

# PSD and Title V Greenhouse Gas (GHG) Tailoring Rule

- Go to our DNR's GHG emissions website at <http://www.iowadnr.gov/air/prof/ghg/ghg.html>
- DNR rulemaking to amend state rules to match the Tailoring Rule
- Municipal utilities may be affected by Tailoring Rule but may be able to take permitted limits to get out
- DNR to send letters to affected municipal generators by early fall 2010
- DNR will provide a formal presentation on the Tailoring Rule at IAMU's meeting in October 2010
- The Tailoring Rule is completely separate from the RICE NESHAP. May affect the same equipment (engines), but the two rules control different pollutants

# RICE NESHAP (40 CFR Part 63 Subpart ZZZZ)

*Focus on Existing Diesel Engines at  
Area Sources*

Iowa DNR presentation for  
Iowa Association of Municipal  
Utilities

July 20, 2010

# NESHAP Background

- Initial RICE NESHAP – effective August 16, 2004
  - Affected existing and new stationary RICE engines >500 hp at **major sources** of hazardous air pollutants (HAP).
- RICE NESHAP Amendment – effective May 3, 2010
  - Affects stationary CI engines  $\leq 500$  hp at major sources; **all existing stationary CI at area sources**; and existing stationary non-emergency CI engines at major sources.
- Iowa DNR (state) adoption
  - “Delegated authority” for original RICE NESHAP
  - Rulemaking underway to adopt new amendments

# RICE NESHAP Challenges

- Regulations are lengthy, complex and confusing
- Thousands of existing RICE in Iowa affected
- Hundreds will require retrofit, replacement, re-classification (to “emergency”) or shutdown
- Iowa DNR is not receiving any additional state or EPA funding
- Limited staff and resources
- Many other new or soon-to-come air quality standards (e.g. other NESHAP, GHG Tailoring, PM2.5 and ozone standards, and more)

# RICE NESHAP: DNR Activities

- Compliance assistance tailored for Iowa facilities, including:
  - Identifying affected facilities
  - Individual assistance (permit hotline and other one-on-one assistance from DNR staff)
  - Presentations, meetings and workshops
  - Developing Frequently Asked Questions (FAQs) & other outreach materials
  - Website (NESHAP page with outreach materials)
  - Listserv (sign up for listserv on our website)
  - Iowa-specific forms

# RICE NESHAP: Advantages of State/DNR Adopting Amendments

- Implementation and enforcement discretion
  - Continuing compliance assistance and outreach
  - Flexibility on report submittals, performance testing schedules, and other NESHAP requirements
  - Enforcement generally occurs only after outreach and compliance assistance do not result in compliance
  - DNR has lower administrative penalty levels than EPA
- What if DNR does **not** adopt RICE NESHAP?
  - EPA is the sole implementation and enforcement authority
  - Limited compliance assistance
  - Generally less enforcement discretion
  - Possibly more enforcement actions and higher penalties

# Important Terms

- **NESHAP** – National Emission Standards for Hazardous Air Pollutants
- **RICE** – Reciprocating Internal Combustion Engine
- **HAP** – Hazardous Air Pollutant. Any air pollutant listed in or pursuant to section 112(b) of the Clean Air Act (187 total). The primary HAP emissions for RICE is formaldehyde.
- **Major Source** – Potential to emit (PTE)  $\geq 10$  tons per year (tpy) of a single HAP or  $\geq 25$  tpy of any combination of HAP.
- **Area Source** – A source of HAP emissions that is not major.
- **Stationary RICE** – Engine that is not an onroad mobile or nonroad engine
- **CI** – Compression Ignition (typically diesel-fueled)
- **SI** – Spark Ignition. Includes gasoline, natural gas, propane, landfill gas, and other gaseous and liquid fuels (other than diesel blends and fuel oil).
- **Oxidation Catalyst** – Add-on catalytic control device for carbon monoxide (CO) and volatile organic compounds (VOC) by oxidation. In the RICE NESHAP requirements for CI engines, CO is used as a surrogate for formaldehyde.

