

National Emission Standards for Hazardous Air Pollutants for
Reciprocating Internal Combustion Engines (RICE Rule) Training Module
40 CFR 63 Subpart ZZZZ

Script- Area Source Existing Non-Emergency Spark Ignition 4-Stroke Lean Burn Engine
>500 Horsepower (operating >24 hours)

NARRATOR:

[Slide 2:]

Welcome to the Connecticut Department of Energy & Environmental Protection's Online Training for the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines, also known as the RICE Rule!

This tool is designed to help owners and operators of reciprocating internal combustion engines, also known as RICE, determine their requirements under 40 CFR Section 63, subpart ZZZZ. By answering the successive questions, your specific requirements have been estimated. Please note that they may not be complete, and refer any questions to your local authority.

[Slide 3:]

We have determined that your engine is an existing non-emergency spark ignition 4-stroke lean burn engine at an area source with a site rating greater than 500 horsepower which is operated for more than 24 hours per year.

Let's start with engines located in remote areas. Your engine is considered remote if it meets any of the criteria listed here.

[Slide 4:]

Engines located in remote areas, as defined in the rule, must fulfill the requirements listed here.

[Slide 5:]

If your engine is located in a remote area, you must also follow the management practices shown here.

[Slide 6:]

If your engine is **not** located in a remote area, as defined in the rule, you must:

- Install an oxidation catalyst. The estimated capital cost and annual cost of the catalyst can be determined using the equations specified here.
- You must also conduct an initial performance test; and
- Conduct annual checks of the oxidation catalyst.
- You must either use a high temperature shutdown device that will detect if the catalyst inlet temperature is too high, **or** install a continuous parameter monitoring system to monitor catalyst inlet temperature continuously and maintain the temperature between 450 and 1,350 degrees Fahrenheit.
- At all times you must operate and maintain all equipment safely and in accordance with good air pollution control practices for minimizing emissions.

[Slide 7:]

Please review this table to determine your testing requirements, which will differ depending on whether you are complying with the requirement to reduce carbon monoxide emissions or to limit the concentration of carbon monoxide in the engine exhaust.

[Slide 8:]

Use the equation shown here to determine compliance with the percent reduction requirement.

[Slide 9:]

You will need to normalize the carbon monoxide concentrations at the inlet and outlet of the control device to a dry basis and to 15% oxygen, or an equivalent percent carbon dioxide. If pollutant concentrations are to be corrected to 15% oxygen and carbon dioxide concentration is measured in lieu of oxygen concentration measurement, a carbon dioxide correction factor is needed. Calculate the carbon dioxide correction factor as described here.

[Slide 10:]

Now, let's discuss your monitoring requirements. If you are required to install a continuous parameter monitoring system, you must install, operate, and maintain each continuous parameter monitoring system according to the following:

- You must prepare a monitoring plan that focuses on the monitoring system design, data collection, and the quality assurance and quality control elements outlined in (1)(i) through (v) below. You can request approval of monitoring system quality assurance and quality control procedures alternative to those specified here in your site-specific monitoring plan. The monitoring plan must address:
 - Performance criteria and design specifications for the monitoring system equipment;
 - Sampling interface location such that the monitoring system will provide representative measurements;
 - Equipment performance evaluations, system accuracy audits, or other audit procedures;
 - Ongoing operation and maintenance procedures; and
 - Ongoing reporting and recordkeeping procedures.

[Slide 11:]

- Install, operate, and maintain each continuous parameter monitoring system in continuous operation according to the procedures in your monitoring plan.
- Your continuous parameter monitoring system must collect data once every 15 minutes, at a minimum.
- For a continuous parameter monitoring system for measuring temperature range, the temperature sensor must have a minimum tolerance of 2.8 degrees Celsius, or 5 degrees Fahrenheit, or 1% of the measurement range, whichever is greater.
- Carry out the continuous parameter monitoring system equipment performance evaluation, system accuracy audits, or other audit procedures specified in your monitoring plan at least annually.
- Conduct a performance evaluation of each continuous parameter monitoring system in accordance with your monitoring plan.

[Slide 12:]

Next, we are going to cover your initial compliance requirements. In order to demonstrate initial compliance, you must conduct an initial test. This test must consist of three test runs, each run lasting at least 15 minutes. There is an exception for test runs conducted using Appendix A of the rule; they must consist of one measurement cycle as defined by the method and include at least two minutes of test data phase measurement.

