Question 19.5

Topic: RM Backup System Calibration Error and System Bias Checks

Question: Are separate system calibration error checks and system bias checks necessary for Part 75 Reference Method backup gas monitoring systems?

Answer: For dry-extractive RM systems, separate 3-point analyzer calibration error checks prior to the commencement of any test runs and 2-point system bias checks before and after each run are required by Reference Methods 6C, 7E, and 3A. Analyzer calibration error and system bias are calculated using Equations 7E-1 and 7E-2 in Method 7E, respectively.

For dilution-type RM systems, it is technically infeasible to perform the 3-point analyzer calibration error check, because the low range of the analyzers precludes direct injection of undiluted calibration gases at the analyzer. In addition, the concept of system bias cannot be applied to dilution systems because the results of system calibrations cannot be referenced to calibrations of the isolated analyzers.

Therefore, for dilution-type RM systems, system calibration error tests, which check the entire system from probe to analyzer, are performed. An initial 3-point system calibration error test is required, prior to commencing any runs, using the zero, mid, and high-level gases.

Thereafter, a 2-point system calibration error check is performed after each run, using the zero-level gas and whichever upscale gas (mid or high) is closest to the actual source emissions. The system calibration error is calculated using Equation 7E-3 in Method 7E.

References: § 75.20(d)(3); Method 7E, Sections 8.2.3, 8.2.5, 8.5, and 12.2 through 12.4

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