



# Connecticut Department of Energy and Environmental Protection



# National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE Rule)



**40 CFR 63 Subpart ZZZZ**  
**Major Source Existing Non-Emergency Spark Ignition 4-Stroke Rich  
Burn Engine >500 Horsepower**



Connecticut Department of Energy and Environmental Protection

# To comply with this rule, you must meet the following emission standards:

- You must either

1. Limit formaldehyde ( $\text{CH}_2\text{O}$ ) concentration in the engine exhaust to  $\leq 350$  ppb at 15%  $\text{O}_2$   
OR

2. Reduce formaldehyde emissions by 76% or more

- Alternative Compliance Demonstration: Test for total hydrocarbon (THC) emissions and show that the engine is achieving at least a 30% average reduction of THC emissions.

–Compliance with the limit is based on the results of testing the average of three 1-hour runs using the specified testing requirements and procedures.

- In order to achieve this standard, your unit will probably require an emissions control retrofit. For SI 4SRB engines, this is non-selective catalytic reduction (**NSCR**)(3-way catalyst).

–*NSCR means an add-on catalytic nitrogen oxides control device that, in a 2-step reaction, promotes the conversion of excess  $\text{O}_2$ ,  $\text{NO}_x$ ,  $\text{CO}$ , and volatile organic compounds into  $\text{CO}_2$ , nitrogen, and water.*

–Estimated capital cost of catalyst:  $\$24.9 \cdot \text{HP} + \$13,118$

–Estimated annual cost of catalyst:  $\$4.77 \cdot \text{HP} + \$5,679$

(HP = horsepower of the engine)

- Comply with emission limits and operating limits at all times

- At all times you must operate/maintain all equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved.



# What are my operating limits?

- For each engine **using NSCR**:

- Maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 in. of water at 100% load  $\pm 10\%$  from the pressure drop across the catalyst measured during the initial performance test; and
- Maintain the temperature of your engine exhaust so that the catalyst inlet temperature is  $\geq 750^{\circ}\text{F}$  and  $\leq 1250^{\circ}\text{F}$ .\*

**OR**

- For each engine **not using NSCR**:

- Comply with any operating limitations approved by EPA.

\*Sources can petition EPA for a different temperature range.



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# To comply with this rule, you must perform the following tests:

- Initial emission performance test within 180 days after June 15, 2007

—You may not be required to conduct an initial test on units for which a test has been previously conducted, but the test must meet the following:

- Test must have been conducted using the required methods, and methods must have been followed correctly.
- Test must not be older than 2 years.
- Test must be reviewed and accepted by EPA.
- Either no process or equipment changes must have been made since the test was performed,  
OR you must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.
- Test must be conducted at a load condition within  $\pm 10\%$  of 100% load.



# Subsequent Testing

–If engine is >5,000 HP and complying with formaldehyde percent reduction, subsequent performance tests are required semi-annually

- After you have demonstrated compliance for two consecutive tests, you may reduce the frequency to annually. If the results of any subsequent annual test indicate the engine isn't in compliance with the emission limit, or you deviate from any of your operating limits, you must resume semi-annual tests.

- Testing must be conducted within  $\pm 10\%$  of 100% load.

\*If your RICE is currently non-operational: Do not startup the engine solely to conduct the performance test; conduct the test when the engine is started up again.



# What are the specific testing requirements?

COMPLYING WITH THE REQUIREMENT TO...	YOU MUST...	USING...	ACCORDING TO THE FOLLOWING REQUIREMENTS...
Reduce formaldehyde emissions	Select the sampling port location and the number of traverse points; and	Method 1 or 1A of 40 CFR part 60, appendix A 40 CFR 63.7(d)(1)(i)	Sampling sites must be located at the inlet and outlet of the control device.
	Measure O <sub>2</sub> at the inlet and outlet of the control device; and	Method 3, 3A, or 3B of 40 CFR part 60, appendix A, or ASTM Method D6522-00 (2005) <sup>a</sup>	Measurements to determine O <sub>2</sub> concentration must be made at the same time as the measurements for formaldehyde or THC concentration.
	Measure moisture content at the inlet and outlet of the control device; and	Method 4 of 40 CFR part 60, appendix A, or Test Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 <sup>a</sup>	Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or THC concentration.
	If demonstrating compliance with the formaldehyde percent reduction requirement, measure formaldehyde at the inlet and outlet of the control device	Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03 <sup>a</sup> , provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be ≥70 and ≤130.	Formaldehyde concentration must be at 15% O <sub>2</sub> , dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	If demonstrating compliance with the THC percent reduction requirement, measure THC at the inlet and the outlet of the control device.	Method 25A, reported as propane, of 40 CFR part 60, appendix A.	THC concentration must be at 15% O <sub>2</sub> , dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

