removed from the carbon adsorption system was disposed of in an appropriate manner.

3.2.2 Flares (264.2033(d) and 265.1033(d))

A flare used to comply with the Subpart AA regulations can be steam-assisted, air-assisted or nonassisted. A flare must be designed for and operated with no visible emissions as determined by Method 22 which is found in 40 CFR Appendix A. Method 22 requires that there to be no visible emissions except for periods not to exceed a total of five minutes during any two consecutive hours. The flare must be operated with a flame present at all times, as determined by the use of a heat sensing monitoring device equipped with a continuous recorder that indicates the continuous ignition of the pilot flame. The owner or operator must install, calibrate, maintain, and operate according to the manufacturer's specifications a flow indicator that provides a record of vent stream flow from each affected process vent to the control device at least once every hour. The flow indicator sensor must be installed in the vent stream at the nearest feasible point to the control device inlet but before the point at which the vent streams are combined.

EPA Method 22 and other EPA methods are available on the World Wide Webb @ http://www.epa.gov/ttn/emc/promgate.html.

The flare may only be used if the net heating value of the gas being combusted is 11.2 MJ/scm (300 Btu/scf) or greater, if the flare is steam-assisted or air-assisted. The flare can operate with the net heating value of the gas being combusted is 7.45 MJ/scm (200 Btu/scf) or greater if the flare is nonassisted. The net heating value of the gas being combusted must be determined using the following equation:

$$H_T = K\left[\sum_{i=1}^{n} C_i H_i\right] \qquad \text{(Equation 3-1)}$$

where: H_T = Net heating value of the sample, in MJ/scm; where the net enthalpy per mole of off gas is based on combustion at 25 ^{o}C and 760 mm Hg, but the standard temperature for determining the volume corresponding to 1 mol is 20 ^{o}C

K = Constant, 1.74×10^{-7} (1/ppm) (g mol/scm) (MJ/kcal) where standard temperature for (g mol/scm) is 20 ^{o}C

C_i = Concentration of sample component i in ppm on a wet basis, as measured for organics by Reference Method 18 in 40 CFR part 60 and measured for hydrogen and carbon monoxide by ASTM D 1946-82

H_i = Net heat of combustion of sample component i in kcal/g mol at 25 ^{o}C and 760 mmHg. The heats of combustion may be determined using ASTM D 2382-83 if published values are not available or cannot be calculated.

A steam-assisted or nonassisted flare shall be designed for and operated with an exit velocity of less than 18.3 m/s (60 ft/s). If the net heating value of the gas being combusted is greater than 37.3 MJ/scm (1,000 Btu/scf), a steam-assisted or nonassisted flare may be designed for and operated with an exit velocity equal to or greater than 18.3 m/s but must be less than 122 m/s. The exit velocity shall be determined by dividing the volumetric flow rate (in units of standard temperature and pressure), as determined by Reference Methods 2, 2A, 2C, or 2D in 40 CFR Appendix A as appropriate, by the unobstructed cross-sectional area of the flare tip.

A steam-assisted or nonassisted flare which is designed for and operated with an exit velocity, less than the velocity V_{max}, and less than 122 m/s is allowed. The maximum allowed velocity, V_{max}, is determined by the following equation:

$$\mathbf{Log_{10}(V_{max}) = (H_T + 28.8)/31.7}$$

(Equation 3-2)

where: H_T = The net heating value
28.8 = constant
31.7 = constant

An air-assisted flare shall be designed and operated with an exit velocity less than the velocity, V_{max}. The maximum allowed velocity, V_{max}, for an air-assisted flare shall be determined by the following equation:

$$\mathbf{V_{max} = 8.706 + 0.7084\ (H_T)}$$

(Equation 3-3)

where: 8.706 = constant
0.7084 = constant
H_T = The net heating value