



# **Mission (Not) Impossible:** ***Navigating CEMS Certification and Recertification***

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# Mission Briefing

A successful certification is less about one test day and more about managing the entire sequence.

## 1. Understand the Rules

- Part 75
- Part 60
- State & Local Rules
- Site Permit Conditions

## 2. Plan the Mission

- Determine Required Tests & Applicable Limits
- Establish Deadlines
- Coordinate Contractors
- Ensure Site Readiness
- Submit Protocols

## 3. Execute Testing

- Run Required Tests
- Track 7-Day Drift Progress
- Maintain Hands-Off Policy

## 4. Submit

- Compile Test Reports
- Gather Gas Cylinder Sheets
- Submit via ECMPS 2.0
- Submit Application
- Submit via CEDRI / ERT



# Part 75 Initial Certification Tests

Different systems have different testing needs. Make sure to know which tests are required before you commence certification.

## SO<sub>2</sub>, NO<sub>x</sub>, & NO<sub>x</sub>-Diluent

7-day calibration error (> 50 ppm)  
Linearity check (> 30 ppm)  
RATA  
Bias test  
Cycle time

## Flow Monitor

7-day calibration error  
RATA — 1 or 3 levels as applicable  
Bias test(s)

## CO<sub>2</sub>, Diluent, Moisture (O<sub>2</sub> wet & dry)

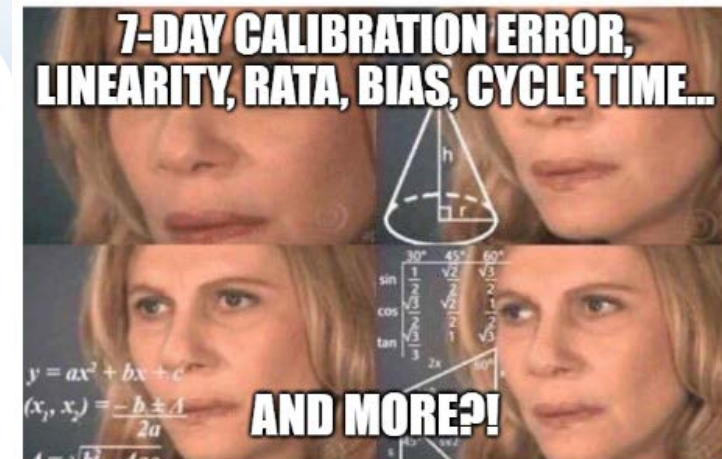
7-day calibration error  
Linearity  
RATA  
Cycle time

## DAHS

Verify hourly calculations  
Verify missing-data logic

## Fuel Flowmeter

Fuel Flowmeter Accuracy Test (or statement of calibration if meets the accuracy standard by design)  
Primary Element Inspection (orifice, nozzle, and venturi-type)  
Fuel Flowmeter Transmitter Accuracy test (orifice, nozzle, and venturi-type)  
Note that non-orifice, nozzle and venturi type meters have different initial/recertification and QA requirements.



# Part 60 Initial Certification Tests

The required tests depends on the monitoring system and what changed.

## SO<sub>2</sub> & NO<sub>x</sub> – PS 2

7-day drift test (both ranges)

RATA

CGA (not required in RATA quarter, but CiSCO recommends)

## Flow Monitor – PS 6

7-day drift test

RATA

## CO<sub>2</sub> & O<sub>2</sub> – PS 3

7-day drift test

RATA

CGA (not required in RATA quarter)

## CO – PS 4/4A

CO Response Time Test (<200 ppm)

7-day drift test

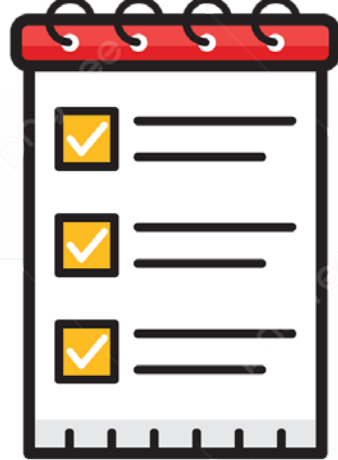
RATA

CGA (not required in RATA quarter)

## Subparts GG, KKKK, & KKKKa

GG & KKKK - Part 75 NO<sub>x</sub> CEMS may be used; Part 75 missing-data substitution is not allowed. Missing CEMS data must be reported as monitor downtime.

