EMISSION MEASUREMENT CENTER
APPROVED ALTERNATIVE METHOD (ALT-010)

ALTERNATIVES FOR METHOD 11 AND SAMPLING TIMES AND POINT LOCATIONS FOR SUBPART J DETERMINATION OF COMPLIANCE WITH THE H_2S STANDARD IN §60.104., AND SAMPLING TIMES FOR RELATIVE ACCURACY RUNS IN PS-7

INTRODUCTION

Emission testers have expressed interest in the use of Methods 15 and 16 in Appendix A of Part 60 as alternatives to Method 11 for relative accuracy testing of H_2S CEMS required for Subpart J. The Emission Measurement Branch has reviewed the applicability of Methods 15 or 16 utilizing a gas chromatograph suited with a flame photometric detector (GC-FPD) analysis, in lieu of Method 11. Also, there has been some confusion over the definition of a run for Method 11. The purpose of this guideline is to clarify these definitions and describe the alternatives for Method 11 and to provide guidance for applying these methods for compliance testing and relative accuracy testing for H_2S CEMS.

SUMMARY

Methods 15 or 16 (the GC-FPD methods), if applied correctly, would provide sensitivity and accuracy of the same or better quality as Method 11; therefore, these methods are suitable alternatives for determination of compliance with the H_2S standard in §60.104(a)(1) or for relative accuracy testing in Performance Specification 7 using the following criteria:

CRITERIA

Subpart J, §60.104

(e)(1) The gases entering the sampling train should be at or about atmospheric pressure. If the pressure in the refinery fuel gas lines is relatively high, a flow control valve may be used to reduce the pressure. If the line pressure is high enough to operate the sampling train without a vacuum pump, the pump may be eliminated from the sampling train. The sample shall be drawn from a point near the centroid of the fuel gas line.

(e)(2) When Method 11 is used to determine the H_2S concentration: The sampling time and sampling volume shall be at least 10 minutes and 0.010 dscm (0.35 dscf). Two samples of equal sampling times shall be taken at about 1-hour intervals. The arithmetic average of these two samples shall constitute a run. For most fuel gases, sampling times exceeding 20 minutes may result in depletion of the collection solution, although fuel gases containing low concentrations of H_2S may necessitate sampling for longer periods of time. A yellow color in the final cadmium sulfate impinger indicates depletion of the absorbing solution. An additional cadmium sulfate impinger should be added for subsequent samples and the sample with yellow color in the final impinger should be voided.

(e) (3) When Methods 15 or 16 is used to determine the H_2S concentration: Follow the procedures as described in the particular method, except that a run shall consist of 4 injections equally spaced over about an hour.

Performance Specification 7

3.1 Sampling strategy for RM Tests, Correlation of RM and CEMS Data, Number of RM Tests, and Calculations. These are the same as that in PS 2, § 7.1 (except as specified below), § 7.2, § 7.3 (except as specified below), and § 7.5, respectively.

3.2 Reference Methods. Unless otherwise specified in an applicable subpart of the regulation, Methods 11, 15, and 16 may be used for the RM for this PS.

3.2.1 Sampling Time per Run - Method 11. A sampling run when Method 11 (Integrated sampling) is used shall consist of a single measurement near the centroid of the duct for at least 10-minutes and 0.010 dscm (0.35 dscf). Each sample shall be taken at about 30 minute intervals.

3.2.2 Sampling Time per Run - Methods 15 and 16. The sampling run shall consist of a single point measurement near the centroid of the duct. Follow the procedures as described in the particular method, except that a run shall consist of 2 injections equally spaced over about a 30 minute period.

Note: Caution! Heated or non-approved electrical probes should not be used in explosive or flammable stacks or ducts.

REFERENCES

1. Letter to RAMCON Environmental Corp. from Robert Kellam, December 27, 1992.