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EPA's Air Quality Regulations for Stationary Engines

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February 28, 2013

Agenda

- Background on Stationary Engines
- Overview of Recent Amendments
- Overview of Current Regulations
- Q&A

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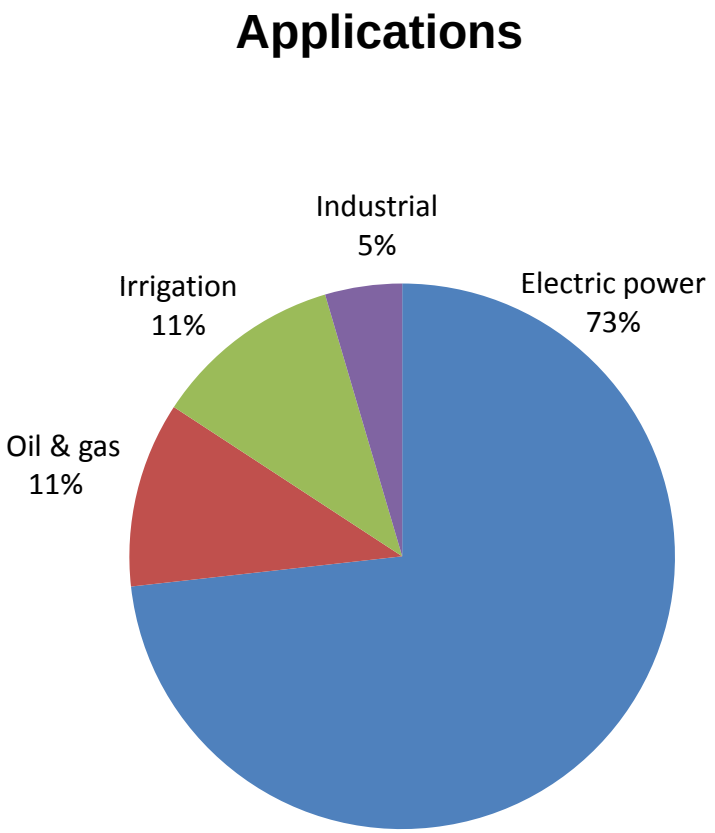
Background on Stationary Engines

Stationary Engines at a Glance



- ~1.5 million stationary engines in U.S.
  - 78% CI, 22% SI
  - ~ 900,000 used for emergency power
- Sizes range from 1 kW to >10 MW
- Main HAP emitted: formaldehyde, acetaldehyde, acrolein, methanol, and PAH
- Main criteria pollutants emitted: NOx, CO, VOC, PM

Stationary vs. Mobile

- Stationary means not used in a motor vehicle and not a nonroad engine
  - Nonroad engines are:
    - Self-propelled (tractors, bulldozers)
    - Propelled while performing their function (lawnmowers)
    - Portable or transportable (has wheels, skids, carrying handles, dolly, trailer, or platform)
      - Portable nonroad becomes stationary if it stays in one location for more than 12 months, or full annual operating period if seasonal source

VS.

Why are Engine Emissions a Concern?

- Pollutants emitted from stationary engines are known or suspected of causing cancer and other serious health effects:
  - Aggravation of respiratory and cardiovascular disease
  - Changes in lung function and increased respiratory symptoms
  - Premature deaths in people with heart or lung disease
  - Benzene and 1,3-butadiene are known human carcinogens
  - Noncancer health effects from air toxics may include neurological, cardiovascular, liver, kidney effects, also effects on immune and reproductive systems
- NOx and VOC can react in the presence of sunlight to form ozone

EPA's Stationary Engine Regulations

- National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines (RICE)
  - 40 CFR part 63 subpart ZZZZ
- New Source Performance Standards (NSPS) for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE)
  - 40 CFR part 60 subpart IIII
- NSPS for Stationary Spark Ignition (SI) ICE
  - 40 CFR part 60 subpart JJJJ

Timeline of Final Regulations

Date	Rule	Type of engines covered
June 2004	NESHAP	•Existing/new engines >500 HP at major sources
June 2006	NSPS	•New CI engines
January 2008	NSPS	•New SI engines
	NESHAP	•New engines •≤500 HP at major sources •all HP at area sources
March 2010	NESHAP	•Existing CI engines •≤500 HP at major sources •all HP at area sources •non-emergency CI >500 HP at major sources
August 2010	NESHAP	•Existing SI engines •≤500 HP at major sources •all HP at area sources
June 2011	NSPS	•Amendments for CI and SI engines
January 2013	NESHAP and NSPS	•Reconsideration of 2010 NESHAP •Minor amendments to NSPS for CI and SI engines

Applicability

RICE NESHAP

- Applies to stationary CI and SI engines, both existing and new

CI ICE NSPS

- Applies to stationary CI engines:
  - Ordered after July 11, 2005 and manufactured after April 1, 2006
  - Modified or reconstructed after July 11, 2005

