SUMMARY OF REQUIREMENTS FOR *EXISTING* STATIONARY *COMPRESSION IGNITION* (CI) RICE LOCATED AT *AREA SOURCES* 40 C.F.R. PART 63 SUBPART ZZZZ

NOTE: The U.S. Environmental Protection Agency (EPA) recently published amendments to the emission standards for stationary reciprocating internal combustion engines, mainly regarding RICE used for emergency or back-up power (78 *Fed. Reg.* 6674, Jan. 30, 2013). This AGC fact sheet has been updated – using "track-changes" – to reflect the pertinent revisions, as finalized.

Some of the main points of the above-referenced Reciprocating Internal Combustion Engine (RICE) rule are:

- This rule applies to all stationary engines at area sources of hazardous air pollutants if the engine is constructed/reconstructed (i.e., installed) before July 2006.
- Emergency generator set engines are exempt.
- All regulated engines need to limit engine idle during startup to less than 30 minutes per event.
- Non-emergency engines greater than 300 brake horsepower (HP) must reduce emissions by 70%, mainly through the use of exhaust after-treatment devices [or meet a carbon monoxide (CO) ppmvd @ 15% O_2 limit]; install a clean crank case ventilation; monitor inlet temperature and pressure drop (>500 HP only); perform initial compliance test; re-test engine every 8,760 hours of operation or every three years (> 500 HP only); log data and report annually that the standard is being met.
- Non-emergency engines 300 HP and below and all emergency engines must meet management practice standards.
- Non-emergency engines greater than 300 HP must use ultra-low sulfur diesel (ULSD) [except in rural AK].
- An initial notification to U.S. EPA is required immediately for non-emergency existing compression ignition (CI) engines subject to numerical emission standards - Sample Initial Notification- Compression Ignition.
- Full compliance is required by May 3, 2013.
- Keep records of maintenance on all engines. Records must be kept for five years.

Emissions Limits & Management Practice Requirements – Existing Area Source CI RICE

Engine Type - constructed before June 2006	**Requirement**
Non-emergency CI ≤ 300 HP	Management Practice* • Change oil and filter annually or every 1,000 hours of operation OR use oil analysis program to extend oil change frequencies (see below) • Inspect the air cleaner (filter) annually or every 1,000 hours of

	operation and replace as needed • Inspect the hoses and belts annually or every 500 hours of operation and replace if needed • Operate and maintain according to manufacturer's emission-related instructions OR implement maintenance plan for operation and maintenance (O&M) consistent with good pollution control practices
Non-emergency CI 300 - 500 HP	Emission Limit (*except during startup*)** • Limit CO in exhaust to 49 ppmvd @ 15% O_2 or 70% CO reduction (except in rural AK)
Non-emergency CI >500 HP	Emission Limit (*except during startup*)** • Limit CO in exhaust to 23 ppmvd @ 15% O_2, or 70% CO reduction
Emergency CI	Management Practice* • Change oil and filter annually or every 500 hours of operation OR use oil analysis program to extend oil change frequencies (see below) • Inspect the air cleaner (filter) annually or every 1,000 hours of operation and replace as needed • Inspect the hoses and belts annually or every 500 hours of operation and replace if needed • Operate and maintain according to manufacturer's emission-related instructions OR implement maintenance plan for O&M consistent with good pollution control practices

***Owners/operators of engines subject management practice standards** must keep records of oil and filter change dates and the corresponding hour on the hour meter, inspection and replacement dates for air cleaners, hoses and belts, and records of other emission-related repairs and maintenance performed per manufacturer's instructions or owner-developed maintenance plan. Records must be kept for five years. They must be available on site for at least two years and can be stored (but available) off-site for the remaining three years.

**EPA is amending the RICE NESHAP to allow Tier 1 and Tier 2 certified stationary CI engines, that are scheduled to be replaced due to state or local rules, to meet management practices rather than emissions limits until January 1, 2015 (or 12 years after installation date, but not later than June 1, 2018). The amendments also specify that existing stationary area source Tier 3 certified CI engines installed before June 12, 2006, are in compliance with the NESHAP.

Oil Analysis Program

Engines subject to the work practices requirements may use the oil analysis program to extend the specified oil change frequencies. The oil analysis must be performed at the same frequency as required by the work practice standard. The following parameters must be analyzed: total base number, viscosity, and percent water content. The oil must be changed if the total base number is less than 30% of the total base number of the oil when new; the viscosity of the oil has changed by more than 20% from the viscosity when new; or the percent water content by volume is greater than 0.5. If none of these parameters have been exceeded then an oil change is not required. Records must be kept of the parameters that are analyzed as part of this program.

