ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 63

[EPA–HQ–OAR–2008–0708, FRL–9190–3]

RIN 2060–AP36

National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: EPA is promulgating national emission standards for hazardous air pollutants for existing stationary spark ignition reciprocating internal combustion engines that either are located at area sources of hazardous air pollutant emissions or that have a site rating of less than or equal to 500 brake horsepower and are located at major sources of hazardous air pollutant emissions.

DATES: This final rule is effective on October 19, 2010.

ADDRESSES: EPA has established a docket for this action under Docket ID No. EPA–HQ–OAR–2008–0708. EPA also relies on materials in Docket ID Nos. EPA–HQ–OAR–2002–0059, EPA–HQ–OAR–2005–0029, and EPA–HQ–OAR–2005–0030 and incorporates those dockets into the record for this final rule. All documents in the docket are listed on the *http://www.regulations.gov* Web site. Although listed in the index, some information is not publicly available, *e.g.,* Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form. Publicly available docket materials are available either electronically through *http://www.regulations.gov* or in hard copy at the EPA Headquarters Library, Room Number 3334, EPA West Building, 1301 Constitution Ave., NW., Washington, DC. The EPA/DC Public Reading Room hours of operation are 8:30 a.m. to 4:30 p.m. Eastern Standard Time (EST), Monday through Friday. The telephone number for the Public Reading Room is (202) 566–1744, and the telephone number for the Air and Radiation Docket and Information Center is (202) 566–1742.

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SUPPLEMENTARY INFORMATION:

Background Information Document. On March 5, 2009 (71 FR 9698), EPA proposed national emission standards for hazardous air pollutants (NESHAP) for existing stationary reciprocating internal combustion engines (RICE) that either are located at area sources of hazardous air pollutants (HAP) emissions or that have a site rating of less than or equal to 500 brake horsepower (HP) and are located at major sources of HAP emissions. A summary of the public comments on the proposal and EPA's responses to the comments, as well as the Regulatory Impact Analysis Report, are available in Docket ID No. EPA–HQ–OAR–2008–0708.

Organization of This Document. The following outline is provided to aid in locating information in the preamble.

I. General Information

A. Does this action apply to me?

Regulated Entities. Categories and entities potentially regulated by this action include:

Category	NAICS [1]	Examples of regulated entities
Any industry using a stationary internal combustion engine as defined in this final rule.	2211	Electric power generation, transmission, or distribution.
	622110	Medical and surgical hospitals.
	48621	Natural gas transmission.
	211111	Crude petroleum and natural gas production.
	211112	Natural gas liquids producers.
	92811	National security.

[1] North American Industry Classification System.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. To determine whether your engine is regulated by this action, you should examine the applicability criteria of this final rule. If you have any questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding **FOR FURTHER INFORMATION CONTACT** section.

B. Where can I get a copy of this document?

In addition to being available in the docket, an electronic copy of this final action will also be available on the Worldwide Web (WWW) through the Technology Transfer Network (TTN). Following signature, a copy of this final action will be posted on the TTN's policy and guidance page for newly proposed or promulgated rules at the following address: *http://www.epa.gov/ttn/oarpg/.* The TTN provides information and technology exchange in various areas of air pollution control.

C. Judicial Review

Under section 307(b)(1) of the Clean Air Act (CAA), judicial review of this final rule is available only by filing a petition for review in the U.S. Court of Appeals for the District of Columbia Circuit by October 19, 2010. Under section 307(d)(7)(B) of the CAA, only an objection to this final rule that was raised with reasonable specificity during the period for public comment can be raised during judicial review. Moreover, under section 307(b)(2) of the CAA, the requirements established by this final rule may not be challenged separately in any civil or criminal proceedings brought by EPA to enforce these requirements.

Section 307(d)(7)(B) of the CAA further provides that "[o]nly an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review." This section also provides a mechanism for us to convene a proceeding for reconsideration, "[i]f the person raising an objection can demonstrate to EPA that it was impracticable to raise such objection within [the period for public comment] or if the grounds for such objection arose after the period for public comment (but within the time specified for judicial review) and if such objection is of central relevance to the outcome of the rule." Any person seeking to make such a demonstration to us should submit a Petition for Reconsideration to the Office of the Administrator, U.S. EPA, Room 3000, Ariel Rios Building, 1200 Pennsylvania Ave., NW., Washington, DC 20460, with a copy to both the person(s) listed in the preceding **FOR FURTHER INFORMATION CONTACT** section, and the Associate General Counsel for the Air and Radiation Law Office, Office of General Counsel (Mail Code 2344A), U.S. EPA, 1200 Pennsylvania Ave., NW., Washington, DC 20460.

II. Background

This action promulgates NESHAP for existing stationary spark ignition (SI) RICE with a site rating of less than or equal to 500 HP located at major sources, and existing stationary SI RICE of any site rating located at area sources. EPA is finalizing these standards to meet its statutory obligation to address HAP emissions from these sources under sections 112(d), 112(c)(3) and 112(k) of the CAA. The final NESHAP for stationary RICE will be promulgated under 40 CFR part 63, subpart ZZZZ, which already contains standards applicable to new and reconstructed stationary RICE and some existing stationary RICE.

EPA promulgated NESHAP for existing, new, and reconstructed stationary RICE greater than 500 HP located at major sources on June 15, 2004 (69 FR 33474). EPA promulgated NESHAP for new and reconstructed stationary RICE that are located at area sources of HAP emissions and for new and reconstructed stationary RICE that have a site rating of less than or equal to 500 HP that are located at major sources of HAP emissions on January 18, 2008 (73 FR 3568). On March 3, 2010, EPA promulgated NESHAP for existing stationary compression ignition (CI) RICE with a site rating of less than or equal to 500 HP located at major sources, existing non-emergency CI engines with a site rating greater than 500 HP at major sources, and existing stationary CI RICE of any site rating located at area sources (75 FR 9674).

III. Summary of This Final Rule

A. What is the source category regulated by this final rule?

This final rule addresses emissions from existing stationary SI engines less than or equal to 500 HP located at major sources and all existing stationary SI engines located at area sources. A major source of HAP emissions is generally a stationary source that emits or has the potential to emit 10 tons per year or more of any single HAP or 25 tons per year or more of any combination of HAP. An area source of HAP emissions is a stationary source that is not a major source.

This action revises the regulations at 40 CFR part 63, subpart ZZZZ. Through this action, we are adding to 40 CFR part 63, subpart ZZZZ requirements for: existing SI stationary RICE less than or equal to 500 HP located at major sources of HAP and existing SI stationary RICE located at area sources of HAP.

1. Existing Stationary SI RICE ≤ 500 HP at Major Sources of HAP

This action revises 40 CFR part 63, subpart ZZZZ, to address HAP emissions from existing stationary SI RICE less than or equal to 500 HP located at major sources of HAP. For stationary engines less than or equal to 500 HP at major sources, EPA must determine what is the appropriate maximum achievable control technology (MACT) for those engines under sections 112(d)(2) and (d)(3) of the CAA.

EPA has divided stationary SI RICE less than or equal to 500 HP located at major sources of HAP into the following subcategories:

- Non-emergency 2-stroke lean burn (2SLB) stationary SI RICE 100–500 HP;
- Non-emergency 4-stroke lean burn (4SLB) stationary SI RICE 100–500 HP;
- Non-emergency 4-stroke rich burn (4SRB) stationary SI RICE 100–500 HP;
- Non-emergency landfill and digester gas stationary SI RICE 100–500 HP;
- Non-emergency stationary SI RICE < 100 HP; and
- Emergency stationary SI RICE.

2. Existing Stationary SI RICE at Area Sources of HAP

This action revises 40 CFR part 63, subpart ZZZZ, in order to address HAP emissions from existing stationary SI RICE located at area sources of HAP. Section 112(d) of the CAA requires EPA to establish NESHAP for both major and area sources of HAP that are listed for regulation under CAA section 112(c). As noted above, an area source is a stationary source that is not a major source.

Section 112(k)(3)(B) of the CAA calls for EPA to identify at least 30 HAP that, as a result of emissions of area sources, pose the greatest threat to public health in the largest number of urban areas. EPA implemented this provision in 1999 in the Integrated Urban Air Toxics Strategy (64 FR 38715, July 19, 1999). Specifically, in the Strategy, EPA identified 30 HAP that pose the greatest potential health threat in urban areas, and these HAP are referred to as the "30 urban HAP." Section 112(c)(3) of the CAA requires EPA to list sufficient categories or subcategories of area sources to ensure that area sources representing 90 percent of the emissions of the 30 urban HAP are subject to regulation. EPA implemented these requirements through the Integrated Urban Air Toxics Strategy (64 FR 38715, July 19, 1999). The area source stationary engine source category was one of the listed categories. A primary goal of the Strategy is to achieve a 75 percent reduction in cancer incidence attributable to HAP emitted from stationary sources.

Under CAA section 112(d)(5), EPA may elect to promulgate standards or requirements for area sources "which provide for the use of generally available control technologies or management practices by such sources to reduce emissions of hazardous air pollutants." Additional information on generally available control technologies (GACT) and management practices is found in the Senate report on the legislation (Senate report Number 101–228, December 20, 1989), which describes GACT as:

> * * * methods, practices and techniques which are commercially available and appropriate for application by the sources in the category considering economic impacts and the technical capabilities of the firms to operate and maintain the emissions control systems.

Consistent with the legislative history, EPA can consider costs and economic impacts in determining GACT, which is particularly important when developing regulations for source categories, like this one, that have many small businesses.

Determining what constitutes GACT involves considering the control technologies and management practices that are generally available to the area sources in the source category. EPA also considers the standards applicable to major sources in the same industrial sector to determine if the control technologies and management practices are transferable and generally available to area sources. In appropriate circumstances, EPA may also consider technologies and practices at area and major sources in similar categories to determine whether such technologies and practices could be considered generally available for the area source category at issue. Finally, as EPA has already noted, in determining GACT for a particular area source category, EPA considers the costs and economic impacts of available control technologies and management practices on that category.

The urban HAP that must be regulated from stationary SI RICE to achieve the CAA section 112(c)(3) requirement to regulate categories accounting for 90 percent of the urban HAP are: 7 polycyclic aromatic hydrocarbons (PAH), formaldehyde, and acetaldehyde.

Similar to existing stationary SI RICE at major sources, EPA has also divided the existing stationary SI RICE at area sources into subcategories in order to properly take into account the differences between these engines. The subcategories for existing stationary SI RICE at area sources are as follows:

- Non-emergency 2SLB stationary SI RICE
- Non-emergency 4SLB stationary SI RICE
  - ○ ≤500 HP
  - ○ >500 HP that operate more than 24 hours per calendar year
  - ○ >500 HP that operate 24 hours or less per calendar year
- Non-emergency 4SRB stationary SI RICE
  - ○ ≤500 HP that operate more than 24 hours per calendar year
  - ○ >500 HP that operate 24 hours or less per calendar year
- Non-emergency landfill and digester gas stationary SI RICE
- Emergency stationary SI RICE.

B. What are the pollutants regulated by this final rule?

This final rule regulates emissions of HAP. Available emissions data show that several HAP, which are formed during the combustion process or which are contained within the fuel burned, are emitted from stationary engines. The HAP which have been measured in emission tests conducted on SI stationary RICE include: Formaldehyde, acetaldehyde, acrolein, methanol, benzene, toluene, 1,3-butadiene, 2,2,4-trimethylpentane, hexane, xylene, naphthalene, PAH, methylene chloride, and ethylbenzene. EPA described the health effects of these HAP and other HAP emitted from the operation of stationary RICE in the preamble to 40 CFR part 63, subpart ZZZZ, published on June 15, 2004 (69 FR 33474). More detail on the health effects of these HAP and other HAP emitted from the operation of stationary RICE can be found in the Regulatory Impact Analysis (RIA) for this final rule. These HAP emissions are known to cause, or contribute significantly to air pollution, which may reasonably be anticipated to endanger public health or welfare.

For the standards being finalized in this action, EPA believes that previous determinations regarding the appropriateness of using formaldehyde and carbon monoxide (CO) both in concentration (parts per million (ppm)) levels as surrogates for HAP for stationary RICE are still valid. Consequently, EPA is promulgating CO or formaldehyde standards in order to regulate HAP emissions.

In addition to reducing HAP, the emission control technologies that will be installed on stationary RICE to reduce HAP will also reduce CO and VOC, and for rich burn engines will also reduce NO_X.

C. What are the final requirements?

1. Existing Stationary SI RICE ≤500 HP at Major Sources of HAP

The numerical emission standards that are being finalized in this action for existing stationary non-emergency SI RICE less than or equal to 500 HP located at major sources of HAP are shown in Table 1 of this preamble. The emission standards are in units of ppm by volume, dry basis (ppmvd).

TABLE 1—EMISSION STANDARDS FOR EXISTING STATIONARY SI RICE >500 HP LOCATED AT MAJOR SOURCES OF HAP

Subcategory	Except during periods of startup
2SLB Non-Emergency 100≤HP≤500	225 ppmvd CO at 15% O_2.
4SLB Non-Emergency 100≤HP≤500	47 ppmvd CO at 15% O_2.
4SRB Non-Emergency 100≤HP≤500	10.3 ppmvd formaldehyde at 15% O_2.
Landfill/Digester Gas Non-Emergency 100≤HP≤500	177 ppmvd CO at 15% O_2.

EPA is finalizing work practice standards for existing emergency stationary SI RICE less than or equal to 500 HP located at major sources of HAP and existing non-emergency stationary SI RICE less than 100 HP located at major sources of HAP. Existing stationary emergency SI RICE less than or equal to 500 HP located at major sources of HAP are subject to the following work practices:

- Change oil and filter every 500 hours of operation or annually, whichever comes first, except that sources can extend the period for changing the oil if the oil is part of an oil analysis program as discussed below and none of the condemning limits are exceeded;
- Inspect spark plugs every 1,000 hours of operation or annually,

whichever comes first, and replace as necessary; and

- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

Existing stationary non-emergency SI RICE less than 100 HP located at major sources of HAP that are not 2SLB stationary RICE are subject to the following work practices:

- Change oil and filter every 1,440 hours of operation or annually, whichever comes first, except that sources can extend the period for changing the oil if the oil is part of an oil analysis program as discussed below and none of the condemning limits are exceeded;
- Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and
- Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

Existing 2SLB stationary SI RICE less than 100 HP located at major sources of HAP are subject to the following work practices:

- Change oil and filter every 4,320 hours of operation or annually, whichever comes first, except that sources can extend the period for changing the oil if the oil is part of an oil analysis program as discussed below and none of the condemning limits are exceeded;
- Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary; and
- Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.

Sources also have the option to use an oil change analysis program to extend the oil change frequencies specified above. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The analysis must be conducted at the same frequencies specified for changing the engine oil. If the condemning limits provided below are not exceeded, the engine owner or operator is not required to change the oil. If any of the condemning limits are exceeded, the engine owner or operator must change the oil within two days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within two days or before commencing operation, whichever is later. The condemning limits are as follows:

- Total Acid Number increases by more than 3.0 milligrams potassium hydroxide per gram from Total Acid Number of the oil when new; or
- Viscosity of the oil changes by more than 20 percent from the viscosity of the oil when new; or
- Percent water content (by volume) is greater than 0.5.

Pursuant to the provisions of 40 CFR 63.6(g), sources can also request that the Administrator approve alternative work practices.

2. Existing Stationary SI RICE at Area Sources of HAP

The numerical emission standards that EPA is finalizing for non-emergency 4SLB stationary SI RICE and non-emergency 4SRB stationary SI RICE located at area sources of HAP are shown in Table 2.

TABLE 2—NUMERICAL EMISSION STANDARDS FOR EXISTING NON-EMERGENCY 4SLB STATIONARY SI RICE >500 HP LOCATED AT AREA SOURCES OF HAP AND EXISTING NON-EMERGENCY 4SRB STATIONARY SI RICE >500 HP LOCATED AT AREA SOURCES OF HAP

Subcategory	Except during periods of startup
4SLB Non-Emergency >500 HP that operate more than 24 hours per calendar year.	47 ppmvd CO at 15% O_2 or 93% CO reduction.
4SRB Non-Emergency >500 HP that operate more than 24 hours per calendar year.	2.7 ppmvd formaldehyde at 15% O_2 or 76% formaldehyde reduction.

EPA is finalizing management practices for existing non-emergency 4SLB stationary SI RICE less than or equal to 500 HP located at area sources of HAP, existing non-emergency 4SLB stationary SI RICE greater than 500 HP located at area sources of HAP that operate 24 hours or less per calendar year, existing non-emergency 4SRB stationary SI RICE less than or equal to 500 HP located at area sources of HAP, existing non-emergency 4SRB stationary SI RICE greater than 500 HP located at area sources of HAP that operate 24 hours or less per calendar year, existing 2SLB non-emergency stationary SI RICE located at area sources of HAP, existing non-emergency landfill and digester gas stationary RICE located at area sources of HAP, and existing emergency stationary SI RICE located at area sources of HAP.

Existing non-emergency 4SLB and 4SRB stationary SI RICE less than or equal to 500 HP located at area sources of HAP and existing landfill or digester gas non-emergency stationary SI RICE located at area sources of HAP are subject to the following management practices:

- Change oil and filter every 1,440 hours of operation or annually, whichever comes first, except that sources can extend the period for changing the oil if the oil is part of an oil analysis program as discussed below and none of the condemning limits are exceeded;
- Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and
- Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.

Existing stationary 2SLB non-emergency engines located at area sources of HAP are subject to the following management practices:

- Change oil and filter every 4,320 hours of operation or annually, whichever comes first, except that sources can extend the period for changing the oil if the oil is part of an oil analysis program as discussed below and none of the condemning limits are exceeded;
- Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary; and
- Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.

Existing stationary emergency SI RICE located at area sources of HAP and existing non-emergency 4SLB and 4SRB stationary SI RICE greater than 500 HP located at area sources of HAP that operate 24 hours or less per calendar year are subject to the following management practices:

- Change oil and filter every 500 hours of operation or annually, whichever comes first, except that sources can extend the period for changing the oil if the oil is part of an oil analysis program as discussed below and none of the condemning limits are exceeded;
- Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and
- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

As discussed above for major sources, these sources may utilize an oil analysis program, as described above, to extend the specified oil change requirement specified above. Also, sources have the option to work with State permitting authorities pursuant to EPA's regulations at 40 CFR subpart E ("Approval of State Programs and Delegation of Federal Authorities") for approval of alternative management practices. 40 CFR subpart E implements section 112(l) of the CAA, which authorizes EPA to approve alternative State/local/tribal HAP standards or programs when such requirements are demonstrated to be no less stringent than EPA promulgated standards.