KKKKa – Part 75 may be used for turbines that do not use post-combustion technology but turbines with post-combustion technology need state approval.



# Recertification: Start With the Change

Ask: what changed, and could it affect the monitor's ability to measure or record emissions accurately?

## Part 75

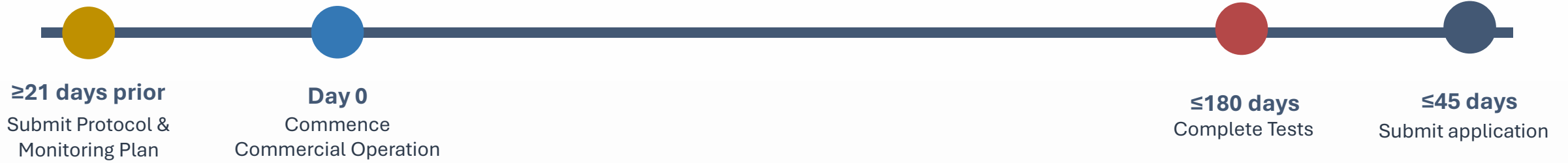
- Refer to [EPA Part 75 Emissions Monitoring Technical Q&A – Section 12 \(Recertification\)](#) to determine applicable testing requirements for various changes.

## Part 60

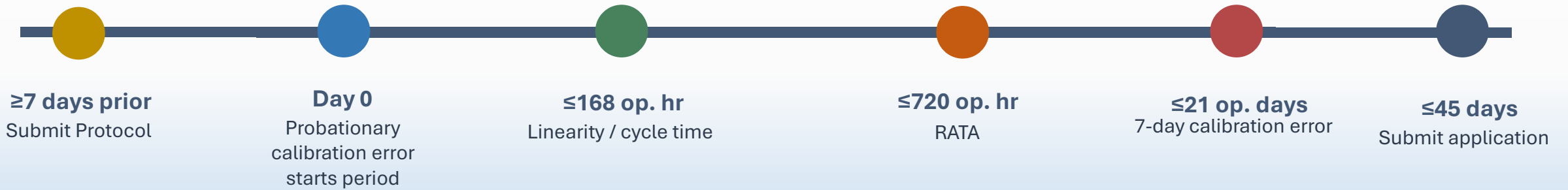
- Regulations are silent on recertification
- EPA advised that state/local agencies should determine testing requirements because they are responsible for enforcing 40 CFR Part 60
- CiSCO contacted state and local agencies
- Agency responses are compiled on the CiSCO [website](#)



