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## Guidance Document for Small Stationary Reciprocating Internal Combustion Engines

The Maine Department of Environmental Protection (Maine DEP) has developed this guidance document to address State and Federal regulations applicable to small stationary reciprocating internal combustion engines (RICE). This guidance is targeted to minor sources who are an area (minor) source of hazardous air pollutants (HAP). Requirements may differ for facilities who are major sources of either criteria pollutants or HAP. When in doubt, please contact Maine DEP Air Licensing at (207) 287-7688.

For the purposes of this document, “Small Stationary RICE” is defined as a stationary engine with a maximum heat input capacity less than 0.5 MMBtu/hr (approximately 70 Hp). Small Stationary RICE are considered insignificant activities and are not required to be included in minor source air emission licenses issued under Maine DEP’s regulation *Major and Minor Source Air Emission License Regulation*, 06-096 C.M.R. ch. 115 (as amended December 1, 2012). However, these engines may still be subject to other State and Federal regulations. This document outlines the requirements for small stationary RICE.

### Visible Emissions

Small Stationary RICE are subject to the following visible emission limitations contained in Maine DEP’s *Visible Emissions Regulation*, 06-096 C.M.R. ch. 101 (as amended May 18, 2003).

- Small Stationary RICE manufactured after the year 2000 shall not exceed an opacity of 20% on a six (6) minute block average basis, except for no more than two (2) six (6) minute block averages in a 3-hour period.
- Small Stationary RICE manufactured in the year 2000 or earlier shall not exceed an opacity of 30% on a six (6) minute block average basis, except for no more than two (2) six (6) minute block averages in a 3-hour period.

### Small Stationary RICE Manufactured Prior to June 12, 2006

*National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ is applicable to Small Stationary RICE which were manufactured prior to June 12, 2006.

Small Stationary RICE at residential, commercial, or institutional facilities that are operated for emergency purposes only are not subject to the requirements of Subpart ZZZZ. Emergency engines are those that are used only for sudden and reasonably unforeseeable events beyond the control of the source. Emergency engines cannot be used to provide prime power when offsite power is available, this includes participating in demand response programs or other programs that offer financial incentives to supply power.



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A summary of the currently applicable federal 40 C.F.R. Part 63, Subpart ZZZZ requirements for Small Stationary RICE is listed below.

### 1. *Operation and Maintenance Requirements*

	<b>Operating Limitations</b>
Emergency use <u>only</u> compression ignition unit:	<ul style="list-style-type: none"> <li>- Change oil and filter every 500 hours of operation or annually, whichever comes first;</li> <li>- Inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and</li> <li>- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.</li> </ul>
Non-emergency use compression ignition unit:	<ul style="list-style-type: none"> <li>- Change oil and filter every 1,000 hours of operation or annually, whichever comes first;</li> <li>- Inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and</li> <li>- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.</li> </ul>
Emergency use <u>only</u> spark ignition unit:	<ul style="list-style-type: none"> <li>- Change oil and filter every 500 hours of operation or annually, whichever comes first;</li> <li>- Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and</li> <li>- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.</li> </ul>
Non-emergency use spark ignition unit:	<ul style="list-style-type: none"> <li>- Change oil and filter every 1,440 hours of operation or annually, whichever comes first;</li> <li>- Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and</li> <li>- Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.</li> </ul>

The engine shall be operated and maintained according to the manufacturer's emission-related written instructions, or the facility shall develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.

[40 C.F.R. § 63.6625(e)]



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## **2. Optional Oil Analysis Program**

The facility has the option of utilizing an oil analysis program which complies with the requirements of § 63.6625(i) in order to extend the specified oil change requirement. If this option is used, the facility must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for each engine. The analysis program must be part of the maintenance plan for each engine.

[40 C.F.R. § 63.6625(i)]

## **3. Non-Resettable Hour Meter Requirement**

A non-resettable hour meter shall be installed and operated on each engine used for emergency purposes only. [40 C.F.R. § 63.6625(f)]

## **4. Startup Idle and Startup Time Minimization Requirement**

During periods of startup the facility must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes. [40 C.F.R. § 63.6625(h) and 40 C.F.R. Part 63, Subpart ZZZZ Table 2d]

## **5. Annual Time Limit for Maintenance and Testing**

Emergency engines are limited to 100 hours/year for maintenance checks and readiness testing. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity). [40 C.F.R. § 63.6640(f)]

## **6. Recordkeeping**

The facility shall keep the following records:

- a. Maintenance conducted on the engine. [40 C.F.R. § 63.6655(e)]
- b. The hours of operation of each emergency engine recorded through the non-resettable hour meter. Documentation shall include the number of hours the unit operated for emergency purposes, the number of hours the unit operated for non-emergency purposes, and the reason the engine was in operation during each time.