SI ICE NSPS

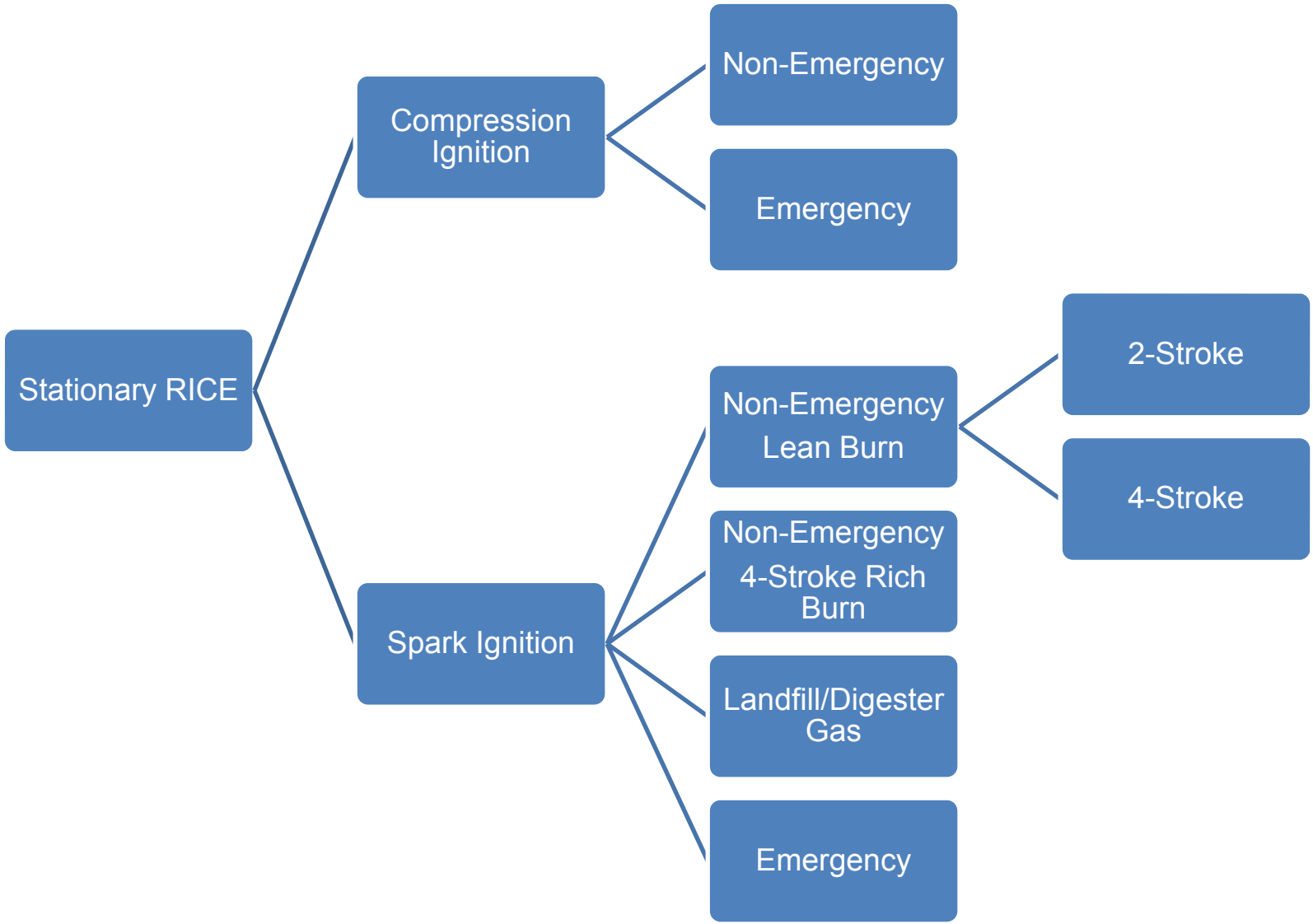
- Applies to stationary SI engines:
  - Ordered after June 12, 2006 and manufactured on/after
    - July 1, 2007 if ≥500 HP (except lean burn 500≤HP<1,350)
    - January 1, 2008 if lean burn 500≤HP<1,350
    - July 1, 2008 if <500 HP
    - January 1, 2009 if emergency >25 HP
- Modified or reconstructed after June 12, 2006

Modification and Reconstruction

- Modification (NSPS only)
  - Physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of a regulated pollutant
  - See 40 CFR 60.14

- Reconstruction
  - Replacement of components of an existing facility to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost of a comparable entirely new facility, and it is technologically and economically feasible to meet the applicable standards
  - See 40 CFR 60.15 and 63.2

