

# Air Quality Performance Testing Guidance

July 2020



# **Air Quality Performance Testing Guidance**

July 2020

Prepared by:  
Testing Unit

Kansas Department of Health and Environment  
Bureau of Air – Compliance & Enforcement  
1000 SW Jackson, Suite 310  
Topeka, KS 66612

Phone: (785) 296-6024  
Fax: (785) 559-4256

[www.kdheks.gov](http://www.kdheks.gov)

# Table of Contents

---

I.	INTRODUCTION .....	1
II.	TEST PLANNING.....	2
III.	TIME FRAME FOR CONDUCTING STACK TEST .....	2
IV.	STACK TEST WAIVERS.....	3
V.	EPA TEST METHODS .....	4
VI.	TEST PROTOCOL.....	4
VII.	PROCESS OPERATING CONDITIONS .....	5
VIII.	PERFORMANCE TESTING .....	5
	A. UNITS.....	5
	B. SAMPLING LOCATIONS .....	6
	C. CYCLONIC FLOW .....	6
	D. PERMANENT DATA RECORDKEEPING.....	6
	E. NO <sub>x</sub> CONVERTER EFFICIENCY TEST .....	6
	F. LEAK CHECKS .....	6
	G. SAMPLE IDENTIFICATION & HANDLING.....	7
	H. REAGENT/FILTER PREPARATION.....	7
	I. RECORDS RETENTION.....	7
	J. AUDIT SAMPLES .....	7
	K. NUMBER OF TEST RUNS .....	7
	L. SAMPLE TIME/SAMPLE VOLUME .....	7
	M. ROUNDING OF SIGNIFICANT FIGURES .....	8
	N. DATA WITNESSING .....	8
IX.	TEST REPORTING.....	8
X.	CONFIDENTIALITY CLAIMS .....	9

APPENDIX A: PERFORMANCE TEST PROTOCOL REQUIREMENTS

APPENDIX B: PERFORMANCE TEST REPORT REQUIREMENTS

## I. INTRODUCTION

The Kansas Department of Health and Environment (“KDHE”) Bureau of Air (“BOA”) Compliance and Enforcement Section (“ACES”) developed this document to provide guidance for industry, stack testing companies, and consultants conducting air quality performance tests for a compliance demonstration in the State of Kansas. This guidance will assist in planning and preparing for testing, conducting the test, and preparing a complete and accurate report. With the assistance of this document, consistent quality and documentation for such tests can be obtained.

This guidance is not intended to supersede any specific requirement of the Environmental Protection Agency’s (“EPA’s”) Test Methods nor does it relieve a facility or the contracted test company from fulfilling its obligations as described by its permit and the applicable county, state, and/or federal rules and regulations. This guidance should be utilized as a means to improve the process of planning, conducting, and reporting performance tests and relative accuracy test audits (“RATAs”).

Many of the concepts underlying this guidance come from the EPA’s *Quality Assurance Handbook for Air Pollution Measurement Systems: Volume III. Stationary Sources Specific Methods*, document number EPA/600/R-94/038c, dated April 1994. Test companies are encouraged to become familiar with this document, which can be found at:

<https://www3.epa.gov/ttn/emc/qahandbook3/qaiii%201994/qa%20vol%20iii%20-%20sept%201994%20pt1.pdf>

ACES encourages stack companies and sources to become familiar with EPA’s *Clean Air Act National Stack Testing Guidance*. EPA developed this document to assist both state and local air pollution regulatory agencies in implementing its stack test policies as well as to improve the uniformity of stack test emission data being collected nationwide. This document is available at:

[https://www.epa.gov/sites/production/files/2013-09/documents/stacktesting\\_1.pdf](https://www.epa.gov/sites/production/files/2013-09/documents/stacktesting_1.pdf)

Companies should also review *Preparation and Review of Site Specific Test Plans* (GD 042) and *Preparation and Review of Emission Test Reports* (GD 043), which can be found at:

<https://www3.epa.gov/ttn/emc/guidlnd/gd-042.pdf>  
<https://www3.epa.gov/ttn/emc/guidlnd/gd-043.pdf>

Sources and any testing contractor conducting performance tests should review all applicable permits, regulations, and enforcement orders prior to the preparation and submittal of the test protocol to ACES.

