



CLARK COUNTY • DEPARTMENT OF AIR QUALITY

4701 W. Russell Rd., Suite 200 • 2nd Floor • Las Vegas, NV 89118-2231
(702) 455-5942 • Fax (702) 383-9994

GUIDELINES

FOR

SOURCE TESTING

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APPENDIX

Clean Air Act National Stack Testing Guidance

ACRONYMS AND ABBREVIATIONS

Air Quality	Clark County Department of Air Quality
AQR	Clark County Air Quality Regulations
AST	Aboveground Storage Tank
CAA	Clean Air Act (42 U.S.C. 7401 <i>et seq.</i>)
CARB	California Air Resources Board
CEMS	Continuous Emissions Monitoring System
EPA	U.S. Environmental Protection Agency
GDO	Gasoline Dispensing Operation
HPV	High Priority Violation
MACT	Maximum Achievable Control Technology
MMBtu/hr	Millions of British Thermal Units per hour
NSPS	New Source Performance Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
UST	Underground Storage Tank

1.0 INTRODUCTION

1.1 Purpose

The Clark County Department of Air Quality (Air Quality) has prepared this *Guidelines for Source Testing* to provide uniform guidance for sources and testing companies in the preparation, execution and reporting of air quality performance tests in Clark County, Nevada. In addition, these guidelines include boiler and water heater burner efficiency tests and Gasoline Dispensing Operations (GDOs) vapor recovery tests, which technically are not performance tests that use federally recognized stack test methods. Most of this guidance derives from or complements federal, state or local regulatory requirements. Failure to comply with these guidelines may delay, impede, or prevent approval of performance test protocols, test results or the tests themselves.

Performance testing directly measures emissions at the point of release and provides an objective means to determine compliance with established emission limits or control efficiencies. Performance testing must be carried out by knowledgeable, trained professionals; established, usually federal, procedures must be used; and production at the time of testing should be representative of normal operations. Otherwise, results may be invalid or inconsistent with a source's actual emissions. However, determinations of compliance or non-compliance do not always derive solely from performance testing results, even when the results are valid and representative.

The Clark County *Guidelines for Source Testing* are intended for general guidance only; unique circumstances may apply in some situations. These guidelines are not intended, nor can they be relied on, to create any rights enforceable by any party in litigation.

1.2 Application

Guidelines in this document do not supersede or alter existing regulatory requirements specified in individual New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), NESHAP for Source Categories (MACT), or state and Clark County regulations. Where unclear or conflicting information concerning any given issue exists between these performance test guidelines and county, state, or federal regulations or any aspect of EPA test methods, the county, state and federal rules and regulations or EPA test methods take priority and must be followed. However, where these guidelines impose additional requirements beyond and not in conflict with those rules and regulations, the additional requirements in these guidelines apply. Finally, this guidance applies only to tests conducted for the purpose of determining and demonstrating compliance with NSPS, NESHAP, and MACT programs, air quality permits, and local rules or regulations which include a demonstrable performance standard.

1.3 Revisions

Air Quality may revise or update these guidelines periodically without public notice, but will post the most current version on its website and will make the guidelines available upon request.

1.4 References

Air Quality recognizes the U.S. EPA Memorandum, *Issuance of the Clean Air Act National Stack Testing Guidance*, April 27, 2009, in its entirety. A copy of this memorandum is provided as an appendix to these guidelines.

1.5 Effective Date

Effective August 1, 2011, this document supersedes the *Air Quality Performance Test Frequency Guidelines* #03-1, September 5, 2003, and the Clark County Health District, Air Quality Division *Guideline on Performance Testing*, April 10, 2000.

2.0 DEFINITIONS (AQR Section 0, 40 CFR 60.2 or 40 CFR 63.2)

Affected facility means, with reference to a stationary source, any apparatus to which a standard is applicable.

Alternative method means any method of sampling and analyzing for an air pollutant which is not a reference or equivalent method but which has been demonstrated to the Administrator's satisfaction to, in specific cases, produce results adequate for determination of compliance.

Continuous Emissions Monitoring System means the total equipment that may be required to meet the data acquisition and availability requirements used to sample, condition (if applicable), analyze, and provide a record of emissions.

Emissions unit means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Opacity means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

Owner/operator means any person who owns, leases, operates, controls, or supervises a facility, building, structure, or installation that directly or indirectly results or may result in emissions of any air pollutant for which a national, state of Nevada, or Clark County standard is in effect.

Particulate matter means any material, except uncombined water, that exists in a finely divided form as a liquid or solid at referenced conditions of 25° C and 760 mm mercury.

Reconstruction means the replacement of components of an affected or a previously nonaffected source to such an extent that:

- (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source; and
- (2) It is technologically and economically feasible for the reconstructed source to meet the relevant standard(s) established by the Administrator (or a State) pursuant to section 112 of the Act. Upon reconstruction, an affected source, or a stationary source that becomes an affected source, is subject to relevant standards for new sources, including compliance dates, irrespective of any change in emissions of hazardous air pollutants from that source.

Run means the net period of time during which an emission sample is collected.

Shutdown means the cessation of operation of any air pollution control equipment or process equipment for any purpose.

Startup means the setting in operation of an affected facility for any purpose.

Stationary source or **source** means any building, structure, facility, or installation which emits or may emit any air pollutant.

3.0 WAIVERS AND ALTERNATIVE TEST METHODS FOR PERFORMANCE TESTS REQUIRED UNDER 40 CFR PARTS 60, 61, OR 63

3.1 Performance Test Waiver

For emissions units subject to a federal performance testing requirement, the owner/operator may petition EPA Region IX for a waiver. This action is the responsibility of the owner/operator. The burden of proof is on the owner/operator to justify the need for a waiver. Waivers may be granted for a *force majeure* or if the owner/operator of a source has demonstrated by other means that the emissions unit is in compliance with the applicable standard and other requirements. If EPA grants a performance testing waiver for all emissions units requiring testing, the owner/operator must notify Air Quality in writing. If a performance test waiver is granted for only one or some emissions units at a source, but other emissions units still require testing, a copy of the waiver and a list of the emissions units whose test requirements have been waived must be included in the protocol and final performance test report.

3.2 Alternative Methods

Where federal test methods have not been promulgated for the air pollutants involved or the nature of the test site makes their use impractical, the source owner/operator may propose alternative test methods. An owner/operator of a source subject to a federal performance testing requirement may petition EPA Region IX to allow use of an alternative performance test method. This action is the responsibility of the owner/operator. The burden of proof is on the affected source to justify the need for an equivalent or alternative method. Waivers to use alternative test methods or variations of approved methods may be granted only if the owner/operator of a source has demonstrated that the alternative method or approved method variation is equivalent or superior to the approved method. If permission to use a performance test alternative or alteration to an approved method is granted, a copy or summary of the alternative method shall be included in the protocol and in the final performance test report. Unless a variation to the method is proposed, Air Quality will assume that the testing will rigorously follow the approved reference method.

4.0 WAIVERS AND ALTERNATIVE TEST METHODS FOR PERFORMANCE TESTS NOT REQUIRED UNDER 40 CFR PARTS 60, 61 OR 63.

4.1 Performance Test Waiver

For sources not subject to a federal performance test standard but nonetheless required to conduct a performance test, the owner/operator may petition the Air Quality Control Officer in writing to waive the requirement for performance testing based on technical or economic infeasibility, or when the impracticality of the affected source's performing the required test is demonstrated. Any waiver granted by the Control Officer will remain effective until the expiration date of the air quality permit in effect at the time or until such time as specified by the Control Officer.

4.2 Alternative Test Methods

For sources not subject to a federal performance test standard, the owner/operator may petition the Control Officer in writing to allow alternative or equivalent test methods, including shorter sampling times, fewer test runs, and smaller sample volumes when necessitated by process variables or other factors. Requests for alternative methods should be included in the performance test protocol. Unless a variation to the method is proposed, Air Quality will assume that the testing will rigorously follow the approved reference method.