General Subcategorization Approach



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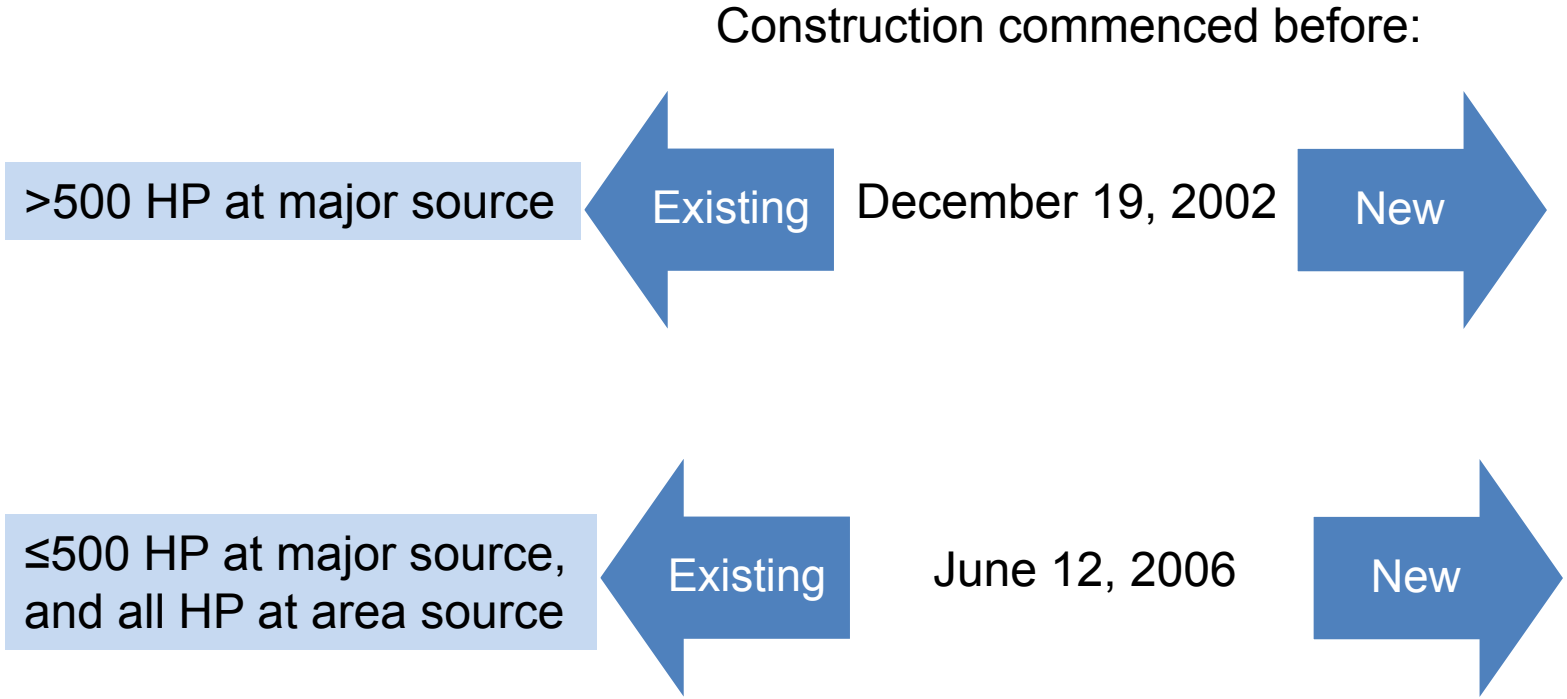
Stationary RICE NESHAP
Background and Recent Amendments

RICE NESHAP Background

- Regulates HAP emissions from stationary RICE at both major and area sources of HAP
  - All sizes of engines are covered

- **ONLY ENGINES NOT SUBJECT**: existing emergency engines located at residential, institutional, or commercial area sources used or obligated to be available ≤15 hr/yr for emergency demand response, and not used for local reliability

Background: Existing vs. New



- Determining construction date: owner/operator has entered into a contractual obligation to undertake and complete, within a reasonable amount of time, a continuous program for the on-site installation of the engine
  - Does not include moving an engine to a new location

January 30, 2013 Amendments: Background

- EPA finalized amendments to the RICE NESHAP in 2010 that established standards for certain existing engines
- After promulgation of the 2010 amendments, EPA received several petitions for reconsideration, petitions for judicial review, and other communications regarding several issues with the final rules
- On January 30, 2013 (78 FR 6674), EPA finalized amendments to the NESHAP to address the petitions
  - Amendments effective April 1, 2013
  - Minor amendments/clarifications also made to NSPS

Major Issues Addressed in Final Amendments

- Emergency engine operation for demand response and peak shaving
- Requirements for existing 4-stroke SI RICE at area sources of HAP
- Total hydrocarbon (THC) compliance option for 4-stroke rich burn SI RICE
- Tier 1/Tier 2 certified CI RICE scheduled for replacement
- Tier 3 certified CI RICE
- CI RICE at area sources of HAP in remote areas of Alaska
- CI RICE on offshore vessels

Emergency Engine Operational Limitations

- Emergency engine operation limited to:
  - Unlimited use for emergencies (e.g., power outage, fire, flood)
  - 100 hr/yr for maintenance/testing and emergency demand response
  - 50 hr/yr of the 100 hr/yr allocation can be used for:
    - non-emergency situations (if no financial arrangement)
    - local reliability (existing RICE at area sources of HAP only)
    - peak shaving until May 3, 2014 (existing RICE at area sources of HAP only)