## **II. TEST PLANNING**

The purpose of performance tests (a.k.a. source tests, compliance tests, or stack tests) is to extract from a stack or emission point a sample that is representative of emissions from the equipment during representative operating conditions at the facility. For compliance demonstrations, representative conditions may include worst-case scenarios that will allow for the facility to demonstrate compliance at all times of operation. Please see Section VII. for specific requirements for process operating conditions.

Sources that are required to install continuous emission monitoring systems (“CEMS”) must ensure accuracy of the unit by conducting a RATA. A RATA will compare data from the sources CEMS unit to data from an independently certified unit that is calibrated by the contracted testing company.

The facility and test contractor should both identify a representative who will participate in coordination of the test. The facility representative should be able to identify all process and control equipment parameters needed to establish the system’s operating conditions during testing. It is recommended that an on-site pre-test survey be performed with the test company to establish stack dimensions, sample port locations or installation requirements, scaffolding or lift equipment requirements, electrical power requirements, operating conditions, and safety recommendations and procedures. This is especially important if the source has not conducted stack testing at its facility previously or if the testing is being conducted on a new unit.

Any nonscheduled maintenance or changes should be avoided for two weeks before the test for system stabilization. The facility should also confirm stack accessibility by removing caps from sample ports and verify that all monitoring instrumentation is installed and working properly.

## **III. TIME FRAME FOR CONDUCTING STACK TESTS**

Generally, stationary sources that are required by a permit to conduct initial compliance testing of a new or modified unit must complete the testing within 60 days of reaching maximum production or capacity, not to exceed 180 days from the startup of the unit. Time periods are specified in order to allow the source to get used to operating the new/modified equipment and to resolve any unexpected issues that arise prior to conducting the initial compliance test. It is in the best interest of the source to complete the compliance test as soon as the unit is operating in a consistent and stable manner. If the unit fails to comply with the emission limit, the source can adjust its operation and complete a subsequent test without formal enforcement. The subsequent test must occur within the 60/180-day timeframe. If the source delays testing to the end of the allowable period and subsequently exceeds the emission limit, it is unlikely that the source will be able to both make corrections and successfully retest in a timely manner, which would result in a violation of its permit.

Some rules and programs, including the federal Acid Rain Program in 40 CFR Part 75, allow extensions and grace periods of deadlines for performing certification testing of CEMS units to allow for periods when the unit is not operational. Similarly, ACES will allow extensions of

deadlines for conducting testing if the unit to be tested is not operating. If this situation occurs, the source must submit, in writing, an extension request to ACES as soon as possible, and prior to the deadline of the test.

There are no regulatory mechanisms to extend a deadline for initial stack testing required by the federal New Source Performance Standards (“NSPS”), National Emission Standards for Hazardous Air Pollutants (“NESHAP”), and Maximum Achievable Control Technology (“MACT”) programs unless testing is delayed due to a *force majeure* event. A *force majeure* event is defined by the applicable regulation(s) [40 CFR §60.2, §61.02, and §63.2] as an “event that will be or has been caused by circumstances beyond the control of the affected facility, its contractors, or any entity controlled by the affected facility that prevents the owner or operator from complying with the regulatory requirement to conduct performance tests within the specified time frame despite the facility’s best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, or equipment failure or safety hazard beyond the control of the affected facility.”

The facility should provide ACES with a written notification to assert a claim of *force majeure*, in accordance with the applicable regulation(s). The compliance test should be conducted as soon as practicable after the *force majeure* event has concluded. The facility will remain subject to the compliance test requirements of the applicable regulations until a *force majeure* extension request has been received and approved by ACES.

