IERG 2026 Air Seminar

Session 3 – Source Monitoring

Kevin Mattison

Environmental Protection Specialist IV

Bureau of Air/Compliance Section/Source Monitoring Unit

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Monitoring & Recordkeeping Expectations

- Excess emissions and monitoring systems performance report
  - Detailed report if over 1% excess emissions or 5% CEMS downtime
    - 40 CFR 60.7(c)
      - (https://www.ecfr.gov/current/title-40/part-60/section-60.7#p-60.7(c))
    - 40 CFR 60.7(d)
      - (https://www.ecfr.gov/current/title-40/part-60/section-60.7#p-60.7(d))

Excess emissions and monitoring systems Report

Figure 1—Summary Report—Gaseous and Opacity Excess Emission and Monitoring System Performance

Pollutant (Circle One—SO_2/NO_X/TRS/H_2S/CO/Opacity)
Reporting period dates: From _____ to _____
Company:
Emission Limitation _____
Address:
Monitor Manufacturer and Model No. _____
Date of Latest CMS Certification or Audit _____
Process Unit(s) Description:
Total source operating time in reporting period [1] _____

Expand Table

Emission data summary [1]	CMS performance summary [1]
1. Duration of excess emissions in reporting period due to:	1. CMS downtime in reporting period due to:
a. Startup/shutdown	a. Monitor equipment malfunctions
b. Control equipment problems	b. Non-Monitor equipment malfunctions
c. Process problems	c. Quality assurance calibration
d. Other known causes	d. Other known causes
e. Unknown causes	e. Unknown causes
2. Total duration of excess emission	2. Total CMS Downtime
3. Total duration of excess emissions × (100) [Total source operating time] % [2]	3. [Total CMS Downtime] × (100) [Total source operating time] % [2]

[1] *For opacity, record all times in minutes. For gases, record all times in hours.*

[2] *For the reporting period: If the total duration of excess emissions is 1 percent or greater of the total operating time or the total CMS downtime is 5 percent or greater of the total operating time, both the summary report form and the excess emission report described in § 60.7(c) shall be submitted.*

On a separate page, describe any changes since last quarter in CMS, process or controls. I certify that the information contained in this report is true, accurate, and complete.

Name _____
Signature _____
Title _____
Date _____

Monitoring & Recordkeeping Expectations

- Part 75 Emissions Monitoring Technical Questions & Answers
  - Part 75 Emissions Monitoring Technical Questions and Answers | US EPA
  - (https://www.epa.gov/power-sector/part-75-emissions-monitoring-technical-questions-and-answers)

- Section 12: Recertification
- Great Table for Recertification and Diagnostic Test Policy

What is the purpose of a Stack Test?

A. Show Compliance

B. Show Non-compliance

C. Obtain Valid Data

D. All the above

Testing & Recordkeeping Requirements

- What is required, common pitfalls, and best practices

1. Providing a cover letter
   a) Identify what unit(s) were tested; name should match the permit
   b) Stating whether compliance was obtained.
2. Submit all raw and supporting data
   a) Complete lab reports are required
   b) All raw data including field notes are required

No supporting data to show instrument was stable at the reported values

LINEARITY CHECK									
Pollutant		Calibration Gas Concentration (ppm)	Analyzer Response (ppm NO)	Analyzer Response (ppm NO_2)	Analyzer Response (ppm CO)	Analyzer Reponse (% O_2)	Absolute Difference	Percent of Span	Linearity Valid (Yes or No)
NO	Zero	0.00	0.00				0.00	0.00%	Yes
	Mid	150.00	150.00				0.00	0.00%	Yes
	Span	300.00	300.00		0.00		0.00	0.00%	Yes
NO_2	Zero	0.00		0.00			0.00	0.00%	Yes
	Mid	35.00		35.00			0.00	0.00%	Yes
	Span	70.00	0.00	70.00	0.00		0.00	0.00%	Yes
CO	Zero	0.00			0.00		0.00	0.00%	Yes
	Mid	300.00			300.00		0.00	0.00%	Yes
	Span	600.00			600.00		0.00	0.00%	Yes
O_2	Zero	0.00				0.00	0.00	0.00%	Yes
	Mid	10.00				9.60	0.40	1.91%	Yes
	Span	20.90				21.00	0.10	0.48%	Yes

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Testing & Recordkeeping Requirements

- Common pitfalls
  - Not meeting the minimum requirement of permit conditions
  - Permittee shall conduct stack testing during conditions which are representative of maximum emissions
  - Process data not included or vague/generic
  - No supporting raw process data
  - Not providing diagrams/pictures of sampling location(s) and the process

