

**§ 86.319–79****40 CFR Ch. I (7–1–12 Edition)**

for the NO NDIR analyzer shall be 5,000:1 (see § 86.321).

(6) The minimum CO<sub>2</sub> rejection ratio (maximum CO<sub>2</sub> interference) for the NO NDIR analyzer shall be 30,000:1 (see § 86.322).

**§ 86.319–79 Analyzer checks and calibrations; frequency and overview.**

(a) Prior to initial use and after major repairs, bench check each analyzer (see § 86.320).

(b) At least monthly during testing, check the NO<sub>x</sub> converter efficiency, as described in § 86.332.

(c) At least once every 30 days during testing, perform the following:

(1) Leak check the pressure side of the system (see § 86.328). If the option described in § 86.328(b)(2) is used, a pressure leak check is not required.

(2) Calibrate all analyzers (see §§ 86.330 through 86.332).

(3) Check the analysis system response time (see § 86.329). If the option described in § 86.329(b) is used, a response time check is not required.

(4) Verify that the automatic data collection system (if used) meets the chart reading requirements found in § 86.343.

(5) Check the fuel flow measurement instrument to insure that the specifications in § 86.314 are met. Flow meters of the tapered tube and float design (rotometers) or the balance beam principle need be checked only every 90 days.

(d) At least once every 90 days during testing check the water rejection ratio and the CO<sub>2</sub> rejection ratio on all NDIR analyzers (see §§ 86.321 and 86.322).

(e) At least once every 180 days during testing check the dynamometer test stand and power output instrumentation (see § 86.333).

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**§ 86.320–79 Analyzer bench check.**

(a) Prior to initial use and after major repairs verify that each analyzer complies with the following specifications:

- (1) Response time (see § 86.315(a)).
- (2) Precision (see § 86.315(b)).
- (3) Noise (see § 86.315(c)).
- (4) Zero drift (see § 86.315(d)).
- (5) Span drift (see § 86.315(e)).

(6) Water rejection ratio, NDIR analyzers only (see §§ 86.316(c) and 86.318(b)(5)).

(7) CO<sub>2</sub> rejection ratio, NDIR analyzers only (see §§ 86.316(d) and 86.318(b)(6)).

(8) Quench check, CL analyzers only (see § 86.327).

(b) If a stainless steel NO<sub>2</sub> to NO converter is used, condition all new or replacement converters. The conditioning consists of either purging the converter with air for a minimum of 4 hours or until the converter efficiency is greater than 90 percent. The converter must be at operational temperature while purging. Do not use this procedure prior to checking converter efficiency on in-use converters.

**§ 86.321–79 NDIR water rejection ratio check.**

(a) Zero and span the analyzer on the lowest range that will be used.

(b) Introduce a saturated mixture of water and zero gas at room temperature directly to the analyzer.

(c) Determine and record the analyzer operating pressure (*GP*) in absolute units in pascals. Gauges G3 and G4 may be used if the values are converted to the correct units.

(d) Determine and record the temperature of the zero-gas mixture.

(e) Record the analyzers' response (*AR*) in ppm to the saturated zero-gas mixture.

(f) For the temperature recorded in step (d), determine the saturation vapor pressure (*P<sub>WB</sub>*) from § 86.344(d).

(g) Calculate the water concentration (*Z*) in the mixture from:

$$Z = (P_{WB}/GP)(10^6)$$

(h) Calculate the water rejection ratio (*WRR*) from:

$$WRR = (Z/AR)$$

**§ 86.322–79 NDIR CO<sub>2</sub> rejection ratio check.**

(a) Zero and span the analyzer on the lowest range that will be used.

(b) Introduce a CO<sub>2</sub> calibration gas of at least 10 percent CO<sub>2</sub> or greater to the analyzer.

(c) Record the CO<sub>2</sub> calibration gas concentration in *ppm*.

(d) Record the analyzers' response (*AR*) in *ppm* to the CO<sub>2</sub> calibration gas.