4.3 Waived Testing for Some Emissions Units among Identical Emissions Units

If a source has multiple emissions units made by the same manufacturer with the same model number, rated capacity and operating specifications, and if each of them is operated and maintained similarly, the source may request that Air Quality waive the requirement to test them all. This request shall be submitted with the protocol. Air Quality will consider the request using guidelines in EPA's April 27, 2009, *Clean Air Act National Stack Test Guidance*, among other factors. If Air Quality approves the waiver request, Air Quality will assume that performance test results for each tested unit, compliant or otherwise, are representative of all identical units in the group. Any waiver granted by the Control Officer will remain effective until the expiration date of the air quality permit in effect at the time or until such time as specified by the Control Officer.

5.0 PERFORMANCE TEST PROTOCOLS AND PRE-TEST NOTIFICATIONS

For gasoline dispensing operations, Test Notification Forms, not performance test protocols, are required. Please see Section 12 of these guidelines and the Clark County Air Quality website for details concerning GDO testing.

5.1 Source Responsibility

The source owner/operator should review all applicable permits, regulations and enforcement orders during preparations for performance testing. Air Quality holds the source's owner/operator, not the source's consultant or testing company, responsible for performance testing requirements and other aspects of compliance.

5.2 Testing Company Approval

Clark County does not have a certification or approval program or a list of certified performance testing companies. Nor does the county make any recommendations for or against any testing company. Any testing company is allowed to conduct performance tests in Clark County; however, this is no guarantee that Air Quality will accept the company's performance test plan, procedures or results.

5.3 List of Testing Companies

The Air Quality Small Business Assistance Program maintains a list of the testing companies that have recently tested in Clark County. This list is useful in contacting testing companies, but does not constitute Air Quality's endorsement. Regardless of the testing company the owner/operator chooses, testing often requires extensive preparations and advance notice.

5.4 Pre-Survey

Air Quality recommends that the source owner/operator and testing company conduct an on-site pre-test survey. The survey will include items such as sample port locations or installation requirements, scaffolding or lift equipment requirements for stack access, electrical power requirements, and safety requirements. This may eliminate some issues that could delay testing.

5.5 Protocol Submission Timeline

Air Quality permits generally require that the owner/operator submit all required compliance and performance testing protocols for prior approval from the Control Officer no earlier than 90 days prior to, and no later than 45 days prior to, the proposed date(s) of performance testing unless otherwise specified in an NSPS, NESHAP, air quality permit or enforcement order. The test date(s) and approximate start/end time of the test should be acceptable to both Air Quality and the source's owner/operator to allow Air Quality an opportunity to observe the test.

5.6 Protocol Format

Air Quality requires only one copy of a protocol. All protocols shall be legible and presented in a complete, understandable, and organized manner. Air Quality recommends use of the EPA Emission Measurements Center Guideline Document (GD-042), "Preparation and Review of Site-Specific Emission Test Plans." This guideline presents a standard format for preparing emission test plans and is designed to promote consistency in the preparation and review of performance test protocols sponsored by the US EPA, state and local agencies, and the private sector. This document is available on the EPA Technology Transfer Network Emission Measurement Center website.

5.7 Protocol Minimum Contents

In addition to the specifications in the EPA guideline document for test protocols (GD-042), at a minimum, test protocols shall provide the following:

- Source name, mailing address, physical address, contact name, telephone number, fax number, and, if available, email address.
- Air Quality permit number.
- Testing company name, address, telephone number, and fax number and, if available, email address
- Manufacturer, model number, and emissions unit number of the equipment to be tested.
- Complete description of the emission control system, including manufacturer, model number, rated capacity, and rated efficiency.
- Test methods to be followed.
- Test schedule, including proposed date(s) and estimated start time(s).
- Precautions and safety equipment required.
- Synopsis of the test methods and analyses to be used.
- Supporting documentation and justification of all proposed deviations, if any, from the specified sampling procedures.
- Description of the sampling equipment to be used, including schematic diagrams, if appropriate.
- Method of collecting production data during the test to ensure testing during representative operations.

- Permitted or maximum capacity of the process.
- Process capacity proposed for testing.
- Responsible party for recording production or fuel use data (source or test team) and the frequency of collection.
- Also, as applicable, the following:
 - Number and length of sampling runs that will constitute a complete test.
 - Drawings, photographs, or diagrams of ducts or stacks showing sampling locations, sampling port locations relative to the nearest upstream and downstream gas flow, directional or duct dimensional change, and number of sample, temperature, moisture, or flow rate traverse points.
 - Copies of all field data sheets to be used during the test.
 - Chain-of-custody procedures.
 - Field quality assurance/quality control procedures.
 - Laboratory quality assurance/quality control procedures (e.g., manner and frequency of blanks, spikes and standards).
 - Statement that calibration sheets for the dry gas meter, pitot tube, nozzle, calibration gases, and any other test equipment will be made available before testing starts.
 - Any other data requested by Air Quality.

5.8 Method Summaries

Submission of a copy of the published procedure itself is unnecessary if an EPA reference method is to be used without any changes. However, a summary of method procedures should be included with the protocol.

5.9 Protocol Certification

All test protocols shall contain a certification page with a date and an original signature of the Responsible Official of the source. This certification sheet shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

5.10 Test Date Notifications

The owner/operator or testing company must notify Air Quality of the scheduled test date and time at least ten calendar days prior to the test. This notice is needed to allow Air Quality staff adequate time to schedule an on-site observation. In addition, the owner/operator shall notify Air Quality as soon as possible of any change in the original test date and time.

5.11 Air Quality Protocol Review

Air Quality will review the test protocol to ensure that it meets permit testing requirements and applicable regulations, and to request additional information if needed. Air Quality will check for strict observance of the standardized procedures for sampling and analyses, among other factors. Air Quality will provide a letter to the Responsible Official of the source indicating approval, approval with conditions, or disapproval of the protocol. Air Quality will include an invoice for associated review fees with its protocol approval letter.

6.0 REPRESENTATIVE TEST CONDITIONS

6.1 Startup, Shutdown and Malfunction

As a general rule, operations during periods of startup, shutdown, and malfunction are not representative conditions for the purposes of a performance test, unless otherwise specified by a federal rule or regulation.

6.2 Representative Conditions

Individual federal standards may specifically define operating conditions under which performance tests should be conducted. In the absence of such specifications, performance tests must be conducted under production rates and conditions that are representative of normal operations of the emissions unit being tested. Air Quality generally considers a performance test to be representative when any one of guidelines 6.2.1, 6.2.2, or 6.2.3 below is met.

6.2.1 80 Percent Rule of Thumb

A performance test for an emissions unit is required to be conducted at between 80 and 100 percent of the maximum production rate or, when the hourly maximum permitted production rate is not specified in the permit, 80 percent or more of the manufacturer's maximum design capacity. Do not exceed permitted short-term production or fuel use rates. All performance test protocols and final test reports should include the maximum production rate or capacity for each tested emissions unit and the means of determining the actual throughput or capacity during testing.

6.2.2 Justified Exceptions to the 80 Percent Rule

The performance test for an emissions unit should be conducted at production conditions under which the source expects to operate during the foreseeable future. The performance test protocol must fully justify why performance testing at 80 percent or more of the maximum production rate cannot be achieved and must clearly state that a lower rate is representative of normal operating conditions at the time of testing and for the foreseeable future. The source should provide historical and current operating levels that support its case. Air Quality will evaluate on a case-by-case basis each protocol with a planned production rate less than 80 percent of the permitted or design value. If approved, Air Quality may prohibit a source from operating at levels greater than the level used during the performance test, or Air Quality may otherwise restrict permitted production to reflect conditions equivalent to those present during the performance test. Moreover, Air Quality may determine that re-testing is warranted if production involving the emissions unit or units increases. All performance test protocols and final test reports should include what the maximum capacity is for each tested emissions unit and the means of determining actual capacity during testing.