a. Incorporated by reference, see 40 CFR 63.14. You may also obtain copies from University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.



# What are the specific testing requirements?

COMPLYING WITH THE REQUIREMENT TO...	YOU MUST...	USING...	ACCORDING TO THE FOLLOWING REQUIREMENTS...
Limit the concentration of formaldehyde in the engine exhaust	Select the sampling port location and the number of traverse points; and	Method 1 or 1A of 40 CFR part 60, appendix A 63.7(d)(1)(i)	If using a control device, the sampling site must be located at the outlet of the control device.
	Determine the O <sub>2</sub> concentration of the engine exhaust at the sampling port location; and	Method 3 or 3A or 3B of 40 CFR part 60, appendix A, or ASTM Method D6522-00 (2005) <sup>a</sup>	Measurements to determine O <sub>2</sub> concentration must be made at the same time and location as the measurements for formaldehyde concentration.
	Measure moisture content of the engine exhaust at the sampling port location; and	Method 4 of 40 CFR part 60, appendix A, or Test Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 <sup>a</sup>	Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.
	Measure formaldehyde at the exhaust of the engine.	Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03 <sup>a</sup> , provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be ≥70 and ≤130	Formaldehyde concentration must be at 15% O <sub>2</sub> , dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

a. Incorporated by reference, see 40 CFR 63.14. You may also obtain copies from University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.



# You must use the following testing procedures:

- Conduct 3 separate test runs for each performance test required in this section. Each run must last at least 1 hour.
- Use the following equation to determine compliance with the percent reduction requirement:

$$(C_i - C_o) / C_i \times 100 = R$$

$C_i$  = concentration of THC or formaldehyde at the control device inlet

$C_o$  = concentration of THC or formaldehyde at the control device outlet

R = percent reduction of THC or formaldehyde emissions



# You must use the following testing procedures:

•You must normalize the THC or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15% O<sub>2</sub>, or an equivalent percent CO<sub>2</sub>. If pollutant concentrations are to be corrected to 15% O<sub>2</sub> and CO<sub>2</sub> concentration is measured in lieu of O<sub>2</sub> concentration measurement, a CO<sub>2</sub> correction factor is needed. Calculate the CO<sub>2</sub> correction factor as described in (i) through (iii):

(i) Calculate the fuel-specific F<sub>o</sub> value for the fuel burned during the test using values obtained from Method 19, section 5.2, and the equation:  $F_o = (0.209F_d)/F_c$

F<sub>o</sub>= Fuel factor based on the ratio of O<sub>2</sub> volume to the ultimate CO<sub>2</sub> volume produced by the fuel at 0% excess air.

0.209= Fraction of air that is O<sub>2</sub>, percent/100.

F<sub>d</sub>= Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm<sup>3</sup>/J (dscf/10<sup>6</sup> Btu).

F<sub>c</sub>= Ratio of the volume of CO<sub>2</sub> produced to the gross calorific value of the fuel from Method 19, dsm<sup>3</sup>/J (dscf/10<sup>6</sup> Btu).

(ii) Calculate the CO<sub>2</sub> correction factor for correcting measurement data to 15% O<sub>2</sub>, as follows:

$$X_{CO_2} = 5.9/F_o$$

X<sub>CO<sub>2</sub></sub>= CO<sub>2</sub> correction factor, percent.

