EPA's AP-42 method for estimating pollutant emissions is based on the generator capacity, generator usage rate, and pollutant emission factors. Emissions are calculated by multiplying the power capacity of each generator by the number of hours the generator was operated and by the emission factor for each specific pollutant and by the air pollution control factor. Air pollution control methods for generators include steam injection, water injection, and selective catalytic reduction for NO_x control.

Total pollutant emissions from a generator using EPA's AP-42 method may be estimated by applying **Equation A5-3** (*Total Pollutant Emissions for Generators - EPA's AP-42 Method*).

$$E = GC \times T \times UEF \times (1 - CF/100)$$

Where:

E = total emissions of pollutant from the emergency generator for a given time period, expressed in pounds.

GC = generator power capacity rating, expressed in horsepower or kilowatts.

T = time generator was operated during inventory time period, expressed in hours.

UEF = uncontrolled emission factor of pollutant (i.e., CO, SO_2, PM_{10}, $PM_{2.5}$, NO_x, or VOC), expressed in pounds per horsepower-hour (if the generator power capacity rating GC is expressed in horsepower) or pounds per kilowatt-hour (if the generator power capacity rating GC is expressed in kilowatts) of power output.

CF = air pollution control factor, expressed as a percentage.

Equation A5-3. Total Pollutant Emissions for Generators (EPA's AP-42 Method)

U.S. Air Force's method for estimating pollutant emissions is based on the quantity of fuel burned and pollutant emission factors. Emissions are calculated by multiplying the quantity of fuel burned by the emission factor for each specific pollutant and by the air pollution control factor. Again air pollution control methods for generators include steam injection, water injection, and selective catalytic reduction for NO_x control.

Total pollutant emissions from a generator may be estimated by applying **Equation A5-4** (*Total Pollutant Emissions for Generators – U.S. air Force's Method*).

$$E = F \times UEF \times (1 - CF/100)$$

Where:

E = total emissions of pollutant from the emergency generator for a given time period, expressed in pounds.

F = total quantity of fuel burned, expressed in thousands of gallons of fuel or million cubic feet for natural gas, for a given time period.

UEF = uncontrolled emission factor of pollutant (i.e., CO, SO_2, PM_{10}, $PM_{2.5}$, NO_x, or VOC), expressed in pounds per thousand gallons of fuel or million cubic feet for natural gas.

CF = air pollution control factor, expressed as a percentage.

Equation A5-4. Total Pollutant Emissions for Generators (U.S. Air Force's Method)