3. Startup Requirements

Existing stationary SI RICE less than or equal to 500 HP located at major sources of HAP and existing stationary SI RICE located at area sources of HAP must meet specific operational standards during engine startup. Engine startup is defined as the time from initial start until applied load and engine and associated equipment reaches steady state or normal operation. For stationary engines with catalytic controls, engine startup means the time from initial start until applied load and engine and associated equipment reaches steady state, or normal operation, including the catalyst. Owners and operators must minimize the engine's time spent at idle and minimize the engine's startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the engine must meet the otherwise applicable emission standards. These requirements will limit the HAP emissions during periods of engine startup. Pursuant to the provisions of 40 CFR 63.6(g), engines at major sources may petition the Administrator for an alternative work practice. An owner or operator of an engine at an area source can work with its State permitting authority pursuant to EPA's regulations at 40 CFR subpart E for approval of an alternative management practice. See 40 CFR subpart E (setting forth requirements for, among other things, equivalency by permit, rule substitution).

D. What are the operating limitations?

In addition to the standards discussed above, EPA is finalizing operating limitations for existing stationary non-emergency 4SLB and 4SRB RICE that are greater than 500 HP, located at an area source of HAP, and operated more than 24 hours per calendar year. Owners and operators of engines that are equipped with oxidation catalyst or non-selective catalytic reduction (NSCR) must maintain the catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst that was measured during the initial performance test. If the engine is equipped with oxidation catalyst, owners and operators must also maintain the temperature of the stationary RICE exhaust so that the catalyst inlet temperature is between 450 and 1,350 degrees Fahrenheit (°F). If the engine is equipped with NSCR, owners and operators must maintain the temperature of the stationary RICE exhaust so that the NSCR inlet temperature is between 750 and 1,250 °F. Owners and operators may petition for a different temperature range; the petition must demonstrate why it is operationally necessary and appropriate to operate below the temperature range specified in this final rule (see 40 CFR 63.8(f)). Owners and operators of engines that are not using oxidation catalyst or NSCR must comply with any operating limitations approved by the Administrator.

E. What are the requirements for demonstrating compliance?

The following sections describe the requirements for demonstrating compliance under this final rule.

1. Existing Stationary SI RICE ≤ 500 at Major Sources of HAP

Owners and operators of existing stationary non-emergency SI RICE located at major sources that are less than 100 HP and existing stationary emergency SI RICE located at major sources must operate and maintain their stationary RICE and aftertreatment control device (if any) according to the manufacturer's emission-related written instructions or develop their own maintenance plan. The maintenance plan must specify how the work practices will be met and provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practices for minimizing emissions. Owners and operators of existing stationary non-emergency SI RICE located at major sources that are less than 100 HP and existing stationary emergency SI RICE located at major sources do not have to conduct any performance testing because they are not subject to numerical emission standards.

Owners and operators of existing stationary non-emergency SI RICE located at major sources that are greater than or equal to 100 HP and less than or equal to 500 HP must conduct an initial performance test to demonstrate that they are achieving the required emission standards.

2. Existing Stationary SI RICE at Area Sources of HAP

Owners and operators of existing stationary RICE located at area sources of HAP that are subject to management practices do not have to conduct any performance testing; they must develop a maintenance plan that specifies how the management practices will be met and provides to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practices for minimizing emissions. Owners and operators of existing 4SLB and 4SRB non-emergency stationary SI RICE that are greater than 500 HP, located at an area source of HAP, and operated more than 24 hours per calendar year must conduct an initial performance test to demonstrate compliance with the applicable emission limitations and must conduct subsequent performance testing every 8,760 hours of operation or 3 years, whichever comes first. Owners and operators of existing 4SLB and 4SRB non-emergency stationary SI RICE that are greater than 500 HP, located at an area source of HAP, and operated more than 24 hours per calendar year must continuously monitor and record the inlet temperature of the oxidation catalyst or NSCR and also take monthly measurements of the pressure drop across the oxidation catalyst or NSCR. If an oxidation catalyst or NSCR is not being used on the engine, the owner or operator must continuously monitor and record the operating parameters (if any) approved by the Administrator. As discussed in the March 3, 2010, final NESHAP for existing stationary CI RICE (75 FR 9648) and in section V.E., EPA is finalizing performance specification requirements in 40 CFR part 63, subpart ZZZZ for the continuous parametric monitoring systems used for continuous catalyst inlet temperature monitoring.

F. What are the reporting and recordkeeping requirements?

The following sections describe the reporting and recordkeeping requirements that are required under this final rule.

Owners and operators of existing stationary emergency SI RICE that do not meet the requirements for non-emergency engines are required to keep records of their hours of operation. Owners and operators of existing stationary emergency SI RICE must install a non-resettable hour meter on their engines to record the hours of operation of the engine.

Owners and operators of existing stationary SI RICE located at major sources that are subject to work practices and existing stationary SI RICE located at area sources that are subject to management practices are required to keep records that show that the work or management practices that are required are being met. These records must include, at a minimum: Oil and filter change dates and corresponding engine hours of operation (determined using hour meter, fuel consumption data, or other appropriate methods); inspection and replacement dates for spark plugs, hoses, and belts; and records of other emission-related repairs and maintenance performed.

In terms of reporting requirements, owners and operators of existing non-emergency stationary SI RICE greater than or equal to 100 HP and less than or equal to 500 HP located at major sources of HAP and existing non-emergency 4SLB and 4SRB stationary RICE greater than 500 HP located at area sources of HAP that operate more than 24 hours per calendar year must submit the notifications required in Table 8 of 40 CFR part 63, subpart ZZZZ, which lists the NESHAP General Provisions applicable to this rule. (40 CFR part 63, subpart A) These notifications include an initial notification, notification of performance test, and a notification of compliance for each stationary RICE which must comply with the specified emission limitations. Owners and operators of existing stationary non-emergency SI RICE greater than or equal to 100 HP and less than or equal to 500 HP located at major sources of HAP and existing stationary 4SLB and 4SRB non-emergency SI RICE greater than 500 HP located at area sources of HAP that operate more than 24 hours per calendar year must submit semiannual compliance reports.

IV. Summary of Significant Changes Since Proposal

A. Applicability

A change from the proposal is that this final rule is not applicable to existing stationary emergency engines at area sources that are located at residential, commercial, or institutional facilities. These engines are not subject to any requirements under this final rule because they are not part of the regulated source category. EPA has found that existing stationary emergency engines located at residential, commercial, and institutional facilities that are area sources were not included in the original Urban Air Toxics Strategy inventory and were not included in the listing of urban area sources. More information on this issue can be found in the memorandum titled, "Analysis of the Types of Engines Used to Estimate the CAA Section 112(k) Area Source Inventory for Stationary Reciprocating Internal Combustion Engines," available from the rulemaking docket. In the March 3, 2010, final NESHAP for existing stationary CI RICE (75 FR 9648), EPA included a definition for residential/commercial/institutional emergency stationary RICE. After the final rule was promulgated, EPA received numerous questions regarding the definition and whether certain types of facilities would meet the definition. In this final rule, EPA is separating the definition into individual definitions for residential emergency stationary RICE, commercial emergency stationary RICE, and institutional emergency stationary RICE, and is also providing additional examples of the types of facilities that would be included under those categories in the definitions. EPA has also prepared a memorandum to provide further guidance regarding the types of facilities that would or would not be considered residential, commercial, or institutional facilities. The memorandum is titled, "Guidance Regarding Definition of Residential, Commercial, and Institutional Emergency Stationary RICE in the NESHAP for Stationary RICE," and is available in the rulemaking docket.

B. Final Emission Standards

1. Existing Stationary SI Engines ≤ 500 HP Located at Major Sources of HAP

EPA is revising the emission standards that it proposed for the subcategories of stationary SI engines less than or equal to 500 HP located at major sources. As discussed in section V.B., numerous commenters indicated that EPA's dataset used to establish the proposed emission limits was insufficient and urged EPA to gather more data to obtain a more complete representation of emissions from existing stationary SI engines. Commenters also questioned the emission standard setting approach that EPA used at proposal and claimed that the proposed standards did not take into account emissions variability. For this final rule, EPA has obtained additional test data for existing stationary SI engines and has included this additional data in the MACT floor analysis. EPA is also using an approach that better considers emissions variability, as discussed in V.B. below. EPA is also not using the Population Database to determine a percentage of engines that have emission controls installed, as it did at proposal. The Population Database has not been updated since 2000. It contains information regarding whether or not an engine has emission controls, but does not generally contain other types of emission-related information, like engine-out emissions or operational controls, and it does not include any emissions concentration data, which is necessary to determine the MACT floor. EPA determined that it would be more appropriate and more defensible to base the MACT floor analysis directly on the emissions data that EPA has for stationary SI engines, including data that was not used in the proposal. A more detailed discussion of both EPA's MACT floor and beyond-the-MACT-floor analysis can be found in the memorandum titled "MACT Floor and MACT Determination for Existing Stationary SI RICE ≤ 500 HP Located at Major Sources".

For 2SLB non-emergency engines, EPA proposed a limit of 85 ppmvd CO for engines from 50 to 249 HP and 8 ppmvd CO or 90 percent CO reduction for engines greater than or equal to 250 HP. EPA is finalizing an emission limit of 225 ppmvd CO for 2SLB non-emergency engines from 100 to 500 HP. For 4SLB non-emergency engines, EPA proposed a limit of 95 ppmvd CO for engines from 50 to 249 HP and 9 ppmvd CO or 90 percent CO reduction for engines greater than or equal to 250 HP. EPA is finalizing an emission limit of 47 ppmvd CO for 4SLB non-emergency engines from 100 to 500 HP. For 4SRB non-emergency engines from 50 to 500 HP, EPA proposed an emission limit of 200 ppbvd (parts per billion by volume, dry basis) formaldehyde or 90 percent formaldehyde reduction. EPA is finalizing an emission limit of 10.3 ppmvd formaldehyde for 4SRB non-emergency engines from 100 to 500 HP.

For landfill and digester gas engines, EPA proposed an emission limit of 177 ppmvd CO; EPA is finalizing an emission limit of 177 ppmvd CO.

For the proposed rule, EPA required existing stationary engines less than 50 HP that are located at major sources to meet a formaldehyde emission standard. As discussed in the final rule published on March 3, 2010, for existing stationary CI RICE (75 FR 9674), EPA is not finalizing a formaldehyde emission standard for stationary SI engines less than 50 HP, but is instead requiring compliance with work practices. In addition, in light of several comments asserting that the level at which EPA subcategorized small engines at major sources was inappropriate, EPA is finalizing a work practice standard for engines less than 100 HP. These work practices are described in section III.C. of this preamble. EPA believes that work practices are appropriate and justified for this group of stationary engines because the application of measurement methodology is not practicable due to technological and economic limitations. Further information on EPA's decision can be found in the memorandum titled, "MACT Floor and MACT Determination for Existing Stationary Non-Emergency SI RICE < 100 HP and Existing Stationary Emergency SI RICE Located at Major Sources and GACT for Existing Stationary SI RICE Located at Area Sources," which is available from the rulemaking docket.

For existing stationary emergency engines located at major sources, EPA proposed that these engines be subject to a 2 ppmvd formaldehyde emission standard. In this final rule, existing stationary emergency SI engines located at major sources of HAP must meet work practices. These work practices are described in section III.C. of this preamble. EPA believes that work practices are appropriate and justified for this group of stationary engines because the application of measurement methodology is not practicable due to technological and economic limitations. Further information on EPA's decision can be found in the memorandum titled, "MACT Floor and MACT Determination for Existing Stationary Non-Emergency SI RICE <100 HP and Existing Stationary Emergency SI RICE Located at Major Sources and GACT for Existing Stationary SI RICE Located at Area Sources," which is available from the rulemaking docket.

2. Existing Stationary SI Engines Located at Area Sources of HAP

EPA proposed numerical emission standards for the following stationary SI engines located at area sources of HAP: non-emergency 2SLB and 4SLB greater than or equal to 250 HP, non-emergency 4SRB greater than or equal to 50 HP, landfill and digester gas fired greater than 500 HP, and emergency greater than 500 HP. For the remaining engines at area sources, EPA proposed management practice standards.

In this final rule, EPA is promulgating numerical emission standards for non-emergency 4SLB and 4SRB stationary SI RICE larger than 500 HP located at area sources of HAP emissions that operate more than 24 hours per calendar year. For non-emergency 4SLB engines greater than 500 HP located at area sources of HAP, EPA proposed an emission limit of 9 ppmvd CO or 90 percent CO reduction; EPA is finalizing an emission limit of 47 ppmvd CO or 93 percent CO reduction. For non-emergency 4SRB engines greater than 500 HP located at area sources of HAP, EPA proposed an emission limit of 200 ppbvd formaldehyde or 90 percent formaldehyde reduction and is finalizing an emission limit of 2.7 ppmvd formaldehyde or 76 percent formaldehyde reduction. For stationary SI RICE located at area sources of HAP that are non-emergency 2SLB stationary SI RICE greater than or equal to 250 HP, non-emergency 4SLB stationary SI RICE between 250 and 500 HP, non-emergency 4SRB stationary SI RICE between 50 and 500 HP, landfill/digester gas stationary SI RICE greater than 500 HP, or emergency stationary SI RICE greater than 500 HP, EPA is finalizing management practices rather than numeric emission limitations as proposed. EPA is also finalizing management practices for non-emergency 4SLB and 4SRB stationary SI RICE that are greater than 500 HP, located at area sources of HAP, and operated 24 hours or less per calendar year.

C. Management Practices

EPA proposed management practices for several subcategories of engines located at area sources. EPA explained that the proposed management practices would be expected to ensure that emission control systems are working properly and would help minimize HAP emissions from the engines. EPA proposed specific maintenance practices and asked for comments on the need and appropriateness for those procedures. Based on feedback received during the public comment period, which included information submitted in comment letters and additional information EPA received following the close of the comment period from different industry groups, EPA is finalizing management practices for existing stationary 2SLB non-emergency SI engines located at area sources of HAP, existing stationary 4SLB and 4SRB non-emergency SI engines less than or equal to 500 HP located at area sources of HAP; existing stationary landfill and digester gas non-emergency engines located at area sources of HAP; and existing emergency stationary SI engines located at area sources of HAP.

Based on the comments on the proposal and additional information received from stakeholders, EPA made changes to the intervals for the management practices from the proposal. EPA is also adding an option for sources to use an oil change analysis program to extend the oil change frequencies specified above. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. If the condemning limits for these parameters are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within two days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within two days or before commencing operation, whichever is later. Owners and operators of all engines subject to management practices also have the option to work with State permitting authorities pursuant to EPA's regulations at 40 CFR subpart E for alternative management practices to be used instead of the specific management practices promulgated in this final rule. The management practices must be at least as stringent as those specified in this final rule.

D. Startup, Shutdown, and Malfunction

EPA proposed formaldehyde and CO emission standards for existing stationary engines at major sources to apply during periods of startup and malfunction. EPA also proposed certain standards for existing stationary engines at area sources that would apply during startup and malfunction. EPA did not propose distinct standards for periods of shutdown. EPA proposed that engines would be subject to the same standards during shutdown as are applicable during other periods of operation.

Based on various comments and concerns with the proposed emission standards for periods of startup, EPA has determined that it is not feasible to finalize numerical emission standards that would apply during startup because the application of measurement methodology to this operation is not practicable due to technological and economic limitations. This issue is discussed in detail in the final rule published on March 3, 2010 (75 FR 9674), and as discussed in the Response to Comments for this rule, the analysis is the same for the engines regulated in this final rule.

As a result, EPA is extending the operational standards during startup it promulgated in the March 3, 2010, final rule (75 FR 9674), which specify that owners and operators must limit the engine startup time to no more than 30 minutes and must minimize the engine's time spent at idle during startup, to the engines newly subject to regulation in this rule.

With respect to malfunctions, EPA proposed two options for subcategories where the proposed emission standard was based on the use of catalytic controls. The first proposed option was to have the same standards apply during normal operation and malfunctions. The second proposed option was that standards during malfunctions be based on emissions expected from the best controlled sources prior to the full warm-up of the catalytic control. For subcategories where the proposed emission standard was not based on the use of catalytic controls, we proposed the same emission limitations apply during malfunctions and periods of normal operations. EPA is finalizing the first option described above, which is that the same standards apply during normal operation and malfunctions. In the proposed rule, EPA expressed the view that there are different modes of operation for any stationary source, and that these modes generally include startup, normal operations, shutdown, and malfunctions. However, as discussed in detail in the final rule published on March 3, 2010 (75 FR 9674), and as discussed in the Response to Comments for this rule, after considering the issue of malfunctions more carefully, EPA has determined that malfunctions should not be viewed as a distinct operating mode and, therefore, any emissions that occur at such times do not need to be factored into development of CAA section 112(d) standards, which, once promulgated, apply at all times. In addition, as discussed in detail in the final rule published on March 3, 2010 (75 FR 9674), and as discussed in the Response to Comments for this rule, EPA believes that malfunctions will not cause stationary engines to violate the standard that applies during normal operations. Therefore, the standards that apply during normal operation also apply during malfunction.

E. Method 323

EPA proposed to remove Method 323 as an option for determining compliance with formaldehyde emission limitations in 40 CFR part 63, subpart ZZZZ. EPA Method 323 was first proposed as part of the NESHAP for Stationary Combustion Turbines published January 14, 2003, (68 FR 1888) for measuring formaldehyde emissions from natural gas-fired sources. However, the method was not included in the final Stationary Combustion Turbines NESHAP due to reliability concerns and EPA never promulgated EPA Method 323 as a final standard in 40 CFR part 63, appendix A. Due to unresolved technical issues with the method affecting engine test results, EPA found it appropriate to propose to remove the method from 40 CFR part 63, subpart ZZZZ. As discussed in greater detail in section V.D., after EPA proposed to remove Method 323 as a compliance test Method, the Agency received test data comparing Method 323 to EPA Method 320. The results of this comparison testing showed good agreement between the two methods and there was no evidence of bias in the results from Method 323. Therefore, EPA has determined that it is appropriate to promulgate Method 323 and to allow it as an option for measuring formaldehyde in 40 CFR part 63, subpart ZZZZ.

F. Other

EPA is making several minor clarifications to this final rule to address comments that the provisions were confusing and difficult for affected sources to understand. One clarification is to individually list out the engines discussed in 40 CFR 63.6590(b)(3) and (c) instead of having them in a single paragraph. The definition of emergency stationary RICE and the provisions for emergency stationary RICE in 40 CFR 63.6640(f) have been reorganized in order to provide more clarity regarding those provisions and to more clearly specify that all emergency stationary RICE must comply with the requirements specified in 40 CFR 63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in 40 CFR 63.6640(f), then it is not considered to be an emergency stationary RICE. Minor clarifications have also been made to the tables to provide additional clarification on the applicability of the requirements in the tables.