5.9= 20.9% O<sub>2</sub>-15% O<sub>2</sub>, the defined O<sub>2</sub> correction value, percent.

(iii) Calculate the THC or formaldehyde concentrations adjusted to 15% O<sub>2</sub> using CO<sub>2</sub> as follows:

$$C_{adj} = C_d(X_{CO_2}/\%CO_2)$$

C<sub>adj</sub>= Calculated concentration of THC or formaldehyde adjusted to 15% O<sub>2</sub>.

C<sub>d</sub>= Measured concentration of THC or formaldehyde, uncorrected.

%CO<sub>2</sub>= Measured CO<sub>2</sub> concentration measured, dry basis, percent.



# Testing Procedures

If you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the engine exhaust and you are not using NSCR, petition EPA for operating limitations to be established during the initial performance test and continuously monitored thereafter, or for approval of no operating limitations. **You cannot conduct the initial performance test until the petition has been approved by EPA.**

•If you petition EPA for approval of operating limitations, petition must include:

- (1) Parameters you propose to use as operating limitations;
- (2) Relationship between these parameters and HAP emissions, identifying how HAP emissions change with changes in these parameters, and how limits on these parameters will serve to limit HAP emissions;
- (3) How you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;
- (4) Methods you will use to measure and instruments you will use to monitor these parameters, as well as relative accuracy and precision of these methods/instruments; and
- (5) Frequency and methods for recalibrating the instruments you will use for monitoring these parameters.



# Testing Procedures

•If you petition EPA for approval of no operating limitations, petition must include:

- (1) Parameters associated with operation of the engine and any emission control device which could change intentionally (*e.g.*, operator adjustment, automatic controller adjustment, etc.) or unintentionally (*e.g.*, wear and tear, error, etc.) on a routine basis or over time;
- (2) Any relationship between changes in the parameters and changes in HAP emissions;
- (3) For parameters which could change in such a way as to increase HAP emissions, a discussion of whether establishing limits on the parameters would serve to limit HAP emissions;
- (4) For parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limits;
- (5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods/instruments;
- (6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and
- (7) Why you feel it is infeasible or unreasonable to adopt the parameters as operating limits.



# Testing Procedures

- Testing must be conducted at any load condition within  $\pm 10\%$  of 100% load.
- Engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A report of the average percent load determination must be included in the Notification of Compliance Status. The following must be included in the report:

- Engine model number and manufacturer
- Year of purchase
- Manufacturer's site-rated brake HP
- Ambient temperature, pressure, and humidity during the performance test
- Explanation of all assumptions that were made to estimate or calculate percent load during the performance test
- If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accuracy in percentage of true value

## Example Notification of Compliance Status Report<sup>a</sup>

National Emission Standards for Hazardous Air Pollutants:  
Stationary Reciprocating Internal Combustion Engines  
40 CFR part 63, subpart ZZZZ

**Note:** The information to be provided in the Notification of Compliance Status Report will vary depending on the engine type. Affected sources should refer to 40 CFR part 63, subpart ZZZZ for engine-specific compliance requirements. The sample responses provided in this report are for existing stationary spark-ignition (SI) 4-stroke rich burn (4SRB) engines above 500 horsepower (HP) located at an area source.

### SECTION I. GENERAL INFORMATION

- If you have been issued a Title V permit, do not complete this form. Submit your NOCS in accordance with your Title V permit. [§63.9(h)(3)]
- If you have not been issued a Title V permit, complete the remaining portions of this section and also complete Sections II-IX. [§63.9(h)(2)(i)]
- Print or type the following information for each facility for which you are making notification of compliance status:

Permit Number (OPTIONAL)		Facility I.D. Number (OPTIONAL)	
Responsible Official's Name/Title			
Street Address			
City	State	ZIP Code	
Facility Name (if different from Responsible Official's Name)			
Facility Street Address (if different than Responsible Official's Street Address)			
Facility Local Contact Name		Title	Phone (OPTIONAL)
City	State	ZIP Code	

- Indicate the relevant standard or other requirement that is the basis for this notification and the source's compliance date: (§63.9(b)(2)(ii))

<sup>a</sup> This is an example of the type of information that must be submitted to fulfill the Notification of Compliance Status requirement of 40 CFR part 63, subpart ZZZZ. This Notification of Compliance Status is being made in accordance with 40 CFR §63.9(n).