#### IV. STACK TEST WAIVERS

Many units, although identical in design and control devices, potentially have process operations that can significantly alter its performance and ability to comply with the applicable regulatory requirements. It is the opinion of ACES that identical units capable of emitting a pollutant in excess of the applicable emission limit should not be waived of its stack test requirement without adequate justification. Waiver requests will be reviewed by ACES on a case-by-case basis and may be approved only when the following criteria are met:

- (1) the units are located at the same facility;
- (2) the units are produced by the same manufacturer, have the same model number (or other manufacturer’s designation in common, and have the same rated capacity and operating specifications; and
- (3) the units are operated and maintained in a similar manner.

If ACES determines, upon review, that a facility does not have the ability to emit a pollutant in excess of the applicable emission limit, waivers on a case-by-case basis may be issued for both initial and on-going compliance stack tests.

## V. EPA TEST METHODS

The EPA Test Methods are designed to provide representative and reliable data. EPA Test Methods are found in the Code of Federal Regulations (“CFR”), Title 40, Part 60, Appendix A. CEMS performance specifications are located in 40 CFR Part 60, Appendix B. Additional EPA Test Methods may be found in other sections of the CFR, including Part 51, Appendix M and Part 63, Appendix A. Applicable federal regulations can be found online at:

[https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab\\_02.tpl](https://www.ecfr.gov/cgi-bin/text-idx?tpl=/ecfrbrowse/Title40/40tab_02.tpl)

Adherence to these standardized procedures for sampling and analysis is essential. Documentation of tests by maintaining complete and accurate records is of the utmost importance.

## VI. TEST PROTOCOLS

The source must submit to ACES a test protocol at least 30 days prior to the scheduled date of the stack test, unless otherwise specified in the permit conditions or regulations. Both NSPS and NESHAP programs require at least 30 calendar days notification [40 CFR §60.8(d) and §61.13(a)], while MACT programs require at least 60 calendar days notification [40 CFR §63.7(b)(1)]. If, for any reason, the compliance test must be delayed after submittal of the protocol, sources must notify ACES of such delay. Please refer to 40 CFR §60.8(d) and §63.7(b)(2) for time frame specifications for NSPS and MACT programs. The NESHAP program does not address this issue.

The protocol should include and describe in detail the procedures that will be used during the testing, including, but not limited to, production processes, associated operating parameters, specific test methods, sampling site information, sampling train and equipment specifications, calibration standards, and sample data collection sheets and calculations. In addition, the protocol should address any non-steady state part of the operation, including start-ups, shutdowns, cyclic/batch operations, or load shifts.

Any proposed deviations (minor modifications) to the established EPA Test Methods that the test contractor believes are necessary for the specific testing program must be included under separate letterhead for approval. Postponement of the test, or rejection of the test results, may occur if proposed test method deviations are not approved prior to the start of the test event. Major modification requests must be submitted to and approved by the Office of Air Quality Planning and Standards (“OAQPS”).

Attachment 1 of this document identifies the minimum documentation that ACES will require in a test protocol. The protocol should follow this format and input should be provided for each item to assure protocol approval. ACES will accept notifications and protocols through either KEIMS, e-mail, or a hard-copy.

## **VII. PROCESS OPERATING CONDITIONS**

In general, a facility is expected to operate during the compliance test between 90-100% of its full load or the maximum capacity specified in the permit. ACES recognizes that maximum emissions may not occur at maximum load, depending on the device and its operational design. For example, worst-case scenarios for thermal oxidizers where the emission limit is specified as a minimum volatile organic compound (“VOC”) destruction rate may occur at low-load conditions. For this reason, ACES may require that testing be done at a load other than 90-100% of capacity, or even at multiple loads.