# RICE NESHAP Applicability

*This presentation focuses on existing, stationary CI (diesel) RICE located at area sources.*

- Most municipal utilities (MU) are area sources for HAP. Not all Title V facilities are HAP major.
- No NESHAP for existing SI RICE at area sources yet. EPA will publish NESHAP for SI RICE in August 2010.
- Most CI RICE at MU are existing engines. New engines at area sources are subject to New Source Performance Standards (NSPS), Subpart III, and don't have additional requirements under the RICE NESHAP.

## RICE NESHAP: Applicability & Compliance Dates for Area Sources

- Existing CI RICE: Commenced construction or reconstruction before **June 12, 2006**
- New CI RICE: Commenced construction or reconstruction on or after **June 12, 2006**
  - Comply with NSPS IIII
- Compliance date for existing CI RICE:  
**May 3, 2013**

# Emergency Engine Requirements

- Must meet definition of “emergency stationary RICE”
- Operation is limited to emergency situations, with limited exceptions
- Must install a non–resettable hour meter (if none already) and record operating hours
- No limits on hours of operation for emergency use
- Limits on hours of operation for non–emergency use, and how the definition of emergency stationary RICE fits municipal utilities, will be discussed later in the presentation

## Maintenance/ “Management Practices” Requirements: Existing CI RICE at an Area Source

- Applies to all emergency and black start engines, and to non-emergency engines  $\leq 300$  HP (See Table 2d, Subpart ZZZZ)
  - Change oil/filter, inspect air cleaner, 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

## Equipment Requirements: Existing Non-Emergency CI RICE >300 HP at an Area Source

- If not equipped with a closed crankcase ventilation system must:
  - Install a closed crankcase ventilation system to prevent crankcase emissions from being emitted to atmosphere, **or**;
  - Install an open crankcase filtration system to remove oil mist, particles, and metals from engine exhaust.
  - Follow manufacturer's specified maintenance requirements for these ventilation systems.

## Fuel Requirements: Existing Non-emergency CI RICE >300 HP at an Area Source

- If displacement of < 30 liters per cylinder:
  - Must use diesel fuel that meets the requirements in [40 CFR 80.510\(b\)](#) for nonroad diesel fuel.
  - Sulfur = 15 ppm; min. cetane index of 40, or max aromatic content of 35%v.
  - NOTE: This requirement also applies to all new CI engines at area sources subject to NSPS Subpart III
    - must comply by 10/1/2010.

## Emissions & Operating Standards: Existing Non-Emergency CI RICE > 300 HP at an Area Source

- Numerical CO emission limits or reduce CO by 70%
- Operating limitations for engines > 500 HP (catalyst pressure drop & inlet temperature)
- Minimize engine idle time and startup time, not to exceed 30 minutes

## Recordkeeping & Reporting Requirements: Existing Emergency CI RICE and Non- Emergency CI RICE $\leq$ 300 HP at an Area Source

- Keep records of all maintenance/management practices
- Keep records of hours of operation (emergency engines only)
- No notifications required
- NOTE: DNR recommends, but does require, that facilities include emergency CI RICE on their Initial Notifications

## Recordkeeping & Reporting

### Requirements:

Existing, Non-Emergency CI RICE > 300

### HP at an Area Source

- Submit to DNR:
  - Initial notification
    - Due by August 31, 2010
    - Also submit a copy to EPA Region VII
  - Notification of performance test
  - Notification of compliance
  - Semi-annual or annual compliance report
- Keep copies of all notifications and records of all maintenance

## Is it an emergency or not?

- If transmission lines are down (due to storm, flood, etc.), and your customers are cut off from the normal power source, operating your engines to supply your customers is considered emergency use
- The fact that you're being paid to generate that power, and that you're supplying it to customers through a distribution system that may or may not be considered part of "the grid" doesn't matter, as long as it's an emergency situation

# Time Limits for Emergency Engines: Emergency Situations

- The RICE NESHAP doesn't impose a time limit on the use of emergency stationary RICE in emergency situations
- Important: any construction permit limits on hours of operation still apply