V. Summary of Responses to Major Comments

A. Applicability

Comment: Numerous commenters expressed concern over EPA's decision to not distinguish between rural and urban engines at area sources in the proposed rule. Several commenters requested that EPA reevaluate its congressional authority to regulate area HAP sources in rural areas. The commenters believed that the proposal is inconsistent with 42 U.S.C. 7412(n)(4)(B) [CAA section 112(n)(4)(B)]. Commenters requested clarification of EPA's rationale to regulate low levels of emissions from engines at oil and gas production facilities outside metropolitan areas, contending that EPA has applied this rule more broadly than the Congressional intent of the CAA, and requested that EPA reevaluate this issue of whether EPA can regulate rural area sources in light of the 42 U.S.C. 7412(n)(4)(B) language.

Commenters stated that EPA has based this rulemaking for area sources on sections of the CAA and its Urban Air Toxics Strategy that are intended to remove threats to public health in urban areas. The commenters do not believe that the remote RICE at area sources in the oil and gas industry threaten public health in urban areas. Several commenters noted that the NESHAP for glycol gas dehydrators (40 CFR part 63, subpart HH) takes into account the location of area sources and does not apply the specific requirements of the rule to rural area sources. The commenters believe that the same approach should be used for the RICE rule, *i.e.,* engines that are not located in or near populated areas should be subject to an alternative set of requirements so as not to force expensive requirements on remote engines that have no impact on public health.

Response: EPA is finalizing its proposal to regulate existing stationary SI engines located at area sources on a nationwide basis. EPA believes that the CAA provides the Agency with the authority to regulate area sources nationwide. Section 112(k)(1) of the CAA states that "It is the purpose of this subsection to achieve a substantial reduction in emissions of hazardous air pollutants from area sources and an equivalent reduction in the public health risks associated with such sources including a reduction of not less than 75 per centum in the incidence of cancer attributable to emissions from such sources." Consistent with this expressed purpose of section 112(k) of the CAA to reduce both emissions and risks, CAA section 112(k)(3)(i) requires that EPA list not less than 30 HAP that, as a result of emissions from area sources, present the greatest threat to public health in the largest number of urban areas. Sections 112(c)(3) and (k)(3)(ii) of the CAA require that EPA list area source categories that represent not less than 90 percent of the area source emissions of each of the listed HAP. Section 112(c) of the CAA requires that EPA issue standards for listed categories under CAA section 112(d). These relevant statutory provisions authorize EPA to regulate listed area source engines and not just engines located in urban areas. EPA believes that sections 112(c) and 112(k) of the CAA do not prohibit issuing area source rules of national applicability. EPA also disagrees with the statement that the proposal was inconsistent with section 112(n)(4)(B) of the CAA. The term "associated equipment" was defined for the purposes of 40 CFR part 63, subpart ZZZZ in the first RICE MACT rule not to include stationary RICE. EPA has not revisited that issue in this final rule and the commenters have not provided sufficient reason to revisit that issue.

EPA has taken steps in the final rule that reduce the burden on owners and operators of engines regulated in this final rule. EPA has established management practice standards for most of the engines located at area sources of HAP. The only existing stationary SI RICE at area sources that are required to meet numeric emission limitations are 4SLB and 4SRB non-emergency stationary SI RICE that are greater than 500 HP and operate more than 24 hours per calendar year; these engines are estimated to be only 7 percent of the population of existing SI RICE at area sources. EPA believes that requiring management practices instead of specific emission limitations and/or control efficiency requirements on the vast majority of existing stationary SI engines at area sources alleviates concerns regarding costly and burdensome requirements for rural sources.

EPA has also determined that existing emergency engines located at residential, institutional, and commercial facilities that are area sources of HAP emissions were not included in the original Urban Air Toxics Strategy inventory and therefore are not included in the source category listing. In this final rule, EPA has specified that those engines are not subject to 40 CFR part 63, subpart ZZZZ. EPA has clarified the definitions of these existing emergency engines in this final rule. As further clarification, EPA notes that existing emergency engines located at, among other things, industrial facilities, would not be affected by this determination and are subject to 40 CFR part 63, subpart ZZZZ.

For existing stationary 4SLB and 4SRB non-emergency SI engines greater than 500 HP located at area sources that operate more than 24 hours per calendar year, EPA determined that the appropriate standards are numerical standards that provide for the use of oxidation catalyst or NSCR control, respectively, which are generally available control technologies for those subcategories. The commenters did not provide a reason that GACT would be different for non-emergency stationary SI engines located in rural areas. In determining GACT, EPA can consider factors such as availability and feasibility of control technologies and management practices, as well as costs and economic impacts. These factors are not expected to be significantly different for existing stationary non-emergency SI engines in urban versus rural areas. For example, the availability of oxidation catalysts would be the same for urban and rural engines, and if an engine was in a rural location, that would not preclude an owner from being able to install aftertreatment controls. For this final rule, EPA estimated the capital cost of retrofitting an existing stationary 4SLB non-emergency SI engine with an oxidation catalyst to be around $9,500 for a 500 HP engine. Annual costs of operating and maintaining the control device are estimated to be approximately $4,300 per year for the same engine. For a 500 HP 4SRB engine, EPA estimated the costs for NSCR are a capital cost of $26,000 and an annual cost of $8,000. These costs would not be prohibitive for any engines in either rural or urban areas and are expected to be the same no matter the location. Furthermore, the controls that are expected to be used on these engines will have the co-benefit of reducing VOC and CO emissions and, for non-emergency 4SRB engines above 500 HP will have the co-benefit of reducing NO_X emissions. This final rule is expected to reduce emissions of NO_X from stationary SI RICE located at area sources by 96,000 tons per year (tpy) in the year 2013. Reductions of CO and VOC from stationary SI RICE located at area sources are estimated to be 97,000 and 24,000 tpy, respectively, in the year 2013. There is also no reason to distinguish between the rural and urban area source engines that are subject to management practices. There is nothing limiting owners and operators of existing stationary SI engines located in rural areas from following the management practices specified in this final rule, and the management practices required by this final rule are appropriate for all engines, whether they are in rural or urban locations.

Consistent with the proposal and for the reasons discussed, EPA is finalizing national requirements for existing stationary SI engines at area sources without a distinction between urban and non-urban areas.

B. Emission Standards

Comment: Multiple commenters were concerned with how EPA set the MACT floor for the proposed rule. The commenters believed that the emissions data was not adequate to conduct a MACT floor analysis. Several commenters said that EPA has not considered variability in setting the MACT floor for the proposed rule. A commenter cited the recent Brick MACT ruling which indicated that "floors may legitimately account for variability [in the best performing sources that are the MACT floor basis] because "each [source] must meet the [specified] standard every day and under all operating conditions." The commenters stated EPA's data set is not sufficient in covering variability. One commenter noted that the Courts have been critical of EPA's process for setting minimum allowable emission limits. The commenter stated that EPA set the emission limits by averaging the best 12 percent of all performance tests for each subcategory, but did not consider operational variations of the units. The commenter recommended that EPA set emission limits at the emissions level that is actually achieved under the worst reasonably foreseeable circumstances for the best performing 12 percent of existing sources.

Response: The CAA requires EPA to set MACT standards based on the test data that is available to the Agency and this is what EPA did at proposal. EPA recognized that it had limited emissions test data at the time it was developing the proposed rule. However, EPA had requested additional test data to supplement the emissions database from commenters during the development of previous rules for stationary engines. In addition, EPA requested additional test data during the comment period for the current engine rulemaking. EPA made an additional effort post-proposal to reach out to industry and other sources in order to supplement the existing emission data set. EPA received data for an additional 619 engines during the post-proposal period; this data was incorporated into the MACT floor analysis for this final rule. EPA also identified additional emissions data for stationary 4SLB SI RICE that was in the docket for the original RICE NESHAP rulemaking, docket EPA–HQ–OAR–2002–0059. These data were inadvertently omitted from the MACT floor analysis for the proposed rule, but have been incorporated into the analysis for the final rule, along with the additional emissions data received post-proposal. EPA placed all additional data into the docket for this rule. Stakeholders who believe that further review of this information is in order or necessary can petition for reconsideration of this final rule.

The U.S. Court of Appeals for the D.C. Circuit has recognized that EPA may consider variability in estimating the degree of emission reduction achieved by best-performing sources and in setting MACT floors. *See Mossville Envt'l Action Now* v. *EPA,* 370 F.3d 1232, 1241–42 (D.C. Cir 2004). EPA has included a revised approach to variability in the MACT floor analysis for this final rule. The final emission standards are based on test data collected from stationary engines produced by different engine manufacturers, operating at various loads and other conditions, and located in various types of service and locations. The engines range in size from 39 HP to 12,000 HP. The data includes engines operating at loads from 11 to 100 percent. To the extent commenters believed further data would have been beneficial to EPA, EPA must make its determinations based on the information available to us. EPA asked for further data, and EPA did receive further data following the proposal, which led to changes in the final regulations. For engines operating at reduced speed or loads resulting in a reduced exhaust temperature, EPA believes that numerical emission requirements are still appropriate and there is no justification to only require work practice standards during these situations. EPA does not believe that the provisions of section 112(h) of the CAA are met (except as discussed elsewhere with regard to periods of start-up, emergency engines, and engines below 100 HP) because testing is not economically and technologically impractical and the emissions can be readily routed through a conveyance for purposes of emission testing. EPA believes that the final emission standards will reflect the numerous engine models and operating scenarios that can be expected from stationary engines.

In order to determine the MACT floor for each subcategory, EPA ranked all of the sources for which it had data based on their emissions and identified the lowest emitting 12 percent of the sources based on the lowest test for each engine. EPA used all of the emissions data for those best performing engines to determine the emission limits for this final rule, accounting for variability. EPA notes that as a result of using emissions testing data directly to determine the MACT, rather than using the Population Database, the final MACT floor for 4SLB engines was calculated using data from engines with emissions aftertreatment, which were the best performing 12% of engines in the emissions database.

EPA assessed the variability of the best performers by using a statistical formula designed to estimate a MACT floor level that is achieved by the average of the best performing sources if the best performing sources were able to replicate the compliance tests in our data set. Specifically, the MACT floor limit is an upper prediction limit (UPL) calculated with the Student's t-test using the TINV function in Microsoft Excel. The Student's t-test has also been used in other EPA rulemakings (*e.g.,* New Source Performance Standards for Hospital/Medical/Infectious Waste Incinerators, Proposed NESHAP for Industrial, Commercial, and Institutional Boilers and Process Heaters) in accounting for variability. A prediction interval for a future observation is an interval that will, with a specified degree of confidence, contain the next (or some other pre-specified) randomly selected observation from a population. In other words, the prediction interval estimates what future values will be, based upon present or past background samples taken. Given this definition, the UPL represents the value which EPA can expect the mean of 3 future observations (3-run average) to fall below, based upon the results of an independent sample from the same population. In other words, if EPA were to randomly select a future test condition from any of these sources (*i.e.,* average of 3 runs), EPA can be 99 percent confident that the reported level will fall at or below the UPL value. To calculate the UPL, EPA used the average (or sample mean) and sample standard deviation, which are two statistical measures calculated from the sample data. The average is the central value of a data set, and the standard deviation is the common measure of the dispersion of the data set around the average. This approach reasonably ensures that the emission limit selected as the MACT floor adequately represents the level of emissions actually achieved by the average of the units in the top 12 percent, considering ordinary operational variability of those units. Both the analysis of the measured emissions from units representative of the top 12 percent, and the variability analysis, are reasonably designed to provide a meaningful estimate of the average performance, or central tendency, of the best controlled 12 percent of units in a given subcategory.

Comment: Commenters stated that EPA should reevaluate its GACT determinations for engines located at area sources. Commenters stated that EPA is not required to consider the MACT floor as a minimum standard for area sources, but may instead elect to promulgate standards or requirements for area sources which provide for the use of GACT or management practices by such sources to reduce emissions of HAP. The commenters stated that EPA must consider not only the economic impacts and whether the methods, practices, and techniques are commercially available and appropriate for application by the sources in the category, but also the technical capabilities of the firms to operate and maintain the emissions controls systems. The commenters pointed out that unlike engines located at major sources, which are often large industrial facilities, many engines at area sources are owned and operated by small businesses with little or no experience dealing with complex regulatory issues and with minimal technical and financial resources. Commenters said that EPA's GACT determination for engines located at area sources does not adequately account for the variation in engines that would be covered under the proposed control requirements when applied to area sources. The commenters listed several factors (engine size, cost effectiveness of control devices, engine usage and duty cycles, engine location) that must be considered in assessing whether and to what degree existing engines at area sources should be regulated. Commenters recommended defining a size based subcategory for area sources for natural gas-fired 4SRB engines similar to the size threshold used for CI engines. The commenters recommended that the subcategory or subcategories would require GACT management practices rather than emission standards based on catalytic control. At a minimum, the commenters recommended that subcategories be included in the proposed rule for rural area source natural gas-fired 4SRB engines from 50 HP to 500 HP.

Response: EPA has reviewed its proposed requirements for existing SI engines at area sources based on comments received on the proposed rule. For existing non-emergency 4SRB and 4SLB stationary SI RICE greater than 500 HP at area sources that operate more than 24 hours per calendar year, EPA determined for the final rule that it is appropriate to set numerical emission limits that EPA expects would be met using emission control technologies. The costs and economic impacts are reasonable and the control technologies that would be expected to be used are generally available for these area source engines.

For the remaining existing stationary SI RICE at area sources, the final rule requires management practices. EPA received comments and supporting information indicating that EPA had underestimated the cost of emission controls and overestimated how many engines were already using these controls. EPA reevaluated the cost impacts associated with establishing numeric emission limitations for these engines and determined that the cost impacts would be unreasonable given the expected emission impacts both with and without the expectation of use of emission control technologies. For example, for 4SRB engines, the annual cost per ton of HAP reduced, assuming the engine will have to install emission controls to meet the emission limit, is estimated to be $762,000 for a 50 HP engine and $167,000 for a 250 HP engine. For 2SLB and 4SLB engines at 250 HP, the annual cost per ton of HAP reduced is estimated to be $224,000 and $55,000, respectively, assuming the engines will have to install emission controls to meet the emission limit. Engine owners/operators have indicated that most of these smaller area source engines are not equipped with the control technologies required to meet these limits. Based on this information, EPA determined that management practices for these stationary SI RICE located at area sources of HAP are generally available and cost effective and is promulgating management practices for these engines in the final rule. Additional information regarding this determination can be found in the memorandum titled, "MACT Floor and MACT Determination for Existing Stationary Non-Emergency SI RICE <100 HP and Existing Stationary Emergency SI RICE Located at Major Sources and GACT for Existing Stationary SI RICE Located at Area Sources," which is available from the rulemaking docket.

C. Management Practices

Comment: Several commenters did not agree with the specific management practices that EPA proposed in the rule for area sources and recommended different maintenance practices. According to the commenters, the maintenance frequency in the proposed rule exceeds current practices or is not supported in the proposed rule. Several commenters agreed that management practices are appropriate for the proper operation of the engines and are a reasonable means to reduce HAP emissions, however, the commenters did not agree with the specific maintenance practices proposed by EPA. Numerous commenters recommended that EPA allow owners/operators to follow engine manufacturers' recommended practices or the owners/operators own site-specific maintenance plan.

One commenter pointed out that operators have a direct interest in maintaining engine oil, hoses, and belts, so the engine runs reliably, but the appropriate frequency for these maintenance practices are specific to engine design and are not "one size fits all." Commenters recommended that EPA revise fixed maintenance (one-size-fits-all) requirements to maintenance plans. The commenters stated that, while fixed maintenance intervals work well for new mass produced engines similar to those in automobiles, they are inappropriate for the wide variety of existing engines used in the oil and gas, agriculture, and power generation industries across the nation. The commenters pointed out that EPA allows the use of operator-defined maintenance plans that are "consistent with good air pollution control practice for minimizing emissions" to be used in other portions of this same rule, and asserted that EPA should allow the use of operator-defined maintenance plans to greatly reduce cost and allow operators to optimize maintenance for each type of engine.

Commenters said that if EPA keeps the management practices as proposed, the frequencies associated with conducting engine maintenance should be revised to be commensurate with today's practices. The commenters believed the maintenance practices, as proposed, are significantly burdensome and lack basis. According to the commenters, EPA should replace the maintenance hour intervals with company recommended performance-based maintenance practices to be documented in an operator-defined maintenance plan consistent with requirements in 40 CFR part 60, subpart JJJJ.

One commenter stated that most of the engine manufacturers for the engines in the oil and gas industry recommend oil changes on a monthly schedule. The commenter also indicated that it is common practice to periodically sample and test the engine oil to see if the oil properties are sufficient to extend this time period between oil changes. According to the commenter, this testing has shown in many cases that the oil change interval can be extended without any detrimental effects on the engine, which allows industry to maximize efficiencies, minimize oil usage, reduce waste, and streamline operations with no negative impacts to the engine or emissions.

One commenter expressed that inspection of hoses and belts has no impact on HAP emissions. The commenter expressed that, generally, it agreed that performing maintenance on engines will help to reduce HAP emissions, but that while inspecting belts and hoses is an important part of general engine maintenance (and most sources likely conduct regular inspections of their engines), such inspections have no effect on emissions and should not be included in the final rule.

Response: EPA proposed to require specific management practices for certain engines, primarily for smaller existing stationary engines at area sources where EPA determined that add-on controls were not GACT. EPA indicated at proposal that the management practices specified in the proposal reflected GACT and that such practices would provide a reasonable level of control, while at the same time ensuring that the burden on particularly small businesses and individual owners and operators would be minimized. EPA asked for comment on the proposed management practices and received comments on the proposal from industry.