In order to certify or recertify a CEMS unit, please refer to the process operating levels specified in 40 CFR Parts 60, 61, 63, and/or 40 CFR Part 75, as applicable. If no minimum condition is otherwise specified, the device being monitored by the CEMS unit should operate at a minimum of 50% of full load.

All pollution control equipment that is in operation during the stack test should be operated in its normal mode of operation. Any reagent injection rates or parameters of operation (i.e., ammonia, urea, or sulfuric acid injection; scrubber water flow rates; temperatures; etc.) should not be changed for the test and should be recorded and included in the test report. Likewise, any part of the process that is normally operated in an automatic mode should remain in an automatic mode for the duration of the performance test.

If any process parameter is operated in a mode other than its normal mode of operation, or if any parameter is operated below the minimum (or above the maximum) required by its permit, ACES may require that the permit be modified to reflect the operating conditions during the test.

The conditions under which the source will operate for the stack test, including any load changes or intermittent modes of operation that might result in large changes or swings in operation, or any condition(s) that might be considered other than normal or steady-state, should be discussed with ACES prior to conducting the compliance test. Any changes in operation made during the test without prior agreement of ACES may invalidate the test run(s).

## **VIII. PERFORMANCE TESTING**

When conducting a performance test, great care must be taken when collecting data. The goal is to collect complete and accurate information at representative conditions. In order to accomplish this, it is essential to coordinate testing with production and maintain contact between the facility and the test contractor throughout the test. The following items are considered additional guidance for the data collection phase beyond the requirements provided in the individual EPA Test Methods:

### **A. Units**

Units of data collection should be consistent with the EPA Test Method, applicable regulation/permit requirement, and within the test probe. The units must also be consistent with previous information supplied by the facility.

**B. Sampling Locations**

EPA Test Method 1 of 40 CFR Part 60, Appendix A specifies the requirements for sampling locations, including the minimum upstream and downstream distance from flow disturbances. If a proposed sampling location does not meet Method 1 requirements, this should be noted in the test protocol with an alternative proposal. In some cases, modifications may have to be made to stacks or ducts in order for sampling to occur.

Generally, sampling ports should be four-inch (minimum) inner diameter threaded pipe connections with a cap. This diameter will allow a particulate sample system (i.e., probe, nozzle, pitot tube, and thermocouple) to fit easily through the port. Where only gaseous emissions are being sampled, a smaller port opening may be acceptable. The inside edge of the port should not extend past the inside surface of the stack or duct.

**C. Cyclonic Flow**

ACES requires that testing for the absence of cyclonic gas flow be performed prior to the test following the method and acceptance criteria specified in 40 CFR Part 60, Appendix A, Method 1. The results of the test should be available upon request by the ACES on-site observer and should also be presented in the test report.

**D. Permanent Data Recordkeeping**

Non-erasable ink must be used to record data. In the event of an error, the data taker crosses through the erroneous value with a single line, records the correct value above it, and initials the change. Strip charts and data-logger data must be clearly identified with the date, test start/stop times, parameters being recorded concurrently (with a clear and concise method of identifying each), span values, test run numbers, and individual tracking data.

**E. NO<sub>x</sub> Converter Efficiency Test**

If the testing contractor uses EPA Test Method 7E to measure NO<sub>x</sub> concentrations, an efficiency test of the NO<sub>2</sub>-NO converter must be completed during the testing as specified in 40 CFR Part 60, Appendix A, Method 7E, Section 8.2.4. While the method states that it must be done before or after the field test, it also states that any failed conversion efficiency test will invalidate all test runs performed since the last passed efficiency test. ACES strongly recommends that these tests be completed both before and after each field test.

**F. Leak Checks**

ACES recommends the testing contractor conduct leak checks of its sampling trains on a frequent basis. This includes pre-run checks and intermediate run checks if the sample train or line is moved significantly during a test run. If a leak check is failed, all test data collected with the equipment since the last satisfactory leak check will be considered invalid. All required leak checks should be marked as complete on the field forms within the final test report. Test reports that are received and lack leak check information will invalidate all associated test runs and could result in a rejected test report.