[40 C.F.R. § 63.6655(f)]



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### **Compression Ignition Small Stationary RICE Manufactured After June 12, 2006**

*Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*, 40 C.F.R. Part 60, Subpart IIII is applicable to compression ignition Small Stationary RICE manufactured after April 1, 2006 (or July 1, 2006 for fire pumps). [40 C.F.R. § 60.4200] By meeting the requirements of 40 C.F.R. Part 60, Subpart IIII, the engine also meets the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. [40 C.F.R. § 63.6590(c)]

A summary of the currently applicable federal 40 C.F.R. Part 60, Subpart IIII requirements is listed below.

#### **1. Manufacturer Certification Requirement**

The engine shall be certified by the manufacturer as meeting the emission standards for new nonroad compression ignition engines found in 40 C.F.R. § 60.4201 (for non-emergency engines) or § 60.4202 (for emergency engines and fire pumps). [40 C.F.R. § 60.4205(b)]

#### **2. Ultra-Low Sulfur Fuel Requirement**

The fuel fired in the engine shall not exceed 15 ppm sulfur (0.0015% sulfur). [40 C.F.R. § 60.4207(b)]

#### **3. Operation and Maintenance Requirements**

The engine shall be operated and maintained according to the manufacturer's emission-related written instructions or procedures developed by the facility that are approved by the engine manufacturer. The facility may only change those emission-related settings that are permitted by the manufacturer. [40 C.F.R. § 60.4211(a)]

### **Spark Ignition Small Stationary RICE Manufactured After June 12, 2006**

*Standards of Performance for Spark Ignition Internal Combustion Engines*, 40 C.F.R. Part 60, Subpart JJJJ is applicable to spark ignition Small Stationary RICE manufactured after January 1, 2009 (for emergency engines greater than 25 Hp) or July 1, 2008 (for all other Small Stationary RICE). [40 C.F.R. § 60.4230(a)(4)(iii)] By meeting the requirements of 40 C.F.R. Part 60, Subpart JJJJ, the engine also meets the requirements found in the *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, 40 C.F.R. Part 63, Subpart ZZZZ. [40 C.F.R. § 63.6590(c)]

A summary of the currently applicable federal 40 C.F.R. Part 60, Subpart JJJJ requirements is listed below.

#### **1. Manufacturer Certification Requirement**

The engine shall be certified by the manufacturer as meeting the emission standards for new nonroad spark ignition engines found in 40 C.F.R. Part 60, Subpart JJJJ, Table 1. [40 C.F.R. § 60.4233]



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## **2. Operation and Maintenance Requirement**

The engine shall be operated and maintained according to the manufacturer's written instructions or procedures developed by the facility that are approved by the engine manufacturer. The facility may only change those settings that are permitted by the manufacturer. [40 C.F.R. § 60.4243]

### Additional Resources

A copy of this document is available electronically at the following Maine DEP website:

<http://www.maine.gov/dep/air/publications/index.html>

Additional information on Stationary RICE can be found on EPA's website:

<https://www.epa.gov/stationary-engines>

Definition of what is a residential, commercial, or institutional facility:

[https://www.epa.gov/sites/production/files/2014-03/documents/9\\_30\\_2010\\_guidance\\_emergency\\_engine\\_def.pdf](https://www.epa.gov/sites/production/files/2014-03/documents/9_30_2010_guidance_emergency_engine_def.pdf)

The following link is for a tool developed by EPA to help facilities determine their requirements under 40 C.F.R. Part 63, Subpart ZZZZ:

<https://www3.epa.gov/ttn/atw/rice/output/quiz.html>

For more information or assistance, please contact a Maine DEP Air Licensing staff member or your regional Air Compliance Inspector at the offices listed below:

Central Maine Regional Office  
Air Licensing & Compliance  
17 State House Station  
Augusta, ME 04333  
(207) 287-7688

Southern Maine Regional Office  
Air Compliance  
312 Canco Rd  
Portland, ME 04103  
(207) 822-6300

Eastern Maine Regional Office  
Air Compliance  
106 Hogan Rd, Suite 6  
Bangor, ME 04401  
(207) 941-4570

Northern Maine Regional Office  
Air Compliance  
1235 Central Dr, Skyway Park  
Presque Isle, ME 04769  
(207) 764-0477