

# Minor Mistakes with Major Regulatory Consequences

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09/13/2022



# 1 - Confirming Normal Operations

- Minor Mistake: Assumption that QA tests are not affected by auxiliary equipment operations.
  - HSL problem
  - Sample Tubing in CEMS Shelter
  - Vacuum/Sample pump
- Major Impact: QA test and subsequent data

# 2 - Considering Constants

- Minor Mistake: Continuing to use typical CEMS defaults
  - Density
  - GCV
  - F-Factors
  - NOX MER
- Major Impact: Significant influence on hourly CEMS data
  - Emission Exceedances
  - GHG Programs
  - NOX Budget Programs

# 3 - Gas Cylinder Goofs

- Minor Mistakes:
  - Reference value rather than certified value
  - Expired cylinder
  - “Fat-fingered” reference value
    - E.g. 10 ppm NO<sub>x</sub> Range: 9.05 v. 9.50 ppm (5% limit = 0.5 ppm)
- Major Impact: Potential to invalidate CEMS QA & hourly data
  - Unexpected invalid QA tests
  - Significant Part 60 downtime

# 3 - Gas Cylinder Goofs (continued...)

## CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Either conc. is acceptable

Part Number: E02NI99E15A0076      Reference Number: 54401898783-1  
Cylinder Number: ALM-031603      Cylinder Volume: 144.4 CF  
Laboratory: 124 - Chicago (SAP) - IL      Cylinder Pressure: 2015 PSIG  
PGVP Number: B12020      Valve Outlet: 660  
Gas Code: NO,NOX,BALN      Certification Date: Sep 16, 2020

Expiration Date: Sep 16, 2028

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a mole/mole basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

### ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
NOX	180.0 PPM	182.6 PPM	G1	+/- 0.5% NIST Traceable	09/09/2020, 09/16/2020
NITRIC OXIDE	180.0 PPM	181.9 PPM	G1	+/- 0.5% NIST Traceable	09/09/2020, 09/16/2020
NITROGEN	Balance				

# 3 - Gas Cylinder Goofs (continued...)

NorLab Order # 59649841 Date Certified: 11/28/18  
 Customer PO# N/A Cylinder Pressure: 2000 psig @ 70 F  
 Part Number SPG 5E166055PM1  
 Lot Number: 8-318-352  
 Cylinder Number EB0041503✓ Expiration Date: 11/27/26

**Acceptable**

**Unacceptable**

Component(s)	Conc. V/V	± EPA Uncertainty	Analyzer1 (CO)	MTO 60a FTIR			
Carbon Monoxide, ppm	16.82	0.091	Calibrated:	Assay 1; 2; 3	11/6/2018		
Nitric Oxide, ppm	54.75	0.30	Analyzer 2 (NO, Nox)	MTO 60a FTIR			
Total Nox, ppm	55.16						
			Calibrated:	Assay 1; 2; 3	11/2/2018	11/2/2018	
Nitrogen, O2 Free	Balance						

# 3 - Gas Cylinder Goofs (continued...)

## Certificate of Analysis - EPA Protocol Mixtures

Customer: MATHESON LINWELD  
4705 NOME ST  
CUSTOM INSTRUMENTATION  
DENVER, CO 80239

Customer PO#: 20357075-00

Part # G2700616X

Protocol: G1

Reference #: 752252-01

Lot#: 9309600839

Cylinder Number: SX89612  
Cylinder Pressure: 1900 psig  
Last Analysis Date: 7/24/2019  
Expiration Date: 7/22/2022

DO NOT USE THIS CYLINDER WHEN THE PRESSURE FALLS BELOW 100 PSIG

Component:		Date:		REPLICATE RESPONSES	
Carbon Monoxide		7/24/2019		8.98	
Certified Conc: 8.95 ppm	+/- 0.02 ppm ABS			8.94	
				8.93	
Nitric Oxide		7/12/2019	7/22/2019	27.08	27.12
Certified Conc: 27.08 ppm	+/- 0.10 ppm ABS			27.08	27.07
				27.05	27.06
NOx: 27.14 ppm	Reference Only				

BALANCE GAS: Nitrogen

Acceptable

Unacceptable

# 4 - Daily Calibration Drift *Errors*

- Minor Mistakes:
  - ❑ Not considering operational days for 7-day drift test (60 v 75)
  - ❑ Not considering dual range analyzer requirements (60 v 75)
    - Includes 7-day drift
    - CGAs/linearities
  - ❑ Not protecting Part 60 tests with a calibration
    - <https://ciscocems.com/urgent-issue-alerts/>
- Major Impact:
  - ❑ Unexpected NOV regarding completion of certification
  - ❑ Back invalidation of major QA tests (e.g. CGA, RATA)
  - ❑ Significant increase in downtime hours



