

reductions, any nonair quality health and environmental impacts, and energy requirements.

D. What Are the Health Effects Associated With HAP From Stationary Combustion Turbines?

Emission data collected during development of the proposed NESHAP show that several HAP are emitted from stationary combustion turbines. These HAP emissions are formed during combustion or result from HAP compounds contained in the fuel burned.

Among the HAP which have been measured in emission tests that were conducted at natural gas fired and distillate oil fired combustion turbines are: 1,3 butadiene, acetaldehyde, acrolein, benzene, ethylbenzene, formaldehyde, naphthalene, poly aromatic hydrocarbons (PAH) propylene oxide, toluene, and xylenes. Metallic HAP from distillate oil fired stationary combustion turbines that have been measured are: arsenic, beryllium, cadmium, chromium, lead, manganese, mercury, nickel, and selenium.

Although numerous HAP may be emitted from combustion turbines, only a few account for essentially all the mass of HAP emissions from stationary combustion turbines. These HAP are: formaldehyde, toluene, benzene, and acetaldehyde.

The HAP emitted in the largest quantity is formaldehyde. Formaldehyde is a probable human carcinogen and can cause irritation of the eyes and respiratory tract, coughing, dry throat, tightening of the chest, headache, and heart palpitations. Acute inhalation has caused bronchitis, pulmonary edema, pneumonitis, pneumonia, and death due to respiratory failure. Long-term exposure can cause dermatitis and sensitization of the skin and respiratory tract.

Other HAP emitted in significant quantities from stationary combustion turbines include toluene, benzene, and acetaldehyde. The health effect of primary concern for toluene is dysfunction of the central nervous system (CNS). Toluene vapor also causes narcosis. Controlled exposure of human subjects produced mild fatigue, weakness, confusion, lacrimation, and paresthesia; at higher exposure levels there were also euphoria, headache, dizziness, dilated pupils, and nausea. After effects included nervousness, muscular fatigue, and insomnia persisting for several days. Acute

exposure may cause irritation of the eyes, respiratory tract, and skin. It may also cause fatigue, weakness, confusion, headache, and drowsiness. Very high concentrations may cause unconsciousness and death.

Benzene is a known human carcinogen. The health effects of benzene include nerve inflammation, CNS depression, and cardiac sensitization. Chronic exposure to benzene can cause fatigue, nervousness, irritability, blurred vision, and labored breathing and has produced anorexia and irreversible injury to the blood-forming organs; effects include aplastic anemia and leukemia. Acute exposure can cause dizziness, euphoria, giddiness, headache, nausea, staggering gait, weakness, drowsiness, respiratory irritation, pulmonary edema, pneumonia, gastrointestinal irritation, convulsions, and paralysis. Benzene can also cause irritation to the skin, eyes, and mucous membranes.

Acetaldehyde is a probable human carcinogen. The health effects for acetaldehyde are irritation of the eyes, mucous membranes, skin, and upper respiratory tract, and it is a CNS depressant in humans. Chronic exposure can cause conjunctivitis, coughing, difficult breathing, and dermatitis. Chronic exposure may cause heart and kidney damage, embryotoxicity, and teratogenic effects. Acetaldehyde is a potential carcinogen in humans.

II. Summary of the Proposed Rule

A. Am I Subject to the Proposed Rule?

The proposed rule applies to you if you own or operate a stationary combustion turbine which is located at a major source of HAP emissions. A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year.

Section 112(n)(4) of the CAA requires that the aggregation of HAP for purposes of determining whether an oil and gas production facility is major or nonmajor be done only with respect to particular sites within the source and not on a total aggregated site basis. We incorporated the requirements of section 112(n)(4) of the CAA into our NESHAP for Oil and Natural Gas Production Facilities in subpart HH of part 63. As in subpart HH, we plan to aggregate

HAP emissions for the purposes of determining a major HAP source for turbines only with respect to particular sites within an oil and gas production facility. The sites are called surface sites and may include a combination of any of the following equipment; glycol dehydrators, tanks which have potential for flash emissions, reciprocating internal combustion engines and combustion turbines.

Six subcategories have been defined within the stationary combustion turbine source category. While all stationary combustion turbines are subject to the proposed rule, each subcategory has distinct requirements. For example, existing diffusion flame combustion turbines and stationary combustion turbines with a rated peak power output of less than 1.0 megawatt (MW) (at International Organization for Standardization (ISO) standard day conditions) are not required to comply with emission limitations, recordkeeping or reporting requirements in the proposed rule. New or reconstructed stationary combustion turbines and existing lean premix stationary combustion turbines with a rated peak power output of 1.0 MW or more that either operate exclusively as an emergency stationary combustion turbine, as a limited use stationary combustion turbine, or as a stationary combustion turbine which burns landfill gas or digester gas as its primary fuel must only comply with the initial notification requirements. New or reconstructed diffusion flame or lean premix combustion turbines must comply with emission limitations, recordkeeping and reporting requirements in the proposed rule. The emission limitations for each subcategory are summarized in Table 2 of this preamble. You must determine your source's subcategory to determine which requirements apply to your source.

The proposed rule does not apply to stationary combustion turbines located at an area source of HAP emissions. An area source of HAP emissions is a plant site that does not emit any single HAP at a rate of 10 tons (9.07 megagrams) or greater per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or greater per year. To determine whether a facility is a major source, EPA will accept HAP emissions estimated using HAP emission factors listed in Table 1 of this preamble.