**G. Sample Identification and Handling**

All samples and filters must be labeled and uniquely numbered to ensure positive identification throughout the sampling and analysis procedures. Identification should be provided for each container with the number of the container recorded on the field forms, the chain of custody sheets, and on the analysis data forms. Chain of custody sheets will be updated any time a sample changes hands. This includes samples taken to an in-house laboratory. Samples with limited hold times or requiring special handling, such as refrigeration, must have this information available on the chain on custody sheet.

**H. Reagent/Filter Preparation**

Reagents and pre-weighted filters must have a maintenance record, listing the date, the person by whom it was prepared, and any standardization calculations of reagents. This documentation must be included in the test reports.

**I. Records Retention**

Test teams should be aware that the records retention requirement for sources is a minimum of five years. Thus, any field notes, laboratory analysis sheets, and original sheets should be retained for this period.

**J. Audit Samples**

EPA audit samples provide the opportunity to check the accuracy of the laboratory's analytical procedures and can be initiated by the facility, test contractor, or ACES. Audit samples should be onsite for the entirety of the testing event. If the audit sample results are outside of the acceptable range, the laboratory will be informed that they do not have the correct results and additional analyses must be attempted.

**K. Number of Test Runs**

In accordance with 40 CFR Part 60, Section 60.8, each performance test is to consist of three (3) separate test runs, and the arithmetic mean of the results should apply. As specified in 40 CFR 60.8(f)(1), ACES may determine compliance with an applicable standard using the arithmetic mean of the results of two test runs "in the event that a sample is accidentally lost, or conditions occur in which one of the three runs must be discontinued because of a forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the owner or operators control." ACES will not allow one test run to be excluded unless these conditions are met. The allowance to accept two test runs does not apply for regulations outside 40 CFR Part 60.

**L. Sample Time/Sample Volume**

Unless otherwise specified in the applicable EPA Test Method, permit conditions, or written approval, the minimum sample time is 60 minutes per test run. When sample volumes are not specified in the EPA Test Method, at least 30 dry standard cubic feet ("dscf") should be sample for each test run.

### **M. Rounding of Significant Figures**

When rounding off the calculated emission numbers, this guidance concurs with the practices of the American Society for Testing and Materials, as specified below and in the 2009 EPA Stack Test Guidance document:

- (1) If the first digit to be discarded is less than five, the last digit retained should not be changed.  
Example: If the emission standard is 50, 50.257 would be rounded to 50
- (2) If the first digit discarded is greater than five, or if it is a five followed by at least one digit other than 0, the last figure should be increased by one unit.  
Example: If the emission standard is 50, 50.727 would be rounded to 51
- (3) If the first digit discarded is exactly five, followed only by zeros, the last digit retained should be rounded upward if it is an odd number but should remain the same if it is an even number.  
Example: If the emission standard is 50, 50.500 would be rounded to 50 but 51.500 would be rounded to 52

### **N. Data Witnessing**

ACES staff may contact the facility prior to the start of the test to schedule arrival at the facility. Please inform our staff of the appropriate personal protective equipment (“PPE”) requirements for the facility and any security procedures required for entry.

It is not uncommon that on the day of the test, the test company must deviate from the protocol due to unforeseen circumstances. While physical or operational constraints could have been discovered during a pre-test survey, having an ACES test observer onsite during the test could allow for a quick determination in situations where modifications must be made. In the event that a change to the test procedure is necessary and a regulatory observer is not present, the test company should contact ACES for approval prior to proceeding with the unapproved methodology. Unapproved modifications to the approved test methods may result in rejection of the test results.

Deviation requests are generally minor and resolved quickly, however, if the test is required by EPA and is a federal requirement, a decision may take longer and could temporarily suspend the testing event. Occasionally, ACES may have to contact EPA Region 7 or EPA Headquarters for clarification and to determine if the modification from the test method will prevent the collection of acceptable data.