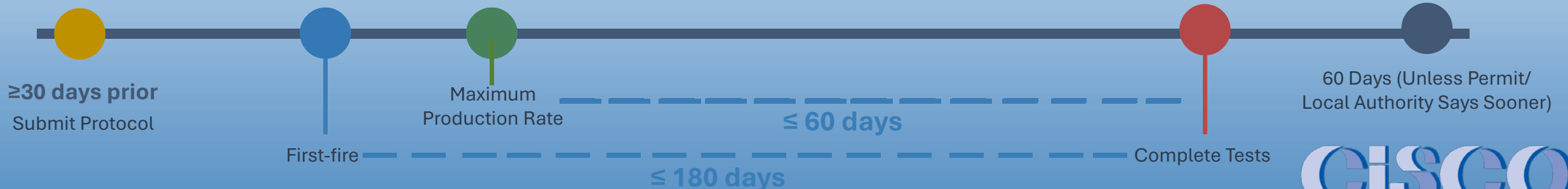
## Part 75 Initial Certification Clock



## Part 75 Recertification Clock



## Part 60 Initial Certification Clock

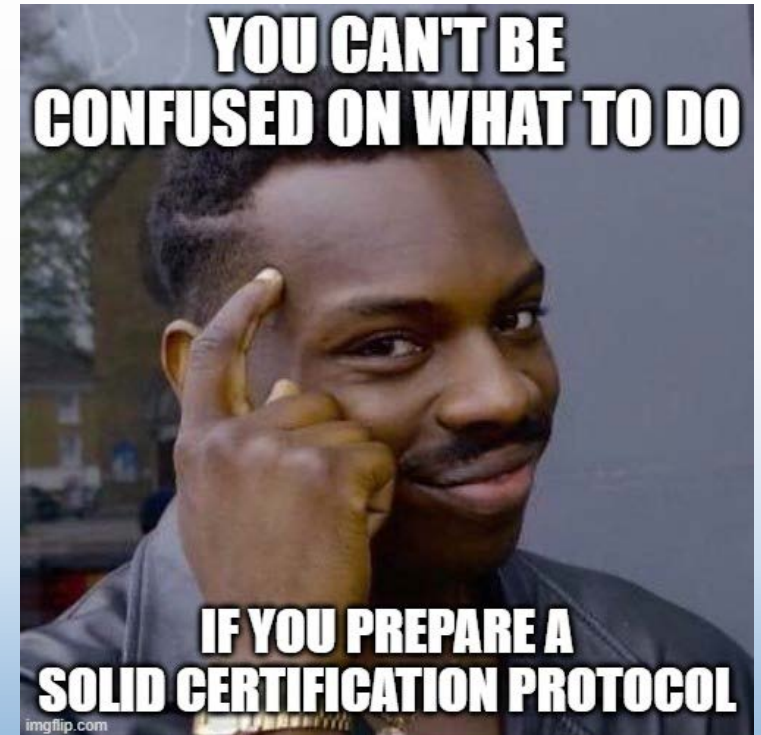


# Certification / Recertification Protocol

## Requirements:

- **Cause of Certification / Recertification**
- **Tests:** Determine which tests will be performed
- **Schedule:** When testing will occur
- **Reference Methods & Limits:** Specified test methods and performance criteria
- **Operating Conditions:** Target loads and conditions for each test
  - **Part 60:** >50% Normal Load
  - **Part 75:** One of the two normal operating loads:
    - Low  $\leq 30.0\%$
    - Mid  $>30.0-60.0\%$
    - High  $>60.0\%$

% of the range of operation
- **Gas Standards:** Required gas cylinders and concentrations for each test
  - Verify concentrations, EPA protocol certifications, and expiration dates.
- **RATA Protocol**



# The 7-Day Calibration Error Test

Do not confuse the 7-day test with the routine daily calibration report.

## Before the test

- Confirm auto-calibration configuration
- Understand the hands-off policy
- Have a pre-test discussion with the facility's environmental representative, site technician, and CiSCO to ensure everyone is on the same page regarding the test.

## During the test

- Check results daily using the 7-Day Drift Evaluation tool in CeDAR Editor
- Determine if a routine calibration adjustment should be performed following daily calibration
- Remember if you operate within the day then you must perform an online calibration
- You must have 7 consecutive operating days with passing, online calibrations to pass the test.

**7-Day Drift**

Unit 11 75-NO<sub>x</sub> ppm/L

Calibration Time: 10/27/2024 02:45 **Passed**

Instrument Span: 10 **Off-Line**

**Zero Gas**

Reference: 0

Measured: -0.01

Drift: -0.01 Limit: 0.25

**Span Gas**

Reference: 8.94

Measured: 8.91

Drift: -0.03 Limit: 0.25

**Summary**

The 7-Day Drift Test has been passed.  
Unit operating status cannot be determined for 305 days in selected timeframe prior to completion of the test. Test results may be inaccurate.

