5.6.2 Treatment Alternative 2

A process that removes the organic reduction efficiency such that the removal is greater than 95%. In order to meet the criteria of this alternative, two values must be determined. The first is the organic reduction efficiency (R) which is calculated using the waste volatile organic mass flow entering and exiting the treatment process. The value R is calculated using the following equations:

$$E_a = \frac{1}{10^6} \sum (Q_{aj} \ x \ C_{vo,\ aj})$$

Waste VO mass entering treatment (Equation 5-5)

$$E_b = \frac{1}{10^6} \sum (Q_{bj} \ x \ C_{vo,\ bj})$$

Waste VO mass exiting treatment (Equation 5-6)

where: E_a = Waste volatile organic mass flow exiting the process, kg/hr

E_b = Waste volatile organic mass flow entering the process, kg/hr

m = Total number of runs

j = Individual run "j"

Q_b = Mass of hazardous waste entering during run "j", kg/hr

Q_a = Mass of hazardous waste exiting during run "j", kg/hr

The values for E_a and E_b are then used to calculate R as follows:

$$R = \left(\frac{E_b - E_a}{E_b}\right) x \ 100\%$$

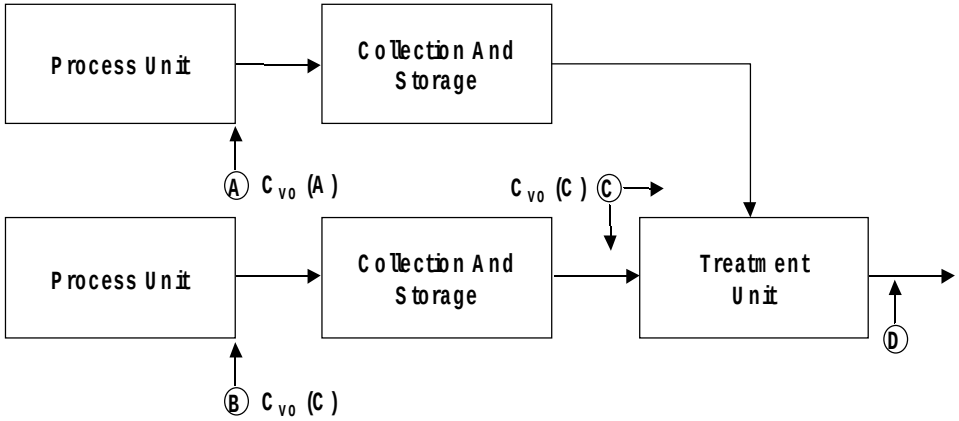
(Equation 5-7)

The waste VO mass flow entering the treatment unit (E_b) is determined at point C in the figure below, while the waste VO mass flow exiting the treatment unit (E_a) is determined at point D.

The second term that is required to determine if the organic reduction efficiency treatment alternative meets necessary criteria is an exit concentration. The exit concentration is determined at the point where the waste stream exits the treatment unit, point D in the figure above.

If the organic reduction efficiency for the treatment process is greater than or equal to 95 percent and the average VO

concentration of the treated waste stream, determined as the exit concentration, is less than 100 ppmw, then air emission controls are not required on the tanks, surface impoundments, and containers that manage the exit waste streams.



A = Point of waste origination
B = Point of waste origination
C = Point where waste enters process, mass entering calculated at this point
D = Exit point, mass exiting calculated at this point

$$R = \frac{\text{Mass (in)} - \text{Mass (out)}}{\text{Mass (in)}} \quad [R \geq 95\% \text{ and } C_{vo} < 100 \text{ ppmw}]$$

C_{vo} is determined at point D, point of waste treatment

Treatment Alternative 2

Advantages of using the organic reduction efficiency treatment alternative include that it limits the number and location of waste determinations required and it does not require any waste determinations at the point of waste origination. The determinations are required only at the points entering and exiting the treatment unit. This alternative may be appropriate for cases where a large number of waste streams are combined for central treatment.