5.6.1 Treatment Alternative 1

A process that removes or destroys the organics to an established exit concentration limit (C_T) established for the process. In order to meet the waste treatment criteria specified for this alternative, the volatile organic concentration at the point of waste treatment must be less than a value. The exit concentration limit calculated is mass weighted to account for waste volume as well as concentration. The diagram included below illustrates treatment alternative 1. To calculate the exit concentration limit, the volatile organic concentrations at point A and point B are required.

$$C_t = \frac{\sum_{x=1}^{m}(Q_x \times C_{ave_x}) + \sum_{y=1}^{n}(Q_y \times 500\ ppmw)}{\sum_{x=1}^{m}Q_x + \sum_{y=1}^{n}Q_y}$$

(Equation 5-4)

Where: C_t = Exit concentration limit, ppmw.

x = Individual waste stream "x" that has an average VO concentration less than 500 ppmw.

y = Individual waste stream "y" that has an average VO concentration equal to or greater than 500 ppmw.

m = Total number of "x" waste streams treated by process.

n = Total number of "y" waste streams treated by process.

Q_x = Annual mass quantity of hazardous waste stream "x," kg/yr.

Q_y = Annual mass quantity of hazardous waste stream "y," kg/yr.

C_{ave_x} = Average VO concentration of hazardous waste stream "x" at the point of waste origination.
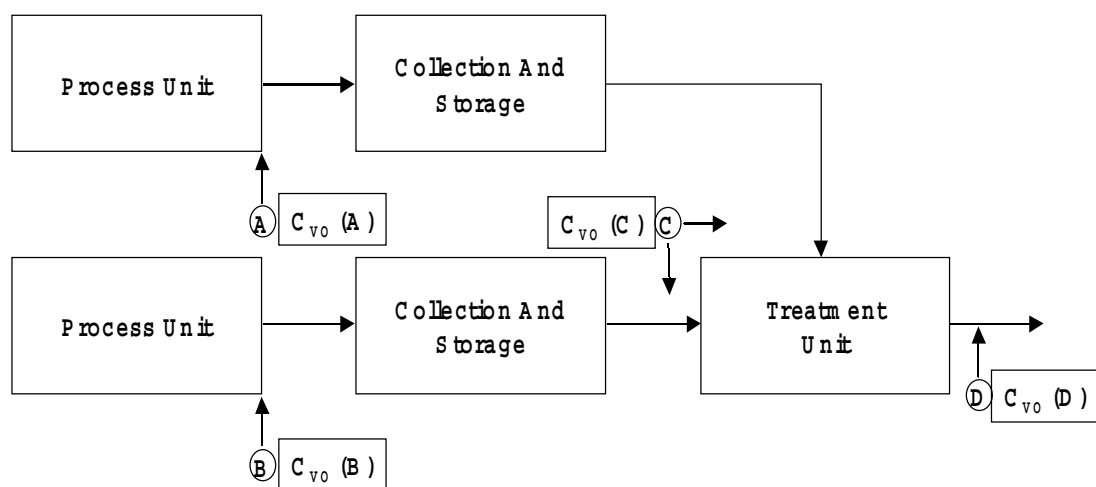
A = Point of waste origination, C_{VO} (A) > 500 ppm
B = Point of waste origination, C_{VO} (B) < 500 ppm
D = Exit concentration, C_{VO}

$$C_{VO} < C_t$$

C_T is calculated using VO concentration at points A and B
C_{VO} is determined at point D, point of waste treatment

Treatment Process Alternative 1

The VO concentration at the point of treatment would be determined at point D, the point of waste treatment. If the volatile organic concentration at point D is less than the exit concentration limit determined by the equation presented above, the criteria of this treatment alternative is met.

One of the advantages of using the exit concentration limit treatment alternative to achieve compliance with the Subpart CC standards is that it accounts for mixing of waste streams with volatile organic concentrations above and below 500 ppmw. This allows it to account for dilution due to the potential inclusion of waste streams which contain low concentrations of volatile organic compounds. Other advantages of this treatment alternative are that it does not require a 95 percent reduction of organics for every influent stream and it limits the number of waste determinations that are required.