## **IX. TEST REPORTING**

The source must submit to ACES the test report within 30 calendar days of the last day of testing, unless otherwise specified in a permit condition or regulation. The NSPS program requires the test report to be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate [40 CFR §60.8(a)]. The NESHAP program requires the test report to be submitted within 31 days after completion of the test [40 CFR

§61.13(f)]. The MACT program requires the test report to be submitted within 60 days after the test is completed unless another time frame is specified in the applicable subpart [40 CFR §63.9(h)(2)(i)(G)]. If circumstances prevent report submission within the required time frame, ACES approval must be requested as soon as possible. A description of the circumstances will be required for evaluation.

The accuracy of data taken during a performance test is determined by the test report review. This includes copies of all original data sheets (computer generated copies of the field data may be included but not substituted for original hand-written sheets), clearly labeled strip chart records (may require color copies for clarity), laboratory analyses, calculations, and instrument calibrations. Non-detect sample results should be reported as the detection limit and this value should be used in emissions calculations.

Attachment 2 of this document provides a summary of the minimum documentation that ACES will accept in a test report submitted for review and approval. This listing is expanded from EPA document #340/1-91-008, *Manual for Coordinating of VOC Emissions Testing Using EPA Methods 18, 21, 25, and 25A* and applies to all relevant compliance tests conducted for regulatory compliance. The test report should follow this format and input should be provided for each item.

## **X. CONFIDENTIALITY CLAIMS**

Any confidentiality claims should be accompanied by a notice of confidentiality pursuant to K.S.A. 65-3015 that precisely identifies the information that is considered confidential. The notice should contain sufficient supporting information to allow ACES to evaluate whether such information satisfies the requirements related to trade secrets or how the information could cause substantial harm to the facility's competitive edge. If claiming confidentiality, two copies of both the test protocol and report should be submitted: one complete copy with the confidential information and a second, redacted copy for public record.

**ATTACHMENT 1:  
PERFORMANCE TEST PROTOCOL REQUIREMENTS**

**1. COVER INFORMATION**

- Facility name, source ID number, location, and mailing address (if different)
- Manufacturer, model number, and unit identification number of equipment tested
- Applicable Air Quality permit number
- Test company name and address

**2. FACILITY INFORMATION**

- Facility name, mailing address, and physical address of equipment (if different)
- Facility contact name, telephone number, and email address
- General description of overall facility operations
- Safety precautions and required personal protective equipment (“PPE”)

**3. TEST COMPANY INFORMATION**

- Test company name and address
- Test company contact name, telephone number, and email address
- Laboratory name, address, and telephone number

**4. TEST INFORMATION**

- Reason for testing (permit condition, MACT, NSPS, etc.) and list of all applicable regulations and regulatory requirements
- Test schedule, including proposed date and estimated start-time
- Types of pollutants to be sampled, including applicable emission limits and demonstration requirements
- Test methods and analysis procedures, including methods to be performed concurrently. Provide a synopsis of each test method, not an entire copy of the test method
- Documentation of any proposed variation(s) from the specified procedures and the reasoning for the variation(s)
- Sampling equipment to be utilized, including a schematic diagram of the sampling trains

**5. EMISSION POINT INFORMATION**

- Drawing(s) with actual dimensions indicating the exhaust gas flow direction from the process, through the control equipment, and to the emission point
- Diagram of the stack showing actual dimensions, sampling locations, and the distances downstream and upstream from flow disturbances, per EPA Test Method 1
- Cross-sectional sketch of the stack at the sampling locations that include the sampling traverse points and port length
- Estimated or measured flue gas conditions at the sampling locations, including temperature, moisture content, and volumetric flow rate. Specific test methods may require additional estimated parameters such as estimated VOC concentration for EPA Test Method 25A calibration gas selections.