During the initial test you must measure carbon monoxide and oxygen using appropriate measurement methods listed in the testing requirements table. If you plan to demonstrate compliance with the carbon monoxide percent reduction requirement, you must measure carbon monoxide and oxygen emissions simultaneously at both the inlet and outlet of the control device. You must achieve either 93% carbon monoxide reduction **or** remain within the limit of 47 parts per million carbon monoxide.

[Slide 13:]

Here are your continuous compliance requirements. In order to demonstrate continuous compliance, you must complete checks of the catalyst every year to ensure proper catalyst activity.

- At a minimum, the check must consist of one 15 minute run utilizing the methods discussed earlier, except that test runs carried out using appendix A to the rule must involve one measurement cycle and include at least two minutes of test data phase measurement.
- Carbon monoxide and oxygen must be measured using appropriate measurement methods specified in the testing requirements table.
- Carbon monoxide and oxygen emissions must be recorded simultaneously at the inlet and outlet of the control device if you are demonstrating compliance with the carbon monoxide percent reduction requirement.
- The catalyst activity test must show that the catalyst either reduces carbon monoxide emissions by 93% or that the engine exhaust carbon monoxide emissions are no more than 47 parts per million at 15% oxygen.
- The catalyst is working properly if emissions from the engine do not exceed the levels required for the initial test or annual catalyst checks.
- If engine emissions surpass the specified pollutant levels, the exceedances are not considered a violation, but you must shut down the unit and employ proper corrective actions. You must then perform a follow-up test within seven days of the engine being started up again to show that the emission limits are being met. If the retest does not indicate compliance with the limit, the engine will need to be shut down again and the engine will not be permitted to operate, except for the purposes of startup and testing, until compliance with the limit can be demonstrated.

[Slide 14:]

Next, let's discuss the records you are required to keep.

- You must keep records of each notification and report that you submit, and all supporting documents for these notifications and reports
- You must keep records of the occurrence and duration of each malfunction
- You must keep records of performance testing and evaluations
- You must keep records of the required maintenance conducted on air pollution control and monitoring equipment.
- You must keep records of actions taken during malfunctions to minimize emissions and all corrective actions taken

If you have a Continuous Parameter Monitoring System, you must keep the following:

- Records of each period during which a continuous monitoring system is malfunctioning, inoperative, or out of control.
- Records of all required measurements needed to demonstrate compliance with an applicable standard.
- Records of all continuous monitoring system performance test results
- Records of all measurements as may be necessary to determine the conditions of performance tests and evaluations
- Records of all continuous monitoring system calibration checks
- Records of all adjustments and maintenance conducted on the continuous monitoring system

- Also, keep previous versions of the performance evaluation plan, and any requests for alternatives to the RATA

All records must be kept for five years from the date of creation.

[Slide 15:]

Here is a summary of the notifications you are required to submit:

- You must submit a Notification of Applicability or Construction/Reconstruction 120 days after the effective date of this rule.
- Submit a Notification of Compliance Status within 30 days after compliance has been demonstrated.

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In addition to the notifications, you must submit Semi-Annual Compliance Reports on January 31st and July 31st of every year.

The semi-annual report will cover the period from January 1st through June 30th or July 1st through December 31st. Please review the requirements on the next two screens to determine what information your Compliance Reports must contain.

[Slide 18:]

All notifications and reports should be sent to EPA Region 1 at the address shown here.

[Slide 19:]

You must comply with all requirements of this rule by the date shown on the screen.

[Slide 20:]

If you would like more information about the RICE rule, please visit the EPA RICE Compliance web page at the address shown. This site provides resources such as Q and A documents, fact sheets, sample notification forms, and recordings of webinars, all of which are designed to help you comply with this rule.

[Slide 21:]

Let's summarize the requirements for your existing non-emergency spark ignition 4-stroke lean burn engine at an area source with a site rating greater than 500 horsepower which is operated for more than 24 hours per year.

- If your engine is located in a remote area, you must fulfill the requirements listed here.

[Slide 22:]

- If your engine is not located in a remote area, you must install an oxidation catalyst; and
- Use a high temperature shutdown device **or** install a continuous parameter monitoring system to continuously monitor and maintain the catalyst inlet temperature.
- You must conduct an initial test and achieve at least 93% carbon monoxide reduction or remain within the 47 parts per million carbon monoxide concentration limit.
- You must perform an annual catalyst check.
- You must keep records of all notifications submitted, testing and maintenance performed, malfunction and corrective actions taken, etc.
- You must retain all records for five years.
- Submit notifications of Applicability and Compliance Status

- You must submit a Semi-Annual Compliance Report
- You must be in compliance with all requirements of the rule by the date specified here.