

**Subject:** RE: Part 63 Subpart EEE Section 5.3 Interference Response Test

**From:** <rauenzahn.scott@epamail.epa.gov>

**Date:** Tue, 22 Jul 2003 16:02:21 -0400

**To:** ladams@metcoenv.com, crwi@erols.com

**CC:** Galbraith.Michael@epamail.epa.gov

Dear Lewis Adams and Mel Keener:

It took us a while to formulate a response to your request for assistance regarding interference tests for CO, HC, and O2 CEMS. Unfortunately, no one here has any familiarity with these CEMS themselves. Below are a few e-mails we received from our contractor regarding these requirements.

Please note that we agree with our contractor's conclusions, namely that

we do not believe there is a strong need to require interference testing. If there is a requirement in the appendix, it is there by error and we need to remove it.

In the meantime, if your permitting people insist that you conduct the test anyway, you are pretty much free to develop whatever protocols you feel are appropriate.

~ Scott Rauenzahn

----- Forwarded by Scott Rauenzahn/DC/USEPA/US on 07/22/2003 03:55 PM

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Bruce Springsteen

Rauenzahn/DC/USEPA/US@EPA  
<bspringsteen@eer  
gc.com>

To: Scott

cc:

Subpart EEE Section 5.3 Interference  
07/18/2003 12:21

Subject: RE: Part 63  
Response Test

PM

Please respond to

bspringsteen

Scott:

Couple follow-ups to earlier notes:

For CO CEMS, appears in a few cases (e.g., chem waste incin in Utah), CO CEMS are challenged with various ranges of CO2 (interference like tests) to document impact on CO response. Although, CRWI seems correct in that CO2 will produce a positive bias on CO response (i.e., the CO reading will be higher than actual as a result of CO2 interference).

For HC FID, learned that response in some instruments is somewhat sensitive to the O2 level in stack gas.

Bruce

-----Original Message-----

From: Bruce Springsteen [mailto:[bspringsteen@eergc.com](mailto:bspringsteen@eergc.com)]

Sent: Thursday, July 17, 2003 9:09 AM

To: 'rauenzahn.scott@epamail.epa.gov'

Subject: RE: Part 63 Subpart EEE Section 5.3 Interference Response Test

Scott:

Agree with CRWI and METCO comments that there is a reference to requiring an "interference" test as part of the RATA for CO, O2, and HC CEMS in EEE CEMS QA Appendix, but no discussion of how to do this in the PS 4B (CO, O2) or 8A (HC), or no current requirement for the interference test as part of the BIF rule.

We (Steve Schliesser or I) were not aware of this new requirement, and do not know if this was added intentionally to the CEMS QA procedures,

or  
included by accident.

Either way, a quick technical evaluation:

CO CEMS are almost always NDIR or gas filter correlation (a variation of NDIR).

Straight NDIR monitors are susceptible to interference primarily from CO<sub>2</sub> and H<sub>2</sub>O. H<sub>2</sub>O is always removed (condensed) prior to measurement, thus is not a problem. Calibration must be made with the typical/expected CO<sub>2</sub> level (or a correction factor used). Because CO<sub>2</sub> level in combustion gases is fairly stable this is not usually considered a problem.

With the more advanced gas filter correlation monitors (which I think many unit use), potential for interferences is essentially eliminated.

O<sub>2</sub> CEMS are typically paramagnetic -- NO<sub>x</sub> and HC can cause small interferences. Additionally, electrocatalytic and polarographic methods can be used. Electrocatalytic can be sensitive to the level of CO and HC in gas.

HC FID response may be slightly different depending on O<sub>2</sub>, H<sub>2</sub>O, or CO<sub>2</sub> levels, but probably not much. Much more sensitive to type (species) of HC -- for example, chlorinated HCs have much different response than aliphatics, which are different than alkenes, ..... Note that FIDs are always calibrated with methane or propane.