# How do I demonstrate initial compliance with the emission limits and operating limits?

## Complying with the requirement to reduce formaldehyde emissions, using NSCR:

You have demonstrated initial compliance if :

- The average reduction of emissions determined from the initial performance test  $\geq$  required formaldehyde percent reduction; and
- You have installed a CPMS to monitor catalyst inlet temperature according to the requirements in this module; and
- You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.

## Complying with the requirement to reduce formaldehyde emissions, NOT using NSCR:

You have demonstrated initial compliance if:

- The average reduction of emissions determined from the initial performance test  $\geq$  required formaldehyde percent reduction; and
- You have installed a CPMS to monitor operating parameters approved by the EPA according to the requirements in this module; and
- You have recorded the approved operating parameters (if any) during the initial performance test.

## Complying with the requirement to limit the concentration of formaldehyde in the engine exhaust, using NSCR:

You have demonstrated initial compliance if:

- The average formaldehyde concentration, corrected to 15% O<sub>2</sub>, dry basis, from the three test runs is  $\leq$  emission limit; and
- You have installed a CPMS to monitor catalyst inlet temperature according to the requirements in this module; and
- You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.

## Complying with the requirement to limit the concentration of formaldehyde in the exhaust, NOT using NSCR:

You have demonstrated initial compliance if:

- The average formaldehyde concentration, corrected to 15% O<sub>2</sub>, dry basis, from the three test runs is  $\leq$  emission limit; and
- You have installed a CPMS to monitor operating parameters approved by EPA (if any) according to the requirements in this module; and
- You have recorded the approved operating parameters (if any) during the initial performance test.



# How do I demonstrate initial compliance with the emission limits and operating limits?

During the initial performance test, establish one of the following operating limits:

If using NSCR:

- Maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 in. of water at 100% load  $\pm 10\%$  from the pressure drop across the catalyst measured during the initial performance test; and
- Maintain the temperature of your engine exhaust so that the catalyst inlet temperature is  $\geq 750^{\circ}\text{F}$  and  $\leq 1,250^{\circ}\text{F}$

If not using NSCR:

- Comply with any operating limits approved by EPA

Submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the following:

- Notification must be sent before the close of business on the 60th day following the completion of the initial compliance demonstration activity. For example, the notification shall be sent before close of business on the 60<sup>th</sup> day following completion of the initial performance test and again before the close of business on the 60<sup>th</sup> day following the completion of any subsequent required performance test.
- Notifications may be combined as long as the due date requirement for each notification is met.



# In order to ensure compliance, you must continuously monitor emissions from the engine:

## Install, operate, and maintain each CPMS according to the following:

(1) Prepare a monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in (i) through (v) below and in 40 CFR 63.8(d). You may request approval of monitoring system quality assurance and quality control procedures alternative to those specified in (1) through (5) of this section in your site-specific monitoring plan.

*(i) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;*

*(ii) Sampling interface (e.g., thermocouple) location such that the monitoring system will provide representative measurements;*

*(iii) Equipment performance evaluations, system accuracy audits, or other audit procedures;*

*(iv) Ongoing operation and maintenance procedures in accordance with provisions in 40 CFR 63.8(c)(1)(ii) and (c)(3); and*

*(v) Ongoing reporting/recordkeeping procedures in accordance with provisions in 40 CFR 63.10(c), (e)(1), and (e)(2)(i).*

(2) Install, operate, and maintain each CPMS in continuous operation according to the procedures in your monitoring plan.

(3) CPMS must collect data at least once every 15 minutes.

