	Mgmt practice standards	Mgmt practice standards	Mgmt practice standards
300-500	49 ppm CO or 70% CO reduction*					
>500	23 ppm CO or 70% CO reduction*		47 ppm CO or 93% CO reduction**	2.7 ppm CH_2O or 76% CH_2O reduction**		

Limits in yellow are expected to require emissions control retrofit

*Except engines in rural Alaska
**If engine used >24 hrs/yr

Emission Standards – New RICE Located at Major Sources

HP	Engine Subcategory					
	Non-emergency					Emergency
	CI	SI 2SLB	SI 4SLB	SI 4SRB	SI LFG/DG	
≤250	Comply with CI NSPS	Comply with SI NSPS	Comply with SI NSPS	Comply with SI NSPS	Comply with SI NSPS	Comply with CI/SI NSPS
250-500			14 ppm CH_2O or 93% CO reduction (also comply with SI NSPS)			
>500	580 ppb CH_2O or 70% CO reduction (also comply with CI NSPS)	12 ppm CH_2O or 58% CO reduction (also comply with SI NSPS)		350 ppb CH_2O or 76% CH_2O reduction (also comply with SI NSPS)	No standards (also comply with SI NSPS)	No standards (also comply with CI/SI NSPS)

Limits in yellow are expected to require emissions control retrofit

Notes: New limited use engines >500 HP at major sources do not have to meet any emission standards under the NESHAP. New engines may also be subject to the NSPS.

Emission Standards – New RICE Located at Area Sources

- Meet Stationary Engine NSPS
  - CI: part 60 subpart IIII
  - SI: part 60 subpart JJJJ

Local Agency Role

- Local agency's implement the NSPS and NESHAPs for their Part 70 sources (includes area source requirements).
- Is your agency delegated area source MACT implementation for non-Part 70 Sources? (12 Districts do)? If yes, local agency implements area source NESHAPs. NSPS delegation process is done via local rules.
- If no Area Source MACT or NSPS delegation, then EPA is responsible for non-Part 70 sources!

Delegated Agencies

NESHAP for Source Categories (MACT Standards) Subpart ZZZZ

Description: **Reciprocating Internal Combustion Engines**

Note: All California districts have delegation of this MACT standard as it applies to Part 70 sources. The following districts also have delegation for this standard as it applies to non-Part 70 sources: Antelope Valley AQMD, Butte County AQMD, Kern County APCD, Mendocino County AQMD, Mojave Desert AQMD, Monterey Bay Unified APCD, San Luis Obispo County APCD, Ventura County APCD, and Yolo-Solano AQMD [see 12/19/03, 68 FR 70726]; Amador County APCD and San Diego County APCD [see 3/25/09, 74 FR 12591]; Santa Barbara County APCD [see 7/30/10 letter].

Tools / Resources

- It's a maze of regulations. Use the e-CFR to get the most current version. NESHAP ZZZZ , NSPS IIII, NSPS JJJJ
- June 22, 2011 Engineering Symposium PPT
- EPA's Presentation by Melanie King (June 2011)
- EPA Applicability Flowchart and accompanying RICE Summary Table
- MS DEQ Flowchart
- EPA REG NAV Online Tool
- EPA's NSPS and NESHAPS Webpages
- All the above (and more) can be located on SBCAPCD webpage at www.sbcapcd.org/eng/rice/rice.htm

Air Quality
Today's Air Quality
Pollutants & Health
Monitoring Air Quality
Attainment Class
Planning
Clean Air Plans
Land Use & CEQA
Transportation
Business
News/Notices/Meetings
APCD Board Agendas
Permits & Engineering
Permit Applications
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Site Map

Permits and Engineering

Federal Reciprocating Internal Combustion Engine (RICE) Webpage
NESHAPS ZZZZ, NSPS IIII and NSPS JJJJ