6.2.3 Conditions More Challenging at Less Than 80 Percent

A performance test for an emissions unit may be conducted at a production rate less than 80 percent, if this lower rate is likely to most challenge the emissions unit's control measures with regard to meeting the applicable emission standards. In this case, the proposed protocol and final test report must justify why testing at a rate less than 80 percent is the most challenging emissions control scenario for purposes of demonstrating compliance with the applicable standard. All performance test protocols and test reports should include what the normal maximum production or capacity is for each tested emissions unit and the means of determining the actual production rate or capacity during testing. The owner/operator should ensure that operating under more challenging conditions does not create unsafe or unhealthy conditions or violate air quality compliance requirements.

6.3 Sample Times and Volumes for Particulate Matter and Scrubbers

Unless otherwise specified by an approved test method, a permit requirement, an enforcement action, or the Control Officer, three test runs are required. Each run shall last at least 60 minutes; when sample volume is relevant, each run shall collect at least 30 dry standard cubic feet.

7.0 PERFORMANCE TEST STOPPAGES AND POSTPONEMENTS

7.1 Prohibition against Stopping a Test for Noncompliance

A source must never stop a performance test once it has been started solely because the testing showed that the emissions unit being tested was exceeding or might exceed an emission standard, or might otherwise fail the test. For example, if the first test run indicates or suggests noncompliance, the source is not allowed to stop the test or change operations to bring the average of the three runs into what would seem to be compliance. The performance test must be completed and results for all runs submitted to Air Quality.

7.1.1 Minor or Synthetic Minor Source Stoppage

If a performance test is stopped once started for any reason, the source must contact the Air Quality Compliance Manager or Supervisor not later than the end of the first Air Quality business day after the occurrence. Testing may not be stopped solely due to failing or possibly failing results.

7.1.2 Major Source Stoppage

Once started, if a performance test is stopped for any reason, the source must contact the Air Quality Compliance Manager or Supervisor as soon as possible, and in no case later than the end of the first Air Quality business day after the occurrence. The stopped test should be reported by the owner/operator to Air Quality in a Title V deviation report. Testing may not be stopped solely due to failing or possible failing results. The source must take a failed test into consideration as part of its annual compliance certification and Air Quality will report the failed test in the national air data system. Moreover, Air Quality may start enforcement action and assess penalties consistent with the HPV Policy and CAA Civil Penalty Policy.

7.2 Allowable Stoppages

Air Quality recognizes limited circumstances under which it is appropriate to stop a performance test once started.

7.2.1 Force Majeure Stoppage

A source may stop a test due to a *force majeure*. A *force majeure* is an event caused by circumstances beyond the control of the owner/operator, the testing company, or any contractor controlled by the affected source that prevents the owner/operator from complying with the regulatory requirement to conduct or complete performance tests within the specified time frame despite the affected source's best efforts to fulfill the obligation. Examples of such events are acts of nature, acts of war or terrorism, power failure, equipment failure, or safety hazards (including lightning) beyond the control of the affected source.

7.2.1.1 Air Quality Notice of *Force Majeure* Stoppage

As soon as practicable after the event, the source owner/operator is required to provide to Air Quality a written description of the *force majeure*, the rationale for attributing the delay in performance testing to the *force majeure*, measures taken or to be taken to minimize the delay, and an anticipated date by which the performance test will be conducted.

7.2.1.2 Testing after *Force Majeure* Stoppage

The source must notify the Control Officer as soon as possible to request an extension to conduct the testing after the problems caused by the *force majeure* have been resolved. Whether to grant an extension to a performance test deadline is solely at the discretion of the Air Quality Control Officer or the EPA Administrator. Until an extension has been approved, the source remains strictly subject to the performance test requirements of the air quality permit or applicable regulations.

7.3 Postponing a Test

Air Quality may approve a written request and justification from the source to postpone a performance test beyond its regulatory or air quality permit deadline.

7.3.1 Postponement of Testing due to Shutdown of Emissions Units

When a source cannot performance test some or all of its emissions units because they are shut down, inoperable, or not on site, the source must advise Air Quality in writing before performance testing is required, either in a submitted protocol or by separate correspondence. When only some emissions units cannot be tested, the source must provide the Air Quality emissions unit number and its complete description, and explain why the emissions unit or units cannot be tested. When no emissions unit at the source can be tested, the source should provide justification in its postponement request. Air Quality retains the right to request more information to make its determination. If Air Quality approves the postponement, the owner/operator must contact Air Quality at least ten days before testing an emissions unit or units for which postponed testing was approved. Air Quality may require a new or revised protocol for emissions units whose testing had been postponed, but which can now be tested.

7.3.2 Postponement Due to a *Force Majeure*

If the reason for postponement is a *force majeure*, the guidelines and requirements above for *forces majeures* apply.

7.3.3 Air Quality Response to Postponement Request

Air Quality will evaluate the circumstances surrounding the proposed postponement to determine if this action would violate a permit condition or an applicable requirement.

7.3.4 Postponement to Avoid Failure

Air Quality will not allow postponement of a test to avoid a performance test failure or other violation.

7.3.5 Postponement and Compliance

Until a performance test deadline extension has been approved by Air Quality or the EPA, the source remains strictly subject to the performance test requirements of the applicable regulations, permits or enforcement orders.

8.0 DEPARTMENTAL OBSERVATION OF PERFORMANCE TESTING

8.1 Reasons for Observation

Whenever possible, Air Quality staff will observe performance tests to ensure that the regulatory testing requirements are being met; that the site-specific protocol is being followed; and that the results are being accurately and completely recorded. Moreover, the Air Quality observer will determine if testing is being conducted under the representative production rate and process conditions.

8.2 Observer Access

The owner/operator must provide Air Quality observers with the access necessary to ensure that testing is conducted properly and results recorded accurately.

8.3 Test Data Documents

During field testing, the Air Quality representative may collect copies of test data sheets and process documentation. The testing company should provide access to such data and copies of data sheets.

8.4 Notification

Sources must provide Air Quality with advance notice (generally at least ten calendar days) to allow Air Quality staff to observe the performance test; otherwise, the resulting test data may be rejected and new testing may be required. In addition, Air Quality must be notified as soon as possible of any change in the original test date and time.

9.0 PERFORMANCE TEST REPORTS

For GDOs, Test Results Submittal Forms, not test reports, are required. Please see Section 12 of these guidelines and the Clark County Air Quality website for details concerning GDO testing.

9.1 Pre-Test Protocol Required

A report for a performance test that was conducted without a pre-test protocol approved in writing by Air Quality may not be accepted, and consequently the source may be or become noncompliant. However, vapor recovery testing for GDOs does not require a pre-test protocol.

9.2 Source Responsibility

The source (not the testing company) is the responsible party and must ensure that the test report is delivered to Air Quality as required.

9.3 Test Report Submittal Deadline

For routine testing pursuant to any air quality permit, a copy of the test report shall be submitted to Air Quality within 60 days following the test date, or following the last test date when conducting a series of consecutive tests, unless otherwise specified in permit conditions, regulations or enforcement orders. This deadline does not apply to GDOs. Regulations in Title 40 of the Code of Federal Regulations, Part 61, National Emission Standards for Hazardous Air Pollutants and federal regulations related to testing Continuous Emissions Monitors are among those with report submittal deadlines other than 60 days after tests are conducted.

9.4 Late Reports

Air Quality approval must be requested as soon as possible if circumstances prevent report submission within the required time frame. The owner/operator must provide to Air Quality a complete written description of the circumstances and justification for the delay.

9.5 Report Presentation

All test reports shall be legible and presented in a complete, understandable, and organized manner. Spiral or gummed binding, tabbed section dividers, report covers, three-ring binders and similar report presentation elements are not required.

9.6 Report Copies

Air Quality requires only one copy of each test report.