Testing & Recordkeeping Requirements

TEST INFORMATION				
Time		**Run 1**	**Run 2**	**Run 3**
Start Time		08:34:51	09:05:44	09:37:11
End Time		08:55:22	09:26:15	09:57:32
WEATHER INFORMATION				
Temperature	°F	46.00	46.00	46.00
Barometric Pressure	in Hg	30.10	30.10	30.10
Humidity	%	33.00	33.00	33.00
PREFERRED OPERATIONAL DATA				
Item	**Unit**	**Run 1**	**Run 2**	**Run 3**
Speed	RPM	923.00	930.00	928.00
Source Horsepower	BHP	4089.40	4089.40	4089.40
Source Load	%	92.00%	92.00%	92.00%
FUEL CONSUMPTION DATA				
BSFC, LHV	Btu/bhp-hr	6350.28	6485.20	6507.38
Fuel Flow Consumption	scf/hr	26461.20	27023.40	27115.80

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

Testing & Recordkeeping Requirements

- Best Practice
  - PREPARATION AND REVIEW OF EMISSION TEST REPORTS
  - GD-043
  - (https://www.epa.gov/sites/default/files/2020-08/documents/gd-043.pdf)

Reporting Stack Test to ERT

- Upload test report to ERT for federal testing requirements
- 40 CFR 60.46b(j)(14)
- As of January 1, 2012, and within 90 days after the date of completing each performance test, as defined in § 60.8, conducted to demonstrate compliance with this subpart, you must submit relative accuracy test audit (*i.e.*, reference method) data and performance test (*i.e.*, compliance test) data, except opacity data, electronically to EPA's Central Data Exchange (CDX) by using the Electronic Reporting Tool (ERT) (see *http://www.epa.gov/ttn/chief/ert/ert_tool.html/*) or other compatible electronic spreadsheet. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically into EPA's WebFIRE database.
- (https://www.ecfr.gov/current/title-40/part-60/subpart-Db#p-60.46b(j)(14))

Testing Protocol Submittals

- Required elements, review timelines, and frequent challenges

1. Required elements:
   a) Site-specific Protocol
   b) Include information required in permit
   c) Clearly note deviations or request for approval of alt methods
2. Review Timelines
   a) Over 1000 test related report rec'd
   b) 60 days protocol
3. Frequent challenges
   a) Not being upfront of deviations or request for approval of alt methods
   b) Not including required information in protocol
   c) Protocols have become generic and not site-specific

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NSPS – 40 CFR 60.8(d)
Performance tests

The owner or operator of an affected facility shall provide the Administrator at least 30 days prior notice of any performance test, except as specified under other subparts, to afford the Administrator the opportunity to have an observer present.

(https://www.ecfr.gov/current/title-40/part-60/section-60.8#p-60.8(d))

NESHAP - 40 CFR 63.9(e) Notification requirements

Notification of performance test. The owner or operator of an affected source shall notify the Administrator in writing of his or her intention to conduct a performance test at least 60 calendar days before the performance test is scheduled to begin to allow the Administrator to review and approve the site-specific test plan required under §63.7(c), if requested by the Administrator, and to have an observer present during the test.

(https://www.ecfr.gov/current/title-40/part-63/subpart-A#p-63.9(e))

Protocol Submital – CAAPP Permit Language

CAAPP Permit Section 7.1.a:

Pursuant to Section 39.5(7)(a) of the Act, a written test protocol shall be submitted **at least sixty (60) days prior to the actual date of testing**, unless it is required otherwise in applicable state or federal statutes. The IEPA may at the discretion of the Compliance Section Manager (or designee) accept protocol less than 60 days prior to testing provided it does not deviate from the applicable state or federal statutes. The protocol shall be submitted to the IEPA, Compliance Section and IEPA, Stack Test Specialist for its review. Addresses are included in Attachment 3. This protocol shall describe the specific procedures for testing, including as a minimum:

Notification – CAAPP Permit Language

CAAPP Permit Section 7.1.b:

The IEPA, Compliance Section shall be notified prior to these tests to enable the IEPA to observe these tests pursuant to Section 39.5(7)(a) of the Act as follows:

i. Notification of the expected date of testing shall be submitted in writing a **minimum of thirty (30) days** prior to the expected test date, unless it is required otherwise in applicable state or federal statutes.

ii. Notification of the actual date and expected time of testing shall be submitted in writing a **minimum of five (5) working days** prior to the actual date of the test. The IEPA may at its discretion of the Compliance Section Manager (or designee) accept notifications with shorter advance notice.

Notification – Construction Permit Language

The Permittee shall submit a written test protocol shall be submitted at least sixty (60) days prior to the actual date of testing, unless it is required otherwise in applicable state or federal statutes. The IEPA may at the discretion of the Compliance Section Manager (or designee) accept protocol less than 60 days prior to testing provided it does not deviate from the applicable state or federal statutes. The protocol shall be submitted to the IEPA, Compliance Section and IEPA, Stack Test Specialist for its review. This protocol shall describe the specific procedures for testing, including as a minimum:

Protocol - Common Mistakes

- It does not adequately address permit conditions
- Unclear as what data needs to be collected
- Company assumes what the testing company submits to you is all encompassing and contains all the necessary information
- It does not clearly identify deviations

General Permit Condition Protocol Shall include

- The specific conditions under which testing will be performed, including a discussion of why these conditions will be considered maximum representative operating conditions and the means by which the operating parameters for the emission unit and any control equipment will be determined.