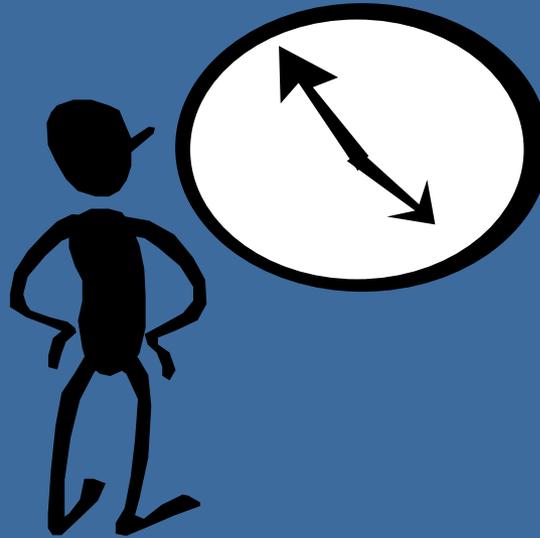
(4) For a CPMS for measuring temperature range, the temperature sensor must have a minimum tolerance of 2.8°C (5°F) or 1% of the measurement range, whichever is larger.

(5) Conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in your monitoring plan at least annually.

(6) Conduct a performance evaluation of each CPMS in accordance with your monitoring plan.



# Monitoring Requirements, continued



**Minimize the engine's time spent at idle during startup and minimize the engine's startup time** to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limits apply.

–You can petition EPA pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.



# Continuous Compliance Requirements

- Except for monitor malfunctions, associated repairs, required performance evaluations and required quality assurance or control activities, you must monitor continuously at all times that the engine is operating. Monitoring failures caused in part by poor maintenance or careless operation are not malfunctions.
- You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. You must, however, use all the valid data collected during all other periods.



# Continuous Compliance Requirements

## How do I demonstrate continuous compliance with emission and operating limits?

### ***Complying with the requirement to reduce formaldehyde emissions and using NSCR:***

- Collect the catalyst inlet temperature data according to the requirements in this module; and
- Reduce these data to 4-hour rolling averages; and
- Maintain the 4-hour rolling averages within the operating limits for the catalyst inlet temperature; and
- Measure the pressure drop across the catalyst once per month and demonstrate that the pressure drop across the catalyst is within the operating limit established during the performance test.

### ***Complying with the requirement to reduce formaldehyde emissions and NOT using NSCR:***

- Collect the approved operating parameter (if any) data according to the requirements in this module; and
- Reduce these data to 4-hour rolling averages; and
- Maintain the 4-hour rolling averages within the operating limits for the operating parameters established during the performance test.

### ***Complying with the requirement to reduce formaldehyde emissions:***

- If  $\geq 5,000$  HP, conduct semi-annual performance tests (may be reduced to annual) for formaldehyde to demonstrate that the required formaldehyde percent reduction is achieved, or to demonstrate that the average reduction of emissions of THC determined from the performance test is  $\geq 30\%$ .



# To demonstrate compliance with all rule requirements, you must keep records of:

- Each notification and report submitted and all supporting documentation
- Occurrence and duration of each malfunction
- Performance tests and evaluations
- Required maintenance performed on air pollution control and monitoring equipment
- Actions taken during malfunctions to minimize emissions and corrective actions
- Maintenance conducted on the engine to demonstrate that it was operated and maintained according to the maintenance plan

## For each CPMS, keep the following records:

- Each period during which a CMS is malfunctioning/inoperative/out-of-control
- All required measurements needed to demonstrate compliance with a relevant standard
- All CMS performance test results and evaluations
- All measurements as may be necessary to determine the conditions of performance tests/evaluations
- All CMS calibration checks
- All adjustments and maintenance performed on the CMS
- Previous versions of the performance evaluation plan
- Requests for alternatives to the RATA

- Keep records for 5 years from the date of creation.



# What notifications should I submit?



Photo credit: EPA

## Notification of:

- Applicability (120 days after effective date) or construction/reconstruction – due 12/13/04
- Intent to Conduct Performance test (60 days prior to test)
- Compliance Status (60 days after compliance demonstrated)



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# What reports should I submit?

## Semi-Annual Compliance Report

- Due January 31<sup>st</sup> and July 31<sup>st</sup> each year:

- First compliance report must cover the period beginning on October 19, 2013 and ending on December 31, 2013.