9.7 Report Certification

All test reports shall contain a certification sheet with an original signature of the Responsible Official of the source. This certification sheet shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

9.8 Report Format

Air Quality recommends use of the EPA Emission Measurements Center Guideline Document (GD-043), "Preparation and Review of Emission Test Reports." This guideline presents a standard format for preparing emission test reports and is designed to promote consistency in the preparation and review of performance test reports sponsored by the US EPA, state and local agencies, and the private sector. This document is available on the EPA Technology Transfer Network Emission Measurement Center website.

9.9 Minimum Report Contents

In addition to the specifications in the EPA guideline document for test reports (GD-043), each test report shall provide the following:

- Source name, physical address, mailing address, contact name, telephone number, and fax number.
- Air Quality permit number.

- Source description.
- Test date or dates.
- Manufacturer, model number, and emissions unit number of the equipment tested.
- Control equipment.
- Pollutants sampled.
- Applicable regulations or permit requirements.
- Copies of all field data sheets.
- Process operating conditions and actual production rate or capacity of each process during each run.
- All raw field and lab data.
- Calculation methods.
- Also, as applicable:
 - Testing company name, address, and contact information.
 - Description of process sampling ports and port sampling locations.
 - Verification, if required, of the absence of cyclonic flow per EPA Method 1 prior to testing.
 - Description of sampling and analytical methodology used.
 - Test dates for each emissions unit.
 - Run numbers.
 - Volumetric flow rates for each run.
 - Emission concentrations for each run.
 - Emission rates (in lbs/hr) for each run and the units of any applicable emission standard or control efficiency.
 - Samples of calculations.
 - All data related to laboratory analyses.
 - Records of instrument calibrations.
 - Calibration gas certification sheets for each calibration gas.
 - Test equipment calibration sheets.
 - Clearly labeled strip chart records.
 - Copies of all chain-of-custody forms verifying the integrity of the samples.
 - Any other data requested by Air Quality at any time.

If the test used only EPA reference methods, without any changes, the report does not have to contain a copy of the test procedure. However, it should include a summary of the method(s) used.

9.10 Results below Detection Limits

Test reports containing sample results below detection limits will cite the detection limit and this value shall be used in emission calculations to determine compliance.

9.11 Units of Measurement

The units of measurement in a test report used to determine compliance must be consistent with units in the applicable permit, regulation, or enforcement order. Rules for significant figures and rounding off values shall follow the procedures in the June 6, 1990 EPA Memorandum, *Performance Test Calculation Guidelines*. This document is available on the EPA Technology Transfer Network Emission Measurement Center website.

9.12 Failing Results

Pursuant to AQR Section 10, the owner/operator of any stationary source or emissions unit(s) that fails to demonstrate compliance with the emissions standard or limitations during any initial or subsequent performance test shall submit a compliance plan to the Control Officer within 90 days from the end of the performance test.

9.13 Procedural Deviations

Strict observance to standardized and pre-approved procedures for sampling and analyses is critical. Test reports shall fully explain any emissions unit or control equipment upset condition or other problems that occurred, as well as any deviation from sampling procedures or operating conditions in or referenced by the pre-test protocol.

9.14 Air Quality Preliminary Review

Air Quality will preliminarily review the test report to ascertain that it is complete, certified, and submitted in a timely manner. If the report is incomplete, uncertified, or untimely, Air Quality will notify the source and, if used, the source's testing company. Air Quality will identify the test report deficiencies and will set a due date to correct them.

9.15 Air Quality Final Review

Following its cursory review, Air Quality will comprehensively review test results. This second, more detailed review will verify technical aspects of the report and ascertain that calculations and results are complete and accurate. Once this review is done, Air Quality will provide, in a timely manner, a letter to the source's Responsible Official advising whether or not the test results are acceptable.

10.0 PERFORMANCE AND BURNER EFFICIENCY TESTING OF BOILERS AND WATER HEATERS

10.1 Applicability

This guideline does not apply to combined heat and power units and supplementary duct-fired heat recovery steam generators. This guideline does apply to any boiler or water heater for which performance testing is required by the current air quality permit. In addition, this guideline applies to any boiler or water heater for which burner efficiency testing is required by the current air quality permit (any boiler with a maximum heat input rating equal to or greater than 4.0 MMBtu/hr). The owner or operator's current air quality permit should list the boiler as an emissions unit and should specify the current performance test requirements for the boiler. These requirements vary with the permit issuance date and the air quality regulations in effect at the time. (Recently, major changes to Clark County Air Quality Regulations, Section 12, "Applicability, General Requirements and Transition Procedures" became effective on July 1, 2010. In addition, Section 49, "Compliance Requirements for Boilers and Steam Generators" was repealed on April 19, 2011 and not replaced.)

10.2 Initial Performance Test

The owner/operator of a new, modified or reconstructed boiler for which performance testing is required by the current air quality permit shall conduct an initial performance test within 60 days

after achieving the maximum production rate at which the boiler will be operated, but not later than 180 days after initial startup of such boiler. The owner/operator shall demonstrate the boiler's compliance with emission limitations established in the operating permit.

10.3 Periodic Performance Tests

The owner/operator of a new, modified or reconstructed boiler for which performance testing is required by the current air quality permit shall conduct periodic performance testing at least once during every five-year period beginning from the date of the initial performance test. Performance testing shall be repeated at least every five years thereafter to demonstrate compliance with emission limitations established in the operating permit for the boiler.

10.4 Performance Test Requirements

The owner/operator of a boiler who conducts a performance test on any boiler shall comply with the following requirements:

10.4.1 Protocol

Submit a protocol acceptable to Air Quality and, pursuant to the Air Quality-approved protocol, conduct performance testing in accordance with the applicable EPA Reference Test Methods listed in Table 1 below, unless prior written approval to do otherwise is granted by the Control Officer.

Method	Pollutant or Parameter
1 or 1A	Sample and Velocity Traverses; Sample and Velocity Traverses for Small Ducts
2	Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube)
3 or 3A	Gas Analysis for Determination of Dry Molecular Weight; Determination of Oxygen and Carbon Dioxide Concentrations (Instrumental Analyzer Procedure)
4	Determination of Moisture Content in Stack Gases
5 or 17	Particulate Matter (PM)/In Stack PM (only for fuels other than natural gas, propane or equivalent)
7E	Determination of Nitrogen Oxide Emissions from Stationary Sources (Instrumental Analyzer Procedure)
10	Determination of Carbon Monoxide Emissions from Stationary Sources
19	SO ₂ Removal and PM, SO ₂ , NO _x Rates from Steam Generators
6C	Determination of Sulfur Dioxide Emissions from Stationary Sources - Instrumental Analyzer Procedure (only for fuels other than natural gas, propane or equivalent)

10.4.2 Performance Test Runs and Sample Volumes

Unless directed otherwise by the air quality permit, the Air Quality Control Officer, or an enforcement action, compliance stack testing will consist of three runs for NO_x and CO. Each of the three boiler sample runs must be no less than 36 minutes and must collect a minimum sample volume of 20 dry standard cubic feet. Compliance with permit limits or regulations is determined by comparing the applicable emission limit with the average of the three test runs.

10.5 Performance Test Documentation

The owner/operator shall maintain on site all boiler performance test records and boiler fuel use and/or hours of operation as required by permit or regulation, generally for a minimum of five years. The owner/operator shall make such documentation available for Air Quality inspection upon request.

10.6 Initial Burner Efficiency Test

The owner/operator of a new, modified, or reconstructed boiler with a maximum heat input rating equal to or greater than 4.0 MMBtu/hr shall conduct an initial burner efficiency test within 180 days after initial startup of such boiler.

10.6.1 Burner Efficiency Test Requirements

Burner efficiency tests shall be conducted in accordance with the manufacturer's recommendations and specifications for good combustion practices. If the manufacturer's recommendations and specifications are unavailable, the owner/operator may use an alternative method to perform the boiler efficiency test after prior approval from the Air Quality Control Officer.