- Note: EPA did not finalize the proposed 50 hour provision for peak shaving until April 2017

Emergency Engine Operational Limitations (cont'd)

- Operation for emergency demand response allowed if:
  - Energy Emergency Alert Level 2 has been declared by Reliability Coordinator, or
  - Voltage or frequency deviates by 5% or more below standard

- Operation for local reliability allowed if:
  - Engine is dispatched by local transmission/distribution system operator
  - Dispatch intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads
  - Dispatch follows reliability, emergency operation, or similar protocols that follow specific NERC, regional, state, public utility commission, or local standards or guidelines
  - Power provided only to facility or to support local distribution system
  - Owner/operator identifies and records dispatch and standard that is being followed

Fuel Requirements for Emergency Engines

- Requirements apply to emergency CI RICE >100 HP and displacement <30 liters/cylinder that are:
  - Operated or contractually obligated to be available >15 hr/yr (up to 100 hr/yr) for emergency demand response or voltage/frequency deviation, or
  - Operated for local reliability (up to 50 hr/yr)

- Beginning January 1, 2015, use ultra low sulfur diesel fuel
  - Existing inventory may be depleted

Reporting Requirements for Emergency Engines

- Requirements apply to emergency RICE >100 HP that are:
  - Operated or contractually obligated to be available >15 hr/yr (up to 100 hr/yr) for emergency demand response or voltage/frequency deviation, or
  - Operated for local reliability (up to 50 hr/yr)

- Beginning with 2015 operation, report electronically by March 31 of following year:
  - Facility name/address
  - Engine rating, model year, lat/long
  - Date, start time, end time for operation for purposes above
  - Number of hours engine is contractually obligated for emergency demand response or voltage/frequency deviation
  - Entity that dispatched engine for local reliability and situation that necessitated dispatch
  - Deviations from fuel requirement

- Submit report electronically through the Compliance and Emissions Data Reporting Interface
  - Accessed through EPA's Central Data Exchange at http://www.epa.gov/cdx

SI 4-Stroke RICE >500 HP at Area Sources

- Original 2010 RICE NESHAP required existing 4-stroke SI RICE >500 HP at area sources of HAP to meet emission limits for CO or formaldehyde

- 2013 amendments removed the emission limits and established requirements as follows:
  - Engines in remote areas must meet management practices
  - Engines not in remote areas must meet equipment standard and other requirements

How is “Remote” Defined?

- Remote defined as:
  - Located in offshore area; or
  - Located on a pipeline segment with 10 or fewer buildings intended for human occupancy and no buildings with 4 or more stories within 220 yards on either side of a continuous 1-mile length of pipeline (DOT Class 1 area), and the pipeline segment is not within 100 yards of a building or small well-defined outside area (playground, etc.); or
  - Not located on a pipeline and having 5 or fewer buildings intended for human occupancy and no buildings with 4 or more stories within a 0.25 mile radius around the engine
- Engine must meet remote definition as of October 19, 2013

Remote Area Source SI RICE Requirements

- Existing non-emergency 4-stroke lean burn and rich burn SI RICE >500 HP at area sources of HAP that are in remote areas:
  - Management practices similar to those required for other existing SI engines at area sources
    - Change oil and filter every 2,160 hours of operation or annually (or use oil analysis program)
    - Inspect spark plugs, hoses, and belts every 2,160 hours of operation or annually, and replace as necessary
  - Keep records of maintenance
  - Evaluate remote status annually and keep records
  - If evaluation shows engine is no longer remote, comply with non-remote engine requirements within 1 year

Non-Remote Area Source SI RICE Requirements

- Existing non-emergency 4-stroke SI RICE >500 HP at area sources of HAP that are not in remote areas:
  - Equipment standard requiring catalyst on engine
  - 4-stroke lean burn RICE: install oxidation catalyst; 93% CO reduction or 47 ppmvd CO
  - 4-stroke rich burn RICE: install non-selective catalytic reduction; 75% CO reduction, 30% THC reduction, or 270 ppmvd CO
  - Initial and annual catalyst activity checks
    - Initial: three 15-minute runs*
    - Subsequent annual: one 15-minute run*
  - High catalyst inlet temperature engine shutdown, or continuous catalyst inlet temperature monitoring
  - Notifications and compliance reporting

*If using subpart ZZZZ appendix A, run must be at least one measurement cycle and include at least 2 min. of test data phase measurement

THC Compliance Option

- 2004 RICE NESHAP established formaldehyde limit for non-emergency 4SRB SI RICE >500 HP at major sources
  - Either reduce formaldehyde by 76%, or limit it to 350 ppbvd

- Amendment specifies that engines meeting the 76% formaldehyde reduction standard can show compliance by demonstrating through testing that THC is reduced by at least 30%