- Covers the period from January 1-June 30 or July 1-December 31

- Report must contain:

- Statement by responsible official certifying the accuracy of the report.

- If any malfunctions occurred during the reporting period, the number, duration, and a brief description for each type of malfunction which occurred and which caused or may have caused any limits to be exceeded. Also include actions taken during malfunction to minimize emissions and correct malfunctions.

- If no deviations occurred, a statement indicating so.

- If there were no periods during which the CMS was out-of-control, a statement indicating so.

- For each deviation that occurs where you are NOT using a CMS, report must include:

- Statement by responsible official certifying the accuracy of the report.

- If any malfunctions occurred during the reporting period, the number, duration, and a brief description for each type of malfunction which occurred and which caused or may have caused any limits to be exceeded. Also include actions taken during malfunction to minimize emissions and correct malfunctions.

- Total operating time of the engine at which the deviation occurred.

- Information on the number, duration, and cause of deviations, and the corrective action taken.



# What reports should I submit?

## Semi-Annual Compliance Report

- For each deviation that occurs where you are using a CMS, report must include:
  - Statement by responsible official certifying the accuracy of the report.
  - If any malfunctions occurred during the reporting period, the number, duration, and a brief description for each type of malfunction which occurred and which caused or may have caused any limits to be exceeded. Also include actions taken during malfunction to minimize emissions and correct malfunctions.
  - Date and time each malfunction started and stopped.
  - Date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.
  - Date, time, and duration that each CMS was out-of-control, using the information in 40 CFR 63.8(c)(8).
  - Date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.
  - Summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.
  - Breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.
  - Summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the engine at which the CMS downtime occurred during that reporting period.
  - Each parameter and pollutant (THC or formaldehyde) that was monitored at the engine.
  - Brief description of the engine and CMS.
  - Date of the latest CMS certification or audit.
  - Description of any changes in CMS, processes, or controls since the last reporting period.



# What reports should I submit?

## Semi-Annual Compliance Report

- Report each instance in which you did not meet each emission limit or operating limit. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limit applicable to your engine.
- Report each instance in which you did not meet the requirements of any of the General Provisions
- If your source has a Title V Operating Permit, you must report all deviations in the Title V Semi-Annual Monitoring Report.