10.6.2 Burner Efficiency Test Frequency for Boilers 10.0 MMBtu/hr and Above

For a boiler with a maximum heat input rating equal to or greater than 10.0 MMBtu/hr, the owner/operator shall perform a burner efficiency test twice each year, except as allowed in Guideline 10.6.3 below. The owner/operator shall conduct the tests at least five, but no more than seven, months apart during each calendar year.

10.6.3 Reduced Burner Efficiency Test Frequency for Boilers 10.0 MMBtu/hr and Above

If the boiler has a permitted limit of less than 2,000 hours per year, then the owner/operator may perform a burner efficiency test once each calendar year. If the documented *actual* hours of operation of a boiler with a maximum heat input rating equal to or greater than 10.0 MMBtu/hr are less than 50 during a calendar year, the owner/operator may perform a burner efficiency test on that boiler only once during that calendar year. To document that the actual hours of operation for that boiler are less than 50, the owner/operator shall install an hour meter or flow meter prior to the beginning of that calendar year and maintain written records to verify the actual hours of operation during that calendar year.

10.6.4 Burner Efficiency Test Frequency for Boilers under 10.0 MMBtu/hr

For a boiler with a maximum heat input rating of equal to or greater than 4.0 MMBtu/hr but less than 10.0 MMBtu/hr, the owner/operator shall perform a burner efficiency test once each calendar year, except as allowed in Guideline 10.6.5 below.

10.6.5 Reduced Burner Efficiency Test Frequency for Boilers under 10.0 MMBtu/hr

If the documented actual hours of operation of a boiler with a maximum heat input rating equal to or greater than 4.0 MMBtu/hr but less than 10.0 MMBtu/hr are zero during a calendar year, the owner/operator need not perform a burner efficiency test on that boiler during that calendar year. To document that the actual hours of operation for that boiler are zero during a calendar year, the

owner/operator shall install an hour meter prior to the beginning of that calendar year and maintain written records to verify the actual hours of operation during that calendar year.

10.7 Burner Efficiency Test Documentation

The owner/operator shall maintain records related to boiler fuel use and/or hours of operation as required by permit or regulation, generally for a minimum of five years. The owner/operator of a boiler with a maximum heat input rating equal to or greater than 4.0 MMBtu/hr shall maintain a copy of each burner efficiency test on site and shall make such documentation available for Air Quality inspection upon request.

10.8 Substitution of a Performance Test for a Burner Efficiency Test

An Air Quality-approved performance test with acceptable results may replace one contemporaneously required burner efficiency test if conducted during the same time frame; however, a burner efficiency test may not be substituted for a required performance test.

11.0 PERFORMANCE TESTING OF METALLIC AND NONMETALLIC MINERAL EMISSIONS UNITS

11.1 Metallic and Nonmetallic Mineral Emissions Units with a Performance Standard under 40 CFR 60, 61 or 63

Sources with metallic or nonmetallic mineral emissions units for which a federal performance standard has been promulgated will conduct performance testing using methods, durations, and data reduction methods outlined in the published federal standards. These emissions units will be initially performance tested for pollutant(s) and/or visible emissions as determined by Air Quality. Visible emissions testing using Reference Method 9 (visual opacity) be required for initial testing only, unless subsequent testing is required by an applicable NSPS/NESHAP, federal, state or local regulation. Performance testing involving reference methods other than Reference Method 9 will be repeated once every five years thereafter (or more frequently if required by an applicable NSPS/NESHAP, federal, state or local regulation, or Air Quality permit). Air Quality may impose recurring performance test requirements at a frequency of less than every five years for emission control devices if Air Quality believes such testing is necessary to ensure compliance or permit source classification (i.e., major, synthetic minor or true minor). Furthermore, the current air quality permit, an enforcement action, or the Control Officer may require subsequent performance testing at frequencies of less than every five years (if required by an applicable NSPS/NESHAP, federal, state or local regulation, or Air Quality permit). The more stringent standard applies if there is a conflict between federal performance standards and the air quality permit.

11.2 Metallic and Nonmetallic Mineral Emissions Units without a Performance Standard under 40 CFR 60, 61 or 63

Sources with emissions units involved with metallic and/or nonmetallic minerals processing for which a federal performance standard has not been promulgated will not be required to conduct formal performance testing for those emissions units. However, performance testing is obligatory when the current air quality permit, an enforcement action, or the Control Officer requires this action. Although performance testing may not be required, every source must comply at all times with opacity and other requirements outlined in its permit or in local regulations.

12.0 VAPOR RECOVERY SYSTEM TESTING OF GASOLINE DISPENSING OPERATIONS

12.1 Test Scheduling

The owner/operator shall schedule each vapor recovery system test with Air Quality in writing at least 30 calendar days prior to the anticipated test date, unless otherwise specified in the permit. Tests must be scheduled and completed between Monday 7:00 a.m. and Friday 6:00 p.m., excluding holidays. The Air Quality Test Notification Form (available on Air Quality's website) must be used to schedule a vapor recovery system test. Mail, fax or hand-deliver the completed form to the Air Quality Department along with the required fee payment. Emails will not be accepted. The Test Notification Form is only valid if it is complete and signed by the Responsible Official for the equipment being tested, and the notification submittal is deemed 'complete' only upon receipt of the applicable testing fee by Air Quality. Air Quality's review of a test notification submittal begins when the submittal is deemed complete. Air Quality will process all requests for scheduling vapor recovery tests within 30 days after deeming a notification submittal complete. Review of a test notification being delayed for incompleteness due to unpaid fees could result in the delay of a scheduled Vapor Recovery test. Failure to test the GDO facility within the regulatory and/or the Air Quality Permit timelines could result in enforcement action and civil penalties.

12.2 Changes to Test Schedule

A scheduled vapor recovery system test cannot be canceled and/or rescheduled except with the prior approval of the Control Officer.

12.3 Initial and Post-Reconstruction Vapor Recovery System Testing Requirements

The owner/operator of a new or reconstructed GDO shall initially conduct and pass a vapor recovery system test within 180 days of startup and thereafter at the frequencies outlined in Table 2 below. Subsequent vapor recovery system tests shall be completed no later than 30 days from the anniversary date of the most recent preceding vapor recovery system test.

12.3.1 Air Quality Observation

Each initial vapor recovery system test for new or reconstructed equipment will be witnessed by an Air Quality inspector, whenever possible.

12.3.2 Systems Not Listed in Table 2

For all other Healy Vapor Recovery Systems not cited in Table 2 below, including, but not limited, to Models 800 or 900, the source shall conduct any additional testing procedures described in the corresponding CARB certification document, i.e., CARB Executive Order (as revised), initially and subsequently as required by the operating permit.

Table 2: Vapor Recovery System Testing Procedures and Schedules		
Type of Vapor Recovery System	Test Procedure	Frequency
Phase I Vapor Assist System Only	Pressure Decay/Leak test: CARB Procedure TP-201.3 (as revised for UST); or TP201.3A (as revised for AST)	Initial and subsequently as required by permit
	Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves: CARB Procedure TP-201.1E (as revised)	Initial and subsequently as required by permit
Phase I/II Vapor Assist System	Pressure Decay/Leak test: CARB Procedure TP-201.3 (as revised for UST); or TP201.3A (as revised for AST)	Initial and subsequently as required by permit
	Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves: CARB Procedure TP-201.1E (as revised)	Initial and subsequently as required by permit
	Air to Liquid (A/L) Ratio test: CARB Procedure TP-201.5 (as revised)	Initial and subsequently as required by permit
	Dynamic Back Pressure test: CARB Procedure TP-201.4 (as revised)	Initial and subsequently as required by permit
	Hasstech Burner Efficiency G-70-164 AA	Initial and subsequently as required by permit
Phase I/II Vapor Balance System	Pressure Decay/Leak test: CARB Procedure TP-201.3 (as revised for UST); or TP201.3A (as revised for AST)	Initial and subsequently as required by permit
	Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves: CARB Procedure TP-201.1E (as revised)	Initial and subsequently as required by permit
	Dynamic Back Pressure test: CARB Procedure TP-201.4 (as revised)	Initial and subsequently as required by permit
	Flow rate Test: CC_V RTP_1	Initial and subsequently as required by permit
Phase I/II Healy Vapor Assist	Pressure Decay/Leak test: CARB Procedure TP-201.3 (as revised for UST); or TP201.3A (as revised for AST)	Initial and subsequently as required by permit
	Leak Rate and Cracking Pressure of Pressure/Vacuum Vent Valves: CARB Procedure TP-201.1E (as revised)	Initial and subsequently as required by permit
	Vapor Return Line Vacuum Integrity Test: from current CARB Executive Order G-70-186 series (for Model 400)	Initial and subsequently as required by permit
	Fillneck Vapor Pressure Regulation Fueling Test: from current CARB Executive Order G-70-186 series (for Model 400)	Initial and subsequently as required by permit
	Vapor Return Line Vacuum Integrity Test: from current CARB Executive Order G-70-165 series (for Model 600)	Initial and subsequently as required by permit
	Air to Liquid (A/L) Ratio test: CARB Procedure TP-201.5 (as revised) (for Model 600)	Initial and subsequently as required by permit
	Healy 900 Executive Order VR 201-1	Initial and subsequently as required by permit

