Flares and Vapor Combustors - Flares (F), Vapor Combustors (C), All (A)

BACT/monitor (F) - Flares shall be designed and operated in accordance with the following requirements:

A. The flare systems shall be designed such that the combined assist natural gas and waste stream to each flare meets the 40 CFR § 60.18 specifications of minimum heating value and maximum tip velocity under normal, upset, and maintenance flow conditions.

The heating value and velocity requirements shall be satisfied during operations authorized by this permit. Flare testing per 40 CFR § 60.18(f) may be requested by the appropriate regional office *(or is required per NSPS Subpart)* to demonstrate compliance with these requirements.

B. The flare shall be operated with a flame present at all times and/or have a constant pilot flame. The pilot flame shall be continuously monitored by a thermocouple, infrared monitor, or ultraviolet monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated or have a calibration check asterisk "*****" performed, at a frequency in accordance with, the manufacturer's specifications.

C. The flare shall be operated with no visible emissions except periods not to exceed a total of five minutes during any two consecutive hours. *(As applicable)* This shall be ensured by the use of steam *(or air)* assist to the flare.

D. *(An equivalent, flare-specific monitoring plan may be proposed/preferred [should be considered] and used as a substitute for the language below if it ensures compliance with 40 CFR 60.18. This might not entail any monitoring if you are convinced that all waste streams that could be routed to the flare will have sufficient heating value at all times and that there is no chance of excessive flow to the flare).* The permit holder shall install a continuous flow monitor and composition analyzer (or calorimeter, if applicable) that provide a record of the vent stream flow and composition *(total VOC or Btu content)* to the flare. The flow monitor sensor and analyzer sample points shall be installed in the vent stream as near as possible to the flare inlet such that the total vent stream to the flare is measured and analyzed. Readings shall be taken at least once every 15 minutes and the average hourly values of the flow and composition (or Btu content) shall be recorded each hour.

The monitors shall be calibrated or have a calibration check asterisk performed on an annual basis to meet the following accuracy specifications: the flow monitor shall be ±5.0%, temperature monitor shall be ±2.0% at absolute temperature, and pressure monitor shall be ±5.0 mm Hg;

(if VOC monitored) Calibration of the analyzer shall follow the procedures and requirements of Section 10.0 of 40 CFR Part 60, Appendix B,

Performance Specification 9, as amended through October 17, 2000 (65 FR 61744), except that the multi-point calibration procedure in Section 10.1 of Performance Specification 9 shall be performed at least once every calendar quarter instead of once every month, and the mid-level calibration check procedure in Section 10.2 of Performance Specification 9 shall be performed at least once every calendar week instead of once every 24 hours. The calibration gases used for calibration procedures shall be in accordance with Section 7.1 of Performance Specification 9. Net heating value of the gas combusted in the flare shall be calculated according to the equation given in 40 CFR §60.18(f)(3) as amended through October 17, 2000 (65 FR 61744).

(if calorimeter used) The calorimeter shall be calibrated, installed, operated, and maintained, in accordance with manufacturer recommendations, to continuously measure and record the net heating value of the gas sent to the flare, in British thermal units/standard cubic foot of the gas.

(in all cases) The monitors and analyzers shall operate as required by this section at least 95% of the time when the flare is operational, averaged over a rolling 12 month period. Flared gas net heating value and actual exit velocity determined in accordance with 40 CFR §§60.18(f)(3) and 60.18(f)(4) shall be recorded at least once every hour. *(The following sentence is N/A if calorimeter used)* Hourly mass emission rates shall be determined and recorded using the above readings and the emission factors used in the permit *(amendment)* application, *(PI-1 dated?)*.

BACT (C)

The vapor combustor shall achieve *(control level, generally around 99%)* control of the *(waste gas)* directed to it. This shall be ensured by maintaining the temperature *(other appropriate parameter(s) might be identified - specify accuracy and calibration requirements for monitor used to measure parameter)* in, or immediately downstream of, the combustion chamber above *(identify pre-construction estimate)* prior to the initial stack test performed in accordance with Special Condition Number "#". Following the completion of that stack test, the six minute average temperature shall be maintained above the minimum one hour average temperature maintained during the last satisfactory stack test.

The temperature measurement device shall reduce the temperature readings to an averaging period of 6 minutes or less and record it at that frequency. The temperature monitor shall be installed, calibrated or have a calibration check *asterisk* performed at least annually, and maintained according to the manufacturer's specifications. The device shall have an accuracy of the greater of ±2 percent of the temperature being measured expressed in degrees Celsius or ±2.5°C.

Quality assured (or valid) data must be generated when the VCU is operating except during the performance of a daily zero and span check. Loss of valid data due to periods of monitor break down, out-of-control operation (producing inaccurate data), repair, maintenance, or calibration may be exempted provided it does not exceed 5 percent of the time (in minutes) that the VCU operated over the previous rolling 12 month period. The measurements missed shall be estimated using engineering judgment and the methods used recorded.

BACT (C)	The vapor combustor shall be operated with no visible emissions and have a constant pilot flame during all time's waste gas could be directed to it. The pilot flame shall be continuously monitored by a thermocouple or an infrared monitor. The time, date, and duration of any loss of pilot flame shall be recorded. Each monitoring device shall be accurate to, and shall be calibrated or have a calibration check *asterisk* performed at a frequency in accordance with, the manufacturer's specifications
Sample (C)	*See Stack Sample, ensure test requires a verification of DRE (an upstream sample as well as stack sample)*

Pilot/Assist gas sulfur (a) - Fuel gas combusted at this facility shall be sweet natural gas containing no more than 5 grains of total sulfur per 100 dry standard cubic feet.

** Calibration check means, at a minimum, using a second device or method to verify that the monitor is accurate as specified in the permit. The permit reviewer should request and review the applicant's representations for how the calibration check will be performed.*

Flares and Vapor Combustors Document Change Record (do not include in special conditions)

Version	Date	Author	Change Details	Change Rationale
01	09/02/2013	T. Hurley	Revised boilerplate	Updates with TCC and Chemical Team Leads