Division of Air Quality
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Emissions Testing Guidance

Stack testing, or more appropriately emissions testing, is increasingly required by various Federal and State programs. Specific requirements of these programs vary somewhat but the general procedure of an emissions test is common to all. In order to ensure these tests are appropriate, representative and timely, a source specific test protocol must be submitted to the Director for review and approval, the test must be conducted as specified in the approved protocol and the results must be reported in a clear and complete manner.

The DAQ has developed this guidance to outline appropriate procedures for conducting emissions tests, notices of test date and test reports. Procedures outlined in this guidance are based on requirements contained in DAQ rules 45CSR2 Appendix and 45CSR7A as well as Federal rules at 40 CFR 60, 40 CFR 61 and 40 CFR 63. Reference is also made to USEPA's National Stack Testing Guidance dated 2/14/04.

Disclaimer

The discussion in this document is intended solely as guidance not as a regulation. It is not designed to supercede any stack testing requirement in individual Federal NSPS, NESHAP or MACT or any State rule. This guidance does not confer legal rights or impose legal obligation upon any member of the public. DAQ retains the discretion to adopt approaches on a case-by-case basis that differ from those described in this guidance where appropriate. This document may be revised without public notice.

When to conduct an emissions test.

The requirement to conduct an emission test can be triggered by a number of mechanisms. Typically the trigger may be a requirement to demonstrate compliance with an emission limit referenced within a construction/modification (45CSR13) or Title V (45CSR30) permit, 45CSR2 & 10 monitoring plan or Director's order. The testing requirement reflected in a permit may be generated by an underlying Federal program such as NSPS, NESHAP, or MACT. In these cases refer to the applicable permit and its cited CFR subpart for specific requirements. Other reasons for conducting an emissions test include determination of maximum potential emissions and risk assessment.

The time frame by which an emissions test is to be conducted is established in the order, monitoring plan, permit and/or Federal rule(s). National Stack Testing Guidance advised that EPA considers failure to complete a stack test within the time frame required by Federal rules as a violation and that states have no authority to extend those deadlines. Even in those situation where DAQ believes the cause of the delay is reasonable the only mechanism to grant addition time is through an enforcement action including a compliance schedule (Consent Order).

A emissions testing program consists of three parts each of which will be discussed separately:

Source specific test protocol and notice of test date,
Emissions sampling and laboratory analysis, and
Test report

General time frames for submission of protocol, notice of test date and test report are as follows:

	Protocol[1]	Notice of test date[1]	Report[2]
NESHAPS (40 CFR 61)	30	30	60
MACT (40 CFR 63)	60	30	31
All other tests	30	15	60

[1] Days prior to test date, minimum.
[2] Days after test completion, maximum.

Source specific test protocol

In order to allow time for review, revision (if required) and scheduling, protocols must be submitted within the time frame noted above prior to the anticipated test date.

Note that the DAQ is under no obligation to accept test results for any test for which the DAQ has not reviewed and approved a source specific protocol.

A clear and concise protocol is most effective at providing information regarding test methods to be used, testing conditions and process(es) operating conditions expected during the source test.

The essential elements of a valid and useful protocol include:

1. Identification of facility, location, and company representative.
2. The name of the person to contact concerning the scheduled test(s) and affiliation of personnel who will actually conduct the test(s).
3. Reason that test is being conducted. Identify what program or permit requirement mandates the test.
4. Identification of unit and/or process operation that is to be tested.

5. Discussion of manner in which process will be operated during the test. Important elements for discussion include operating rate, representativeness of feed, raw material fed and/or fuel fired, operating temperatures and other factors which may affect emissions.
6. Description or listing of process and control equipment data to be monitored and recorded during the test(s). Include flow diagram of process.
7. Description of pollutants to be measured, test methods and equipment to be used including any request for variances from the test method procedures or sampling equipment designs. Note that requests for variances and alternate test methods may require consultation with or approval of USEPA.
8. A drawing of the stack or duct section where samples will be taken showing distances to upstream and downstream gas flow disturbances, bends or changes in duct or stack cross section.
9. A drawing of the sampling plane of the stack or duct showing dimensions and number and location of sampling (traverse) points.
10. The sampling time at each traverse point. For sample times less than two (2) minutes (five (5) if unit to be tested is subject to 45 CSR 2) discuss variability of gas flow and temperature during the shorter sample time and how sampling rate will be monitored and adjusted to maintain isokinetic conditions.
11. The minimum volume (DSCF) to be sampled for each test run.
12. Location of the laboratory where analyses are to be conducted.
13. Anticipated date for testing.

