

Question 9.20

Topic: Dual Range Analyzers

Question: For a dual range analyzer defined as two separate components of a single monitoring system, which component ID do we report for an hour in which readings from both ranges are used to record data? How is the hourly average concentration determined?

Answer: For the case described (a dual range analyzer defined as two separate components of the same monitoring system), to calculate the average concentration and to determine which component ID (low scale or high scale) must be reported for an hour in which both ranges are used.

(1) Establish the shortest or fundamental averaging period for which data are continuously recorded by the monitor (i.e., the time "x" required for one complete cycle of analyzing, reading, and data recording, where "x" may be five seconds, ten seconds, or sixty seconds, depending on the type of data collection used in the DAHS/CEMS).

(2) If, during a particular hour, one or more fundamental readings are recorded on the high range, calculate the hourly average as follows:

(a) For all of the quality-assured fundamental readings recorded on the low scale during the hour, use the readings directly in the calculation of the hourly average; and

(b) For the fundamental reading(s) recorded on the high range during the hour:

(i) If the high range is able to provide quality-assured data at the time of the reading (i.e., if the range is up-to-date with respect to its linearity check requirements and has passed a calibration error test within the last 26 clock hours), use the fundamental reading directly in the calculation of the hourly average; or

(ii) If the high range is not quality assured at the time of the reading, substitute the maximum potential concentration (MPC) for the reading and use the substitute value in the calculation of the hourly average (see Appendix A, Sections 2.1.1.5(b)(2) and 2.1.2.5(b)(2)).

(3) If the calculated hourly average from step (2) is less than or equal to the scale transition point, use the low range component ID to report data for the hour.

(4) If the hourly average from step (2) is greater than the scale transition point, use the high range component ID to report data for the hour. For all dual range monitoring systems, if quality-assured data was available from the high range report the hourly average with an MODC code of "01" (or "02" for backup monitoring systems). However, if the

high range was not quality assured, report an MODC of "18" to indicate that the MPC was used to determine the hourly average for the portion of the hour when the high range monitor was used, and use the low range component ID to report for the hour.

Note: The "scale transition point" is recorded in the <MonitoringSpanData> record of the monitoring plan. See the ECMPS Monitoring Plan Reporting Instructions, Section 11.0 for instruction on defining the "scale transition point."

References: Appendix A, Sections 2.1.1.4, 2.1.1.5, 2.1.2.4, 2.1.2.5

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