Tier 1/Tier 2 Certified Engines Scheduled for Replacement

- 2010 rule required existing non-emergency CI RICE >300 HP to comply with CO limit
  - Engines would likely not comply without catalyst retrofit
- California state/local rules require CI engines certified to Tier 1 or Tier 2 standards to be replaced in next few years
  - Tier 1 = model years 1996 – 2001/2002
  - Tier 2 = model years 2001/2002 – 2005
- Amendment specifies that existing non-emergency CI RICE >300 HP at area sources certified to Tier 1 or 2 and subject to enforceable state/local rule that requires replacement can comply with management practices until January 1, 2015, or 12 years after the installation date of the engine, but not later than June 1, 2018
- Must submit notification by March 3, 2013, identifying state/local regulation

Tier 3 Certified Engines

- Tier 3* (model year 2006) CI RICE that were constructed (installed) between January 1-June 12, 2006 are existing engines under NESHAP
  - Under 2010 rule, subject to CO emission limit that would likely require catalyst retrofit
- Identical Tier 3* engine installed after June 12, 2006, does not require retrofit to comply with applicable EPA rule for that engine (NSPS)
- Amendment specifies that existing non-emergency CI RICE >300 HP at area sources certified to Tier 3* standards can comply with RICE NESHAP by complying with the CI ICE NSPS (subpart IIII)

*Tier 2 for engines ≥560 kW

CI Engines in Remote Areas of Alaska

- 2010 rule specified that existing non-emergency CI RICE >300 HP at area sources of HAP in remote areas of Alaska could meet management practices rather than numeric emission limits
  - Remote defined as not accessible by the Federal Aid Highway System
    - FAHS includes areas with year-round ferry service that are not on contiguous road system

- Amendment expands "remote" definition to include area source CI engines located in areas that are accessible by FAHS if they meet 3 criteria:
  1. Only connection to the FAHS is through the Alaska Marine Highway System, or engine is located in area not connected to "Railbelt" grid
  2. At least 10% of power generated by engine annually is used for residential purposes
  3. Generating capacity of area source is less than 12 MW, or engines used exclusively as renewable energy backup

CI Engines on Offshore Vessels - Background

- Outer Continental Shelf (OCS) Air Regulations (40 CFR part 55) specify that NESHAP apply to OCS sources if rationally related to the attainment and maintenance of Federal or State ambient air quality standards or the requirements of part C of title I of the Clean Air Act (PSD)
  - Note: Dept. of Interior has jurisdiction over OCS air emissions in the Gulf of Mexico west of 87.5 degrees West longitude, and new sources on the north slope of Alaska

- Vessels are OCS sources when:
  - Permanently or temporarily attached to the seabed and erected thereon and used for exploring, developing or producing resources
  - Physically attached to an OCS facility (only the stationary sources aspects of the vessels regulated)

CI Engines on Offshore Vessels

- Amendment specifies that existing non-emergency CI RICE >300 HP on offshore vessels on the OCS that are area sources can meet the following management practices rather than numeric emission limits:
  - Change oil every 1,000 hours of operation or annually (can use oil analysis program)
  - Inspect and clean air filters, and inspect fuel filters and belts, every 750 hours of operation or annually, and replace as necessary
  - Inspect flexible hoses every 1,000 hours of operation or annually, and replace as necessary

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Stationary RICE NESHAP
Overview of Current Rule
(incorporating amendments)

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	Change oil and filter and inspect air cleaner (CI) or spark plugs (SI) every 1,000 hours of operation or annually; inspect hoses and belts every 500 hours of operation or annually					Change oil/filter & inspect hoses/belts every 500 hours or annually; inspect air cleaner (CI) or spark plugs (SI) every 1,000 hours or annually
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	No standards	350 ppb CH_2O or 76% CH_2O reduction	No standards	No standards

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 4S in remote areas	SI 4S not in remote areas	SI LFG/DG	
≤300	Change oil/filter & inspect air cleaner every 1,000 hours or annually; inspect hoses/belts every 500 hours or annually	Change oil/filter, inspect spark plugs, & inspect hoses/ belts every 4,320 hours or annually	Change oil/ filter, inspect spark plugs, & inspect hoses/belts every 1,440 hours of operation or annually	Change oil/ filter, inspect spark plugs, & inspect hoses/belts every 1,440 hours of operation or annually	Change oil/ filter, inspect spark plugs, & inspect hoses/ belts every 1,440 hours of operation or annually	Change oil/filter & inspect hoses/ belts every 500 hours or annually; inspect air cleaner (CI) or spark plugs (SI) every 1,000 hours or annually
300-500	49 ppm CO or 70% CO reduction					
>500	23 ppm CO or 70% CO reduction		Change oil/ filter, inspect spark plugs, & inspect hoses/belts every 2,160 hours of operation or annually	If engine used >24 hrs/yr: 4SLB: Install oxidation catalyst 4SRB: Install NSCR		

Emission Standards – New RICE

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			
>500	580 ppb CH_2O or 70% CO reduction	12 ppm CH_2O or 58% CO reduction		350 ppb CH_2O or 76% CH_2O reduction	No standards	No standards

Note: New limited use engines >500 HP at major sources do not have to meet any emission standards under the NESHAP.