12.4 Test Results

After each vapor recovery system test, the owner/operator (not the testing company) is responsible for submitting a Gasoline Dispensing Operation Certification of Vapor Recovery System Test Results Submittal Form (available on Air Quality's website) to the Control Officer. The test results form is only valid if it is complete and signed by the Responsible Official for the equipment being tested. The Responsible Official must certify that the test results are true, accurate and complete. Test results can be submitted by regular mail, fax, or in person. If the source passes the vapor recovery system test, the source shall submit the test results report to the Control Officer within 60 days from the date of the vapor recovery system test. The test report can be submitted by the source or by the owner/operator's testing company or consultant, but the source is the responsible party and must ensure that the test report is delivered to Air Quality within the above timeline.

12.5 Failing Test Results

If the source fails a vapor recovery system test, the owner/operator shall comply with the following:

12.5.1 Remediation of Failed Equipment

The owner/operator shall notify the Control Officer within 24 hours of equipment test failure, make all necessary repairs and re-test the affected facility. After re-testing, the owner/operator shall notify the Control Officer to advise of the re-test and submit test results within 15 days of completion.

12.5.2 Unsuccessful Remediation of Failed Equipment

The process of re-testing shall continue until the affected facility successfully passes all aspects of the vapor recovery system test.

12.5.3 Air Quality Observation of Repeat Vapor Recovery System Tests

The Control Officer may require the owner/operator to conduct any subsequent vapor recovery system test after a failed test in the presence of an Air Quality representative.

12.6 Subsequent Vapor Recovery System Testing Requirements

The owner/operator shall conduct and pass subsequent vapor recovery system tests no later than 30 days from the anniversary date of the most recent preceding vapor recovery system test.

12.7 Additional Vapor Recovery System Testing

The Control Officer may require the source to conduct and pass additional vapor recovery system tests.

12.8 Documentation

The owner/operator shall maintain all vapor recovery system test records for a minimum of five years after their creation and shall make those records available to Air Quality upon request.

For more information contact:

**Clark County Department of Air Quality
4701 W Russell Road, Suite 200
Las Vegas, Nevada 89118-2231**

**Telephone: (702) 455-5942 Fax: (702) 383-9994
www.ClarkCountyNV.gov**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 27 2009

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

MEMORANDUM

SUBJECT: Issuance of the Clean Air Act National Stack Testing Guidance

FROM: Lisa C. Lund *Lisa Lund*
Director
Office of Compliance

TO: Regional Compliance/Enforcement Division Directors

Attached is a copy of the revised Clean Air Act National Stack Testing Guidance. Final guidance was initially issued on September 30, 2005. At the time of issuance, the Agency indicated that notice and comment rulemaking would be conducted regarding the appropriate circumstances in which an extension of performance test deadlines may be allowed by regulation. This document incorporates the ensuing regulatory revisions which allow source owners or operators to petition for an extension to the test deadlines as a result of a force majeure event. It also includes other minor clarifications and revisions based on feedback we have received since issuance of the 2005 guidance. This revised guidance supersedes the 2005 guidance.

We appreciate the feedback that we have received from each of your offices as well as from state/local agencies. If you or your staff has any questions concerning the guidance, please contact Mamie Miller at (202) 431-7011, or Robert Lischinsky at (202) 564-2628.

Attachment

cc: Regional Air Compliance/Enforcement Branch Chiefs
Pamela Mazakas, Acting Director, Air Enforcement Division,
Office of Civil Enforcement
Peter Tsigotis, Director, Sector Policies and Programs Division,
Office of Air Quality Planning and Standards (OAQPS)
Richard Wayland, Director, Air Quality Assessment Division, OAQPS
Compliance and Enforcement Committee Co-Chairs,
The National Association of Clean Air Agencies (NACAA)

**CLEAN AIR ACT
NATIONAL STACK TESTING GUIDANCE**

April 27, 2009

Any questions concerning this guidance may be directed to either Mamie Miller at (202) 564-2300 or Rob Lischinsky at (202) 564-2628.

CLEAN AIR ACT NATIONAL STACK TESTING GUIDANCE

I INTRODUCTION

- A stack test, also referred to in EPA regulations as a performance or source test, measures the amount of a specific regulated pollutant, pollutants, or surrogates being emitted; demonstrates the capture efficiency of a capture system; or determines the destruction or removal efficiency of a control device used to reduce emissions at facilities subject to the requirements of the Clean Air Act (CAA or Act). Stack testing is an important tool used to determine a facility's compliance with emission limits, or capture or control efficiencies established pursuant to the CAA. This tool has not always been consistently applied or utilized across the country by the U.S. Environmental Protection Agency (EPA or Agency), or delegated state/local agencies. This guidance is intended to address stack tests performed to determine both initial and on-going compliance with the CAA requirements.
- A review by the EPA Office of the Inspector General (IG) ("**Report of EPA's Oversight of Stack Testing Programs**," 2000-P-00019, September 11, 2000) criticized EPA for not issuing comprehensive national guidance in this area, and not providing sufficient oversight of state/local stack testing programs. The IG concluded that this lack of guidance and oversight had an adverse effect on the use of stack testing as a tool in determining compliance. As a result of the findings, the IG recommended that EPA develop national guidance that addresses issues such as:
 - recommended testing frequencies;
 - discrepancies in test procedures; and
 - inconsistent reporting of test results.
- In addition to national guidance, the IG recommended that EPA enhance its oversight program.
- In response to the IG report, the Office of Enforcement and Compliance Assurance (OECA) made a commitment to address the concerns raised in the report and provide clarification, as necessary, on the issues identified. The Office of Compliance (OC) was given the responsibility for satisfying this commitment.
- The concerns associated with testing frequencies, and the reporting of test results were addressed in the *CAA Stationary Source Compliance Monitoring Strategy* (CMS) issued by the Agency in April 2001. *The Timely And Appropriate Enforcement Response To High Priority Violations Policy* (HPV Policy) issued by the Agency in December 1998 provides supplementary guidance by specifying how violations identified through stack testing should be addressed. Each of these documents is summarized below for the reader's convenience; however, for a more thorough understanding of these policies, we suggest that the reader review

the documents in their entirety.