EPA agrees with the commenters that it is difficult to adopt a set of management practices that are appropriate for all types of stationary engines. Regardless, EPA must promulgate emission standards pursuant to section 112(d)(5) of the CAA for all engines at area sources covered by this final rule. EPA still believes that management practices reflect GACT for emergency engines, engines less than or equal to 500 HP, 2SLB engines, and landfill/digester gas engines at area sources. These management practices represent what is generally available among such engines to reduce HAP, and the practices will ensure that emissions are minimized and engines are properly operated. EPA does not agree with the commenters that it would be appropriate to simply specify that owners and operators follow the manufacturer's recommended maintenance practices for the engine. EPA cannot delegate to manufacturers the final decision regarding the proper management practices required by section 112(d) of the CAA. To address the comments that there may be special and unique operating situations where the management practices in this final rule may not be appropriate, for example engines using a synthetic lubricant, EPA notes that owners/operators may work with State permitting authorities pursuant to 40 CFR subpart E ("Approval of State Programs and Delegation of Federal Authorities") for approval of alternative management practices for their engines. 40 CFR subpart E implements section 112(l) of the CAA, which authorizes EPA to approve alternative State/local/tribal HAP standards or programs when such requirements are demonstrated to be no less stringent than EPA promulgated standards.

The management practices EPA proposed for stationary SI engines greater than 50 HP included changing the oil and filter every 500 hours, replacing the spark plugs every 1,000 hours, and inspecting all hoses and belts every 500 hours and replacing as necessary. For engines less than 50 HP, EPA proposed to require that these engines change the oil and filter every 200 hours, replace spark plugs every 500 hours, and inspect all hoses and belts every 500 hours and replace as necessary.

EPA agrees that there is a wide range of recommended maintenance procedures, but EPA must promulgate specific requirements pursuant to section 112(d) of the CAA for this source category. Based on the different suggested maintenance recommendations EPA has reviewed, maintenance requirements appear to vary depending on whether the engine is used for standby, intermittent, or continuous operation. Maintenance is also dependent on the engine application, design, and model.

Taking into consideration the information received from commenters on the proposed maintenance practices for oil and filter changes and carefully reviewing engine manufacturer recommended maintenance procedures, EPA has determined that for stationary non-emergency 4SLB and 4SRB SI RICE at or below 500 HP and stationary non-emergency landfill/digester gas SI RICE, GACT will require the management practices to be performed every 1,440 hours of engine operation or annually, whichever comes first, which, as indicated in the comments, reflects the management practices that are generally available. For stationary non-emergency 2SLB SI RICE, GACT will require the management practices to be performed every 4,320 hours of engine operation or annually, whichever comes first. Two stroke lean burn engines have a longer maintenance interval than 4-stroke engines because they do not have combustion blow-by gases entering the crankcase due to the engine configuration and therefore do not have as much oil contamination from the combustion blow-by gases. The 2SLB engines also operate at lower speeds and temperatures than 4-stroke engines; consequently the spark plug does not fire as frequently and fires at lower temperatures than 4-stroke engines. For these reasons, EPA agrees that 2SLB engines should have longer maintenance practice intervals than 4-stroke engines. EPA also determined that it would be appropriate to include the option to use an oil analysis program in this final rule.

EPA does not agree with the comments that EPA's proposed requirement to inspect belts and hoses has no impact on emissions. Ensuring that the engine is properly operated and maintained will help minimize the HAP emissions from the engine. Properly maintained belts and hoses allow the engine to operate at maximum efficiency. Hoses are generally used to move coolant through the engine to prevent the engine from overheating. Overheating of the engine can cause a malfunction in the combustion process, and may also burn the engine oil in the combustion chamber. Both of these conditions may increase pollutant emissions from the engine. Belts are commonly used for electrical generation and engine timing, and if worn or broken can cause damage to the engine and increase emissions. Therefore, EPA has required management practices that reflect GACT and that, in EPA's view, will ensure the proper operation and maintenance of the engine.

D. Method 323

Comment: Many commenters thought that EPA should reconsider whether EPA Method 323 could be included in this final rule or if there is another viable alternative to EPA Method 320. EPA Method 323 was published in the **Federal Register** on January 14, 2003, as a proposed test method to measuring formaldehyde from natural gas stationary combustion sources, but the method was never finalized. However, the commenters said that the method has been used on a consistent basis to measure formaldehyde from gas engines for compliance and other purposes. EPA Region 8 has test results that indicate potential issues related to the reliability of EPA Method 323 and the method was therefore not included in the proposed rule. The commenters said that they believe that testing errors may have been a factor in the anomalous results from EPA Region 8. The commenters have reviewed some of the test reports in question and noted potential calculation or testing errors. The Fourier Transform Infrared method, which is the single formaldehyde test method in the proposal, compared to Method 323 is more complex and often more expensive, according to the commenters. In addition, several commenters have concerns about whether there will be a sufficient amount of available testing companies to meet the performance testing demands of this final rule. For these reasons, several of the commenters said that EPA should look back at Method 323 as a viable method and at the same time consider other alternatives for measuring formaldehyde.

Response: EPA Method 323 was first proposed as part of the NESHAP for Stationary Combustion Turbines published January 14, 2003, (68 FR 1888) for measuring formaldehyde emissions from natural gas-fired sources. However, the method was not included in the final Stationary Combustion Turbine NESHAP due to reliability concerns and EPA never promulgated EPA Method 323 as a final standard in 40 CFR part 63, appendix A. Despite this, many sources chose to use the method for compliance testing and as EPA reviewed the results from the method two issues emerged. A few testers seemed to produce results with the method that were consistently biased low, and occasionally testers were unable to meet the performance requirement for collecting duplicate samples whose results agreed within ± 20 percent. Because EPA was unable to resolve these technical issues with the method, EPA found it appropriate to propose to remove the method from 40 CFR part 63, subpart ZZZZ.

After EPA proposed to remove Method 323 as a compliance test method, the Agency received test data comparing Method 323 to EPA Method 320. These comparison tests were run on five different engines with samples collected concurrently from co-located sampling systems. The results from the two methods showed good agreement and there was no evidence of bias in the results from Method 323. Also, during the comparison testing, there were no problems meeting the quality assurance requirement in Method 323 for agreement between duplicate samples. A careful review of the earlier data where some testers using Method 323 were consistently producing biased results showed that these testers did not always perform the method correctly. Based on the results of the comparison testing, EPA believes that when competent testers perform Method 323 according to all of its requirements, the method will produce accurate and consistent results and it is appropriate to allow sources the option to use Method 323 to demonstrate compliance with the formaldehyde emission limits in 40 CFR part 63 subpart ZZZZ. Therefore, we are adding Method 323 to Appendix A of Part 63 as part of this action.

E. Other

Comment: One commenter indicated that they had provided significant comments in February 2009 on EPA's Continuous Parameter Monitoring Systems proposal (73 FR 59956, October 9, 2008) and believes that extensive revisions are needed of Performance Specifications 17 and 4. The commenter asked that EPA review these procedures to determine their appropriateness for even larger engines and suggested that EPA remove the reference to 40 CFR 63.8(a)(2) from Table 8 of the proposed rule, *i.e.,* change "Yes" to "No" for this paragraph.

Response: EPA does not agree with the commenter that the reference to 40 CFR 63.8(a)(2) in Table 8 of the rule should be "no". The commenter did not provide any information to support the claim that the Performance Specifications and 40 CFR 63.8(a)(2) are not appropriate for stationary engines. In response to this comment, EPA reviewed the proposed Performance Specifications and determined that they are appropriate for stationary engines, including stationary SI engines. In order to clearly indicate the requirements from the Performance Specifications that should be followed for the stationary engines subject to this rulemaking, EPA has included the Performance Specification requirements in 40 CFR part 63 subpart ZZZZ.

VI. Summary of Environmental, Energy and Economic Impacts

A. What are the air quality impacts?

This final rule is expected to reduce total HAP emissions from stationary RICE by 6,000 tpy beginning in the year 2013, which is the first year this final rule will be implemented. EPA estimates that approximately 330,000 stationary SI engines will be subject to this final rule. These estimates include stationary engines located at major and area sources; however, not all stationary engines are subject to numerical emission standards. Further information regarding the estimated reductions of this final rule can be found in the memorandum titled, "Impacts Associated with NESHAP for Existing Stationary SI RICE," which is available in the docket.

In addition to HAP emissions reductions, this final rule will reduce other pollutants such as CO, NO_X, and VOC. This final rule is expected to reduce emissions of CO by 109,000 tpy in the year 2013. Reductions of NO_X are estimated at 96,000 tpy in the year 2013. Emissions of VOC are estimated to be reduced by 31,000 tpy in the year 2013.

B. What are the cost impacts?

The total national capital cost for this final rule for existing stationary RICE is estimated to be $383 million, with a total national annual cost of $253 million in year 2013 (the first year this final rule is implemented). Further information regarding the estimated cost impacts of this final rule can be found in the memorandum titled, "Impacts Associated with NESHAP for Existing Stationary SI RICE," which is available in the docket.

C. What are the benefits?

We estimate the monetized co-benefits of the final SI RICE NESHAP for major and area sources to be $510 million to $1.2 billion (2009$, 3 percent discount rate) in the implementation year (2013). The monetized co-benefits of the regulatory action at a 7 percent discount rate are $460 million to $1.1 billion (2009$). Using alternate relationships between $PM_{2.5}$ and premature mortality supplied by experts, higher and lower co-benefits estimates are plausible, but most of the expert-based estimates fall between these two estimates.[1] A summary of the monetized co-benefits estimates at discount rates of 3 percent and 7 percent is presented in Table 3 of this preamble.

TABLE 3—SUMMARY OF THE MONETIZED CO-BENEFITS ESTIMATES FOR THE FINAL RICE SI NESHAP IN 2013

[Millions of 2009$] [1]

$PM_{2.5}$ precursors	Estimated emission reductions (tons per year)	Total monetized co-benefits (3% discount rate)	Total monetized co-benefits (7% discount rate)
Major Sources:			
VOC	6,730	$8.2 to $20	$7.4 to $18.
Area Sources:			
VOC	24,177	$29 to $72	$27 to $65.
NO_X	96,479	$470 to $1,100	$420 to $1,000.
Total for Area Sources		$500 to $1,200	$450 to $1,100.
Combined Total for Major and Area Sources		$510 to $1,200	$460 to $1,100.

[1] All estimates are for the implementation year (2013), and are rounded to two significant figures so numbers may not sum across rows. All fine particles are assumed to have equivalent health effects, but the benefit-per-ton estimates vary between precursors because each ton of precursor reduced has a different propensity to form $PM_{2.5}$. Benefits from reducing CO and HAP are not included. All of the benefits for area sources are attributable to reductions expected from 4SLB and 4SRB non-emergency engines above 500 HP.

[1] Roman *et al.,* 2008. Expert Judgment Assessment of the Mortality Impact of Changes in Ambient Fine Particulate Matter in the U.S. Environ. Sci. Technol., 42, 7, 2268–2274.

These co-benefits estimates represent the total monetized human health benefits for populations exposed to less $PM_{2.5}$ in 2013 from controls installed to reduce air pollutants in order to meet these multiple standards. These co-estimates are calculated as the sum of the monetized value of avoided premature mortality and morbidity associated with reducing a ton of $PM_{2.5}$ precursor emissions. To estimate the human health benefits derived from reducing $PM_{2.5}$ precursor emissions, we utilized the general approach and methodology laid out in Fann, Fulcher, and Hubbell (2009).[2]

To generate the benefit-per-ton estimates, we used a model to convert emissions of direct $PM_{2.5}$ and $PM_{2.5}$ precursors into changes in ambient $PM_{2.5}$ levels and another model to estimate the changes in human health associated with that change in air quality. Finally, the monetized health co-benefits were divided by the emissions reductions to create the benefit-per-ton estimates. These models assume that all fine particles, regardless of their chemical composition, are equally potent in causing premature mortality because there is no clear scientific evidence that would support the development of differential effects estimates by particle type. NO_X and VOCs are the primary $PM_{2.5}$ precursors affected by this rule. Even though we assume that all fine particles have equivalent health effects, the benefit-per-ton estimates vary between precursors because each ton of precursor reduced has a different propensity to form $PM_{2.5}$. For example, NO_X has a lower benefit-per-ton estimate than direct $PM_{2.5}$ because it does not form as much $PM_{2.5}$, thus the exposure would be lower, and the monetized health co-benefits would be lower.

For context, it is important to note that the magnitude of the PM co-benefits is largely driven by the concentration response function for premature mortality. Experts have advised EPA to consider a variety of assumptions, including estimates based both on empirical (epidemiological) studies and judgments elicited from scientific experts, to characterize the uncertainty in the relationship between $PM_{2.5}$ concentrations and premature mortality. For this rulemaking we cite two key empirical studies, one based on the American Cancer Society cohort study[3] and the extended Six Cities cohort study.[4] In the RIA for this rulemaking, which is available in the docket, we also include co-benefits estimates derived from expert judgments and other assumptions.

EPA strives to use the best available science to support our benefits analyses. We recognize that interpretation of the science regarding air pollution and health is dynamic and evolving. After reviewing the scientific literature and recent scientific advice, we have determined that the no-threshold model is the most appropriate model for assessing the mortality benefits associated with reducing $PM_{2.5}$ exposure. Consistent with this recent advice, we are replacing the previous threshold sensitivity analysis with a new "Lowest Measured Level" (LML) assessment. While an LML assessment provides some insight into the level of uncertainty in the estimated PM mortality benefits, EPA does not view the LML as a threshold and continues to quantify PM-related mortality impacts using a full range of modeled air quality concentrations.

Most of the estimated PM-related benefits in this rulemaking would accrue to populations exposed to higher levels of $PM_{2.5}$. Using the Pope *et al.* (2002) study, the 85 percent of the population is exposed at or above the LML of 7.5 $\mu g/m^3$. Using the Laden *et al.* (2006) study, 40 percent of the population is exposed above the LML of 10 $\mu g/m^3$. It is important to emphasize that we have high confidence in $PM_{2.5}$-related effects down to the lowest LML of the major cohort studies. This fact is important, because as we estimate PM-related mortality among populations exposed to levels of $PM_{2.5}$ that are successively lower, our confidence in the results diminishes. However, our analysis shows that the great majority of the impacts occur at higher exposures.

This analysis does not include the type of detailed uncertainty assessment found in the 2006 $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS) RIA because we lack the necessary air quality input and monitoring data to run the benefits model. However, the 2006 $PM_{2.5}$ NAAQS benefits analysis[5] provides an indication of the sensitivity of our results to various assumptions.

It should be emphasized that the monetized co-benefits estimates provided above do not include benefits from several important benefit categories, including reducing other air pollutants, ecosystem effects, and visibility impairment. The benefits from reducing CO and HAP have not been monetized in this analysis, including reducing 109,000 tons of CO and 6,000 tons of HAP each year. Although we do not have sufficient information or modeling available to provide monetized estimates for this rulemaking, we include a qualitative assessment of these other effects in the RIA for this rulemaking, which is available in the docket.

The combined social costs of this rulemaking are estimated to be $253 million (2009$) in the implementation year. The combined monetized co-benefits are $510 million to $1.2 billion (2009$, 3 percent discount rate) and $460 million to $1.1 billion (2009$, 7 percent discount rate) for 2013. Thus, net benefits of this rulemaking are estimated at $250 million to $980 million (2009$, 3 percent discount rate) and $210 million to $860 million (2009$, 7 percent discount rate). EPA believes that the benefits of the rulemaking are likely to exceed the costs even when taking into account the uncertainties in the cost and benefit estimates.

D. What are the economic impacts?

The economic impact analysis (EIA) that is included in the RIA indicates that prices of affected output from the affected industries will increase as a result of the rule, but the changes will be small. The largest impacts are on the electric power generating industry because it bears more costs from the rule than any other affected industry (slightly more than 50 percent of the total annualized costs). For all affected industries, annualized compliance costs are 0.5 percent or less, on average, of sales for firms.

Based on the estimated compliance costs associated with this rule and the predicted changes in prices and output in affected markets, the estimated social costs are $253 million (2009$), which is the same as the estimated compliance costs.

For more information on the economic impacts, please refer to the RIA for this rulemaking, which is available in the docket.

[2] Fann, N., C.M. Fulcher, B.J. Hubbell. 2009. "The influence of location, source, and emissions type in estimates of the human health benefits of reducing a ton of air pollution." Air Qual Atmos Health (2009) 2:169–176.

[3] Pope *et al.,* 2002. "Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution." Journal of the American Medical Association 287:1132–1141.

[4] Laden *et al.,* 2006. "Reduction in Fine Particulate Air Pollution and Mortality." *American Journal of Respiratory and Critical Care Medicine.* 173: 667–672.

[5] U.S. Environmental Protection Agency, 2006. Final Regulatory Impact Analysis: $PM_{2.5}$ NAAQS. Prepared by Office of Air and Radiation. October. Available on the Internet at *http://www.epa.gov/ttn/ecas/ria.html.*

E. What are the non-air health, environmental and energy impacts?

EPA does not anticipate any significant non-air health, environmental or energy impacts as a result of this final rule.

VII. Statutory and Executive Order Reviews

A. Executive Order 12866: Regulatory Planning and Review

Under section 3(f)(1) of Executive Order 12866 (58 FR 51735, October 4, 1993), this action is an "economically significant regulatory action" because it is likely to have an annual effect on the economy of $100 million or more. Accordingly, EPA submitted this action to the Office of Management and Budget (OMB) for review under Executive Order 12866 and any changes made in response to OMB recommendations have been documented in the docket for this action. In addition, EPA prepared a RIA of the potential costs and benefits associated with this action.

When estimating the $PM_{2.5}$-related human health benefits and compliance costs in Table 4 below, EPA applied methods and assumptions consistent with the state-of-the-science for human health impact assessment, economics and air quality analysis. EPA applied its best professional judgment in performing this analysis and believes that these estimates provide a reasonable indication of the expected benefits and costs to the nation of this rulemaking. The RIA available in the docket describes in detail the empirical basis for EPA's assumptions and characterizes the various sources of uncertainties affecting the estimates below.

When characterizing uncertainty in the PM-mortality relationship, EPA has historically presented a sensitivity analysis applying alternate assumed thresholds in the PM concentration-response relationship. In its synthesis of the current state of the PM science, EPA's 2009 Integrated Science Assessment for Particulate Matter concluded that a no-threshold log-linear model most adequately portrays the PM-mortality concentration-response relationship. In the RIA accompanying this rulemaking, rather than segmenting out impacts predicted to be associated levels above and below a "bright line" threshold, EPA includes a "LML" that illustrates the increasing uncertainty that characterizes exposure attributed to levels of $PM_{2.5}$ below the LML for each study. Figures provided in the RIA show the distribution of baseline exposure to $PM_{2.5,}$ as well as the lowest air quality levels measured in each of the epidemiology cohort studies. This information provides a context for considering the likely portion of PM-related mortality benefits occurring above or below the LML of each study; in general, our confidence in the size of the estimated reduction $PM_{2.5}$-related premature mortality diminishes as baseline concentrations of $PM_{2.5}$ are lowered. Using the Pope *et al.* (2002) study, the 85 percent of the population is exposed to annual mean $PM_{2.5}$ levels at or above the LML of 7.5 μg/m^3. Using the Laden *et al.* (2006) study, 40 percent of the population is exposed above the LML of 10 μg/m^3. While the LML analysis provides some insight into the level of uncertainty in the estimated PM mortality benefits, EPA does not view the LML as a threshold and continues to quantify PM-related mortality impacts using a full range of modeled air quality concentrations.