New RICE Located at Area Sources: meet Stationary Engine NSPS

- CI: part 60 subpart IIII
- SI: part 60 subpart JJJJ

Compliance Requirements

Engine Subcategory	Compliance Requirements
Existing non-emergency: •CI ≥100 HP at major source •CI >300 HP at area source •SI 100-500 HP at major source	•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 (ULSD) •Crankcase emission control requirements
•Existing non-emergency SI 4SLB/4SRB >500 HP at area source used >24 hours/year and not in remote area	•Initial and annual catalyst activity checks •High temperature engine shutdown or continuously monitor catalyst inlet temperature •Notifications •Semiannual compliance reports

Compliance Requirements

Engine Subcategory	Compliance Requirements
Existing emergency/black start: •<100 HP at major source •≤500 HP at major source •All at area source Existing non-emergency: •<100 HP at major source •CI ≤300 HP at area source •SI ≤500 HP at area source •SI 2SLB >500 HP at area source •SI LFG/DG >500 HP at area source •SI 4SLB/4SRB >500 HP at area source used ≤24 hours/year or in remote area	•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 •Reporting and ULSD for emergency engines used for emergency demand response or local reliability

Compliance Requirements

Engine Subcategory	Compliance Requirements
<u>Existing non-emergency:</u> •SI 4SRB >500 HP at major source <u>New non-emergency:</u> •SI 2SLB >500 HP at major source •SI 4SLB >250 HP at major source •SI 4SRB >500 HP at major source •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 formaldehyde % reduction standard only if engine is ≥5,000 HP

Compliance Requirements

Engine Subcategory	Compliance Requirements
•New emergency/limited use >500 HP at major source	•Initial notification •Reporting and ULSD for emergency engines used for emergency demand response or local reliability
•New non-emergency LFG/DG >500 HP at major source	•Initial notification •Monitor/record fuel usage daily •Annual report of fuel usage

Oil Analysis Programs

Parameter	Condemning Limits
Total Base Number (CI RICE only)	<30% of the TBN of the oil when new
Total Acid Number (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

- Oil analysis must be performed at same frequency specified for oil changes
- If condemned, change oil within 2 business days
  - Owner/operator must keep records of the analysis

Performance Testing

CO: EPA Method 10, ASTM D 6522-00

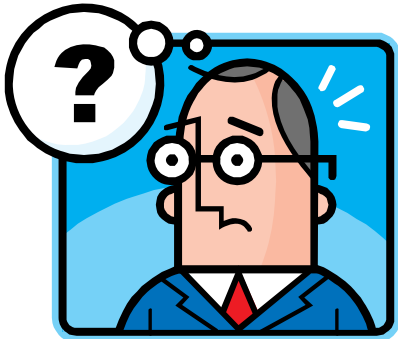
Subpart ZZZZ appendix A for existing 4-stroke SI RICE >500 HP at non-remote area sources

Formaldehyde: EPA Method 320 or 323, ASTM D 6438-03

THC: EPA Method 25A

- Three 1-hour runs required for most tests
- % reduction standard: measure at catalyst inlet and outlet simultaneously
- Measure at ±10% of 100% load for:
  - Existing/new SI 4SRB >500 HP at major source
  - New CI and SI 2SLB >500 HP at major source
  - New SI 4SLB >250 HP at major source

Implementation Assistance



- RICE NESHAP TTN website
  - http://www.epa.gov/ttn/atw/rice/ricepg.html
- EPA Regional Office RICE websites
  - Region 1: http://www.epa.gov/region1/rice
  - Region 10: http://yosemite.epa.gov/R10/airpage.nsf/Enforcement/rice_rules
- Combustion Portal RICE website
  - http://www.combustionportal.org/rice.cfm
- Electronic CFR
  - http://www.gpoaccess.gov/ecfr

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Stationary ICE NSPS Recent Amendments

Emergency Engine Operational Limitations

- Emergency engine operation limited to:
  - Unlimited use for emergencies (e.g., power outage, fire, flood)
  - 100 hr/yr for maintenance/testing and emergency demand response
  - 50 hr/yr of the 100 hr/yr allocation can be used for
    - non-emergency situations (if no financial arrangement)
    - local reliability
- Operation for emergency demand response limited to:
  - Energy Emergency Alert Level 2 has been declared, or
  - Voltage or frequency deviates by 5% or more below standard
- Operation for local reliability limited to mitigating local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads; engine must be dispatched by local transmission/distribution system operator
- As with NESHAP, electronic reporting beginning with 2015 operation

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Stationary CI ICE NSPS
Overview of Current Rule

Who is Subject to the CI NSPS?