- An electronic version of CMS can be obtained at:
www.epa.gov/compliance/resources/policies/monitoring/cmbspolicy.pdf.
- The HPV Policy can be obtained at:
www.epa.gov/compliance/resources/policies/civil/caa/stationary/issue-ta-rpt.pdf.
- The website for the associated HPV Workbook is:
www.epa.gov/compliance/resources/policies/civil/caa/stationary/hpvmanualrevised.pdf.
- This stack testing guidance was developed to address the remaining issues raised by the IG, specifically those associated with the conduct of stack tests. A Workgroup with representatives from OECA, the Office of Air Quality Planning and Standards (OAQPS), and the EPA Regions was formed to develop the guidance. In formulating this guidance, the Workgroup reviewed all relevant Agency guidance and applicability determinations; evaluated all identified state regulations and guidance on stack testing; and solicited state/local input in various forums.
- The discussion in this document is intended solely as guidance. This guidance is not a regulation, nor is it intended to change any underlying regulatory requirements specified in individual New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), NESHAP for Source Categories (MACT), state or local regulations. This guidance merely documents and clarifies existing regulatory requirements and Agency guidance on stack testing.
- It is not our practice to distribute guidance such as this for formal public notice and comment as it does not supersede or alter existing regulatory requirements, nor impose any new legally binding requirements on EPA, state/local agencies, or the regulated community. The general description provided in this document may not apply to a particular situation based on the circumstances. Furthermore, interested parties remain free to raise questions or objections about the substance and application of the guidance as they arise in a particular situation. EPA 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 periodically without public notice.
- On February 2, 2004, EPA issued the stack testing guidance as interim to provide an opportunity to evaluate its usage and monitor any potential problems with its implementation. During the interim period, EPA received feedback from individual state/local agencies, state/local air associations, and industry associations and representatives.
- On September 30, 2005, after reviewing all comments received on the interim guidance and addressing such comments as appropriate, EPA issued final guidance. The final guidance superceded the February 2, 2004 interim guidance. At the time of issuance of the final guidance, EPA noted that the Agency would conduct notice and comment rulemaking regarding the appropriate circumstances in which an extension of performance test deadlines may be allowed by regulation.

- On August 9, 2006, EPA published in the Federal Register (FR) proposed amendments to the General Provisions for the NSPS, NESHAP, and MACT programs to allow source owners or operators, in the event of a force majeure, to petition the Administrator for an extension of the deadline(s) by which they are required to conduct an initial or subsequent performance test required by applicable regulations.
- The proposed revisions to the NSPS, NESHAP, and MACT General Provisions became effective on May 16, 2007. The revisions were extended to the Consolidated Federal Air Rule (CFAR) (40 CFR Part 65) on August 27, 2007.
- This guidance dated April 27, 2009, supersedes the September 30, 2005, guidance. It incorporates the amendments to the General Provisions and the CFAR which allow source owners or operators to petition for an extension to the test deadlines as a result of a force majeure event. It also includes other minor clarifications and revisions based on feedback EPA has received since issuance of the guidance in 2005.

II GOALS OF THE NATIONAL STACK TESTING GUIDANCE

- Expand upon CMS and the HPV Policy to fully address the concerns raised by the IG on this issue.
- Improve uniformity on how stack tests are conducted for determining and demonstrating compliance with the NSPS (40 CFR Part 60), NESHAP (40 CFR Part 61), and MACT (40 CFR Part 63).
- Improve coordination between EPA and state/local agencies.
- Enhance EPA oversight of state/local programs to ensure that the tool of stack testing is being sufficiently and properly utilized.

III DEFINITION OF STACK TESTING

- Stack testing may be conducted for varying purposes, such as relative accuracy test audits (RATAs), linearity checks, and routine calibration of continuous emission monitoring (CEM) equipment. However, for purposes of this guidance, stack testing is being more narrowly defined as:
 - Any performance testing conducted for the purposes of determining and demonstrating compliance with the applicable standards of 40 CFR Parts 60, 61, and 63 using promulgated test methods, other test methods or procedures cited in the applicable subpart(s), or alternative test methods approved by the Administrator under §§ 60.8, 61.13, or 63.7. It does not include visible emission observation testing.

IV SCOPE OF GUIDANCE

- The guidance applies to tests conducted for the purposes of determining and demonstrating compliance with NSPS, NESHAP, and MACT programs. The guidance does not apply to tests in situations such as the following:
 - tests requested by EPA to assist the Agency in the development of regulations or emissions factors;
 - tests to establish monitoring protocols for parametric monitoring under the Compliance Assurance Monitoring requirements of 40 CFR Part 64;
 - tests to develop and evaluate alternative test methods;
 - tests voluntarily conducted by facilities for their own purposes to optimize operations and improve energy efficiency;
 - tests conducted only to determine and demonstrate compliance with state Implementation Plan (SIP) requirements. (Tests conducted to simultaneously determine and demonstrate compliance with NSPS, NESHAP, and MACT programs are included within the scope of the guidance.)
- The data from tests conducted in situations such as those listed above may be subject to Title V reporting requirements and need to be considered by the source when submitting reports and certifying compliance pursuant to the Title V program.

V CAA STATIONARY SOURCE COMPLIANCE MONITORING STRATEGY

- The CMS provides guidance on stationary source air compliance monitoring programs with a focus on Title V major sources and synthetic minor sources that emit or have the potential to emit at or above 80 percent of the Title V major threshold. It addresses the IG issues of when a stack test should be conducted and what information should be reported nationally. It recognizes that consistent, complete and accurate stack test information is critical in managing a national air program. Hence, the CMS recommends:
 - States/locals should conduct a stack test where there is no other means for determining compliance with the emission limits. In determining whether a stack test is necessary, states/locals should consider factors such as: size of emission unit; time elapsed since last stack test; results of that test and margin of compliance; condition of control equipment; and availability and results of associated monitoring data.
 - States/locals should conduct a stack test whenever they deem appropriate regardless of

whether there are other means for determining compliance.

- The date and results (Pass/Fail/Pending) of all stack tests should be entered in the national air data system (AIRS/AFS, or its successor), and the High Priority Violations (HPV) status adjusted as appropriate.

VI HIGH PRIORITY VIOLATIONS POLICY

- The HPV Policy provides guidance on how to define significant violations under the CAA at major stationary sources, and the timely and appropriate enforcement response when such violations are identified. It addresses the IG concern with consistent treatment of stack test failures.
- Facilities are to be in compliance with applicable requirements at all times except during periods of startup, shutdown or malfunction, or under circumstances as defined in the underlying NSPS, NESHAP, or MACT standards or General Provisions to 40 CFR Parts 60 and 63.¹ All stack test failures should be reviewed by the delegated agency to determine whether a violation has occurred, and if so, the appropriate enforcement response. The enforcement response should be consistent with the HPV Policy which states:

"The following criteria trigger HPV status. . . Violations that involve testing, monitoring, recordkeeping or reporting that substantially interfere with enforcement or determining the source's compliance with applicable emission limits. . . A violation of an allowable emission limit detected during a reference method stack test." See HPV Policy, pp. 3-4. See also HPV Workbook, p. 3.5.

- Violations of emission limits for pollutants for which a facility is not designated as a "major " source may not rise to the level of HPV. The guidance addresses such circumstances by stating:

"EPA expects that all violations of air pollution regulations, whether meeting the HPV criteria or not, will be addressed by states, local agencies, or EPA." See HPV Policy, p. 2.

- The HPV Policy does not apply in situations where the delegated agency accepts a facility's claim that it was unable to conduct an initial performance test within the regulatory deadline due to a Force Majeure Event. A more detailed discussion of such an event is described below in the Section, "The Time Frame for Conducting Stack Tests."

¹ The Agency has issued separate guidance for SIPs on how to address excess emissions during start-up, shutdown or malfunctions.