This webpage provides a portal to important information that will assist you in complying with the USEPA's requirements for reciprocating internal combustion engines (RICE). Santa Barbara County Air Pollution Control District is delegated authority from USEPA to implement and enforce the applicable regulations. The District implements these rules in conjunction with other State and local regulations. See the District's webpage for compression ignition (CI) engines here and our webpage for spark-ignited (SI) engines here. The Federal rules that apply to internal combustion engines include:

- NESHAP ZZZZ. Applies to all existing engines (including new engines rated over 500 bhp that are located at major HAP sources).
- NSPS IIII. Applies to new CI engines. Diesel fueled engines are an example of a CI engine.
- NSPS JJJJ. Applies to SI engines. Includes engines fueled by natural gas, LPG, gasoline, LFG, digester gas.

PowerPoint Presentations

- EPA Presentation Stationary RICE NESHAP - June 21, 2011 (PDF)
- CAPCOA Engineering Symposium RICE NESHAP -June 22, 2011 (PDF)
- CAPCOA Enforcement Managers Meeting - August 18,2011 (PDF)

Flowcharts/Tables

- EPA Stationary RICE Applicability Flowchart - November 2010 (PPT, PDF)
- EPA RICE Summary Table of Requirements - March 2011 (XLS, PDF)
- Mississippi DEQ Summary Flowchart - March 2011 (DOC, PDF)
- Trinity Consultants - Updated MACT ZZZZ Requirements for Existing Stationary CI RICE (PDF)

EPA's Regulation Navigation Tool (REG NAV)

- Regulation Navigation Tool - April 2011: click here
- Example Output: Existing CI Non-Emergency at an Area HAP Source rated b/n 300-500 bhp (PDF). Over 500 bhp (PDF)
- *Example Output*: Existing CI Emergency Engine at an Area HAP Source Rated under 500 bhp (PDF), Over 500 bhp (PDF)
- *Example Output*: New CI Non-Emergency Engine at an Area HAP Source rated over 500 bhp (PDF)
- *Example Output*: Existing SI Non-Emergency 4-Stroke Rich Burn Engine at Major HAP Source rated b/n 100 and 500 bhp (PDF)
- *Example Output*: New SI Non-Emergency 2-Stroke Lean Burn Engine at an Area HAP Source rated under 500 bhp (PDF)

Other Useful Documents

- EPA Guidance on RICE NESHAP Residential-Institutional-Commercial Emergency Engine Definition - Sept 2010 (PDF)
- EPA Example Notification of Compliance Status Report Letter (DOC, PDF)
- EPA Example Initial Notification of Applicability Letter (DOC, PDF)

Links

- EPA - NESHAPS RICE ZZZZ page
- EPA - NSPS IIII for CI RICE page
- EPA - NSPS JJJJ for SI RICE page
- EPA - 40 CFR Part 63 - NESHAPs for Source Categories (MACT Standards)

For more information or assistance, call us at (805) 961-8800 (ask for the Engineering and Compliance Division) or e-mail us at engr@sbcapcd.org.

Return to Permits and Engineering

http://www.sbcapcd.org/eng/rice/rice.htm

Information Needed

- Is it a stationary engine?
- Is this a CI or SI engine?
- Is the engine locate at a Part 70 source?
- Is this a major HAP source?
- Is the engine used in a test cell/stand?
- Is this a new or existing engine?
- Is this an emergency engine? Located at a residential, commercial or institution site?
- What is bhp rating of the engine?
- Only needed if the engine is located at Major HAP source:
  - Is it a limited use engine?
  - Is it powered by LFG or digester gas?
  - Is it SI 4SLB engine > 250 bhp mfr'd after 1/1/08?
  - Is it a SI 2SLB engine?
  - Is it a 4SRB engine?