# Time Limits for Emergency Engines: Non-Emergency Situations

- Up to 100 hours per year for maintenance checks and readiness testing
  - provided that the tests are recommended by Federal, State or local government, the manufacturer, the vendor, or the insurance company associated with the engine
  - may petition the Administrator for approval of additional hours

## Time Limits for Emergency Engines: Non-Emergency Situations (cont.)

- Up to 50 hours per year for non-emergency use
  - Counts toward 100 hour maintenance/testing allowance
  - Not for peak shaving, to generate income, or to supply power as part of financial arrangement with another entity, except...

## Time Limits for Emergency Engines: Non-Emergency Situations (cont.)

- Up to 15 hours per year for "demand response" programs
  - If the regional transmission organization or equivalent balancing authority and transmission operator has determined there are emergency conditions that could lead to a potential electrical blackout, such as unusually low frequency, equipment overload, capacity or energy deficiency, or unacceptable voltage level

## Time Limits for Emergency Engines: Non-Emergency Situations (cont.)

- 15 hours for demand response **can** be used to generate income/be part of a financial relationship with another entity
- 15 hours for demand response is counted toward 50 hours of non-emergency use
- A petition for reconsideration has been submitted to EPA, requesting that the 15 hour limit be raised (petitioners asked that it be raised to 60 hours) ; don't know when this will be resolved

# Emergency Engines and Interruptible Service Agreements

- Are engines operated as part of "interruptible service agreements" considered emergency engines?
  - Need to look at the specific agreement/contract
  - Example 1 – If service is interrupted only when MISO (or equivalent authority) determines there are emergency conditions, it would fall under 15 hour demand response allowance for

emergency engines

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# Emergency Engines and Interruptible Service Agreements (cont.)

- Example 2 – If service is interrupted to reduce peak demand, or for energy efficiency or purely economic reasons, this use wouldn't be allowed for an emergency engine
  - It's not an emergency, because power is available from the regular power source; the customer would be choosing to operate its engine either for peak shaving or to generate income (or both), and this isn't allowed for emergency engines

# Emergency Engines and Interruptible Service Agreements (cont.)

- We're working with EPA to clarify the next two:
  - Example 3 – Tests of the system, to make sure the engine operator is ready to bring engines up quickly when asked
  - Example 4 – Municipal utility brings its engines online to replace power lost when CIPCO has a unit down for maintenance

# Emergency Engines and Interruptible Service Agreements (cont.)

- Other examples?

# RICE – Construction Permitting Requirements

- Engines greater than 400 HP that were installed after September 23, 1970 are required to have a construction permit
- Grandfathered engines may have construction permits to obtain synthetic minor limits to avoid Title V
- 10 municipal utilities have a VOP that limit the emissions from engines (may or may not have construction permits)

## RICE – Construction Permitting Requirements (cont.)

- Installation of air pollution control equipment (e.g. DOC) to comply with RICE where no change to stack are exempt from construction permit requirements per IAC 22.1(2) “g”
- This exemption requires facility to submit information to AQB at least 30 days prior to installation of controls (Should also copy DNR Field Office)

## Required information for exemption “g”

- Name and location of facility
- Identification of the engines being modified w/ permit nos.
- Detailed description of the change
- Emissions estimate of actual and potential emissions for all regulated pollutants
- Height of the emission point(s) and nearby buildings
- Date of construction and operation startup
- Statement that project is not subject to PSD and that the area is not non-attainment
- Certification by a responsible official that the information is “true, accurate, and complete”

# RICE – Construction Permitting Requirements (cont.)

- Paragraph “g” cannot be used if there is a possible increase in any regulated pollutant.
- Facilities with VOPs would also need to submit information to modify VOP application
- Facilities can apply to modify construction permit even if the modification qualifies for an exemption
- Permit would usually not need to be modified to classify a non-emergency engine as an emergency engine
  - Case-by-case: check first page of permit and operating limits to ensure no conflicting requirements

