

Stationary Reciprocating Internal Combustion Engines[RICE] – NESHAP Subpart ZZZZ



WALK MORE USE CFLS MORE CARPOOL MORE
BIKE MORE RAKE MORE TELECOMMUTE
MORE DRIVE HYBRIDS MORE CONSOLIDATE
ERRANDS MORE RIDE PUBLIC TRANSPORTATION
MORE USE ENERGY EFFICIENT APPLIANCES
MORE CARRY REUSABLE TOTE BAGS MORE
CONSIDER SOLAR MORE RUN COLD WATER
CYCLES MORE USE REUSABLE CONTAINERS
MORE CONSERVE ELECTRICITY MORE REDUCE
WOODBURNING MORE RECYCLE MORE USE
ELECTRIC LAWN AND GARDEN EQUIPMENT
MORE REFUEL AFTER DARK MORE RIDE
THE BUS MORE RIDE THE LIGHT RAIL MORE
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- Purpose:
 - Reduce emissions of Hazardous Air Pollutants through the reduction of either
 - Formaldehyde Emissions or
 - Carbon Monoxide Emissions
- Applicability:
 - Emergency and Non-Emergency Engines manufactured before June 12, 2006
 - Engines at major and area sources of HAP emissions
 - Applies to engines of all horsepower (no minimum)

- Compliance Dates:
 - Compression Ignition Engines: May 3, **2013**
 - Spark Ignition Engines: October 19, **2013**
 - Performance Testing Requirements for Non-Emergency [PRIME] Engines: October 30, **2013**

- Exemptions: Area Sources of HAPs
 - **Emergency generators** located at residential, commercial and institutional facilities
 - *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.
 - *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.

Exemptions Continued: Area Sources of HAPs

- New or reconstructed engines that comply with NSPS Subpart IIII (compression ignition) or NSPS Subpart JJJJ (spark ignition)
 - Engines manufactured after April 1, 2006; or
 - Engines that meet the emission standard required by NSPS IIII or JJJJ
- Non-Road Engines
 - In or on equipment that is:
 - Portable
 - Intended to be propelled
 - Self propelled
 - At a single location/site for 12 months or less

Internal combustion (IC) **non-road engines** is defined in Rule 324 §210.1 as any IC engine that by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one **location** to another. Indicia of transportability include by are not limited to, wheels, skids, carrying handles, dollies, trailers, or platforms.

Location is further defined in M.C. Rule 324, §210.2 as any single site at a building structure, facility, or installation.



- Requirements for **All** Engines:
 - Operate and maintain each engine according to the manufacturer's emission-related operation and maintenance instructions
 - Management Practices (frequency varies by engine)
 - Change oil and filter (or perform an oil analysis)
 - Inspect air cleaner
 - Inspect belts and hoses
 - Inspect spark plugs (spark ignition engines)
 - Installation of a run-time meter
 - Records
 - Records of maintenance performed
 - Run time

- Additional Requirements for Non-Emergency (Prime) Engines > 300 hp:
 - Fuel Standard (compression ignition):
 - Use diesel fuel with a maximum sulfur content < 15 ppm
 - Emission Limitation:
 - Limit the concentration of formaldehyde or CO, or reduce CO by 70%
 - Typically requires installation of an oxidation catalyst
 - Performance Test (due Oct. 30, **2013** for existing)
 - Measure CO and O₂ in the exhaust
 - Crankcase Emissions
 - Install a closed crankcase ventilation system, or
 - Install an open crankcase filtration emission control system

- Additional Requirements for Non-Emergency Engines > 300 hp:
 - Notifications
 - Submit an Initial Notification
 - Existing Engines: Due date has passed
 - Submit a Notification of Compliance Status
 - Due before the close of business on the 60th day following the completion of the performance test
 - Records
 - Copies of all notifications
 - Records of malfunctions
 - Records of performance tests

- Additional Requirements for Non-Emergency (Prime) Engines > 500 hp:
 - Conduct subsequent performance tests every 8,760 hours or 5 years, whichever comes first
 - Catalyst Monitoring:
 - Measure the pressure drop across the catalyst monthly (can't vary by more than 2 inches H₂O as that seen during the performance test)
 - Continuously monitor and record the catalyst inlet temperature (must be between 450°F - 1350°F)
 - Maintain records of the above
 - Look for Permit Conditions

Emission Standards at Area Sources

*except engines in rural Alaska

** If engine is used >24/7

HP	Engine Subcategory					
	Non-emergency					Emergency or Black start
	CI	SI 2SLB	SI 4SLB	SI 4SRB	SI LFG/DG	
≤300	Mgmt practice standards	Mgmt practice standards	Mgmt practice standards	Mgmt practice standards	Mgmt practice standards	Mgmt practice standards
300-500	49 ppm CO or 70% CO reduction*					
>500	23 ppm CO or 70% CO reduction*		47 ppm CO or 93% CO reduction**	2.7 ppm CH ₂ O or 76% CH ₂ O reduction**		

Examples:

- 1) 55.3 h.p. diesel prime engine, manufactured in 2004, located at vehicle test facility.
- 2) 1250 h.p. emergency engine, manufactured in 2005, located at 4th ave Jail.
- 3) 11.9 h.p. engine, manufactured in 2008, at vehicle test facility

Questions:

- Subject to Rule 324?
- Subject to Subpart 4 Z?

Ex. 1: 55.3 h.p. diesel prime engine, manufactured in 2004, located at vehicle test facility.

No to Rule 324 because Applicability (Section 102) of Rule 324 states: The provisions of this rule also apply to a combination of IC engines each with a rated brake horsepower greater than 50 bhp used at a single source, whose maximum aggregate rated brake horsepower is greater than 250 bhp.

Yes, to Subpart ZZZZ because this subpart applies to: Emergency and Non-Emergency Engines manufactured before June 12, 2006 and to engines of all horsepower (no minimum)

Ex 2: 1250 h.p. emergency engine, manufactured in 2005, located at 4th ave Jail.

YES to Rule 324 because Applicability (Section 102) of Rule 324 states: The provisions of this rule also apply to a combination of IC engines each with a rated brake horsepower greater than 50 bhp used at a single source, whose maximum aggregate rated brake horsepower is greater than 250 bhp.

No: to Subpart ZZZZ because the engine is located at a correctional facility that is classified under institutional.

Ex. 3: 11.9 h.p. engine, manufactured in 2008, at vehicle test facility.

No to Rule 324 because Applicability (Section 102) of Rule 324 states: The provisions of this rule also apply to a combination of IC engines each with a rated brake horsepower greater than 50 bhp used at a single source, whose maximum aggregate rated brake horsepower is greater than 250 bhp.

No to Subpart ZZZZ. The engine is subject to NSPS IIII since it was manufactured in 2008. As such, the engine shall be certified by the engine manufacturer to meet nonroad Tier 2 emission standards.

- Example 4: GPU (ground power unit) at an airport. 365 h.p. The GPU remains at the airport year round but is moved from one location to another on a daily basis.

Is the engine subject to Rule 324 and/or Subpart ZZZZ?

Examples

- No to Rule 324: The GPU is a non road engine.
- No to Subpart ZZZZ: As indicated in the title, this subpart applies to stationary engines

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REDUCE WOODBURNING MORE
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Q&A

WASH MORE CONSOLIDATE
REUSABLE TOTE BAGS
CONSERVE ELECTRICITY MORE
REFUEL AFTER DARK
DIKE MORE RAKE MORE

Questions?

LiSa Kon
Ph: 602-372-3060
Email: lisakon@mail.maricopa.gov

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Maricopa County
Air Quality Department

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