- Manufacturers of 2007 model year or later stationary CI engines <30 liters/cylinder displacement
  - Model years differ for fire pump engines

- Owners/operators of stationary CI engines
  - constructed (ordered) after July 11, 2005 **and** manufactured after April 1, 2006 (July 1, 2006 for fire pump engines)
  - modified/reconstructed after July 11, 2005

Emission Standards: Displacement <10 liters/cylinder

- Pre-2007 model year engines
  - Meet emission standards equivalent to Tier 1 standards for nonroad CI engines
- 2007 model year and later
  - Meet emission standards equivalent to Tier standards for nonroad CI engines
    - Tier 2/3 in part 89, Tier 4 in part 1039
  - Emergency engines >50 HP only have to meet Tier 3 standards (or Tier 2 if no Tier 3)
- Fire pump engines
  - Same emission standards, delayed schedule

Emission Standards: Displacement ≥10 liters/cylinder

- 10-30 liters/cylinder
  - Meet Tier standards for marine CI engines
    - Tier 2 in part 94, Tier 3/4 in part 1042
    - Emergency engines do not have to meet the most stringent (Tier 4) standards

- ≥30 liters/cylinder
  - NOx limits (g/kW-hr): equivalent to EPA standards for large marine engines
  - PM limit:
    - 60% reduction or 0.15 g/kW-hr for non-emergency
    - 0.40 g/kW-hr for emergency

Fuel Requirements

Date	Requirement
October 1, 2007	Low sulfur diesel (LSD)
October 1, 2010 Engines <30 liters/cylinder displacement	Ultra low sulfur diesel (ULSD) •Max sulfur content 15 ppm •Minimum cetane index of 40 or max aromatic content of 35 volume %
June 1, 2012 Engines ≥30 liters/cylinder displacement	1,000 ppm sulfur diesel

Engine Manufacturer Compliance Requirements

- Engine manufacturers must certify 2007 model year and later engines with a displacement <30 liters/cylinder
  - Certification = EPA Certificate of Conformity

	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY **2012 MODEL YEAR** **CERTIFICATE OF CONFORMITY** **WITH THE CLEAN AIR ACT OF 1990**	**OFFICE OF TRANSPORTATION AND AIR QUALITY** **ANN ARBOR, MICHIGAN 48105**

Certificate Issued To: Generac Power Systems, Inc. (U.S. Manufacturer or Importer) **Certificate Number: CGNXB06.82NN-012**	**Effective Date:** **10/26/2011** **Expiration Date:** **12/31/2012**	**Byron J. Bunker, Acting Division Director** **Compliance Division**	**Issue Date:** **10/26/2011** **Revision Date:** **N/A**

Manufacturer: Generac Power Systems, Inc.
Engine Family: CGNXB06.82NN
Certificate Number: CGNXB06.82NN-012
Certification Type: Stationary (Part 60)
Fuel : Natural Gas (CNG/LNG)
Emission Standards : NMHC + NOx (g/kW-hr) : 13.4
CO (g/kW-hr) : 519
HC + NOx (g/kW-hr) : 13.4
Emergency Use Only : Y

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

Owner/Operator Compliance Requirements

- 2007 model year and later with displacement <30 liters/cylinder*
  - purchase certified engine
  - Install, configure, operate and maintain engine per manufacturer's instructions or manufacturer-approved procedures
    - Owner/operator performance testing not required
  - If operate differently than manufacturer's recommendations, must do performance test to show compliance

- Displacement ≥30 liters/cylinder
  - Initial performance test
  - Annual performance test for non-emergency engine
  - Continuously monitor operating parameters

*For CI fire pump engine, 2008-2011 model year and later (depending on engine size)

Monitoring/Recordkeeping/Reporting

Engine Type	Requirement
Emergency Engines	•Non-resettable hour meter and records of operation if engine does not meet non-emergency engine standards
Equipped with diesel particulate filter (DPF)	•Backpressure monitor and records of corrective actions
Non-emergency >3,000 HP or with displacement >10 liters/cylinder and Pre-2007 model year >175 HP that are not certified	•Submit initial notification •Keep records of notifications and engine maintenance •If certified, keep records of documentation of engine certification •If not certified, keep records of compliance demonstrations

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Stationary SI ICE NSPS
Overview of Current Rule

Who is Subject to the SI NSPS?

- Manufacturers of stationary SI engines:
  - ≤25 HP and manufactured on/after July 1, 2008
  - >25 HP, gasoline or rich burn LPG, manufactured on/after July 1, 2008 (on/after January 1, 2009 if emergency engines)
  - Voluntarily certified engines manufactured on or after:

Date	Engine Type
July 1, 2007	>500 HP (except lean burn 500≤HP<1,350)
January 1, 2008	lean burn 500≤HP<1,350
July 1, 2008	<500 HP
January 1, 2009	emergency engines

Who is Subject to the SI NSPS? (cont'd)

Owners/operators of engines:

- Constructed (ordered) after June 12, 2006 **and**

Manufactured On/After	Engine Type
July 1, 2007	≥500 HP (except lean burn 500≤HP<1,350)
January 1, 2008	Lean burn 500≤HP<1,350
July 1, 2008	<500 HP
January 1, 2009	Emergency >25 HP

- Modified/reconstructed after June 12, 2006

Emission Standards (In General)