A summary of the monetized benefits, social costs, and net benefits for the option, as well as a less stringent option, at discount rates of 3 percent and 7 percent is in Table 4 of this preamble.

TABLE 4—SUMMARY OF THE MONETIZED BENEFITS, SOCIAL COSTS, AND NET BENEFITS FOR THE FINAL SI RICE NESHAP IN 2013

[Millions of 2009$] [1]

	3% Discount rate			7% Discount rate		
Final NESHAP: Major						
Total Monetized Benefits [2]	$8.2	to	$20	$7.4	to	$18
Total Social Costs [3]	$88			$88		
Net Benefits	−$80	to	−$68	−$81	to	−$70
Non-monetized Benefits	12,500 tons of CO 1,300 tons of HAP Ecosystem effects Visibility impairment					
Alternative 2: Major						
Total Monetized Benefits [2]	$48	to	$120	$43	to	$110
Total Social Costs [3]	$95			$95		
Net Benefits	−$47	to	$22	−$52	to	$11
Non-monetized Benefits	17,800 tons of CO 1,400 tons of HAP Health effects from NO_2 and ozone exposure Ecosystem effects Visibility impairment					
Final NESHAP: Area [4]						
Total Monetized Benefits [2]	$500	to	$1,200	$450	to	$1,100
Total Social Costs [3]	$166			$166		

TABLE 4—SUMMARY OF THE MONETIZED BENEFITS, SOCIAL COSTS, AND NET BENEFITS FOR THE FINAL SI RICE NESHAP IN 2013—Continued

[Millions of 2009$] [1]

	3% Discount rate			7% Discount rate		
Net Benefits	$330	to	$1,100	$290	to	$930
Non-monetized Benefits	97,000 tons of CO 4,700 tons of HAP Health effects from NO_2 and ozone exposure Ecosystem effects Visibility impairment					
Final Major and Area Source NESHAP						
Total Monetized Benefits [2]	$510	to	$1,200	$460	to	$1,100
Total Social Costs [3]	$253			$253		
Net Benefits	$250	to	$980	$210	to	$860
Non-monetized Benefits	109,000 tons of CO 6,000 tons of HAP Health effects from NO_2 and ozone exposure Ecosystem effects Visibility impairment					

[1] All estimates are for the implementation year (2013), and are rounded to two significant figures.
[2] The total monetized benefits reflect the human health benefits associated with reducing exposure to $PM_{2.5}$ through reductions of $PM_{2.5}$ precursors such as NO_X and VOC. It is important to note that the monetized benefits include many but not all health effects associated with $PM_{2.5}$ exposure. Benefits are shown as a range from Pope *et al.* (2002) to Laden *et al.* (2006). These models assume that all fine particles, regardless of their chemical composition, are equally potent in causing premature mortality because there is no clear scientific evidence that would support the development of differential effects estimates by particle type.
[3] The annual compliance costs serve as a proxy for the annual social costs of this rulemaking given the lack of difference between the two.
[4] All of the benefits for area sources are attributable to reductions expected from 4SLB and 4SRB non-emergency engines above 500 HP.

For more information on the benefits analysis, please refer to the RIA for this rulemaking, which is available in the docket.

B. Paperwork Reduction Act

The information collection requirements in this final rule have been submitted for approval to OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 *et seq.* The information collection requirements are not enforceable until OMB approves them.

The information collection activities in this final rule include performance testing for non-emergency stationary SI RICE from 100 to 500 HP located at major sources of HAP and for non-emergency 4SLB and 4SRB stationary SI RICE larger than 500 HP located at area sources of HAP. The information collection activities also include one-time notifications and periodic reports, recording information, monitoring and the maintenance of records. The information generated by these activities will be used by EPA to ensure that affected facilities comply with the emission limits and other requirements. Records and reports are necessary to enable EPA or States to identify affected facilities that may not be in compliance with the requirements. Based on reported information, EPA will decide which units and what records or processes should be inspected. These amendments do not require any notifications or reports beyond those required by the General Provisions. The recordkeeping requirements require only the specific information needed to determine compliance. These recordkeeping and reporting requirements are specifically authorized by CAA section 114 (42 U.S.C. 7414). All information submitted to EPA for which a claim of confidentiality is made will be safeguarded according to EPA policies in 40 CFR part 2, subpart B, Confidentiality of Business Information.

The annual monitoring, reporting, and recordkeeping burden for this collection (averaged over the first 3 years after sources must comply) is estimated to be 967,246 labor hours per year at a total annual cost of $86 million. This estimate includes notifications of compliance and performance tests, engine performance testing, semiannual compliance reports, continuous monitoring, and recordkeeping. The total capital costs associated with the requirements over the 3-year period of the information collection request (ICR) is estimated to be $13.8 million per year. There are no additional operation and maintenance costs for the requirements over the 3-year period of the ICR. Burden is defined at 5 CFR 1320.3(b).

An Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations in 40 CFR are listed in 40 CFR part 9. When this ICR is approved by OMB, the Agency will publish a technical amendment to 40 CFR part 9 in the **Federal Register** to display the OMB control number for the approved information collection requirements contained in this final rule.

C. Regulatory Flexibility Act

The Regulatory Flexibility Act generally requires an agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impacts of this final rule on small entities, small entity is defined as: (1) A small business as defined by the Small Business Administration's (SBA) regulations at 13 CFR 121.201; (2) a small governmental jurisdiction that is a government of a city, county, town, school district or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field. The companies owning facilities with affected RICE can be grouped into small and large categories using SBA general size standard definitions. Size standards are based on industry classification codes (*i.e.,* North American Industrial Classification System, or NAICS) that each company uses to identify the industry or industries in which they operate in. The SBA defines a small business in terms of the maximum employment, annual sales, or annual energy-generating capacity (for electricity generating units) of the owning entity. These thresholds vary by industry and are evaluated based on the primary industry classification of the affected companies. In cases where companies are classified by multiple NAICS codes, the most conservative SBA definition (*i.e.,* the NAICS code with the highest employee or revenue size standard) was used.

As mentioned earlier in this preamble, facilities across several industries use affected SI RICE; therefore, a number of size standards are utilized in this analysis. For the 15 industries identified at the 6-digit NAICS codes represented in this analysis, the employment size standard (where it applies) varies from 500 to 1,000 employees. The annual sales standard (where it applies) is as low as $0.75 million and as high as $33.5 million. In addition, for the electric power generation industry, the small business size standard is an ultimate parent entity defined as having a total electric output of 4 million megawatt-hours in the previous fiscal year. The specific SBA size standard is identified for each affected industry within the industry profile to support this economic analysis.

After considering the economic impacts of this final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities (SISNOSE). This certification is based on the economic impact of this final action to all affected small entities across all industries affected. We estimate that all small entities will have annualized costs of less than 1 percent of their sales in all industries except NAICS 2211 (electric power generation, transmission, and distribution) and NAICS 111 (Crop and Animal Production). The number of small entities in NAICS 2211 having annualized costs of greater than 1 percent of their sales is less than 5 percent, and the number of small entities in NAICS 111 and 112 having annualized costs of greater than 1 percent of their sales (but less than 2 percent of sales) is 30 percent. We conclude that there is no SISNOSE for this final rule.

For more information on the small entity impacts associated with this final rule, please refer to the Economic Impact and Small Business Analyses in the public docket. These analyses can be found in the RIA for this final rule.

Although this final rule would not have a significant economic impact on a substantial number of small entities, EPA nonetheless tried to reduce the impact of this final rule on small entities. When developing the standards, EPA took special steps to ensure that the burdens imposed on small entities were minimal. EPA conducted several meetings with industry trade associations to discuss regulatory options and the corresponding burden on industry, such as recordkeeping and reporting. In this final rule, we are applying the minimum level of control (*i.e.,* the MACT floor) to engines located at major HAP sources and the minimum level of testing, monitoring, recordkeeping, and reporting to affected RICE sources, both major and area, allowed by the CAA. Other alternatives considered that provided more than the minimum level of control were deemed as not technically feasible or cost-effective for EPA to implement as explained earlier in the preamble.

D. Unfunded Mandates Reform Act of 1995

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), 2 U.S.C. 1531–1538, requires Federal agencies, unless otherwise prohibited by law, to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. This final rule contains a Federal mandate that may result in expenditures of $100 million or more for State, local, and tribal governments, in the aggregate, or the private sector in any 1 year. Accordingly, EPA has prepared under section 202 of the UMRA a written statement which is summarized below.

As discussed previously in this preamble, the statutory authority for this final rule is section 112 of the CAA. Section 112(b) lists the 189 chemicals, compounds, or groups of chemicals deemed by Congress to be HAP. These toxic air pollutants are to be regulated by NESHAP. Section 112(d) of the CAA directs us to develop NESHAP based on MACT, which require existing and new major sources to control emissions of HAP. EPA is required to address HAP emissions from stationary RICE located at area sources under section 112(k) of the CAA, based on criteria set forth by EPA in the Urban Air Toxics Strategy previously discussed in this preamble.

In compliance with section 205(a), we identified and considered a reasonable number of regulatory alternatives. EPA carefully examined the regulatory alternatives, and selected the lowest cost/least burdensome alternative that EPA deems adequate to achieve the statutory requirements of CAA section 112 and effectively reduce emissions of HAP.

1. Social Costs and Benefits

The RIA prepared for this final rule, including the Agency's assessment of costs and benefits, is detailed in the "Regulatory Impact Analysis for the Final SI RICE NESHAP" in the docket. Based on estimated compliance costs on all sources associated with this final rule and the predicted change in prices and production in the affected industries assuming passthrough of costs to affected consumers, the estimated social costs of this final rule are $253 million (2009$). It is estimated that by 2013, HAP will be reduced by 6,000 tpy due to reductions in formaldehyde, acetaldehyde, acrolein, methanol and benzene from existing stationary SI RICE. Formaldehyde and acetaldehyde have been classified as "probable human carcinogens." Acrolein and methanol are not considered carcinogenic, but produce several other toxic effects. Benzene is classified as a known carcinogen (Group A). This final rule is expected to reduce emissions of CO by about 109,000 tpy in the year 2013. Reductions of NO_X are estimated at 96,000 tpy in the year 2013. Emissions of VOC are estimated to be reduced by 31,000 tpy in the year 2013. Exposure to CO can affect the cardiovascular system and the central nervous system.

The total monetized benefits of this final rule in 2013 range from $510 million to $1.2 billion (2009$, 3% discount rate).

2. Future and Disproportionate Costs

The UMRA requires that we estimate, where accurate estimation is reasonably feasible, future compliance costs imposed by this final rule and any disproportionate budgetary effects. Our estimates of the future compliance costs of this final rule are discussed previously in this preamble. We do not believe that there will be any disproportionate budgetary effects of this final rule on any particular areas of the country, State or local governments, types of communities (*e.g.,* urban, rural), or particular industry segments.

3. Effects on the National Economy

The UMRA requires that we estimate the effect of this final rule on the national economy. To the extent feasible, we must estimate the effect on productivity, economic growth, full employment, creation of productive jobs, and international competitiveness of the U.S. goods and services if we determine that accurate estimates are reasonably feasible and that such effect is relevant and material. The nationwide economic impact of this final rule is presented in the "Regulatory Impact Analysis for the SI RICE NESHAP" in the docket. This analysis provides estimates of the effect of this final rule on most of the categories mentioned above. The results of the economic impact analysis were summarized previously in this preamble. In addition, we have determined that this final rule contains no regulatory requirements that might significantly or uniquely affect small governments. Therefore, this rule is not subject to the requirements of section 203 of the UMRA.

E. Executive Order 13132: Federalism

This final rule does not have federalism implications. It will not have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. This final rule primarily affects private industry, and does not impose significant economic costs on State or local governments. Thus, Executive Order 13132 does not apply to this final rule.

F. Executive Order 13175: Consultation and Coordination With Indian Tribal Governments

This action does not have tribal implications, as specified in Executive Order 13175 (65 FR 67249, November 9, 2000). It will not have substantial direct effects on tribal governments, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes, as specified in Executive Order 13175. Thus, Executive Order 13175 does not apply to this final rule.

G. Executive Order 13045: Protection of Children From Environmental Health and Safety Risks

EPA interprets Executive Order 13045 (62 FR 19885, April 23, 1997) as applying to those regulatory actions that concern health or safety risks, such that the analysis required under section 5–501 of the Order has the potential to influence the regulation. This action is not subject to Executive Order 13045 because it is based solely on technology performance.

H. Executive Order 13211: Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use

This final rule is not a "significant energy action" as defined in Executive Order 13211 (66 FR 28355, May 22, 2001) because it is not likely to have a significant adverse impact on the supply, distribution, or use of energy. EPA has prepared an analysis of energy impacts that explains this conclusion as follows below.

With respect to energy supply and prices, our analysis suggests that at the industry level, the annualized costs represent a very small fraction of revenue (generally less than 0.5 percent). As a result, we can conclude supply and price impacts on affected energy producers and consumers should be small.

To enhance understanding regarding the regulation's influence on energy consumption, we examined publicly available data describing energy consumption for the electric power sector. The electric power sector is expected to incur about half of the $253 million in compliance costs associated with this final rule, and is the industry expected to incur the greatest share of the costs relative to other affected industries. The Annual Energy Outlook 2010 (EIA, 2009) provides energy consumption data. Since this final rule primarily affects natural gas and gasoline-fired RICE, our analysis focuses on impacts of consumption of these fuels. As shown in Table 5 of this preamble, the electric power sector accounts for less than 5.1 percent of U.S. natural gas consumption. As a result, any energy consumption changes attributable to this final rule should not significantly influence the supply, distribution, or use of energy nationwide.

TABLE 5—U.S. ELECTRIC POWER [a] SECTOR ENERGY CONSUMPTION

[(Quadrillion BTUs): 2013]

	Quantity	Share of total energy use (percent)
Distillate fuel oil	0.12	0.1
Residual fuel oil	0.34	0.3
Liquid fuels subtotal	0.45	0.5
Natural gas	5.17	5.1
Steam coal	20.69	20.6
Nuclear power	8.59	8.5
Renewable energy [b]	6.06	6.0
Electricity Imports	0.09	0.1
Total Electric Power Energy Consumption [c]	41.18	40.9
Delivered Energy Use	72.41	72.0
Total Energy Use	100.59	100.0

[a] Includes consumption of energy by electricity-only and combined heat and power plants whose primary business is to sell electricity, or electricity and heat, to the public. Includes small power producers and exempt wholesale generators.

[b] Includes conventional hydroelectric, geothermal, wood and wood waste, biogenic municipal solid waste, other biomass, petroleum coke, wind, photovoltaic and solar thermal sources. Excludes net electricity imports.

[c] Includes non-biogenic municipal waste not included above.

Source: U.S. Energy Information Administration. 2009. Supplemental Tables to the Annual Energy Outlook 2010.

I. National Technology Transfer and Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act (NTTAA) of 1995 (Pub. L. 104–113, Section 12(d), 15 U.S.C. 272 note) directs EPA to use voluntary consensus standards (VCS) in its regulatory activities, unless to do so would be inconsistent with applicable law or otherwise impractical. The VCS are technical standards (*e.g.,* materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by VCS bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency does not use available and applicable VCS.

EPA cites technical standard EPA Method 323 of 40 CFR part 63, appendix A, in this final rule. Consistent with the NTTAA, EPA conducted searches to identify VCS in addition to this EPA method. No applicable VCS were identified for EPA Method 323. The search and review results have been documented and are placed in the docket for this final rule.

Under § 63.7(f) and § 63.8(f) of subpart A of the General Provisions, a source may apply to EPA for permission to use alternative test methods or alternative monitoring requirements in place of any required or referenced testing methods, performance specifications, or procedures.

J. Executive Order 12898: Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations

Executive Order 12898 (59 FR 7629 (Feb. 16, 1994)) establishes Federal executive policy on environmental justice. Its main provision directs Federal agencies, to the greatest extent practicable and permitted by law, to make environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations in the United States.

EPA has determined that this final rule will not have disproportionately high and adverse human health or environmental effects on minority or low-income populations because it increases the level of environmental protection for all affected populations without having any disproportionately high and adverse human health or environmental effects on any population, including any minority or low-income population. This rule is a nationwide standard that reduces air toxics emissions from existing stationary SI engines, thus decreasing the amount of such emissions to which all affected populations are exposed.

K. Congressional Review Act

The Congressional Review Act, 5 U.S.C. 801 *et seq.,* as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and to the Comptroller General of the United States. EPA will submit a report containing this final rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of this final rule in the **Federal Register**. A major rule cannot take effect until 60 days after it is published in the **Federal Register**. This action is a "major rule" as defined by 5 U.S.C. 804(2). This final rule will be effective on October 19, 2010.

List of Subjects in 40 CFR Part 63

Administrative practice and procedure, Air pollution control, Hazardous substances, Incorporation by reference, Intergovernmental relations, Reporting and recordkeeping requirements.

Dated: August 10, 2010.

Lisa P. Jackson,

Administrator.

■ For the reasons stated in the preamble, title 40, chapter I, part 63 of the Code of Federal Regulations is amended as follows:

PART 63—[AMENDED]

■ 1. The authority citation for part 63 continues to read as follows:

Authority: 42 U.S.C. 7401, *et seq.*

Subpart ZZZZ—[Amended]

■ 2. Section 63.6590 is amended by revising paragraphs (b)(2), (b)(3), and (c) to read as follows:

§ 63.6590 What parts of my plant does this subpart cover?

* * * * *

(b) * * *

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of § 63.6645(f) and the requirements of §§ 63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(vi) Existing residential emergency stationary RICE located at an area source of HAP emissions;

(vii) Existing commercial emergency stationary RICE located at an area source of HAP emissions; or

(viii) Existing institutional emergency stationary RICE located at an area source of HAP emissions.

(c) *Stationary RICE subject to Regulations under 40 CFR Part 60.* An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less

than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

■ 3. Section 63.6595 is amended by revising paragraph (a)(1) to read as follows:

§ 63.6595 When do I have to comply with this subpart?

(a) * * *

(1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations and operating limitations no later than October 19, 2013.

* * * * *

■ 4. Section 63.6601 is amended by revising the section heading to read as follows:

§ 63.6601 What emission limitations must I meet if I own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP and less than or equal to 500 brake HP located at a major source of HAP emissions?