Attached are formats for protocols which meet the requirements of this guidance and the underlying test procedures. There is an abbreviated form for opacity only tests. These documents are also available on DAQ's website (www.wvdep.org/item.cfm?ssid=8).

At this time US EPA is developing an electronic reporting program that looks promising. Once that program becomes available the DAQ will likely accept protocols and test reports submitted in that manner.

Conducting the Emissions Test

The operating conditions under which an emissions test is to be conducted may be specified in the relevant order, permit or rule. In general, testing is to be conducted under the most severe conditions most likely to generate the highest emissions. This will demonstrate the facility's ability to meet the applicable emission limit at all times. Generally testing is done at the maximum permitted process weight rate or design capacity.

If soot-blowing is utilized for the source being tested, then soot-blowing should be conducted during the test on the regular schedule of that operation. Soot-blowing is considered a routine operation constituting representative process operation.

Unless otherwise specified in the relevant rule, permit or order, a test comprises three one hour runs (except 45CSR2 which requires two hour runs). Test results are the average of three

complete runs conducted within a seven calendar day period.

Stoppages

Once underway an emissions test is not to be stopped before completion unless it is necessary due to equipment failure beyond control of the facility, severe meteorological conditions, and/or safety concerns which would prevent the test from being conducted in a safe and accurate manner. Stopping a test because the facility is in danger of failing the test is not permitted and such a stoppage would be considered a violation of both the requirement to conduct the test and the underlying regulatory or permit requirement.

Test Report

A written test report is to be submitted to the DAQ within the time frame noted above. The test report should clearly assess compliance with the underlying regulatory requirement or permit condition, and adherence to the test requirement. Certain basic elements should be addressed in the test report to document the testing conditions and results and enable the DAQ to determine whether a complete and representative test was performed.

The items listed below are required in a test report submitted pursuant to 45CSR2 Appendix and serve as a guide for what should be included in any comprehensive test report.

1. General Information
   - Plant name and location.
   - Units/stacks tested.
   - Name and address of company performing test.
   - Test date and time.
2. Report Certification
   - The following persons shall certify the test report contains true and accurate information.
   - Test team supervisor
   - Reviewer of report (if applicable)
3. Test summary
   - Description of emissions sources/stacks tested.
   - Purpose of test.
   - Pollutants measured.
4. Operating Data
   - Unit(s) configuration and air pollution control equipment flow diagram.
   - Summary of operating parameters measured and recorded or calculated for test period. Data appended.
   - Description of any unusual or non-typical operating mode, fuel, etc. during test period.

5. Test Results
   - Mass emissions test results, reported in units of applicable standard and in pounds

per hour.
- Visible emissions (VE) test result, if applicable. Append certification of VE reader.
- Description of any collected samples.
- Description and discussion of real or apparent errors. involved in test or process measurement, analysis, etc.

6. Test Procedures
   - Description of test equipment including drawing of sample train.
   - Description of test procedures employed with detailed documentation of any deviations from method(s).
   - Description of analytical procedures employed with detailed documentation of any deviations from method(s).
   - Dimensioned drawing of sampling port location showing distances to upstream and downstream gas flow disturbances.
   - Cross sectional drawing of sample plane showing location and number, or other designation, of sampling points.

7. Appendix
   - Copies of original field data sheets from each test run.
   - Copies of original log sheets, strip charts and other process and control equipment data recorded during test.
   - Laboratory report(s) including chain of custody.
   - Description of test equipment calibration procedures and calibration results for test equipment used.
   - Description of calibration performed on devises recording important operating data during test.
   - Copies of strip charts or other original outputs from continuous emissions monitor (CEM) equipment on tested.Source and description of CEM system calibration and operation prior to and/or during test.
   - Original of any VE readings taken during test.
   - Copy of certification for VE reader.
   - Copies of relevant correspondence such as DAQ letter approving variances.
   - Names and titles of persons involved in the test including sampling team members, company personnel and outside observers.

<u>Correspondence</u>

All correspondence including protocols, notices of test date, test reports and variance requests are to be submitted to:

West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street
Charleston, WV 25304

Sources located in counties listed below are covered by the associated DAQ regional offices. Copies of all test related correspondence must be provided to the appropriate regional office.

Northern Panhandle Regional Office

131A Peninsula Street
Wheeling, WV 26003

Brooke, Hancock, Marshall, Ohio

North Central Regional Office

2031 Pleasant Valley Rd., Suite 1,
Fairmont, WV 26554-9295

Barbour, Harrison, Marion,
Monongalia, Preston, Taylor

Eastern Panhandle Regional Office

HC 63, Box 2545
Romney, WV 26757

Berkeley, Grant, Hampshire, Hardy,
Jefferson, Mineral, Morgan,
Pendleton, Tucker