8.4 Are there any special considerations when performing these basic QA tests ?

Yes, there are a number of things must be taken into consideration when performing the QA tests, to ensure that they are done properly:

• Daily calibration error tests, interference checks, and linearity checks must be done while the unit is on-line (i.e., combusting fuel). The only exception to this is that off-line calibration error tests may be used to validate up to 26 consecutive54 hours of emissions data, if the off-line calibration error demonstration described in section 2.1.5 of Appendix B has been performed and passed. After 26 consecutive hours of emission data have been validated using off-line calibrations, an on-line calibration is required in "operating hour 27" to maintain quality-assured data status.

• All RATAs of gas monitors must be done at normal load, while combusting a fuel that is normal for the unit. Normal load is defined in the monitoring plan as the most frequently-used load level (low, mid, or high). To determine the normal load:

 First, the unit's range of operation is defined. It extends from the "minimum safe, stable load" to the "maximum sustainable load"

 Second, the operating range is divided into three load bands, or levels. The first 30% of the range is defined as low load, the next 30% is mid load, and the remainder of the range is high load.

 Third, at least four quarters of representative historical load data are analyzed55, to determine which load levels are used the most frequently. The load level used most frequently must be designated as the normal load. The second most frequently-used load level may be designated as a second normal load.56

• For flow monitors installed on peaking units and bypass stacks, only single-load flow RATAs are required.

• For all other flow monitors:

 The annual RATAs must be done at the 2 most frequently-used load levels or (at the source's discretion) at all 3 loads, unless

 The unit has operated at one load level (low, mid or high) for ≥ 85% of the time since the last annual flow RATA, in which case a single-load test at normal load may be performed.

 A 3-load RATA is required at least once every 5 calendar years (20 calendar quarters).

• If a semiannual RATA frequency57 is obtained, an additional RATA must be done in-between the annual RATAs. For a flow monitor, this "extra" RATA may be a single-load test at normal load.

• For units that do not produce electrical or steam load, such as cement kilns, and refinery process heaters, the RATA requirements are basically the same as for load-based units, except that the term "operating level" applies instead of the term "load level". Also, it is possible, with a proper justification in the monitoring plan58, for a non load-based unit to be partly or fully exempted from performing multi-level flow RATAs.

• The quarterly "flow-to-load ratio test" of a flow monitor is not actually a test at all. Rather it is a data analysis, which, in most cases, is performed automatically by the DAHS. The purpose of the test is to ensure that a flow monitor continues to provide accurate data in-between RATAs. The "test" is performed as follows:

 The hourly ratio of the stack gas flow rate to unit load is calculated for a segment of the quarterly flow rate data (i.e., those hours where the load was within 10% of the average load during the last normal load flow RATA).

 These hourly ratios are then compared against a “reference” flow-to-load ratio, which is the ratio of the average reference method flow rate to the average unit load from the last normal-load RATA.

 Alternatively, the data analysis may be done on the basis of the “gross heat rate”59 (GHR), which is the ratio of heat input rate to unit load), rather than using the flow-to-load ratio.