# Where do I send notifications and reports?



## EPA REGION 1:

US Environmental Protection Agency

5 Post Office Square, Suite 100, Mail code: OES04-2

Boston, MA 02109-3912

Attention: Air Clerk



# By when must I comply with the rule?

June 15, 2007



Photo credit: EPA

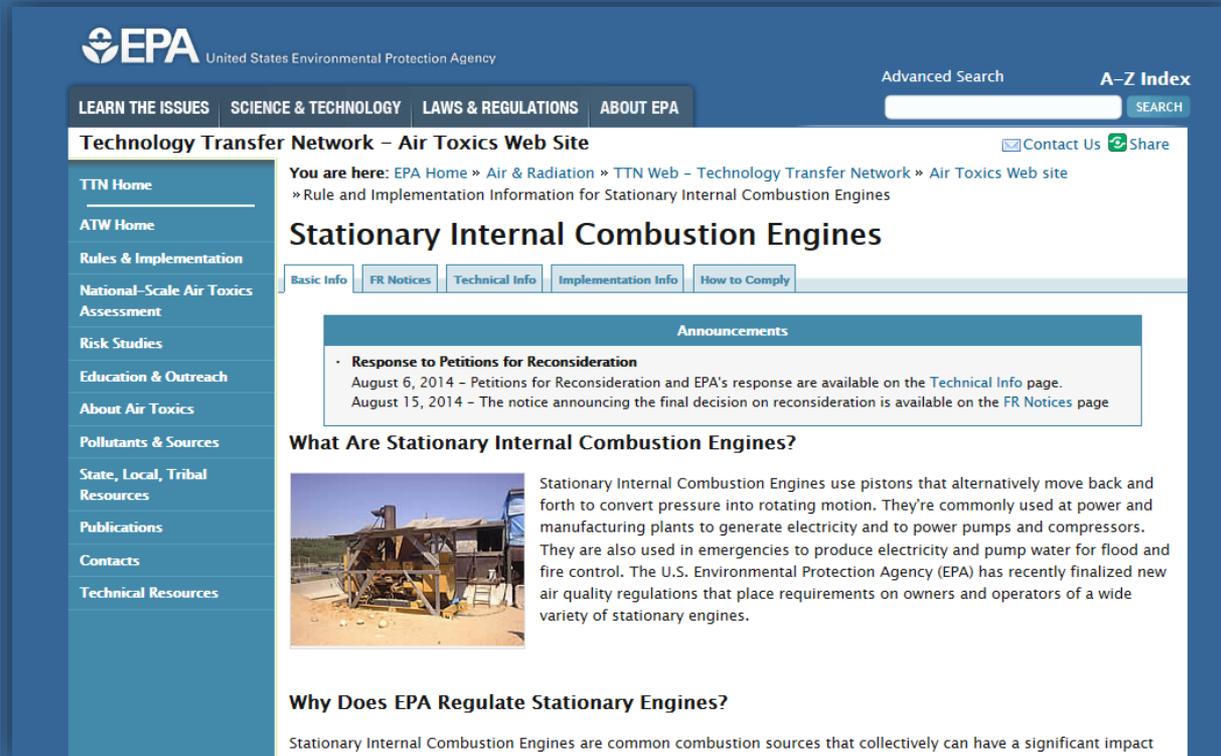


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# Visit the EPA RICE Compliance Page

[www.epa.gov/ttn/atw/icengines](http://www.epa.gov/ttn/atw/icengines)

- ▶ Fact sheets
- ▶ Regulations
- ▶ Example notifications
- ▶ Announcements
- ▶ Q & A documents
- ▶ Testing advice
- ▶ Recorded webinars
- ▶ ...and more!



The screenshot shows the EPA website's Technology Transfer Network (TTN) page for Air Toxics Web Site. The page is titled "Stationary Internal Combustion Engines" and includes a navigation menu with options like "Basic Info", "FR Notices", "Technical Info", "Implementation Info", and "How to Comply". A sidebar on the left lists various resources such as "TTN Home", "ATW Home", "Rules & Implementation", "National-Scale Air Toxics Assessment", "Risk Studies", "Education & Outreach", "About Air Toxics", "Pollutants & Sources", "State, Local, Tribal Resources", "Publications", "Contacts", and "Technical Resources". The main content area features an "Announcements" section with a link to "Response to Petitions for Reconsideration" dated August 6, 2014, and another dated August 15, 2014. Below this is a section titled "What Are Stationary Internal Combustion Engines?" which includes a photograph of a large industrial engine and a brief description of its function. The page also includes a "Why Does EPA Regulate Stationary Engines?" section.



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# Take Aways

## Engine Type:

- You own/operate a non-emergency spark ignition 4-stroke rich burn engine (that operates more than 24 hours/year)

## Limits:

- Limit concentration of formaldehyde in the exhaust to  $\leq 350$  ppb at 15%  $O_2$  or reduce formaldehyde emissions by 76% or more or reduce THC emissions by 30% or more
- Use NSCR to help achieve this standard
- Maintain catalyst so that pressure drop does not change by more than 2 in. of water at 100% load  $\pm 10\%$  from the pressure drop across the catalyst measured during the initial performance test; and
- Maintain exhaust temperature so that the catalyst inlet temperature is  $\geq 750^\circ F$  and  $\leq 1250^\circ F$  (unless EPA has approved a different temperature range).

## Testing:

- Perform initial emission performance test and subsequent testing



# Take Aways

## Monitoring:

- Install, operate and maintain a CPMS

## Recordkeeping:

- Keep records of notifications, reports, malfunctions and corrective actions, performance tests, maintenance, etc.
- Retain records for 5 years

## Reporting:

- Submit notifications of:
  - Applicability
  - Intent to Conduct Performance test
  - Compliance Status
- Submit Semi-Annual Compliance Report

## Compliance Date:

- June 15, 2007

