

CO Ambient Monitoring Data Review Table

Requirement (CO)	Frequency	Acceptable Range	Review Comments
CRITICAL CRITERIA – CO			
Sampler/Monitor	<i>NA</i>	<i>meets requirements listed in FRM/FEM designation</i>	
One-Point QC Check Single analyzer	<i>every 14 days</i>	<i>< ± 10.1% (percent difference)</i>	
Zero/Span Check	<i>every 14 days</i>	<i>zero drift < ± 0.41 ppm (24-hr), < ± 0.61 ppm (24hr-14 day). Span drift < ± 10.1%</i>	
OPERATIONAL CRITERIA – CO			
Shelter Temperature Range	<i>daily (hourly values)</i>	<i>20 to 30° C (hourly avg.) or per manufacturers specification if designated to a wider temp. range</i>	
Shelter Temperature Control	<i>daily (hourly values)</i>	<i>< 2.1°C SD over 24 hours</i>	
Shelter Temperature Device Check	<i>every 182 days and 2/calendar year</i>	<i>< ± 2.1° C of standard</i>	
Annual Performance Evaluation Single Analyzer (SLAMS/NCORE)	<i>every site every 365 days and 1/calendar year</i>	<i>percent difference of audit levels 3-10 < ±15.1%, Audit levels 1 & 2 < ± 0.031 ppm difference or < ±15.1%</i>	
Annual Performance Evaluation Single Analyzer (PSD)	<i>Quarterly</i>	<i>percent difference of audit levels 3-10 < ±15.1%, Audit levels 1 & 2 < ± 0.031 ppm difference or < ±15.1%</i>	
Federal Audit (NPAP) (SLAMS/NCORE)	<i>20% of sites audited in a calendar year</i>	<i>audit levels 1 & 2 < ± 0.031 ppm difference, all other levels percent difference < ±15.1%</i>	
Verification / Calibration	<i>upon receipt/adjustment/repair/ installation/relocation. Every 182 days and 2/calendar year if manual biweekly zero/span every 365 days and 1/calendar year if</i>	<i>all points < ± 2.1% or ≤ ± 0.03 ppm difference of best-fit straight line, whichever is greater, And Slope 1 ± .05</i>	

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	<i>continuous daily zero/span checks</i>		
Gaseous Standards	<i>all gas cylinders</i>	<i>NIST Traceable (e.g. EPA Protocol Gas)</i>	
Zero Air / Zero Air Check	<i>every 365 days and 1/calendar year</i>	<i>< 0.1 ppm CO</i>	
Gas Dilution Systems	<i>every 365 days and 1/calendar year or after failure of 1-point QC check or performance evaluation</i>	<i>accuracy < ± 2.1%</i>	
Detection (FEM/FRMs)			
Noise	<i>every 365 days and 1/calendar year</i>	<i>≤ 0.2 ppm (standard range) ≤ 0.1 ppm (lower range)</i>	
Lower detectable level	<i>every 365 days and 1/calendar year</i>	<i>≤ 0.4 ppm (standard range) ≤ 0.2 ppm (lower range)</i>	
SYSTEMATIC CRITERIA – CO			
Standard Reporting Units	<i>all data</i>	<i>Ppm (final units in AQS)</i>	
Rounding convention for data reported to AQS	<i>all data</i>	<i>1 decimal place</i>	
Completeness (SLAMS/NCORE)	<i>8-hour standard</i>	<i>75% of the hour 75% of hourly averages for the 8-hour period</i>	
Completeness (PSD)	<i>1-hour standard 8-hour standard</i>	<i>75% of the hour 75% of hourly averages for the 8-hour period Quarter – 80% of the complete days Year – 4 consecutive quarters</i>	
Sample Residence Time Verification	<i>every 365 days and 1/calendar year</i>	<i>≤ 20 seconds</i>	
Sample Probe, Inlet, Sampling train	<i>all sites</i>	<i>Borosilicate glass, (e.g. Pyrex®) or Teflon® (FEP/TFE)</i>	
Pneumatic fittings	<i>all tubing connections/valves</i>	<i>Teflon® (FEP/TFE), 316 stainless steel or brass</i>	

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Gas Regulators	<i>all gas cylinders</i>	<i>2-stage brass regulator</i>	
Data Acquisition Systems	<i>digital or analog recording devices</i>	<i>collection of continuous data (minimum of 1-minute values)</i>	
Siting	<i>every 365 days and 1/calendar year</i>	<i>meets siting criteria or waiver documented (PSD per approved QAPP)</i>	
Precision (using 1-point QC Checks) (SLAMS/NCORE)	<i>calculated annually and as appropriate for design value estimates</i>	<i>90% CL CV < 10.1%</i>	
Precision (using 1-point QC Checks) (PSD)	<i>calculated quarterly</i>	<i>90% CL CV < 10.1%</i>	
Bias (using 1-point QC Checks) (SLAMS/NCORE)	<i>calculated annually and as appropriate for design value estimates</i>	<i>95% CL < ±10.1%</i>	
Bias (using 1-point QC Checks) (PSD)	<i>calculated quarterly</i>	<i>95% CL < ±10.1%</i>	
Technical Systems Audits (SLAMS/NCORE)	<i>1 / 3 years</i>	<i>Confirmation of adherence to FRM/FEM, SOPs, and QAPP or documented waiver</i>	
Technical Systems Audits (PSD)	<i>annually (within 1 month of startup and annually thereafter)</i>	<i>Confirmation of adherence to FRM/FEM, SOPs, and QAPP or documented waiver</i>	
Annual PE Primary QA organization (PQAQ) Evaluation	<i>1 / year</i>	<i>95% of audit percent difference fall within the 1-point QC check 95% probability intervals at PQAQ level of aggregation</i>	