* * * * *

■ 5. Section 63.6602 is revised to read as follows:

§ 63.6602 What emission limitations must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?

If you own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2c to this subpart which apply to you. Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in § 63.6620 and Table 4 to this subpart.

■ 6. Section 63.6603 is amended by revising the section heading and paragraph (a) to read as follows:

§ 63.6603 What emission limitations and operating limitations must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

* * * * *

(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

* * * * *

■ 7. Section 63.6604 is revised to read as follows:

§ 63.6604 What fuel requirements must I meet if I own or operate an existing stationary CI RICE?

If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel. Existing non-emergency CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or at area sources in areas of Alaska not accessible by the FAHS are exempt from the requirements of this section.

■ 8. Section 63.6611 is amended by revising the section heading to read as follows:

§ 63.6611 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a new or reconstructed 4SLB SI stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions?

* * * * *

■ 9. Section 63.6612 is amended by revising the introductory text to read as follows:

§ 63.6612 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?

If you own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions you are subject to the requirements of this section.

* * * * *

■ 10. Section 63.6625 is amended by:
■ a. Revising paragraph (b);
■ b. Revising paragraph (e);
■ c. Revising paragraph (g) introductory text;
■ d. Revising paragraph (h);
■ e. Revising paragraph (i); and
■ f. Adding paragraphs (j) and (k) to read as follows:

§ 63.6625 What are my monitoring, installation, collection, operation, and maintenance requirements?

* * * * *

(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (b)(1) through (8) of this section.

(1) The CPMS must complete a minimum of one cycle of operation for each successive 15-minute period. You must have a minimum of four successive cycles of operation to have a valid hour of data.

(2) Except for monitoring malfunctions, associated repairs, and required quality assurance or control activities (including, as applicable, calibration checks and required zero and span adjustments), you must conduct all monitoring in continuous operation at all times that the unit is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to

provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(3) For purposes of calculating data averages, you must not use data recorded during monitoring malfunctions, associated repairs, out of control periods, or required quality assurance or control activities. You must use all the data collected during all other periods in assessing compliance. Any 15-minute period for which the monitoring system is out-of-control and data are not available for required calculations constitutes a deviation from the monitoring requirements.

(4) Determine the 3-hour block average of all recorded readings, except as provided in paragraph (b)(3) of this section.

(5) Record the results of each inspection, calibration, and validation check.

(6) You must develop a site-specific monitoring plan that addresses paragraphs (b)(6)(i) through (vi) of this section.

(i) Installation of the CPMS sampling probe or other interface at the appropriate location to obtain representative measurements;

(ii) Performance and equipment specifications for the sample interface, parametric signal analyzer, and the data collection and reduction systems;

(iii) Performance evaluation procedures and acceptance criteria (*e.g.,* calibrations);

(iv) Ongoing operation and maintenance procedures in accordance with the general requirements of § 63.8(c)(1), (c)(3), and (c)(4)(ii);

(v) Ongoing data quality assurance procedures in accordance with the general requirements of § 63.8(d); and

(vi) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of § 63.10(c), (e)(1), and (e)(2)(i).

(7) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(8) You must operate and maintain the CPMS in continuous operation according to the site-specific monitoring plan.

* * * * *

(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own 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:

(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;

(2) An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;

(3) An existing emergency or black start stationary RICE located at an area source of HAP emissions;

(4) An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;

(5) An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;

(6) An existing non-emergency, non-black start landfill or digester gas stationary RICE located at an area source of HAP emissions;

(7) An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(8) An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(9) An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and

(10) An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.

* * * * *

(g) If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (g)(2) of this section. Owners and operators must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska not accessible by the FAHS do not have to meet the requirements of paragraph (g) of this section.

* * * * *

(h) If you operate a new, reconstructed, or existing stationary engine, you must 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 emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table

2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

(k) If you have an operating limitation that requires the use of a temperature measurement device, you must meet the requirements in paragraphs (k)(1) through (4) of this section.

(1) Locate the temperature sensor and other necessary equipment in a position that provides a representative temperature.

(2) Use a temperature sensor with a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit), or 1.0 percent of the temperature value, whichever is larger, for a noncryogenic temperature range.

(3) Use a temperature sensor with a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit), or 2.5 percent of the temperature value, whichever is larger, for a cryogenic temperature range.

(4) Conduct a temperature measurement device calibration check at least every 3 months.

■ 11. Section 63.6640 is amended by revising paragraph (f) to read as follows:

§ 63.6640 How do I demonstrate continuous compliance with the emission limitations and operating limitations?

* * * * *

(f) *Requirements for emergency stationary RICE.* (1) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that was installed on or after June 12, 2006, or an existing emergency stationary RICE located at an area source of HAP emissions, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1)(i) through (iii) of this section. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1)(i) through (iii) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1)(i) through (iii) of this section, the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines.

(i) There is no time limit on the use of emergency stationary RICE in emergency situations.

(ii) You may operate your emergency stationary RICE for the purpose of 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. Maintenance checks and readiness testing of such units is limited to 100 hours per year. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency RICE beyond 100 hours per year.

(iii) You may operate your emergency stationary RICE up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity; except that owners and operators may operate the emergency engine for a maximum of 15 hours per year as part of a demand response program 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. The engine may not be operated for more than 30 minutes prior to the time when the emergency condition is expected to occur, and the engine operation must be terminated immediately after the facility is notified that the emergency condition is no longer imminent. The 15 hours per year of demand response operation are counted as part of the 50 hours of operation per year provided for non-emergency situations. The supply of emergency power to another entity or entities pursuant to financial arrangement is not limited by this paragraph (f)(1)(iii), as long as the power provided by the financial arrangement is limited to emergency power.

(2) If you own or operate an emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that was installed prior to June 12, 2006, you must operate the engine according to the conditions described in paragraphs (f)(2)(i) through (iii) of this section. If you do not operate the engine according to the requirements in paragraphs (f)(2)(i) through (iii) of this section, the engine will not be considered an emergency engine under this subpart and will need to meet all requirements for non-emergency engines.

(i) There is no time limit on the use of emergency stationary RICE in emergency situations.

(ii) You may operate your emergency stationary RICE for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is no time limit on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance.

(iii) You may operate your emergency stationary RICE for an additional 50 hours per year in non-emergency situations. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

■ 12. Section 63.6645 is amended by revising paragraphs (a)(1), (a)(2), and (a)(5) to read as follows:

§ 63.6645 What notifications must I submit and when?

(a) * * *

(1) An existing stationary RICE with a site rating of less than or equal to 500

brake HP located at a major source of HAP emissions.

(2) An existing stationary RICE located at an area source of HAP emissions.

* * * * *

(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.

* * * * *

■ 13. Section 63.6655 is amended by revising paragraphs (e)(1) through (e)(3) and (f)(1) and (f)(2) to read as follows:

§ 63.6655 What records must I keep?

* * * * *

(e) * * *

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) * * *

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.

■ 14. Section 63.6675 is amended by:

■ a. Adding in alphabetical order the definition of *Commercial emergency stationary RICE;*

■ b. Revising the definition of *Emergency stationary RICE;*

■ c. Adding in alphabetical order the definition of *Institutional emergency stationary RICE;*

■ d. Adding in alphabetical order the definition of *Residential emergency stationary RICE;* and

■ e. Removing the definition of *Residential/commercial/institutional emergency stationary RICE* to read as follows:

§ 63.6675 What definitions apply to this subpart?

* * * * *

Commercial emergency stationary RICE means an emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities.

* * * * *

Emergency stationary RICE means any stationary internal combustion engine whose operation is limited to emergency situations and required testing and maintenance. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of fire or flood, *etc.* Stationary RICE used for peak shaving are not considered emergency stationary RICE. Stationary RICE used to supply power to an electric grid or that supply non-emergency power as part of a financial arrangement with another entity are not considered to be emergency engines, except as permitted under § 63.6640(f). All emergency stationary RICE must comply with the requirements specified in § 63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in § 63.6640(f), then it is not considered to be an emergency stationary RICE under this subpart.

* * * * *

Institutional emergency stationary RICE means an emergency stationary RICE used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, correctional facilities, elementary and secondary schools, libraries, religious establishments, police stations, and fire stations.

* * * * *

Residential emergency stationary RICE means an emergency stationary RICE used in residential establishments such as homes or apartment buildings.

* * * * *

■ 15. Table 1a to Subpart ZZZZ of Part 63 heading and introductory text is revised to read as follows:

Table 1a to Subpart ZZZZ of Part 63. Emission Limitations for Existing, New, and Reconstructed Spark Ignition, 4SRB Stationary RICE > 500 HP Located at a Major Source of HAP Emissions

As stated in §§ 63.6600 and 63.6640, you must comply with the following emission limitations at 100 percent load plus or minus 10 percent for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

* * * * *

■ 16. Table 1b to Subpart ZZZZ of Part 63 is revised to read as follows:

Table 1b to Subpart ZZZZ of Part 63. Operating Limitations for Existing, New, and Reconstructed Spark Ignition 4SRB Stationary RICE > 500 HP Located at a Major Source of HAP Emissions and Existing Spark Ignition 4SRB Stationary RICE > 500 HP Located at an Area Source of HAP Emissions

As stated in §§ 63.6600, 63.6630 and 63.6640, you must comply with the following operating limitations for existing, new and reconstructed 4SRB stationary RICE > 500 HP located at a major source of HAP emissions and existing 4SRB stationary RICE > 500 HP located at an area source of HAP emissions that operate more than 24 hours per calendar year:

For each . . .	You must meet the following operating limitation . . .
1. 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and using NSCR; or	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus; 10 percent from the pressure drop across the catalyst measured during the initial performance test and
4SRB stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and using NSCR; or	b. maintain the termperature of your stationary RICE exhaust so the catalyst inlet temperature is greater than or equal to 750 °F and less than or equal to 1250 °F.
4SRB stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 2.7 ppmvd or less at 15 percent O_2 and using NSCR.	

For each . . .	You must meet the following operating limitation . . .
2. 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and not using NSCR; or 4SRB stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and not using NSCR; or 4SRB stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 2.7 ppmvd or less at 15 percent O_2 and using NSCR.	Comply with any operating limitations approved by the Administrator.

■ 17. Table 2b to Subpart ZZZZ of Part 63 is revised to read as follows:

Table 2b to Subpart ZZZZ of Part 63. Operating Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE > 500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥ 250 HP Located at a Major Source of HAP Emissions, Existing Compression Ignition Stationary RICE > 500 HP, and Existing 4SLB Stationary RICE > 500 HP Located at an Area Source of HAP Emissions

As stated in §§ 63.6600, 63.6601, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed 2SLB and compression ignition stationary RICE located at a major source of HAP emissions; new and reconstructed 4SLB stationary RICE ≥ 250 HP located at a major source of HAP emissions; existing compression ignition stationary RICE > 500 HP; and existing 4SLB stationary RICE > 500 HP located at an area source of HAP emissions that operate more than 24 hours per calendar year:

For each . . .	You must meet the following operating limitation . . .
1. 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to reduce CO emissions and using an oxidation catalyst; or 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and using an oxidation catalyst; or 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of CO in the stationary RICE exhaust and using an oxidation catalyst.	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst that was measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1]
2. 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to reduce CO emissions and not using an oxidation catalyst; or 2SLB and 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst; or 4SLB stationary RICE and CI stationary RICE complying with the requirement to limit the concentration of CO in the stationary RICE exhaust and not using an oxidation catalyst.	Comply with any operating limitations approved by the Administrator.

[1] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(g) for a different temperature range.

■ 18. Table 2c to Subpart ZZZZ of Part 63 is revised to read as follows:

Table 2c to Subpart ZZZZ of Part 63. Requirements for Existing Compression Ignition Stationary RICE Located at a Major Source of HAP Emissions and Existing Spark Ignition Stationary RICE ≤ 500 HP Located at a Major Source of HAP Emissions

As stated in §§ 63.6600, 63.6602, and 63.6640, you must comply with the following requirements for existing compression ignition stationary RICE located at a major source of HAP emissions and existing spark ignition stationary RICE ≤ 500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Emergency stationary CI RICE and black start stationary CI RICE.[1]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[2] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.[3]

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
2. Non-Emergency, non-black start stationary CI RICE < 100 HP.	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first; [2] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
3. Non-Emergency, non-black start CI stationary RICE 100 ≤ HP ≤ 300 HP.	Limit concentration of CO in the stationary RICE exhaust to 230 ppmvd or less at 15 percent O_2.	
4. Non-Emergency, non-black start CI stationary RICE 300 < HP ≤ 500.	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd or less at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	
5. Non-Emergency, non-black start stationary CI RICE >500 HP.	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd or less at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	
6. Emergency stationary SI RICE and black start stationary SI RICE.[1]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first; [2] b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
7. Non-Emergency, non-black start stationary SI RICE < 100 HP that are not 2SLB stationary RICE.	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first; [2] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
8. Non-Emergency, non-black start 2SLB stationary SI RICE < 100 HP.	a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first; [2] b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first; c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
9. Non-emergency, non-black start 2SLB stationary RICE 100 ≤ HP ≤ 500.	Limit concentration of CO in the stationary RICE exhaust to 225 ppmvd or less at 15 percent O_2.	
10. Non-emergency, non-black start 4SLB stationary RICE 100 ≤ HP ≤ 500.	Limit concentration of CO in the stationary RICE exhaust to 47 ppmvd or less at 15 percent O_2.	
11. Non-emergency, non-black start 4SRB stationary RICE 100 ≤ HP ≤ 500.	Limit concentration of formaldehyde in the stationary RICE exhaust to 10.3 ppmvd or less at 15 percent O_2.	
12. Non-emergency, non-black start landfill or digester gas-fired stationary RICE 100 ≤ HP ≤ 500.	Limit concentration of CO in the stationary RICE exhaust to 177 ppmvd or less at 15 percent O_2.	

[1] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work practice requirements on the schedule required in Table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The work practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. Sources must report any failure to perform the work practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable.

[2] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) in order to extend the specified oil change requirement in Table 2c of this subpart.

[3] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

■ 19. Table 2d to Subpart ZZZZ of Part 63 is revised to read as follows:

Table 2d to Subpart ZZZZ of Part 63. Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions

As stated in §§ 63.6603 and 63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Non-Emergency, non-black start CI stationary RICE ≤300 HP.	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first; [1]	Minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply.
	b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first;	
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	
2. Non-Emergency, non-black start CI stationary RICE 300 <HP≤ 500.	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	
3. Non-Emergency, non-black start CI stationary RICE > 500 HP.	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	
4. Emergency stationary CI RICE and black start stationary CI RICE.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first; [1]	
	b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first; and	
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	
5. Emergency stationary SI RICE; black start stationary SI RICE; non-emergency, non-black start 4SLB stationary RICE > 500 HP that operate 24 hours or less per calendar year; non-emergency, non-black start 4SRB stationary RICE > 500 HP that operate 24 hours or less per calendar year.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first; [1]	
	b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first; and	
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	
6. Non-emergency, non-black start 2SLB stationary RICE.	a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first; [1]	
	b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first; and	
	c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.	
7. Non-emergency, non-black start 4SLB stationary RICE ≤ 500 HP.	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first; [1]	
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	
8. Non-emergency, non-black start 4SLB stationary RICE > 500 HP.	a. Limit concentration of CO in the stationary RICE exhaust to 47 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 93 percent or more.	
9. Non-emergency, non-black start 4SRB stationary RICE ≤ 500 HP.	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first; [1]	

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first; and c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	
10. Non-emergency, non-black start 4SRB stationary RICE >500 HP.	a. Limit concentration of formaldehyde in the stationary RICE exhaust to 2.7 ppmvd at 15 percent O_2; or b. Reduce formaldehyde emissions by 76 percent or more.	
11. Non-emergency, non-black start landfill or digester gas-fired stationary RICE.	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first; [1] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first; and c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	

[1] Sources have the option to utilize an oil analysis program as described in § 63.6625(i) in order to extend the specified oil change requirement in Table 2d of this subpart.

[2] If an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in Table 2d of this subpart, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under Federal, State, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under Federal, State, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under Federal, State, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the Federal, State or local law under which the risk was deemed unacceptable.

■ 20. Table 3 to Subpart ZZZZ of Part 63 is revised to read as follows:

Table 3 to Subpart ZZZZ of Part 63. Subsequent Performance Tests

As stated in §§ 63.6615 and 63.6620, you must comply with the following subsequent performance test requirements:

For each . . .	Complying with the requirement to . . .	You must . . .
1. New or reconstructed 2SLB stationary RICE with a brake horsepower >500 located at major sources; new or reconstructed 4SLB stationary RICE with a brake horsepower ≥250 located at major sources; and new or reconstructed CI stationary RICE with a brake horsepower >500 located at major sources.	Reduce CO emissions and not using a CEMS	Conduct subsequent performance tests semiannually.[1]
2. 4SRB stationary RICE with a brake horsepower ≥5,000 located at major sources.	Reduce formaldehyde emissions	Conduct subsequent performance tests semiannually.[1]
3. Stationary RICE with a brake horsepower >500 located at major sources and new or reconstructed 4SLB stationary RICE with a brake horsepower 250≤HP≤500 located at major sources.	Limit the concentration of formaldehyde in the stationary RICE exhaust.	Conduct subsequent performance tests semiannually.[1]
4. Existing non-emergency, non-black start CI stationary RICE with a brake horsepower >500 that are not limited use stationary RICE; existing non-emergency, non-black start 4SLB and 4SRB stationary RICE located at an area source of HAP emissions with a brake horsepower >500 that are operated more than 24 hours per calendar year that are not limited use stationary RICE.	Limit or reduce CO or formaldehyde emissions.	Conduct subsequent performance tests every 8,760 hrs. or 3 years, whichever comes first.

For each . . .	Complying with the requirement to . . .	You must . . .
5. Existing non-emergency, non-black start CI stationary RICE with a brake horsepower >500 that are limited use stationary RICE; existing non-emergency, non-black start 4SLB and 4SRB stationary RICE located at an area source of HAP emissions with a brake horsepower >500 that are operated more than 24 hours per calendar year and are limited use stationary RICE.	Limit or reduce CO or formaldehyde emissions.	Conduct subsequent performance tests every 8,760 hrs. or 5 years, whichever comes first.