Engine	Standards
≤25 HP (all engines)	Part 90 or part 1054 standards for new nonroad SI engines
Non-emergency gasoline and rich burn LPG	Part 1048 standards for new nonroad SI engines
Non-emergency natural gas and lean burn LPG 25<HP<100	Part 1048 standards for new nonroad SI engines (or other options)
≥100 HP and not gasoline or rich burn LPG	Standards in Table 1 of subpart JJJJ, part 1048 standards for some engines

Owners/operators of gasoline engines must use gasoline that meets the sulfur limit in 40 CFR 80.195 – cap of 80 ppm

Compliance Requirements for Owners/Operators

- Certified engines
  - Install, configure, operate and maintain engine according to manufacturer's instructions
  - If you do not operate/maintain according to manufacturer's instructions:
    - keep maintenance plan and maintenance records
    - operate consistent with good air pollution control practices
    - 100≤HP≤500 – initial performance test
    - >500 HP – initial performance test and subsequent every 8,760 hours or 3 years, whichever is first

Compliance Requirements for Owners/Operators

- Non-certified engines:
  - Maintenance plan
  - Performance testing
    - 25<HP≤500 – initial test
    - >500 HP - initial test and subsequent every 8,760 hours or 3 years, whichever is first
    - Conduct within 10% of peak (or highest achievable) load

Monitoring/Recordkeeping/Reporting

Requirements include:

- Non-resettable hour meter for emergency engines
- Records of hours of operation for emergency engines
- Documentation of certification
- Records of engine maintenance
- Initial notification for non-certified engines >500 HP
- Results of performance testing within 60 days of test

Contact Information

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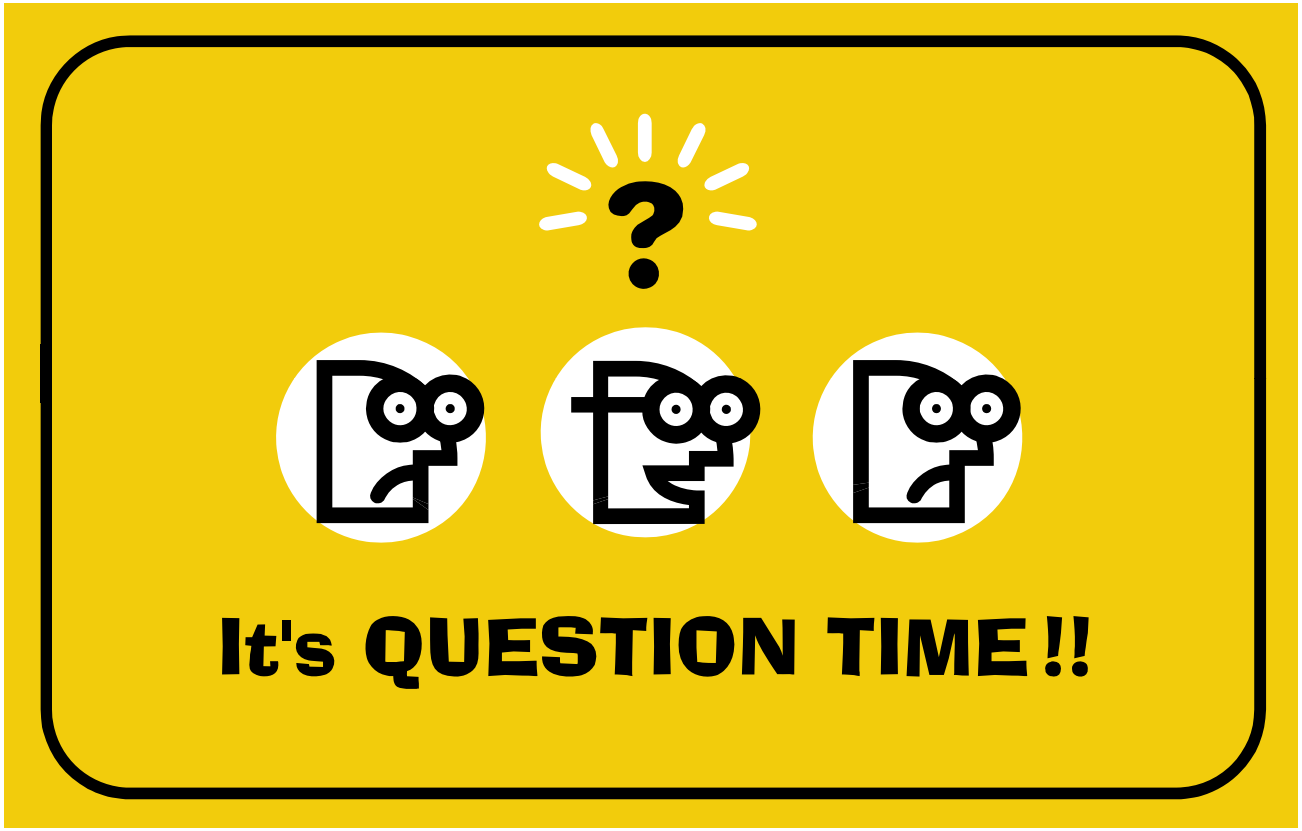
It's QUESTION TIME!!