✓ Pass On-Line    ✓ Pass Off-Line    ✗ Fail On-Line    ✗ Fail Off-Line

✗ Unit Operated in Day Without On-line Cal

<< Back    ☒ Preview Report After Saving    Save



\*If a 7-day calibration error test is failed within the recertification test period, previously-recorded conditionally valid emission data from the CEMS are not invalidated. The conditionally valid data status is unaffected, unless the calibration error on the day of the failed 7-day calibration error test exceeds twice the performance specification - 40 CFR 75.20(b)(3)(vii)(C)

# Linearity Tests

For analyzer replacements remember to update analyzer make, model, serial number, and component IDs in CeDAR

## Analyzer Replacements

- Update Analyzer & Monitor Info in CeDAR Editor to ensure Linearity and CGA reports are accurate going forward
- If missed before testing, update the information directly within the test in CeDAR Editor

File

E

E

C

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## Unit 11 NOx/H Linearity

Hummel Station

### Test Information

Test Date 3/11/2026  
Test Reason  
Grace Period No  
Aborted No  
Result Passed  
Unit online during QA test

### Analyzer and Monitor Information

Range High  
Instrument Span 100 ppm  
Component ID 110  
Manufacturer TELEDYNE  
Model T200M  
Serial Number 652

| Run                                 | Time    | Reference Gas | CEMS Response | Cylinder Information                                                                                                                                                               |
|-------------------------------------|---------|---------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Low Gas</b>                      |         |               |               |                                                                                                                                                                                    |
| 1                                   | 8:08 AM | 25.05         | 25.13         | Allowable Reference Values:<br>20-30 ppm (20-30% of span)<br>Cylinder ID: CC472916<br>Expiration Date: 1/27/2028<br>EPA Vendor ID: A12025<br>Cylinder contains:<br>CO,NO,NOX,BALN  |
| 2                                   | 8:23 AM | 25.05         | 25.23         |                                                                                                                                                                                    |
| 3                                   | 8:38 AM | 25.05         | 25.30         |                                                                                                                                                                                    |
| Mean (ppm)                          |         | 25.05         | 25.22         |                                                                                                                                                                                    |
| Difference of means (  R-A  ) (ppm) |         | 0.2           | Limit 5       | Passed                                                                                                                                                                             |
| Linearity Error (%)                 |         | 0.7           | Limit 5.0     | Passed                                                                                                                                                                             |
| <b>Mid Gas</b>                      |         |               |               |                                                                                                                                                                                    |
| 1                                   | 8:13 AM | 56.11         | 55.59         | Allowable Reference Values:<br>50-60 ppm (50-60% of span)<br>Cylinder ID: CC717228<br>Expiration Date: 4/30/2029<br>EPA Vendor ID: B22021<br>Cylinder contains:<br>CO,NO,NOX,BALN  |
| 2                                   | 8:28 AM | 56.11         | 55.57         |                                                                                                                                                                                    |
| 3                                   | 8:43 AM | 56.11         | 55.61         |                                                                                                                                                                                    |
| Mean (ppm)                          |         | 56.11         | 55.59         |                                                                                                                                                                                    |
| Difference of means (  R-A  ) (ppm) |         | 0.5           | Limit 5       | Passed                                                                                                                                                                             |
| Linearity Error (%)                 |         | 0.9           | Limit 5.0     | Passed                                                                                                                                                                             |
| <b>High Gas</b>                     |         |               |               |                                                                                                                                                                                    |
| 1                                   | 8:18 AM | 91.18         | 90.79         | Allowable Reference Values:<br>80-100 ppm (80-100% of span)<br>Cylinder ID: CC337873<br>Expiration Date: 7/7/2033<br>EPA Vendor ID: B22025<br>Cylinder contains:<br>CO,NO,NOX,BALN |
| 2                                   | 8:33 AM | 91.18         | 90.91         |                                                                                                                                                                                    |
| 3                                   | 8:48 AM | 91.18         | 90.75         |                                                                                                                                                                                    |
| Mean (ppm)                          |         | 91.18         | 90.82         |                                                                                                                                                                                    |
| Difference of means (  R-A  ) (ppm) |         | 0.4           | Limit 5       | Passed                                                                                                                                                                             |
| Linearity Error (%)                 |         | 0.4           | Limit 5.0     | Passed                                                                                                                                                                             |