[1] After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

■ 21. Table 4 to Subpart ZZZZ of Part 63 is revised to read as follows:

Table 4 to Subpart ZZZZ of Part 63—Requirements for Performance Tests

As stated in §§ 63.6610, 63.6611, 63.6612, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
1. 2SLB, 4SLB, and CI stationary RICE.	a. Reduce CO emissions ..	i. Measure the O_2 at the inlet and outlet of the control device; and	(1) Portable CO and O_2 analyzer.	(a) Using ASTM D6522–00 (2005) [a] (incorporated by reference, see § 63.14). Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.
		ii. Measure the CO at the inlet and the outlet of the control device.	(1) Portable CO and O_2 analyzer.	(a) Using ASTM D6522–00 (2005) [a b] (incorporated by reference, see § 63.14) or Method 10 of 40 CFR appendix A. The CO concentration must be at 15 percent O_2, dry basis.
2. 4SRB stationary RICE ..	a. Reduce formaldehyde emissions.	i. Select the sampling port location and the number of traverse points; and	(1) Method 1 or 1A of 40 CFR part 60, appendix A § 63.7(d)(1)(i).	(a) Sampling sites must be located at the inlet and outlet of the control device.
		ii. Measure O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A, or ASTM Method D6522–00m (2005).	(a) Measurements to determine O_2 concentration must be made at the same time as the measurements for formaldehyde concentration.
		iii. Measure moisture content at the inlet and outlet of the control device; and	(1) 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.	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.
		iv. Measure formaldehyde at the inlet and the outlet of the control device.	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348–03,[c] provided in ASTM D6348–03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130.	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
3. Stationary RICE	a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust.	i. Select the sampling port location and the number of traverse points; and	(1) Method 1 or 1A of 40 CFR part 60, appendix A § 63.7(d)(1)(i).	(a) If using a control device, the sampling site must be located at the outlet of the control device.

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
		ii. Determine the O_2 concentration of the stationary RICE exhaust at the sampling port location; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A, or ASTM Method D6522–00 (2005).	(a) Measurements to determine O_2 concentration must be made at the same time and location as the measurements for formaldehyde concentration.
		iii. Measure moisture content of the stationary RICE exhaust at the sampling port location; and	(1) 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.	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde concentration.
		iv. Measure formaldehyde at the exhaust of the stationary RICE; or	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348–03,[c] provided in ASTM D6348–03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130.	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. Measure CO at the exhaust of the stationary RICE.	(1) Method 10 of 40 CFR part 60, appendix A, ASTM Method D6522–00 (2005),[a] Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03.	(a) CO Concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour longer runs.

[a] You may also use Methods 3A and 10 as options to ASTM–D6522–00 (2005). You may obtain a copy of ASTM–D6522–00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106. ASTM–D6522–00 (2005) may be used to test both CI and SI stationary RICE.

[b] You may also use Method 320 of 40 CFR part 63, appendix A, or ASTM D6348–03.

[c] You may obtain a copy of ASTM–D6348–03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

■ 22. Table 5 to Subpart ZZZZ of Part 63 is revised to read as follows:

Table 5 to Subpart ZZZZ of Part 63. Initial Compliance With Emission Limitations and Operating Limitations

As stated in §§ 63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
1. New or reconstructed non-emergency 2SLB stationary RICE > 500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year.	a. Reduce CO emissions and using oxidation catalyst, and using a CPMS.	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in § 63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
2. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year.	a. Reduce CO emissions and not using oxidation catalyst.	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in § 63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP located at an area source of HAP, and existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year.	a. Reduce CO emissions, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at both the inlet and outlet of the oxidation catalyst according to the requirements in § 63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and iii. The average reduction of CO calculated using § 63.6620 equals or exceeds the required percent reduction. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period.
4. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year.	a. Reduce formaldehyde emissions and using NSCR.	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in § 63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
5. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year.	a. Reduce formaldehyde emissions and not using NSCR.	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in § 63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
6. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP.	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR.	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in § 63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
7. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP.	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR.	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in § 63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .
8. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP.	a. Reduce CO or formaldehyde emissions	i. The average reduction of emissions of CO or formaldehyde, as applicable determined from the initial performance test is equal to or greater than the required CO or formaldehyde, as applicable, percent reduction.
9. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP.	a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust.	i. The average formaldehyde or CO concentration, as applicable, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde or CO emission limitation, as applicable.

■ 23. Table 6 to Subpart ZZZZ of Part 63 is revised to read as follows:

Table 6 to Subpart ZZZZ of Part 63. Continuous Compliance With Emission Limitations, Operating Limitations, Work Practices, and Management Practices

As stated in § 63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP.	a. Reduce CO emissions and using an oxidation catalyst, and using a CPMS.	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved; [a] and ii. Collecting the catalyst inlet temperature data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
2. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP.	a. Reduce CO emissions and not using an oxidation catalyst, and using a CPMS.	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved;[a] and ii. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, new or reconstructed non-emergency stationary CI RICE >500 HP located at a major source of HAP, existing non-emergency stationary CI RICE >500 HP, existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are operated more than 24 hours per calendar year.	a. Reduce CO emissions and using a CEMS	i. Collecting the monitoring data according to § 63.6625(a), reducing the measurements to 1-hour averages, calculating the percent reduction of CO emissions according to § 63.6620; and ii. Demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period; and iii. Conducting an annual RATA of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.
4. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP.	a. Reduce formaldehyde emissions and using NSCR.	i. Collecting the catalyst inlet temperature data according to § 63.6625(b); and ii. Reducing these data to 4-hour rolling averages; and iii. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		iv. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
5. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP.	a. Reduce formaldehyde emissions and not using NSCR.	i. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and ii. Reducing these data to 4-hour rolling averages; and iii. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
6. Non-emergency 4SRB stationary RICE with a brake HP ≥5,000 located at a major source of HAP.	a. Reduce formaldehyde emissions	Conducting semiannual performance tests for formaldehyde to demonstrate that the required formaldehyde percent reduction is achieved.[a]
7. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP.	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR.	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit;[a] and ii. Collecting the catalyst inlet temperature data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
8. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP.	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR.	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit;[a] and ii. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
9. Existing emergency and black start stationary RICE ≤500 HP located at a major source of HAP, existing non-emergency stationary RICE <100 HP located at a major source of HAP, existing emergency and black start stationary RICE located at an area source of HAP, existing non-emergency stationary CI RICE ≤300 HP located at an area source of HAP, existing non-emergency 2SLB stationary RICE located at an area source of HAP, existing non-emergency landfill or digester gas stationary SI RICE located at an area source of HAP, existing non-emergency 4SLB and 4SRB stationary RICE ≤500 HP located at an area source of HAP, existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate 24 hours or less per calendar year.	a. Work or Management practices	i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or ii. Develop and follow your own 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.

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
10. Existing stationary CI RICE >500 HP that are not limited use stationary RICE, and existing 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate more than 24 hours per calendar year and are not limited use stationary RICE.	a. Reduce CO or formaldehyde emissions, or limit the concentration of formaldehyde or CO in the stationary RICE exhaust, and using oxidation catalyst or NSCR.	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and ii. Collecting the catalyst inlet temperature data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
11. Existing stationary CI RICE >500 HP that are not limited use stationary RICE, and existing 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate more than 24 hours per calendar year and are not limited use stationary RICE.	a. Reduce CO or formaldehyde emissions, or limit the concentration of formaldehyde or CO in the stationary RICE exhaust, and not using oxidation catalyst or NSCR.	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and ii. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
12. Existing limited use CI stationary RICE >500 HP and existing limited use 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate more than 24 hours per calendar year.	a. Reduce CO or formaldehyde emissions or limit the concentration of formaldehyde or CO in the stationary RICE exhaust, and using an oxidation catalyst or NSCR.	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and ii. Collecting the catalyst inlet temperature data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
13. Existing limited use CI stationary RICE >500 HP and existing limited use 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate more than 24 hours per calendar year.	a. Reduce CO or formaldehyde emissions or limit the concentration of formaldehyde or CO in the stationary RICE exhaust, and using an oxidation catalyst or NSCR.	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and ii. Collecting the approved operating parameter (if any) data according to § 63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.

[a] After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

■ 24. Table 7 to Subpart ZZZZ of Part 63 is revised to read as follows:

Table 7 to Subpart ZZZZ of Part 63. Requirements for Reports

As stated in § 63.6650, you must comply with the following requirements for reports:

For each ...	You must submit a ...	The report must contain ...	You must submit the report ...
1. Existing non-emergency, non-black start stationary RICE 100≤HP≤500 located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >500 HP located at a major source of HAP; existing non-emergency 4SRB stationary RICE > 500 HP located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >300 HP located at an area source of HAP; existing non-emergency, non-black start 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP and operated more than 24 hours per calendar year; new or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP; and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP.	Compliance report	a. If there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in § 63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information in § 63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in § 63.8(c)(7), the information in § 63.6650(e); or c. If you had a malfunction during the reporting period, the information in § 63.6650(c)(4)	i. Semiannually according to the requirements in § 63.6650(b)(1)–(5) for engines that are not limited use stationary RICE subject to numerical emission limitations; and ii. Annually according to the requirements in § 63.6650(b)(6)–(9) for engines that are limited use stationary RICE subject to numerical emission limitations. i. Semiannually according to the requirements in § 63.6650(b). i. Semiannually according to the requirements in § 63.6650(b).
2. New or reconstructed non-emergency stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis.	Report	a. The fuel flow rate of each fuel and the heating values that were used in your calculations, and you must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis; and b. The operating limits provided in your federally enforceable permit, and any deviations from these limits; and c. Any problems or errors suspected with the meters.	i. Annually, according to the requirements in § 63.6650. i. See item 2.a.i. i. See item 2.a.i.

■ 25. Appendix A to Part 63 is amended by adding, in numerical order, Method 323 to read as follows:

Appendix A to Part 63—Test Methods

* * * * *

Method 323—Measurement of Formaldehyde Emissions From Natural Gas-Fired Stationary Sources—Acetyl Acetone Derivitization Method

1.0 Introduction. This method describes the sampling and analysis procedures of the acetyl acetone colorimetric method for measuring formaldehyde emissions in the exhaust of natural gas-fired, stationary combustion sources. This method, which was prepared by the Gas Research Institute (GRI), is based on the Chilled Impinger Train Method for Methanol, Acetone, Acetaldehyde, Methyl Ethyl Ketone, and Formaldehyde (Technical Bulletin No. 684) developed and published by the National Council of the Paper Industry for Air and Stream Improvement, Inc. (NCASI). However, this method has been prepared specifically for formaldehyde and does not include specifications (*e.g.,* equipment and supplies) and procedures (*e.g.,* sampling and analytical) for methanol, acetone, acetaldehyde, and methyl ethyl ketone. To obtain reliable results, persons using this method should have a thorough knowledge of at least Methods 1 and 2 of 40 CFR Part 60, Appendix A–1; Method 3 of 40 CFR Part 60, Appendix A–2; and Method 4 of 40 CFR Part 60, Appendix A–3.

1.1 Scope and Application

1.1.1 Analytes. The only analyte measured by this method is formaldehyde (CAS Number 50–00–0).

1.1.2 Applicability. This method is for analyzing formaldehyde emissions from uncontrolled and controlled natural gas-fired, stationary combustion sources.

1.1.3 Data Quality Objectives. If you adhere to the quality control and quality assurance requirements of this method, then you and future users of your data will be able to assess the quality of the data you obtain and estimate the uncertainty in the measurements.

2.0 Summary of Method. An emission sample from the combustion exhaust is drawn through a midget impinger train containing chilled reagent water to absorb formaldehyde. The formaldehyde concentration in the impinger is determined by reaction with acetyl acetone to form a colored derivative which is measured colorimetrically.

3.0 Definitions

[Reserved].

4.0 Interferences. The presence of acetaldehyde, amines, polymers of formaldehyde, periodate, and sulfites can cause interferences with the acetyl acetone procedure which is used to determine the formaldehyde concentration. However, based on experience gained from extensive testing of natural gas-fired combustion sources using FTIR to measure a variety of compounds, GRI expects only acetaldehyde to be potentially present when combusting natural gas. Acetaldehyde has been reported to be a significant interference only when present at concentrations above 50 ppmv. However, GRI reports that the concentration of acetaldehyde from gas-fired sources is very low (typically below the FTIR detection limit of around 0.5 ppmv); therefore, the potential positive bias due to acetaldehyde interference is expected to be negligible.

5.0 Safety

5.1 Prior to applying the method in the field, a site-specific Health and Safety Plan should be prepared. General safety precautions include the use of steel-toed boots, safety glasses, hard hats, and work gloves. In certain cases, facility policy may require the use of fire-resistant clothing while on-site. Since the method involves testing at high-temperature sampling locations, precautions must be taken to limit the potential for exposure to high-temperature gases and surfaces while inserting or removing the sample probe. In warm locations, precautions must also be taken to avoid dehydration.

5.2 Potential chemical hazards associated with sampling include formaldehyde, nitrogen oxides (NO_X), and carbon monoxide (CO). Formalin solution, used for field spiking, is an aqueous solution containing formaldehyde and methanol. Formaldehyde is a skin, eye, and respiratory irritant and a carcinogen, and should be handled accordingly. Eye and skin contact and inhalation of formaldehyde vapors should be avoided. Natural gas-fired combustion sources can potentially emit CO at toxic concentrations. Care should be taken to minimize exposure to the sample gas while inserting or removing the sample probe. If the work area is enclosed, personal CO monitors should be used to insure that the concentration of CO in the work area is maintained at safe levels.

5.3 Potential chemical hazards associated with the analytical procedures include acetyl acetone and glacial acetic acid. Acetyl acetone is an irritant to the skin and respiratory system, as well as being moderately toxic. Glacial acetic acid is highly corrosive and is an irritant to the skin, eyes, and respiratory system. Eye and skin contact and inhalation of vapors should be avoided. Acetyl acetone and glacial acetic acid have flash points of 41 °C (105.8 °F) and 43 °C (109.4 °F), respectively. Exposure to heat or flame should be avoided.

6.0 Equipment and Supplies

6.1 Sampling Probe. Quartz glass probe with stainless steel sheath or stainless steel probe.

6.2 Teflon Tubing. Teflon tubing to connect the sample probe to the impinger train. A heated sample line is not needed since the sample transfer system is rinsed to recover condensed formaldehyde and the rinsate combined with the impinger contents prior to sample analysis.

6.3 Midget Impingers. Three midget impingers are required for sample collection. The first impinger serves as a moisture knockout, the second impinger contains 20 mL of reagent water, and the third impinger contains silica gel to remove residual moisture from the sample prior to the dry gas meter.

6.4 Vacuum Pump. Vacuum pump capable of delivering a controlled extraction flow rate between 0.2 and 0.4 L/min.

6.5 Flow Measurement Device. A rotameter or other flow measurement device is required to indicate consistent sample flow.

6.6 Dry Gas Meter. A dry gas meter is used to measure the total sample volume collected. The dry gas meter must be sufficiently accurate to measure the sample volume to within 2 percent, calibrated at the selected flow rate and conditions actually encountered during sampling, and equipped with a temperature sensor (dial thermometer, or equivalent) capable of measuring temperature accurately to within 3 °C (5.4 °F).

6.7 Spectrophotometer. A spectrophotometer is required for formaldehyde analysis, and must be capable of measuring absorbance at 412 nm.

7.0 Reagents and Standards

7.1 Sampling Reagents

7.1.1 Reagent water. Deionized, distilled, organic-free water. This water is used as the capture solution, for rinsing the sample probe, sample line, and impingers at the completion of the sampling run, in reagent dilutions, and in blanks.

7.1.2 Ice. Ice is necessary to pack around the impingers during sampling in order to keep the impingers cold. Ice is also needed for sample transport and storage.

7.2 Analysis

7.2.1 Acetyl acetone Reagent. Prepare the acetyl acetone reagent by dissolving 15.4 g of ammonium acetate in 50 mL of reagent water in a 100-mL volumetric flask. To this solution, add 0.20 mL of acetyl acetone and 0.30 mL of glacial acetic acid. Mix the solution thoroughly, then dilute to 100 mL with reagent water. The solution can be stored in a brown glass bottle in the refrigerator, and is stable for at least two weeks.

7.2.2 Formaldehyde. Reagent grade.

7.2.3 Ammonium Acetate

7.2.4 Glacial Acetic Acid

8.0 Sample Collection, Preservation, Storage, and Transport

8.1 Pre-test

8.1.1 Collect information about the site characteristics such as exhaust pipe diameter, gas flow rates, port location, access to ports, and safety requirements during a pre-test site survey. You should then decide the sample collection period per run and the target sample flow rate based on your best estimate of the formaldehyde concentration likely to be present. You want to assure that sufficient formaldehyde is captured in the impinger solution so that it can be measured precisely by the spectrophotometer. You may use Equation 323–1 to design your test program. As a guideline for optimum performance, if you can, design your test so that the liquid concentration (C_l) is approximately 10 times the assumed spectrophotometer detection limit of 0.2 µg/mL. However, since actual detection limits are instrument specific, we also suggest that you confirm that the laboratory equipment can meet or exceed this detection limit.

8.1.2 Prepare and then weigh the midget impingers prior to configuring the sampling train. The first impinger is initially dry. The second impinger contains 20 mL of reagent water, and the third impinger contains silica gel that is added before weighing the impinger. Each prepared impinger is weighed and the pre-sampling weight is recorded to the nearest 0.5 gm.

8.1.3 Assemble the sampling train (see Figure 1). Ice is packed around the impingers in order to keep them cold during sample collection. A small amount of water may be added to the ice to improve thermal transfer.

8.1.4 Perform a sampling system leak check (from the probe tip to the pump outlet) as follows: Connect a rotameter to the outlet of the pump. Close off the inlet to the probe and observe the leak rate. The leak rate must be less than 2 percent of the planned sampling rate of 0.2 or 0.4 L/min.

8.1.5 Source gas temperature and static pressure should also be considered prior to field sampling to ensure adequate safety precautions during sampling.

8.2 Sample Collection

8.2.1 Set the sample flow rate between 0.2–0.4 L/min, depending upon the anticipated concentration of formaldehyde in the engine exhaust. (You may have to refer to published data for anticipated concentration levels—see References 5 and 6.) If no information is available for the anticipated levels of formaldehyde, use the higher sampling rate of 0.4 L/min.

8.2.2 Record the sampling flow rate every 5 to 10 minutes during the sample collection period. **NOTE:** It is critical that you do not sample at a flow rate higher than 0.4 L/min. Sampling at higher flow rates may reduce formaldehyde collection efficiency resulting in measured formaldehyde concentrations that are less than the actual concentrations.

8.2.3 Monitor the amount of ice surrounding the impingers and add ice as necessary to maintain the proper impinger temperature. Remove excess water as needed to maintain an adequate amount of ice.