Example of Process/Testing Description

- Process Description:
  - The Baghouse has 4 modules each with its' own stack (4 stacks total). A typical operation usually takes 30–40 minutes which includes .
- Test program
  - Methods 1-2, ALT-153, 4, 5, 9, and 29
  - The following is a summary of the test objectives.
    - Testing will be performed to demonstrate compliance with the Illinois Air Permit No. XXXXXXXX.
    - Performance testing will be conducted on the exhaust of Baghouse.
    - Performance testing will be conducted during a complete steel cycle during testing.
    - Each of the three (3) test runs will be approximately 120 minutes in duration.
    - A minimum of 60 dscf will be collected during each test run.

Process Data

- Plant personnel will collect operational and parametric data at least once every 15 minutes during the testing. The following list identifies the measurements, observations and records that will be collected during the testing program:
  - Natural Gas Usage: lb/MMBtu
  - Production Rate

Common Stack Test Issues

- High Moisture Stacks
  - THC – not addressing the damping affect of high H_2O on Method 25A
  - Need to use a dilution system
- Inability to obtain oxygen (O_2) absorbent from (an)outside vendor for Method 3
  - Alt 153 allow the use of RM 3A to comply with Method 3B
    - Note Method 3B requires samples be analyzed **within 4 hours** (Section 8.2.4.)

Common Stack Test Issues

- Using a generic total hydrocarbon method to measure VOM.
- When VOM emissions are required to be testing, speciated organic methods need to be used.
- Note:
  - 35 IAC 215.102
  - Volatile organic material or organic material concentrations in a stream is **measured by Method 18**, 40 CFR 60, Appendix A, incorporated by reference in Section 215.105, Measurement of Gaseous Organic Compounds incorporated by reference in 215.105 except as follows. ASTM D-4457, incorporated by reference in Section 215.105, may be used for halogenated organic compounds. Method 25, 25A or 25B, 40 CFR 60, Appendix A, incorporated by reference in 215.105 may be substituted for Method 18 **provided the source owner or operator submits calibration data and other proof that this method provides the information in the emission units of the applicable standard**

Common Stack Test Issues

- Overuse/Simplification of Method 320
  - While it's an amazing tool, cannot be used for everything.
  - Site specific sampling matrices and potential interferants needs to be considered
  - Dynamic Spikes need to include a representative constituent of each class of compounds being analyzed. (i.e. acetaldehyde, methanol, etc.)
  - May need to consider Method 18

Best Practices

- PREPARATION AND REVIEW OF SITE-SPECIFIC EMISSION TEST PLANS

  GD-042

  (https://www.epa.gov/sites/default/files/2020-08/documents/gd-042.pdf)

Alternative Methods Approval

- All proposed Deviations from a Method or use of an Alternative Method
  - Need to be clearly identified such that IEPA can address them
  - Provide justification for the deviation or modification
  - Clearly identify what the proposed Alternative/Modification is
- Without Prior Approval, one cannot use utilizing an Alternative Method or Modified Method
- Start the process Early

Submitting Testing/Monitoring Information

- When submitting testing/monitoring information to the Illinois EPA, **mail ONE (1) hard copy** to the Compliance Section **and** submit an **electronic version** to Illinois EPA via the Request File Upload. If you are unable to use the Request File Upload, you may email the electronic version to (EPA.BOA.SMU@Illinois.gov).

- Please note email attachment file size is limited; whereas the Request File Upload, has no file size limit.

Electronic		
Request File Upload (http://epa-smu-file-request.illinois.gov/)	or	EPA.BOA.SMU@Illinois.gov

Submitting Testing/Monitoring Information

USPS	Via Other Means:
Illinois Environmental Protection Agency Bureau of Air, Compliance Section (MC 40) 2520 West Iles Avenue PO Box 19276 Springfield, Illinois 62794-9276	Illinois Environmental Protection Agency Bureau of Air, Compliance Section (MC 40) 2520 West Iles Ave Springfield, IL 62704

How compliance determinations are made

- Stack tests, CEMS, visible emissions, recordkeeping
- Stack Test: Average of test runs
  - 35 IAC 283.240
    - (pcb.illinois.gov/documents/dsweb/Get/Document-11974)
  - 40 CFR 60.8(f)

    (https://www.ecfr.gov/current/title-40/part-60/section-60.8#p-60.8(f))
  - 40 CFR 63.7(e)(3)
    - (https://www.ecfr.gov/current/title-40/part-63/section-63.7#p-63.7(e)(3))
- CEMS: Based on rule/regulation
- Visible Emissions (VE) highest 6-minute average (rolling average of all available data)

Questions?

Kevin Mattison

Environmental Protection Specialist IV

Bureau of Air/Compliance Section/Source Monitoring Unit

Kevin.Mattison@illinois.gov

217-953-4519