Our conclusion is that we don't see a strong need for an interference test for CO, O<sub>2</sub>, or HC monitor -- and that described for Method 20 (NO<sub>x</sub> for gas turbines) (mentioned by CRWI) does not seem that beneficial. Or, maybe

leave it up to CEM manufacturer factor to certify that has adequate response to range of expected stack conditions.

Note that do not agree with CRWI comment that interferences will always produce a CEM reading that is higher than actual level.

Bruce

-----Original Message-----

From: [rauenzahn.scott@epamail.epa.gov](mailto:rauenzahn.scott@epamail.epa.gov)  
[<mailto:rauenzahn.scott@epamail.epa.gov>]

Sent: Wednesday, July 16, 2003 6:24 AM

To: [bspringsteen@eergc.com](mailto:bspringsteen@eergc.com)

Subject: Part 63 Subpart EEE Section 5.3 Interference Response Test

Bruce:

We got in a bunch of questions from people concerning this, and the HC/CO CEMS requirements in general. We have no expertise in these matters, SAIC wrote the performance specs for the BIF rule and Larry G

apparently screwed up Appendix EEE. We could sure use some help from

you all. Could you all please figure out what people are saying and recommend a response to these folks? We need a response by Friday since

it impacts a test being conducted next week. Thanks!! This is the first of 2 e-mails.

~ Scott

----- Forwarded by Scott Rauenzahn/DC/USEPA/US on 07/16/2003 10:22 AM

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Michael Galbraith

Rauenzahn/DC/USEPA/US@EPA

07/16/2003 08:25

AM

Subpart

EEE

Section 5.3 Interference

To: Scott

cc:

Subject: Part 63

Response Test

it was R6, not 1

----- Forwarded by Michael Galbraith/DC/USEPA/US on 07/16/2003 08:26 AM

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Lewis Adams

<ladams@metcoenv.  
Galbraith/DC/USEPA/US@EPA  
com>  
Davis/DC/USEPA/US@EPA

To: Michael

cc: Hugh

Subject: Part 63

Subpart

EEE

Section 5.3 Interference

07/15/2003 04:14

Response Test

PM

Please respond to

ladams

Mr. Galbraith,

Next week METCO Environmental is to conduct a relative accuracy test audit

(RATA) to certify a CEMS on a hazardous waste combustor for a client.

This

source is subject to the regulations described in 40 CFR Part 63, Subpart

EEE. METCO's client has inquired about the Interference Response Test

referenced in Section 5.3 of Subpart EEE. Section 5.3 requires that an

Interference Response Test must be conducted whenever a RATA is conducted.

At this time METCO's client, METCO, the TCEQ, and EPA Region 6 cannot

locate

where the procedures are described for conducting this required Interference

Response Test. It would be greatly appreciated if you could forward me the procedures or issue a formal response in a timely manner since the RATA is to be conducted next week. METCO's client is concerned that if this Interference Response Test is not performed the CEMS would be deemed "out of control" and possible notice of violations could be cited by the regulatory agencies. Thank you.  
-Lewis

Lewis Adams  
Program Manager  
METCO Environmental  
Ph: 972-931-7127  
Fax: 972-267-4111

**Subject:** Interference response test  
**From:** Melvin Keener <crwi@erols.com>  
**Date:** Mon, 30 Jun 2003 18:10:55 -0400  
**To:** Mike Galbraith <galbraith.michael@epamail.epa.gov>

Mike

In the appendix of EEE (64 FR 53069), section 5.3 requires that an interference response test must be conducted every time a RATA or an ACA is conducted. These tests are required every quarter (RATA annually and ACA every other quarter - see section 5.1 and 5.2). Section 5.3 references the applicable Performance Specifications (4B for CO and O2, and 8A for total hydrocarbons).

When PS 4B and 8A are examined, there is no reference to an interference response test. There is a reference in PS 4B that says that the CEM must be shown to be free of interference. This is normally done in the laboratory as part of the certification of the instrument by the manufacturer.