# 5 – Re-establishing Compliance Under Part 60

- Minor Mistakes:
  - Presuming acceptable action
    - Presumption v. Guidance v. Regulations
- Major Impact:
  - CEMS is out of compliance for a significant period
    - CiSCO's Response to this issue:
      - <https://ciscocems.com/part-60-equipment-compliance-guidelines/>

# 5 – Re-establishing Compliance... (continued)

Contact Us

Location

303-790-1000



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## Part 60 Equipment Compliance Guidelines

Unlike 40 CFR 75, 40 CFR 60 does not address recertification, diagnostic testing, or temporary analyzer replacements. CiSCO consulted the EPA about the required testing for CEMS subject to 40 CFR 60 after repairs and replacements. The EPA holds the position that the state or local agency should determine what testing is required because they are responsible for enforcing 40 CFR 60. As a result, CiSCO contacted each state to understand their testing requirements following CEMS component repairs and replacements. The table below contains the guidance provided by each state's regulatory department and various local agencies.



# 5 – Re-establishing Compliance... (continued)

## Regulatory Agency Responses by State

State/Local Agency	Regulatory Agency	Primary Email	Phone	Guidance from Regulatory Agency	Date Agency Provided Guidance
USA	EPA List of State Agencies	<a href="#">Kim Garnett</a>	(919) 541-1158	<b>Recertification/Diagnostic Testing/Temporary Analyzer Replacement:</b> Final determination of certification on this matter is deferred to the state and local agencies.	7/6/2020
Alabama	Alabama Department of Environmental Management	<a href="#">Doug Carr</a>	(334) 271-7899	<b>Recertification/Diagnostic Testing/Temporary Analyzer Replacement:</b> The agency determines testing on a case-by-case basis but is agreeable to using Part 75 Emissions Monitoring Technical Q&A procedures. Contact the agency and request to use Part 75 Emissions Monitoring Technical Q&A as a guideline.	7/6/2021
Alaska	Alaska Department of Environmental Conservation	<a href="#">Moses Cross</a>	(907) 451-2163	<b>Recertification/Diagnostic Testing:</b> Refer to the permit. If additional testing isn't specified, continual passing of normal QA requirements is sufficient.  <b>Temporary Analyzer Replacement:</b> Sites may use Part 75 Emissions Monitoring Technical Q&A guidelines.	9/10/2021
Arizona	Arizona Department of Environmental Quality	<a href="#">David Kim</a>	(602) 771-4365	<b>Recertification/Diagnostic Testing/Temporary Analyzer Replacement:</b> Sites may use Part 75 Emissions Monitoring Technical Q&A guidelines.	6/23/2021
Arkansas	Arkansas Department of Environmental Quality	<a href="#">Alan Breshears</a>	(501) 837-2209	<b>Recertification/Diagnostic Testing:</b> A RATA must be performed any time an event triggers a recertification, as dictated in the Part 75 Emissions Monitoring Technical Q&A. Part 75 Emissions Monitoring Technical Q&A guidelines may be followed for diagnostic events with CGAs being substituted for linearities.	6/9/2021
California	California Environmental Protection Agency	<a href="#">Contact Email</a>	(916) 323-2514	Final determination is deferred to the local agencies.	
California – Sutter & Yuba County	Feather River Air Quality Management District	<a href="#">Karla Sanders</a>	(530) 634-7659 x205	<b>Recertification/Diagnostic Testing/Temporary Analyzer Replacement:</b> The agency determines testing on a case-by-case basis. Contact the agency and request to use Part 75 Emissions Monitoring Technical Q&A as a guideline.	7/2/2021
Colorado	Colorado Department of Public Health & Environment	<a href="#">Jeffrey Bishop</a>	(303) 692-3106	<b>Recertification/Diagnostic Testing:</b> Use Part 75 Emissions Monitoring Technical Q&A as a guideline as required in CDPHE's "Air Pollution Control Division Guidelines for State-Only Required Continuous Monitoring Systems in the State of Colorado."	5/26/2021 <sup>1</sup>
Connecticut	Connecticut Department of Energy and Environmental Protection	<a href="#">John Degirolamo</a>	(860) 424-3957	<b>Recertification/Diagnostic Testing/Temporary Analyzer Replacement:</b> The agency determines testing on a case-by-case basis. Contact the agency and request to use Part 75 Emissions Monitoring Technical Q&A as a guideline.	10/25/2021



# Questions?

Thanks –

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