

November 26, 2002

FACT SHEET

PROPOSED RULES TO REDUCE TOXIC AIR EMISSIONS FROM RECIPROCATING INTERNAL COMBUSTION ENGINES

TODAY'S ACTION

- ! The Environmental Protection Agency (EPA) is proposing standards to reduce air toxics emissions from stationary reciprocating internal combustion engines (RICE).
- ! Toxic air pollutants, also called air toxics, are those pollutants known or suspected to cause cancer and other serious health or environmental effects.
- ! Stationary reciprocating internal combustion engines are used at facilities such as power plants, chemical and manufacturing plants, and pipeline compressor stations.
- ! The proposed standards would substantially reduce emissions of a number of air toxics, including formaldehyde, acrolein, methanol and acetaldehyde. Exposure to emissions of these air toxics may produce a wide variety of human health problems including irritation of the respiratory system, eyes, and mucous membranes, and effects on the central nervous system. Formaldehyde exposure has been associated with reproductive effects, such as menstrual disorders and pregnancy problems. EPA has classified formaldehyde as a probable human carcinogen.
- ! The proposed standards would apply to all new, and certain existing, stationary reciprocating internal combustion engines above 500 horsepower that are located at major industrial sources of air toxics. According to the Clean Air Act, a major source emits 10 tons a year or more of a single toxic air pollutant, or 25 tons a year or more of a combination of toxic air pollutants.
- ! EPA estimates that 20,300 new stationary reciprocating internal combustion engines (4,100 built each year) will be built by the end of the fifth year after this rule takes effect. In addition, about 4,600 existing reciprocating internal combustion engines may potentially be subject to the rule. Overall, EPA estimates that only about 40 percent of new and existing engines, approximately 10,000, would be located at major sources of air toxics and thus be subject to the rule.
- ! EPA will take public comment on the proposed rule for 60 days following publication in the *Federal Register*.
- ! EPA is also seeking public comment on three options that could reduce the economic burden associated with this proposed rule. The options would focus emission control requirements on those facilities with air toxics emissions that pose the greatest health risks. Under each of these options, a facility could be exempt from additional emission control requirements if it can demonstrate that its air toxic emissions pose risks below certain health effects thresholds.

- ! EPA will hold a public hearing if requested. The Agency expects to finalize the rule within 1 year after proposal.

HEALTH/ENVIRONMENTAL BENEFITS

- ! EPA estimates a total annual reduction of air toxics emissions of 5,000 tons per year in the 5th year after the rule is in effect. Emissions of formaldehyde, acrolein, acetaldehyde and methanol will be reduced by 40 to 90 percent, depending on the type of reciprocating internal combustion engine.
- ! In addition to reducing air toxic emissions, the proposed rule will reduce emissions of hydrocarbons, particulate matter, nitrogen oxides and carbon monoxide.
- ! EPA estimates the annualized costs for the rule as proposed to be \$254 million in the 5th year.

WHAT THE PROPOSED RULE WOULD REQUIRE

- ! The standards would set limits on the amount of air pollution that may be released from exhaust stacks of stationary RICE.
- ! Affected facilities would have the flexibility to meet the proposed limits depending on the type of reciprocating internal combustion engine:

Spark Ignition 4-Stroke Rich Burn Engines

- < For new and existing engines known as “*spark ignition 4-stroke rich burn,*” or 4SRB, facilities may install controls known as “non-selective catalytic reduction systems.” These systems will reduce emissions of formaldehyde and other air toxics such as methanol, acetaldehyde and acrolein. Facility owners/operators choosing to use the non-selective catalytic reduction system must reduce formaldehyde emissions by 75 percent or more; the other pollutants then will be reduced by similar amounts.
- < Facilities may use other systems to reduce emissions from these engines. If they choose to do so, they must reduce formaldehyde emissions to 350 parts per billion, or less. By reducing formaldehyde, sources also will reduce the other air toxics to similar levels.

Spark Ignition 2-Stroke Lean Burn,
4-Stroke Lean Burn and Compression Ignition Engines

- < For new engines known as “*spark ignition 2-stroke lean burn*” (2SLB) and “*4-stroke lean burn*” (4SLB) and for compression ignition engines, facilities must reduce carbon monoxide emissions using a control device known as a “carbon monoxide catalytic oxidation system.” These systems not only reduce carbon monoxide emissions, they also reduce air toxic emissions such as formaldehyde, acrolein, methanol and acetaldehyde. Facilities choosing to use the carbon monoxide catalyst oxidation system must reduce carbon monoxide emissions by 60 percent for spark ignition 2SLB engines, 93 percent for spark ignition 4SLB engines, and 70 percent for compression ignition engines; the other pollutants will then be reduced by similar amounts.
- < Facilities may use other means to reduce emissions from these engines. If they choose to do so, they must reduce formaldehyde emissions to 17 parts per million (for spark ignition 2SLB engines), 14 parts per million (for spark ignition 4SLB engines) and 580 parts per billion (for compression ignition engines).

BACKGROUND

- ! The Clean Air Act requires EPA to develop standards for categories of facilities that emit one or more of 188 listed toxic air pollutants. These standards require the application of strict controls known as maximum achievable control technology (MACT).
- ! Reciprocating internal combustion engines is a category of major sources for which MACT standards must be developed.

FOR MORE INFORMATION

- ! To download the proposed standards from EPA’s web site, go to “Recent Actions” at the following address: <http://www.epa.gov/ttn/oarpg>.
- ! The proposed standards (located above) have information on when and how to comment on the proposal.
- ! For further information about the proposal, contact Mr. Sims Roy at EPA’s Office of Air Quality Planning and Standards at 919-541-5263.
- ! For information regarding reciprocating internal combustion engines, visit EPA’s web site at: <http://www.epa.gov/ttn/atw/combust/engine/ricepg.html>. For other combustion-related regulations, visit EPA’s Combustion Related Rules page at: <http://www.epa.gov/ttn/atw/combust/list.html>.