One would think that since there is no reference to an interference response test in these two PS, there should be no requirement to do such a test every quarter. However, there are discussions of an interference response test in section 6.2 of Methods 3A (O2 and CO CEMs) and 7E (NOx CEM). Both of these methods refer to section 5.4 of Method 20 (NOx, SO2, and O2 CEMs). This section describes a test (CO - 500 ppm, SO2 - 200 ppm, CO2 - 10%, and O2, 20.9%) but also allows the use of vendor data in lieu of conducting the test.

There was some a question of how this requirement matches what is already in the BIF regulations. When Part 266, Appendix IX, section 2 is examined, there is no mention of an interference response test. All that is mentioned is in section 2.1.6.4.2.2 that a nondispersive infrared analyzer should use a interference trap. If that trap is not used, then a laboratory interference test can be used prior to the field test (but only by approval of the Administrator).

CRWI members are not exactly sure how to comply with this requirement. All instruments are certified by the manufacturer before they are installed. There does not seem to be a physical reason why these instruments should be checked every quarter for interferents. Besides, any interference would show up as a false positive, giving higher readings that are actually there. If the instrument is not working properly, it is in the facility's best interest to get it fixed.

CRWI can see no real reason for this section and suggests that it be removed from the regulations.

Mel



**Subject: Interference Response Test**

**Date:** Wed, 20 Mar 2002 11:47:30 -0600

**From:** Jerry <jdrake@cs2inc.com>

**To:** "Keener, Melvin" <crwi@erols.com>

**CC:** "Drake, Elizabeth" <edrake@cs2inc.com>, "Nixon, Joe" <jnixon@cs2inc.com>

Mel,

Some comments related to the interference response test of CEMS.

Section 5.3 of the Appendix to Subpart EEE specifies conducting the interference response test pursuant to the performance specifications. The Appendix also references Performance Specification 4B for CO and O<sub>2</sub> CEMS and PS 8A for total hydrocarbon CEMS. PS 4B references the "test procedures" of PS 3 for O<sub>2</sub> CEMS and PS 4A for CO CEMS. Section 8.4 of PS 4A specifies that the "CEMS must be shown to be free from the effects of any interferences". I found nothing else in the Performance Specifications concerning interference response tests.

I looked at the EPA Methods for CEMS and found discussions on interference response tests in Section 6.2 of Method 3A (O<sub>2</sub> and CO<sub>2</sub> CEMS) and Section 6.2 of Method 7E (NO<sub>x</sub> CEMS). Both of these methods refer to Section 5.4 of Method 20 (NO<sub>x</sub>, SO<sub>2</sub>, and O<sub>2</sub> CEMS) for the interference response test. Section 5.4 of Method 20 does contain a procedure for performing an interference response test.

The procedure uses gases or a mixture of gases containing CO (500 + - 50 ppm), SO<sub>2</sub> (200 + - 20 ppm), CO<sub>2</sub> (10 + - 1%), and O<sub>2</sub> (20.9 + - 1%). The gases are injected and the responses recorded. The interference response is acceptable if the sum of the differences (if more than one gas is used) is less than 2% of the span of the instrument. This section also allows the use of vendor data in lieu of conducting the test.

I would think that doing the test on a quarterly basis would impose a certain amount of burden on the facilities. However, if the use of vendor data is allowed then a one-time effort would be required to document it.

I do not know if this type of interference test is routinely performed. Possibly a stack sampler could provide some insight to this. Also, I do not know if CEMS responses are typically affected by other gases (although I seem to recall something about CO<sub>2</sub> affecting CO results). A vendor or stack sampler could provide better information.

Jerry Drake  
Compliance Strategies & Solutions, Inc.

Appendix IX 266.

2.1.6.4.2.2



**Subject:** Interference Test

**From:** "Wrye, Gerald - Eastman" <gwrye@eastman.com>

**Date:** Wed, 30 Apr 2003 16:07:18 -0400

**To:** "Mel Keener (E-mail)" <crwi@erols.com>

FYI - You have probably already looked at this but section 6.2 of Method 3A talks about the interference response test. It only requires it initially before the instrument is put into use and rechecks if changes are made to the instrument.

Gerald Wrye  
B-54D, Phone 2834