### Linearity Error (LE) Determination

$$LE (\%) = (|R-A| / R) * 100$$

R = Reference gas value

A = Mean of actual CEMS responses

der Info

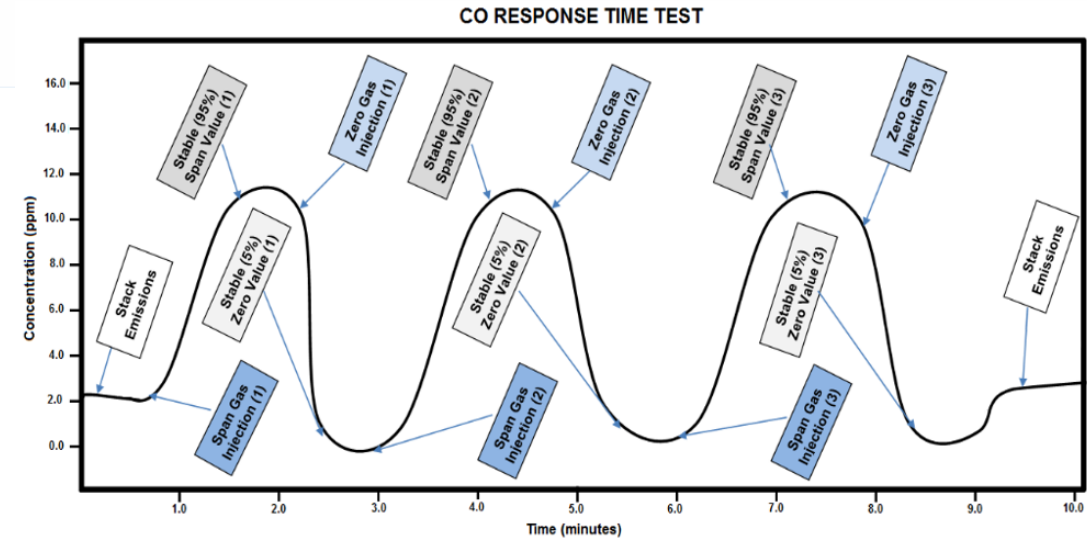
Recalculate

Close

# CO Response Time / NOx/O2 Cycle Time Test

## CO Response Time:

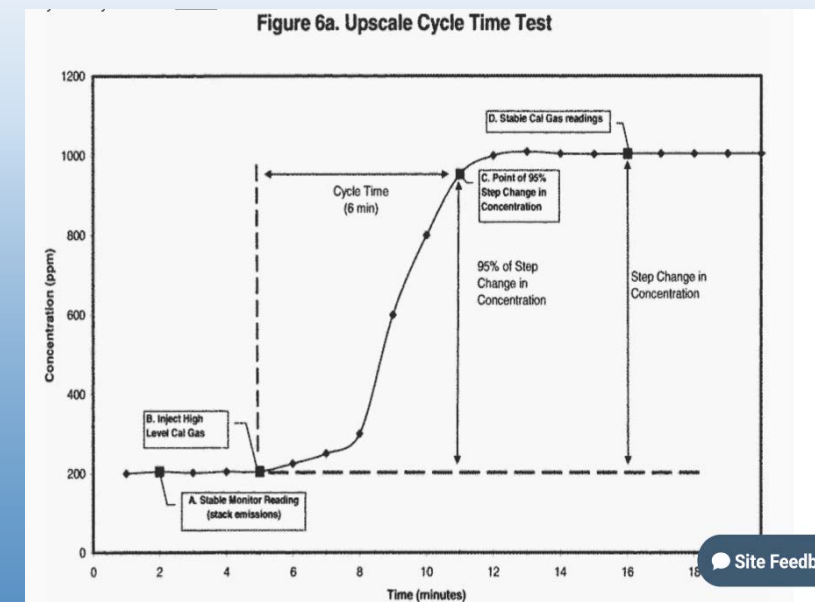
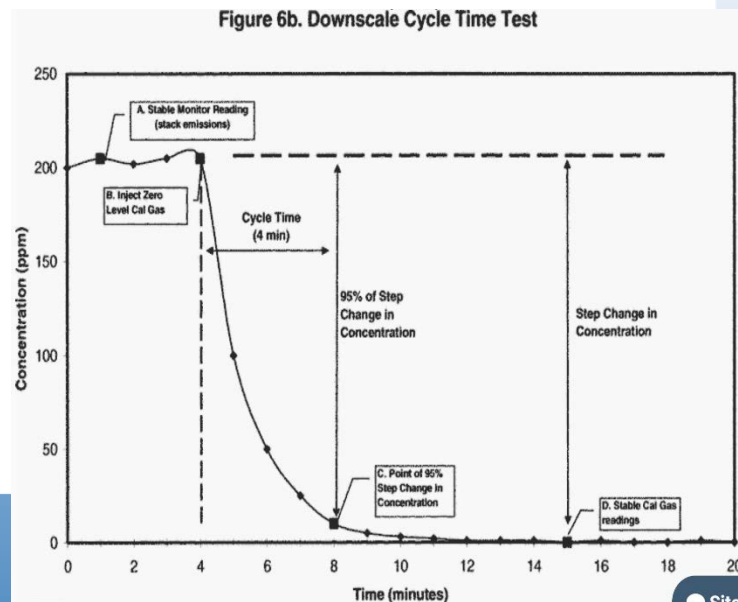
- **Part 60:** Only required for spans <200 ppm
- 30 seconds of stability
- 3 upscale and 3 downscale injections