**6. CONTROL EQUIPMENT INFORMATION**

- Complete description of the emission control system, including the manufacturer, model number, rated capacity, rated efficiency, and unit identification number

- Control equipment data to be monitored and recorded during the test to ensure representative operation, the person responsible for recording the data (facility or test team), and interval over which the data will be recorded, and the proposed format
- Minimum acceptable values of control equipment operating parameters
- Description of any gas conditioning prior to the control equipment
- Description of any adjustments to, or maintenance procedures performed on, the control equipment for the previous six months
- Description of any modifications or failures since the last performance test

## **7. PROCESS EQUIPMENT INFORMATION**

- Complete description of the process operation, including a process flow sheet, if helpful
- Type of quantity of raw material being used or products being manufactured by the process
- Maximum rated capacity of the process
- Actual maximum achieved capacity of the process
- Actual operating capacity of the process during the previous six months
- Normal process operating schedule during a 24-hour operating period
- Process data to be monitored and recorded during the test to ensure representative operation, the person responsible for recording the data (facility or test team), the interval over which the data will be recorded, and the proposed format

## **8. QUALITY CONTROL INFORMATION**

- Copies of all field data sheets to be used during the test
- Description of the forms and procedures to be utilized, including the sample container number scheme, how these numbers will be identified on the data sheets, chain of custody records, and what sample holding times (if any) are applicable
- Statement that calibration sheets for the dry gas meter, pitot tube, nozzle, calibration gases, and any other test equipment will be made available prior to the start of testing
- Quality assurance for the analytical procedures to be used in the analyses of the test samples

## **9. RELATIVE ACCURACY TEST AUDITS**

- Should include documentation in Items 1-3, plus additional information listed here:
  - Reason for testing (permit condition, MACT, NSPS, etc.) and list of all applicable regulations and regulatory requirements
  - Test schedule, including proposed date and estimated start-time
  - Types of pollutants to be sampled, including applicable emission limits and demonstration requirements
  - Documentation of any proposed variation(s) from the specified procedures and the reasoning for the variation(s)

## **ATTACHMENT 2**

### **PERFORMANCE TEST REPORT REQUIREMENTS**

#### **1. COVER INFORMATION**

- Facility name, source ID number, location, and mailing address (if different)
- Manufacturer, model number, and unit identification number of equipment tested
- Applicable Air Quality permit number
- Test date range
- Test company name and address

#### **2. CERTIFICATION**

- Certification by test team leader as to authenticity of test data
- Certification by reviewer as to accuracy of test results

#### **3. TEST INFORMATION**

- Reason for testing (permit condition, MACT, NSPS, etc.) and list of all applicable regulations and regulatory requirements
- Type(s) of process and control equipment
- Type(s) of pollutants sampled
- Project participants and titles for facility representatives, test team members, consultants, and regulatory observers

#### **4. SUMMARY OF RESULTS**

- Emission results with comparison to the applicable limits and demonstration requirements (must be reported in the same units as the emission limit)
- Audit sample results, if applicable
- Discussion of any errors or anomalies that occurred during the test (facility or test-related)

#### **5. PROCESS AND CONTROL EQUIPMENT INFORMATION**

- Complete description of the emission control system, including the manufacturer, model number, rated capacity, rated efficiency, and unit identification number
- Complete description of the process operation, including a process flow sheet, if helpful
- Actual capacity of the process during the test

#### **6. SAMPLING AND ANALYTIC PROCEDURES**

- Brief description of the test methods utilized and the analytic procedures
- Description of any deviations or modifications to any previously approved procedures

#### **7. APPENDICES**

- Complete test results with one complete set of example calculations for each test method or pollutant using actual data
- Raw field data (copies of originals; computer copies are optional)
- Laboratory reports including chain of custody forms and contact name and phone number
- Process control equipment data
- Test equipment calibration sheets for the dry gas meter, pitot tube, nozzle, calibration gases, and any other test equipment utilized