Environmental Protection Agency

§ 98.294

\[ ER_{CO2} = \left( C_{CO2} \times 10000 \right) \times 2.59 \times 10^{-9} \times 44 \times (Q \times 60) \times 4.53 \times 10^{-4} \]  
(Eq. CC-3)

Where:
- \( ER_{CO2} \) = \( CO_2 \) mass emission rate (metric tons/hour).
- \( C_{CO2} \) = Hourly \( CO_2 \) concentration (percent \( CO_2 \)) as determined by § 98.294(c).
- 10000 = Parts per million per percent
- 2.59 \times 10^{-9} = Conversion factor (pounds-mole to dscf/ppm).
- 44 = Pounds per pound-mole of carbon dioxide.
- \( Q \) = Stack gas volumetric flow rate per minute (dscfm).
- 60 = Minutes per hour
- 4.53 \times 10^{-4} = Conversion factor (metric tons/pound)

(iii) Using the test data, you must calculate a \( CO_2 \) emission factor for the process using Equation CC–4 of this section:

\[ EF_{CO2} = \frac{ER_{CO2}}{V_a \times 4.53 \times 10^{-4}} \]  
(Eq. CC-4)

Where:
- \( EF_{CO2} \) = \( CO_2 \) emission factor (metric tons \( CO_2 \)/metric ton of process vent flow from mine water stripper/evaporator).
- \( ER_{CO2} \) = \( CO_2 \) mass emission rate (metric tons/hour).
- \( V_a \) = Process vent flow rate from mine water stripper/evaporator during annual performance test (pounds/hour).
- 4.53 \times 10^{-4} = Conversion factor (metric tons/pound)

(iv) You must calculate annual \( CO_2 \) process emissions from each manufacturing line using Equation CC–5 of this section:

\[ E_k = EF_{CO2} \times (V_a \times 0.453) \times H \]  
(Eq. CC-5)

Where:
- \( E_k \) = Annual \( CO_2 \) process emissions for each manufacturing line, \( k \) (metric tons).
- \( EF_{CO2} \) = \( CO_2 \) emission factor (metric tons \( CO_2 \)/metric ton of process vent flow from mine water stripper/evaporator).
- \( V_a \) = Annual process vent flow rate from mine water stripper/evaporator (thousand pounds/hour).
- \( H \) = Annual operating hours for the each manufacturing line.
- 0.453 = Conversion factor (metric tons/thousand pounds).

(4) Calculate and report under subpart C of this part (General Stationary Fuel Combustion Sources) the combustion \( CO_2 \), \( CH_4 \), and \( N_2O \) emissions in the soda ash manufacturing line according to the applicable requirements in subpart C.

§ 98.294 Monitoring and QA/QC requirements.

Section 98.293 provides three different procedures for emission calculations. The appropriate paragraphs (a) through (c) of this section should be used for the procedure chosen.

(a) If you determine your emissions using § 98.293(b)(2) (Equation CC–1 of this subpart) you must:

(1) Determine the monthly inorganic carbon content of the trona from a weekly composite analysis for each soda ash manufacturing line, using a modified version of ASTM E359–00 (Reapproved 2005)e1, Standard Test Methods for Analysis of Soda Ash (Sodium Carbonate) (incorporated by reference, see § 98.7). ASTM E359–00(Reapproved 2005) e1 is designed to measure the total alkalinity in soda ash not in trona. The modified method referred to above adjusts the regular ASTM method to express the results in terms of trona. Although ASTM E359–00 (Reapproved 2005) e1 uses manual titration, suitable autotitrators may also be used for this determination.

(2) Measure the mass of trona input produced by each soda ash manufacturing line on a monthly basis using belt scales or methods used for accounting purposes.
§ 98.295 Procedures for estimating missing data.

For the emission calculation methodologies in §98.293(b)(3), a complete record of all measured parameters used in the GHG emissions calculations is required (e.g., inorganic carbon content values, etc.). Therefore, whenever a quality-assured value of a required parameter is unavailable, a substitute data value for the missing parameter shall be used in the calculations as specified in the paragraphs (a) through (d) of this section. You must document and keep records of the procedures used for all such missing value estimates.

(a) For each missing value of the weekly composite of inorganic carbon content of either soda ash or trona, the substitute data value shall be the arithmetic average of the quality-assured values of inorganic carbon contents from the week immediately preceding and the week immediately following the missing data incident. If no quality-assured data on inorganic carbon contents are available prior to the missing data period, the substitute data value shall be the first quality-assured value for carbon contents obtained after the missing data period.

(b) For each missing value of either the monthly soda ash production or the trona consumption, the substitute data value shall be the best available estimate(s) of the parameter(s), based on all available process data or data used for accounting purposes.

(c) For each missing value collected during the performance test (hourly CO₂ concentration, stack gas volumetric flow rate, or average process vent flow from mine water stripper/evaporator during performance test),