- **LIMIT:** 240 seconds



Downscale response = Time (stable zero value) - Time (zero injection)  
Upscale response = Time (stable span value) - Time (span injection)

## Cycle Time Test:

- **Part 75:** NOx and O2
- 2 minutes of stability
- 1 upscale and 1 downscale
- **LIMIT:** 15 minutes

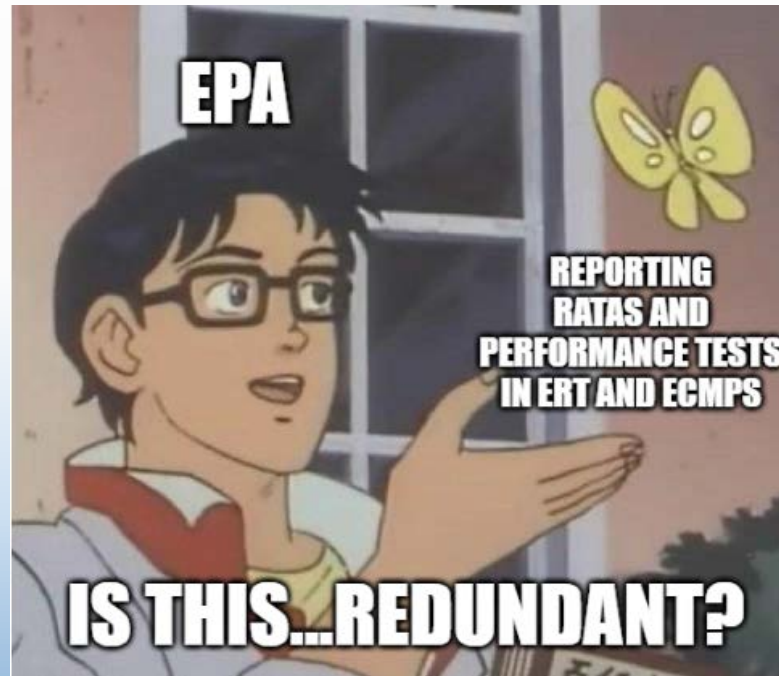


# 2026 Reporting Update: Subparts GG, KKKK & KKKKa

Include preparation and submission of the required ERT/CEDRI reports in the RATA team's scope.

