

6.4.3 Basic Equations

To determine the hourly SO₂, NO_x, and CO₂ mass emissions, an equation that has the following basic structure is used:

$$\text{Mass emissions (lb or tons)} = \text{Default emission rate (lb or tons/mmBtu)} \times \text{Hourly heat input (mmBtu)}$$

In the general equation above, the term “hourly heat input” either represents the product of the maximum rated hourly unit heat input (mmBtu/hr) and the unit operating time³⁹ (hr), or is an apportioned value from the long-term fuel flow methodology.

The heat input apportionment equations for long-term fuel flow have the general form:

$$\text{Hourly heat input (mmBtu)} = \text{Total quarterly heat input (mmBtu)} \times \frac{\text{Hourly unit load (Sum of all quarterly loads)}}{\text{Sum of all quarterly loads}}$$

In this general equation, the unit loads are expressed on a consistent basis, either in megawatts or thousands of pounds (klb) of steam per hour.

The quarterly SO₂, NO_x, and CO₂ mass emissions are calculated by summing the hourly mass emissions and converting this sum to tons as necessary (i.e., for SO₂ and NO_x). The cumulative annual (or ozone season) tons of SO₂, NO_x, and CO₂ are calculated by summing the appropriate quarterly values. The cumulative SO₂ and/or NO_x values are then compared against the LME emission threshold values in Table 13, above, to determine whether the unit has retained its LME status.