Operating Limitations & Compliance Testing - Existing Area Source CI RICE

Engine Type - constructed before June 2006	**Requirement**
All engines with catalysts (NSCR or Oxidation)** ** This only applies for non-emergency engines >500 HP	Operating Limits • 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 that was measure during the initial performance test • Maintain the catalyst inlet temperature between 450 and 1350 degrees Fahrenheit
Non-emergency CI ≤ 300 HP and Emergency CI	Compliance Testing • No performance test required
Non-emergency CI 300 - 500 HP	Operating Limits • Follow manufacturer's maintenance and filter replacement requirements for crankcase filtration system – see below Compliance Testing • Conduct an initial performance test to demonstrate compliance with numerical emission standards • A Notification of Compliance Status must be sent within 60 days following completion of the initial performance test, or 30 days after completion of performance evaluation of a continuous emission monitoring system (CEMS)
Non-emergency CI >500 HP	Operating Limits • Follow manufacturer's maintenance and filter replacement

	requirements for crankcase filtration system – see below Compliance Testing • Conduct an initial performance test; re-test every 8,760 hours of operation or 3 years, whichever comes first (every 5 years if limited use) • Send a Notification of Compliance Status within 60 days following completion of the initial performance test, or 30 days after completion of performance evaluation of a CEMS • Continuously monitor/record the catalyst inlet temperature if oxidation catalyst is being used on engine; pressure drop across catalyst also must be measured monthly

Minimize Engine Idle During Startup

Owners/operators of existing, stationary, CI engines (non-emergency and emergency) must minimize idle during startup and startup not to exceed 30 minutes, after which the emission standards that apply during normal operation begin applying to the engine. Engine startup is defined as the time from initial start until applied load and engine and associated equipment, including the catalyst if applicable, reach steady state or normal operation.

Crankcase Emissions Control

Owners/operators of existing, stationary, non-emergency CI engines greater than 300 HP are required to control crankcase emissions to reduce metallic HAP emissions. If the engine is not already equipped with a closed crankcase ventilation system, then install either a closed crankcase ventilation system or an open crankcase filtration emission control system. A closed crankcase ventilation system must prevent crankcase emissions from being emitted to the atmosphere. An open crankcase filtration system must reduce emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals. Manufacturer's requirements must be followed for operating and maintaining either type of system and for replacing the crankcase filters.

Keep records of the manufacturer's recommended maintenance procedures for closed crankcase ventilation system or open crankcase filtration system and records of maintenance performed on the system.

Fuel Requirements

Owners/operators of existing, stationary, non-emergency CI engines greater than 300 HP with a displacement of less than 30 liters per cylinder must meet the nonroad diesel fuel requirements of 40 CFR 80.510(b), which limits sulfur content to 15 ppm and either a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent.

Reporting Requirements

Must submit all of the applicable notifications including an initial notification, notification of performance test, and notification of compliance for each stationary RICE that must comply with the specified emission limitations.

Semiannual or annual compliance reports are required after the compliance date for the engine, depending on the engine size and annual hours of operation. Compliance reports must include information on startup, shutdown and malfunctions, and any deviations from emission standards or operating limitations. If the facility has a title V permit, compliance reports should be submitted according to the schedule in the permit.

Emergency Engines

~~Unless the existing emergency engine meets the requirements for non-emergency engines, a non-resettable hour meter must be installed to record hours of operation. Maintenance and testing is limited to 100 hours per year. There is no time limit on use during emergencies. Records must be kept of hours of operation and why the engine was operated.~~

~~Non-emergency use is allowed for up to 50 hours per year, but those 50 hours are counted towards the 100 hours for maintenance and testing. The 50 hours per year may not be used for peak shaving or to generate income for the facility as part of a financial arrangement (except for the 15 hours described below).~~

~~The emergency engine may be operated for up to 15 hours per year as part of an emergency demand response program if the regional transmission organization and transmission operator has determined there are emergency conditions that could lead to a potential electrical blackout. The engine may not be operated for more than 30 minutes prior to the time when the emergency condition is expected to occur and operation must be terminated immediately after the facility is notified that the emergency condition is no longer imminent.~~

Emergency engines may be used to prevent electrical outages and to test and maintain engines for up to a total of 100 hours per year.

In 2015, emergency engines will be required to use cleaner fuel – ultra low sulfur diesel (ULSD) – if they operate, or commit to operate, for more than 15 hours annually as part of blackout and brownout prevention, also known as emergency demand response. EPA's information shows that only a small percentage of emergency engines currently use ULSD fuel; switching will reduce emissions of HAP, particulate matter and sulfur dioxide, according to EPA.

Starting in 2015, entities with 100 horsepower (hp) or larger engines that operate, or commit to operate, for more than 15 hours and up to 100 hours per year for emergency demand response will need to collect and submit an annual report including location, dates and times of operation. Reporting requirements ensure compliance with the regulations and provide information about the air pollution impacts of the engines.

For a combined total of 100 hours per year, emergency engines can be used for the following purposes:

- maintenance and testing,
- emergency demand response for Energy Emergency Alert Level 2 situations,
  - responding to situations when there is at least a 5 percent or more change in voltage, and
  - operating for up to 50 hours to head off potential voltage collapse, or line overloads, that could result in local or regional power disruption.

The 2013 amendments restate that in an emergency, such as hurricane or ice storm, any engine of any size can operate without meeting control requirements or emission limits.

Emergency engines that commit to run less than 15 hours for emergency demand response can operate without meeting federal control requirements or numeric emission limits.