## Subparts GG & KKKK

Beginning on March 16, 2026, within 60 days after the date of completing each performance test or continuous emissions monitoring systems (CEMS) performance evaluation that includes a RATA, you must submit the report in a file format generated using the EPA's Electronic Reporting Tool (ERT).



## Subpart KKKKa

Within 60 days after the date of completing each performance test or continuous emissions monitoring systems (CEMS) performance evaluation that includes a RATA, you must submit the report in a file format generated using the EPA's Electronic Reporting Tool (ERT).

# From Field Testing to Final Submission

Final check: component IDs, serial numbers, test dates, gas values, calculations, and reported results must tell the same story.

Notify agency about testing

## 1. Field Testing

- Raw data
- Test reports
- Gas sheets

## 2. Calculations

RATA, bias, drift,  
linearity, cycle time,  
response time

## 3. Application

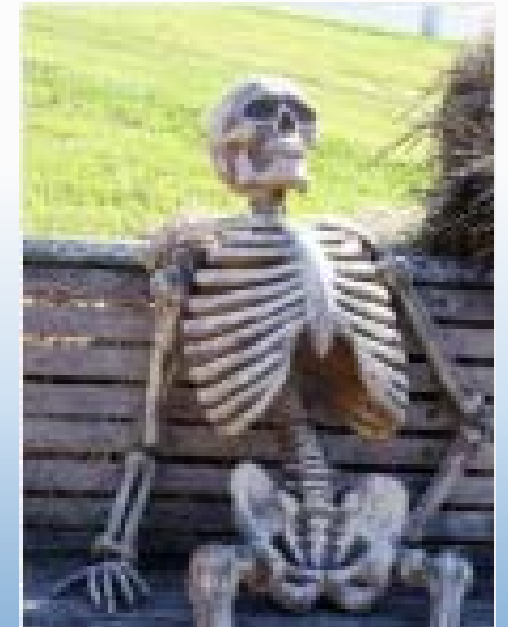
- Narrative
- Results
- Supporting evidence

## 4. ECMPS 2.0

- Provide Organization ID and Sponsor's email address
- First CDX then CBS (match roles)
- We no longer have to send you the files

## 5. CEDRI / ERT

- RATA specific
- Applicable to Part 60 Subparts GG, KKKK, & KKKKa
- **Include in RATA team's scope**



# Obstacles We've Seen Along the Way

Examples of issues that can be avoided with better preparation and attention to detail.

## Gas Cylinders Sheets

Cylinder sheets not provided for the gas cylinders actually used during testing



## NOx-Diluent Systems

Most facilities operate configured as NOx-diluent systems under Part 75.

Replacing either the NOx or O2 analyzer triggers a RATA on the NOx-diluent system. You cannot perform a RATA on just NOx or O2 alone.

## 7-Day Drift Test

Online calibrations can become tricky with forced shutdowns and unit tripping events.

Not dedicating on-site personnel to the test, with support from CiSCO and/or Environmental personnel on behalf of the site.

## Aim for RATA to be Last Test

With days left in a 7-day drift, the NO2 converter in the NOx analyzer failed and needed hands-on replacement, forcing a complete repeat of recertification.

Running RATAs last avoids costly remobilizations

# Certification Support from CiSCO

From start to finish or wherever support is needed, CiSCO is here to help with your certification / recertification process. Some options include:

## Field Service Technician

- Travel to the site in advance of the RATA
- Perform linearities, cycle time test, CO response time test during same mobilization
- Oversee the RATA
- Compile test reports and cylinder sheets

## Environmental Department

- Coordinate with site personnel to discuss and plan testing
- Prepare the Certification Protocol
- Remotely monitor the 7-Day Drift Tests
- Verify all test results meet performance specifications
- Enter test results into ECMPS
- Prepare the certification application
- Verify DAHS formulas and missing data substitution procedures
- Address regulatory questions and uncertainties with EPA



# Questions?

## We C.A.N. help

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**CISCO**