Example 1

- **Emergency Standby Diesel** Engine rated at 60 bhp located at cell tower site.
- Engine complies with the Stationary Diesel ATCM and is limited to less than 50 hrs/yr of non-emergency M&T use
- **Area** HAP source, non-Part 70 source
- **Existing** engine (pre- June 12, 2006)
- Meets the definition of **Commercial**
- Output from REG NAV (here)
  - § 63.6640 (f)(1) applies
  - Unlimited emergency operations
  - Hours limits for M&T to 100 hr/yr
  - 50 hr/yr allowance for any use that does not generate income or involve peak shaving. Allows for 15 hrs/yr for DRP program use.
  - No other requirements apply.
- This result would apply to any sized CI ES engine (Res, Com, Inst). Section (f)(2) applies to engines rated over 500 bhp. Same end result. (here)

SLIDES FROM EPA

- Current as of July 2011

Compliance Requirements

Engine Subcategory	Compliance Requirements
•Existing non-emergency CI ≥100 HP at major source •Existing non-emergency SI 100-500 HP at major source •Existing non-emergency CI >300 HP at area source •Existing non-emergency SI >500 HP at area source that are 4SLB or 4SRB and are used >24 hours/year	•Initial emission performance test •Subsequent performance testing every 8,760 hours of operation or 3 years for engines >500 HP (5 years if limited use) •Operating limitations - catalyst pressure drop and inlet temperature for engines >500 HP •Notifications •Semiannual compliance reports (annual if limited use) Existing non-emergency CI >300 HP: •Ultra low sulfur diesel (except rural Alaska) •Crankcase emission control requirements

Compliance Requirements

Engine Subcategory	Compliance Requirements
Existing engines: •<100 HP at major source •Emergency/black start ≤500 HP at major source •Emergency/black start at area source •Non-emergency CI ≤300 HP at area source •Non-emergency SI ≤500 HP at area source •Non-emergency SI 2SLB >500 HP at area source •Non-emergency SI LFG/DG >500 HP at area source •Non-emergency SI >500 HP at area source that are 4SLB or 4SRB and are used ≤24 hours/year	•Change oil/filter, inspect air cleaner or spark plugs, hoses/belts on prescribed schedule •Operate/maintain engine & control device per manufacturer's instructions or owner-developed maintenance plan •May use oil analysis program instead of prescribed oil change frequency •Emergency engines must have hour meter and record hours of operation •Keep records of maintenance •Notifications not required

Compliance Requirements

Engine Subcategory	Compliance Requirements
•Existing/new non-emergency 4SRB >500 HP at major source •New non-emergency SI 2SLB >500 HP at major source •New non-emergency SI 4SLB >250 HP at major source •New non-emergency CI>500 HP at major source	•Initial emission performance test •Subsequent performance testing semiannually (can reduce frequency to annual)* •Operating limitations - catalyst pressure drop and inlet temperature •Notifications •Semiannual compliance reports

*Subsequent testing required for 4SRB engine complying with CH_2O % reduction only if engine is ≥5,000 HP

Compliance Requirements

Engine Subcategory	Compliance Requirements
•New emergency/limited use >500 HP at major source	•Initial notification only
•New non-emergency LFG/DG >500 HP at major source	•Initial notification •Monitor/record fuel usage daily •Annual report of fuel usage

Notifications and Reporting

- Notifications
  - applicability [120 days after effective date] or construction/reconstruction
  - actual startup [15 days after actual startup]
  - performance test [60 days prior to test]
  - initial notification of compliance [60 days after compliance demonstrated]
- Compliance reports are semiannual or annual depending on engine
- With one exception, notifications/reports generally required only for engines subject to numeric CO or formaldehyde limits)
  - Initial notification only for new engines >500 HP at major sources that are emergency, limited use, or LFG/DG
  -

Key Dates

- Initial applicability notifications for engines subject to 2010 amendments were due by:
  - August 31, 2010 for existing CI RICE
  - February 16, 2011 for existing SI RICE
- Compliance dates:
  - June 15, 2007
    - Existing RICE >500 HP at major sources (except non-emergency CI >500 HP at major sources)
  - May 3, 2013
    - Existing CI RICE (except emergency CI >500 HP at major sources
  - October 19, 2013
    - Existing SI RICE ≤500 HP at major sources and all HP at area sources
  - Upon startup for new engines