8.2.4 Record measured leak rate, beginning and ending times and dry gas meter readings for each sampling run, impinger weights before and after sampling, and sampling flow rates and dry gas meter exhaust temperature every 5 to 10 minutes during the run, in a signed and dated notebook.

8.2.5 If possible, monitor and record the fuel flow rate to the engine and the exhaust oxygen concentration during the sampling period. This data can be used to estimate the engine exhaust flow rate based on the Method 19 approach. This approach, if accurate fuel flow rates can be determined, is preferred for reciprocating IC engine exhaust flow rate estimation due to the pulsating nature of the engine exhaust. The F–Factor procedures described in Method 19 may be used based on measurement of fuel flow rate and exhaust oxygen concentration. One example equation is Equation 323–2.

8.3 Post-test. Perform a sampling system leak-check (from the probe tip to pump outlet). Connect a rotameter to the outlet of the pump. Close off the inlet to the probe and observe the leak rate. The leak rate must be less than 2 percent of the sampling rate. Weigh and record each impinger immediately after sampling to determine the moisture weight gain. The impinger weights are measured before transferring the impinger contents, and before rinsing the sample probe and sample line. The moisture content of the exhaust gas is determined by measuring the weight gain of the impinger solutions and volume of gas sampled as described in Method 4. Rinse the sample probe and sample line with reagent water. Transfer the impinger catch to an amber 40-mL VOA bottle with a Teflon-lined cap. If there is a small amount of liquid in the dropout impinger (< 10 mL), the impinger catches can be combined in one 40 mL VOA bottle. If there is a larger amount of liquid in the dropout impinger, use a larger VOA bottle to combine the impinger catches. Rinse the impingers and combine the rinsings from the sample probe, sample line, and impingers with the impinger catch. In general, combined rinse volumes should not exceed 10 mL. However, in cases where a long, flexible extension line must be used to connect the sample probe to the sample box, sufficient water must be used to rinse the connecting line to insure that any sample that may have collected there is recovered. The volume of the rinses during sample recovery should not be excessive as this may result in your having to use a larger VOA bottle. This in turn would raise the detection limit of the method since after combining the rinses with the impinger catches in the VOA bottle, the bottle should be filled with reagent water to eliminate the headspace in the sample vial. Keep the sample bottles over ice until analyzed on-site or received at the laboratory. Samples should be analyzed as soon as possible to minimize possible sample degradation. Based on a limited number of previous analyses, samples held in refrigerated conditions showed some sample degradation over time.

8.4 Quality Control Samples

8.4.1 Field Duplicates. During at least one run, a pair of samples should be collected concurrently and analyzed as separate samples. Results of the field duplicate samples should be identified and reported with the sample results. The percent difference in exhaust (stack) concentration indicated by field duplicates should be within 20 percent of their mean concentration. Data are to be flagged as suspect if the duplicates do not meet the acceptance criteria.

8.4.2 Spiked Samples. An aliquot of one sample from each source sample set should be spiked at 2 to 3 times the formaldehyde level found in the unspiked sample. It is also recommended that a second aliquot of the same sample be spiked at around half the level of the first spike; however, the second spike is not mandatory. The results are acceptable if the measured spike recovery is 80 to 120 percent. Use Equation 323–4. Data are to be flagged as suspect if the spike recovery do not meet the acceptance criteria.

8.4.3 Field Blank. A field blank consisting of reagent water placed in a clean impinger train, taken to the test site but not sampled, then recovered and analyzed in the same manner as the other samples, should be collected with each set of source samples. The field blank results should be less than 50 percent of the lowest calibration standard used in the sample analysis. If this criteria is not met, the data should be flagged as suspect.

9.0 Quality Control

QA/QC	Acceptance	Frequency	Corrective action
Leak-check—Sections 8.1.4, 8.3	< 2% of Sampling rate	Pre- and Post-sampling	Pre-sampling: Repair leak and re-check Post-sampling: Flag data and repeat run if for regulatory compliance.
Sample flow rate	Between 0.2 and 0.4 L/min	Throughout sampling	Adjust.
VOA vial headspace	No headspace	After sample recovery	Flag data.
Sample preservation	Maintain on ice	After sample recovery	Flag data.
Sample hold time	14 day maximum	After sample recovery	Flag data.
Field Duplicates—Section 8.4.1	Within 20% of mean of original and duplicate sample.	One duplicate per source sample set.	Flag data.
Spiked Sample—Section 8.4.2	Recovery between 80 and 120%	One spike per source sample set	Flag data.
Field Blank—Section 8.4.3	< 50% of the lowest calibration standard.	One blank per source sample set	Flag data.
Calibration Linearity—Section 10.1	Correlation coefficient of 0.99 or higher.	Per source sample set	Repeat calibration procedures.
Calibration Check Standard—Section 10.3.	Within 10% of theoretical value	One calibration check per source sample set.	Repeat check, remake standard and repeat, repeat calibration.
Lab Duplicates—Section 11.2.1	Within 10% of mean of original and duplicate sample analysis.	One duplicate per 10 samples	Flag data.
Analytical Blanks—Section 11.2.2	< 50% of the lowest calibration standard.	One blank per source sample set	Clean glassware/analytical equipment and repeat.

10.0 Calibration and Standardization

10.1 Spectrophotometer Calibration. Prepare a stock solution of 10 µg/mL formaldehyde. Prepare a series of calibration standards from the stock solution by adding 0, 0.1, 0.3, 0.7, 1.0, and 1.5 mL of stock solution (corresponding to 0, 1.0, 3.0, 7.0, 10.0, and 15.0 µg formaldehyde, respectively) to screw-capped vials. Adjust each vial's volume to 2.0 mL with reagent water. At this point the concentration of formaldehyde in the standards is 0.0, 0.5, 1.5, 3.5, 5.0, and 7.5 µg/mL, respectively. Add 2.0 mL of acetyl acetone reagent, thoroughly mix the solution, and place the vials in a water bath (or heating block) at 60 °C for 10 minutes. Remove the vials and allow to cool to room temperature. Transfer each solution to a cuvette and measure the absorbance at 412 nm using the spectrophotometer. Develop a calibration curve from the analytical results of these standards. The acceptance criteria for the spectrophotometer calibration is a correlation coefficient of 0.99 or higher. If this criteria is not met, the calibration procedures should be repeated.

10.2 Spectrophotometer Zero. The spectrophotometer should be zeroed with reagent water when analyzing each set of samples.

10.3 Calibration Checks. Calibration checks consisting of analyzing a standard separate from the calibration standards must be performed with each set of samples. The calibration check standard should not be prepared from the calibration stock solution. The result of the check standard must be within 10 percent of the theoretical value to be acceptable. If the acceptance criteria are not met, the standard must be reanalyzed. If still unacceptable, a new calibration curve must be prepared using freshly prepared standards.

11.0 Analytical Procedure

11.1 Sample Analysis. A 2.0-mL aliquot of the impinger catch/rinsate is transferred to a screw-capped vial. Two mL of the acetyl acetone reagent are added and the solution is thoroughly mixed. Once mixed, the vial is placed in a water bath (or heating block) at 60 °C for 10 minutes. Remove the vial and allow to cool to room temperature. Transfer the solution to a cuvette and measure the absorbance using the spectrophotometer at 412 nm. The quantity of formaldehyde present is determined by comparing the sample response to the calibration curve. Use Equation 323–5. If the sample response is out of the calibration range, the sample must be diluted and reanalyzed. Such dilutions must be performed on another aliquot of the original sample before the addition of the acetyl acetone reagent. The full procedure is repeated with the diluted sample.

11.2 Analytical Quality Control

11.2.1 Laboratory Duplicates. Two aliquots of one sample from each source sample set should be prepared and analyzed (with a minimum of one pair of aliquots for every 10 samples). The percent difference between aliquot analysis should be within 10 percent of their mean. Use Equation 323–3. Data are flagged if the laboratory duplicates do not meet this criteria.

11.2.2 Analytical blanks. Blank samples (reagent water) should be incorporated into each sample set to evaluate the possible presence of any cross-contamination. The acceptance criteria for the analytical blank is less than 50 percent of the lowest calibration standard. If the analytical blank does not meet this criteria, the glassware/analytical equipment should be cleaned and the analytical blank repeated.

12.0 Calculations and Data Analysis

12.1 Nomenclature

A = measured absorbance of 2 mL aliquot
B = estimated sampling rate, Lpm
C_l = target concentration in liquid, μg/mL
D = estimated stack formaldehyde concentration (ppmv)
E = estimated liquid volume, normally 40 mL (the size of the VOA used)
c_{form} = formaldehyde concentration in gas stream, ppmvd
c_{form} @15%0_2 = formaldehyde concentration in gas stream corrected to 15% oxygen, ppmvd
C_{sm} = measured concentration of formaldehyde in the spiked aliquot
C_u = measured concentration of formaldehyde in the unspiked aliquot of the same sample
C_s = calculated concentration of formaldehyde spiking solution added to the spiked aliquot
F = dilution factor, 1 unless dilution of the sample was needed to reduce the absorbance into the calibration range
F_d = dry basis F-factor from Method 19, dscf per million btu GCV_g = Gross calorific value (or higher heating value), btu per scf
K_c = spectrophotometer calibration factor, slope of the least square regression line, μg/absorbance (Note: Most spreadsheets are capable of calculating a least squares line.)
K_1 = 0.3855 °K/mm Hg for metric units, (17.65 °R/in.Hg for English units.)
MW = molecular weight, 30 g/g-mole, for formaldehyde 24.05 = mole specific volume constant, liters per g-mole
m = mass of formaldehyde in liquid sample, mg
P_{std} = Standard pressure, 760 mm Hg (29.92 in.Hg)
P_{bar} = Barometric pressure, mm Hg (in.Hg)
PD = Percent Difference
Q_e = exhaust flow rate, dscf per minute
Q_g = natural gas fuel flow rate, scf per minute
T_m = Average DGM absolute temperature, °K (°R).
T_{std} = Standard absolute temperature, 293 °K (528 °R).
t = sample time (minutes)
V_m = Dry gas volume as measured by the DGM, dcm (dcf).
$V_{m(std)}$ = Dry gas volume measured by the DGM, corrected to standard conditions of 1 atmosphere and 20 °C, dscm (dscf).
V_t = actual total volume of impinger catch/rinsate, mL
V_a = volume (2.0) of aliquot analyzed, mL
X_1 = first value
X_2 = second value
O_{2d} = oxygen concentration measured, percent by volume, dry basis
%R = percent recovery of spike
Z_u = volume fraction of unspiked (native) sample contained in the final spiked aliquot [*e.g.,* Vu/(Vu + Vs), where Vu + Vs should = 2.0 mL]
Z_s = volume fraction of spike solution contained in the final spiked aliquot [*e.g.,* Vs/(Vu + Vs)]
R = 0.02405 dscm per g-mole, for metric units at standard conditions of 1 atmosphere and 20 °C
Y = Dry Gas Meter calibration factor

12.2 Pretest Design

$$C_1 = \frac{B * t * D * 30}{24.05 * E} \qquad \text{Eq. 323-1}$$

12.3 Exhaust Flow Rate

$$Q = \frac{F_d Q_g GCV_g}{10^6}\left[\frac{20.9}{20.9 - O_{2d}}\right] \qquad \text{Eq. 323-2}$$

12.4 Percent Difference—(Applicable to Field and Lab Duplicates)

$$PD = \frac{(X_1 - X_2)}{\left(\frac{X_1 + X_2}{2}\right)} * 100 \qquad \text{Eq. 323-3}$$

12.5 Percent Recovery of Spike

$$\%R = \frac{(C_{sm} - Z_u C_u)}{Z_s C_s} * 100 \qquad \text{Eq. 323-4}$$

12.6 Mass of Formaldehyde in Liquid Sample

$$m = K_c * A * F\left(\frac{V_t}{V_a}\right)\left(\frac{1\ mg}{1000\ .g}\right) \qquad \text{Eq. 323-5}$$

12.7 Dry Gas Sample Volume Corrected to Standard Conditions

$$V_{m(std)} = \frac{(V_m Y T_{std} P_{bar})}{T_m P_{std}} = \frac{K_i Y V_m P_{bar}}{T_m} \qquad \text{Eq. 323-6}$$

12.8 Formaldehyde Concentration in gas Stream

$$c_{form} = \frac{R}{MW}\left(\frac{m}{V_{m(std)}}\right)\left(\frac{1\,g}{1000\,mg}\right)\left(1\times10^6\ ppmv\right) \qquad \text{Eq. 323-7}$$

12.9 Formaldehyde Concentration Corrected to 15% Oxygen

$$c_{form@15\%O_2} = c_{form} * \frac{(20.9-15)}{(2.9-O_{2d})} \qquad \text{Eq. 323-8}$$

13.0 Method Performance

13.1 Precision. Based on a Method 301 validation using quad train arrangement with post sampling spiking study of the method at a natural gas-fired IC engine, the relative standard deviation of six pairs of unspiked samples was 11.2 percent at a mean stack gas concentration of 16.7 ppmvd.

13.2 Bias. No bias correction is allowed. The single Method 301 validation study of the method at a natural gas-fired IC engine, indicated a bias correction factor of 0.91 for that set of data. An earlier spiking study got similar average percent spike recovery when spiking into a blank sample. This data set is too limited to justify using a bias correction factor for future tests at other sources.

13.3 Range. The range of this method for formaldehyde is 0.2 to 7.5 μg/mL in the liquid phase. (This corresponds to a range of 0.27 to 10 ppmv in the engine exhaust if sampling at a rate of 0.4 Lpm for 60 minutes and using a 40-mL VOA bottle.) If the liquid sample concentration is above this range, perform the appropriate dilution for accurate measurement. Any dilutions must be taken from new aliquots of the original sample before reanalysis.

13.4 Sample Stability. Based on a sample stability study conducted in conjunction with the method validation, sample degradation for 7- and 14-day hold times does not exceed 2.3 and 4.6 percent, respectively, based on a 95 percent level of confidence. Therefore, the recommended maximum sample holding time for the underivatized impinger catch/rinsings is 14 days, where projected sample degradation is below 5 percent.

14.0 Pollution Prevention

Sample gas from the combustion source exhaust is vented to the atmosphere after passing through the chilled impinger sampling train. Reagent solutions and samples should be collected for disposal as aqueous waste.

15.0 Waste Management

Standards of formaldehyde and the analytical reagents should be handled according to the Material Safety Data Sheets.

16.0 References

1. National Council of the Paper Industry for Air and Stream Improvement, Inc. "Volatile Organic Emissions from Pulp and Paper Mill Sources, Part X—Test Methods, Quality Assurance/Quality Control Procedures, and Data Analysis Protocols." Technical Bulletin No. 684, December 1994.

2. National Council of the Paper Industry for Air and Stream Improvement, Inc., "Field Validation of a Source Sampling Method for Formaldehyde, Methanol, and Phenol at Wood Products Mills." 1997 TAPPI International Environmental Conference.

3. Roy F. Weston, Inc. "Formaldehyde Sampling Method Field Evaluation and Emission Test Report for Georgia-Pacific Resins, Inc., Russellville, South Carolina." August 1996.

4. Hoechst Celanese Method CL 8–4. "Standard Test Method for Free Formaldehyde in Air Using Acetyl Acetone." Revision 0, September 1986.

5. Shareef, G.S., *et al.* "Measurement of Air Toxic Emissions from Natural Gas-Fired Internal Combustion Engines at Natural Gas Transmission and Storage Facilities." Report No. GRI–96/0009.1, Gas Research Institute, Chicago, Illinois, February 1996.

6. Gundappa, M., *et al.* "Characteristics of Formaldehyde Emissions from Natural Gas-Fired Reciprocating Internal Combustion Engines in Gas Transmission. Volume I: Phase I Predictive Model for Estimating Formaldehyde Emissions from 2–Stroke Engines." Report No. GRI–97/0376.1, Gas Research Institute, Chicago, Illinois, September 1997.

17.0 Tables, Diagrams, Flowcharts, and Validation Data

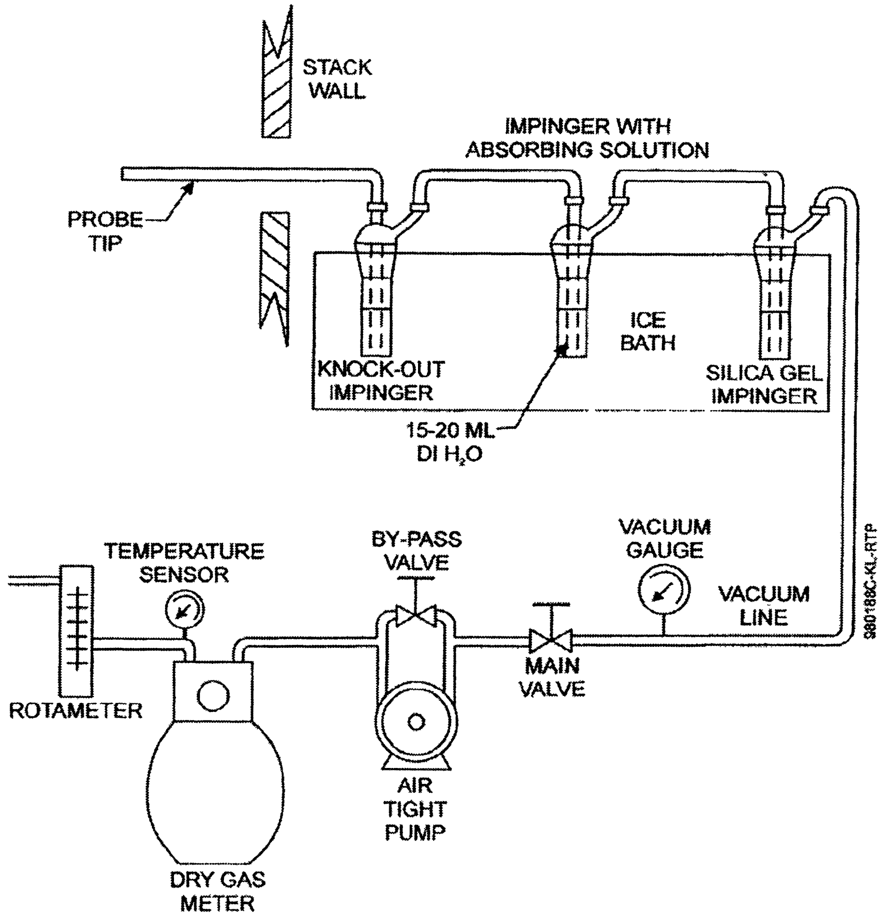

Figure 323-1. Chilled Impinger Train Sampling System

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