# RICE – Construction Permitting Requirements (cont.)

- Construction permit modification is required:
  - Burn biodiesel greater than 2%
  - Install control device where there is a potential increase in a regulated pollutant
  - Modify an engine where there is potential increase in a regulated pollutant
  - Modify stack characteristics
    - Primary concern is with decrease in stack height, exhaust temp and flow or increase in stack diameter, especially if engine had been modeled
    - If very minor changes, check with construction permit staff

# RICE – Construction Permitting Requirements (cont.)

- Modification to an existing engine may trigger reconstruction or modification provisions of NSPS
- Reconstruction – more than 50% of cost of a comparable new engine
- Modification – for NSPS, defined as a physical or operational change that results in an increase in emissions of a pollutant to which a NSPS standard applies
  - Subpart III regulates: NMHC, NO<sub>x</sub>, CO and PM
  - Engines that are modified or reconstructed must meet the emission standards for the MY in which the engine was manufactured
    - E.g. engine originally built in 1995, modified in 2012, would have to meet standard for a pre-2007 engine – See Table 1 to Subpart III

## RICE – Construction Permitting Requirements (cont.)

- Other issues to be aware of:
  - Multiple locations may be considered a single stationary source
  - New engines are required to have a construction permit prior to installation
  - Dispersion modeling – look at Form MD
  - Modifying old construction permits – outdated language

# RICE MACT Testing Issues

- Initial Test Deadline
  - 180 Days after Compliance date
  - Can use test data that is up to 2 years old
  - Must have been reviewed and accepted by the Department

# RICE MACT Testing Issues

- Subsequent Tests
  - Existing non-black start CI stationary RICE >500 brake HP that are not limited use test every 8760 hours of operation or 3 years
  - Existing non-black start CI stationary RICE >500 brake HP that are limited use test every 8760 hours of operation or 5 years

# RICE MACT Testing Issues

- Notification Requirements
  - 40 CFR 63.7
  - 60 day notification prior to test date
  - Test Protocol (Site Specific Test Plan) due at the same time
- Reporting Requirements
  - 40 CFR 63.10
  - Test reports due 60 days after completion of the testing

# RICE MACT Testing Issues

- Testing Requirements

- CO: 23 (>500 BHP) or 49 (300 < BHP ≤ 500) ppm<sub>dv</sub> @ 15% O<sub>2</sub> or 70% control
- If taking the control efficiency option, inlet/outlet testing must be done simultaneously in lbs/hr
- RICE must be operating ≥ 85% of rated capacity
- Must record power generation and fuel usage
- Testing is fairly straight forward and can be done by any testing firm; list of testing firms and other info available at:

<http://www.iowadnr.gov/air/prof/comp/stacktest.html>

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# Contacts & Information

Diane Brockshus  
(515) 281-4801

[diane.brockshus@dnr.iowa.gov](mailto:diane.brockshus@dnr.iowa.gov)

Christine Paulson  
(515) 242-5154

[christine.paulson@dnr.iowa.gov](mailto:christine.paulson@dnr.iowa.gov)

Mark Stone  
(515) 242-6001

[mark.stone@dnr.iowa.gov](mailto:mark.stone@dnr.iowa.gov)

John Curtin  
(515) 281-8012

[john.curtin@dnr.iowa.gov](mailto:john.curtin@dnr.iowa.gov)

Iowa DNR  
7900 Hickman Road  
Windsor Heights, IA 50324

## Additional Information:

Iowa DNR NESHAP page:

<http://www.iowadnr.gov/air/prof/NESHAP/>

EPA RICE NESHAP page:

<http://www.epa.gov/ttn/atw/rice/ricepage.html>

Iowa DNR permit helpline:

**1-877-AIR-IOWA**

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# Q&A

## Questions?



*Please refer to the full rule text of 40 CFR Part 63, Subpart ZZZZ to determine all applicable equipment requirements, management practices, monitoring requirements, recordkeeping requirements and reporting requirements necessary to be in compliance with this rule.*

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