VII MAJOR ISSUES

- The guidance addresses the following major issues:
 1. The Time Frame for Conducting Stack Tests
 2. Stack Test Waivers
 3. Stack Test Notifications
 4. Observation of Stack Tests
 5. Representative Testing Conditions
 6. Stoppages
 7. Postponements
 8. Test Reports

1. THE TIME FRAME FOR CONDUCTING STACK TESTS

- The primary issue is whether facilities can be granted an extension beyond the required time period to complete an initial stack test under the general provisions of the NSPS, NESHAP, and MACT programs. Individual standards may establish different time periods for testing, and some may be shorter than the general provisions. For example, in 40 CFR § 63.152(b), the Notice of Compliance Status must be submitted by sources subject to NSPS Subpart G within 150 calendar days after the specified compliance dates. In addition, individual standards may allow facilities to petition for an extension of an initial (or subsequent) stack test. See, e.g., 40 CFR §§ 63.1207(e)(3), 63.1207(i) (NSPS Subpart EEE).
- The time frame for conducting initial stack tests is established in 40 CFR § 60.8 for NSPS; and 40 CFR §§ 61.13 and 63.7 for NESHAP and MACT. Both the NSPS and MACT regulations regarding performance tests include provisions under which owners or operators of facilities shall notify appropriate authorities in the event that the scheduled test must be delayed, and further discuss rescheduling of the test. 40 CFR §§ 60.8(d), 63.7(b)(2). The MACT provision regarding rescheduling of performance tests further states: "This notification of delay in conducting the performance test shall not relieve the owner or operator of legal responsibility for compliance with any applicable provisions of this part or with any other applicable Federal, state, or local requirement, nor will it prevent the Administrator from implementing or enforcing this part or taking any other action under the Act." While these programs include provisions regarding notification of a test delay and rescheduling of the test, there are no regulatory provisions providing for extension of the testing deadlines in these programs, except in the event of a force majeure. 40 CFR §§ 60.8(a)(1-4), 61.13(a)(3-6), 63.7(a)(4).
- A force majeure is defined by the applicable regulations 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 affected 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. 40 CFR §§ 60.2, 61.02, 63.2.

- If a claim of force majeure is to be asserted, the facility shall provide written notification to the Administrator in accordance with the applicable regulations. The performance test shall be conducted as soon as practicable after the force majeure occurs. Whether to grant an extension to the performance test deadline is solely within the discretion of the Administrator. Until an extension has been approved by the Administrator, the facility remains strictly subject to the performance test requirements of the applicable regulations. 40 CFR §§ 60.8(a)(1-4), 61.13(a)(3-6), 63.7(a)(4).

- Because the applicable regulations governing initial stack tests do not provide for extensions of the performance test deadline except in the event of a force majeure, a facility that has not completed a stack test within the requisite time frame or has not received approval of an extension due to force majeure would not be in compliance with the regulatory provisions to stack test and demonstrate compliance with the underlying standard within the required time period.

- Except for the circumstance whereby a claim of force majeure has been asserted, the delegated agency is constrained by the fact that the General Provisions do not provide for an extension of the initial performance test deadline. However, the agency may provide, in the exercise of its enforcement discretion, additional time beyond the regulatory deadline within which the facility must perform the test.² This ensures that a stack test is conducted as expeditiously as possible in order for the facility to demonstrate that it is capable of complying with the underlying regulatory requirements. In providing for additional time, the delegated agency should review the circumstances that led to the test not being conducted by the regulatory deadline, including any explanation by the facility, before deciding the appropriate course of action for not testing by the deadline. The following are examples of how the delegated agency, using its enforcement discretion, may respond to facilities that do not meet performance test deadlines.

- (1) A facility contacts the delegated agency before the test deadline has passed and requests additional time to conduct an initial stack test because it is unable to reach its maximum production rate within the start-up period. Insisting that the facility conduct the test within the required time frame may not be appropriate because the information obtained during the test would not be meaningful in determining compliance with the underlying emissions requirements. Therefore, it may be appropriate for the facility to postpone the test. Such postponement under these circumstances would result in the facility not being in compliance with the regulatory provision to conduct a stack test by the regulatory deadline. Additional time may be added through an enforcement discretion letter or an

² Some EPA-approved SIPs may allow states authority to grant extensions of the deadline to conduct a stack test without the issuance of an enforcement order. Extensions of deadlines may be granted in such states where allowed by the EPA-approved SIP.

administrative order. Such a delay beyond the deadline should not be automatically considered a violation of the underlying emissions requirement. The delegated agency should take into consideration the facility's unique circumstances when choosing an appropriate response, and whether penalties should be assessed consistent with the HPV Policy and the *CAA Civil Penalty Policy* (Penalty Policy). The Penalty Policy can be obtained at:

<http://www.epa.gov/compliance/resources/policies/civil/caa/stationary/penpol.pdf>

- (2) A facility requests, either before or after the test deadline, additional time to conduct an initial stack test because it realizes that it is not meeting or cannot meet the underlying regulatory requirements and would fail the test. Additional time may be granted through an administrative order. However, the failure to test is a violation of the requirement to test within the required time frame, and the facility also is in violation of the underlying regulatory requirements. Penalties should be assessed consistent with the HPV Policy and the Penalty Policy.
 - (3) A facility fails to test within the regulatory deadline, and either fails to notify the agency, or notifies the agency after the regulatory deadline has passed. The full range of enforcement actions should be considered when deciding how to address the failure to test within the required time frame, and to establish a date certain for testing. Penalties should be assessed consistent with the HPV Policy and the Penalty Policy.
- The facility need not wait for the agency response before rescheduling the test provided it is in compliance with the notification and rescheduling provisions of 40 CFR §§ 60.8(d) and 63.7(b)(2) as appropriate. In those instances where the stack test is ultimately conducted before the agency formally responds to the facility's noncompliance with the initial test deadline, the agency response should acknowledge the test, but document the facility's non-compliance with the regulatory provision.

2. STACK TEST WAIVERS

- Stack tests to determine and demonstrate initial compliance may be, in some instances, the only test an emission unit will receive for an extended period of time. Therefore, all units should be tested for initial compliance unless a waiver has been granted by the delegated agency pursuant to 40 CFR §§ 60.8(b)(4), 61.13(h)(1)(iii), or 63.7(h). Waivers are granted only if the owner or operator of a source has demonstrated by other means that the source is in compliance with the applicable standard, or, under the MACT provisions, if the source is operating under an extension of compliance pursuant to § 63.6(i), or has requested such an extension and the request is under consideration by the delegated agency. The waiver regulations make clear that the burden of proof is on the affected facility to justify the need for a waiver. Although the NSPS and NESHAP programs do not specify what information is required as justification, the MACT program in 40 CFR § 63.7(h)(3)(iii) states that the waiver application should include information such as the "technical or economic infeasibility, or the impracticality, of the affected source

performing the required test."

- The primary issue of concern with respect to waiver requests is whether stack tests to determine and demonstrate on-going compliance with emission limits should be waived under the NSPS, NESHAP and MACT programs for units identical to a unit(s) that has been tested.

- Units, although identical in terms of design and control devices, may have process operations that significantly alter their performance and ability to comply with the underlying regulatory requirements on a continuing basis. Therefore, if the identical units have the ability to emit a pollutant in excess of the prescribed emission limit, a stack test should not be waived without adequate justification. However, a waiver may be appropriate on a case-by-case basis when criteria such as the following 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;
- (3) the units are operated and maintained in a similar manner; and
- (4) the delegated agency, based on documentation submitted by the facility,
 - (a) determines that the margin of compliance for the identical units tested is significant and can be maintained on an on-going basis; or
 - (b) determines based on a review of sufficient emissions data that, though the margin of compliance is not substantial, other factors allow for the determination that the variability of emissions for identical tested units is low enough for confidence that the untested unit will be in compliance.³ These factors may include, but are not limited to, the following:
 - (i) historical records at the tested unit showing consistent/invariant load;
 - (ii) fuel characteristics yielding low variability (e.g., oil) and therefore assurance that emissions will be constant and

³ As a general matter, the greater the quantity of available emissions data, the smaller the range of uncertainty about emissions and the more readily reviewing agencies can determine precise levels of emissions variability. Under such circumstances, delegated agencies may have greater assurance that compliance will be continuous even where the difference between actual and permitted emission rates is relatively small.

below allowable levels;

(iii) statistical analysis of a robust emissions data set demonstrate sufficiently low variability to convey assurance that the margin of compliance, though small, is reliable.

- If a facility does not have the ability to emit a pollutant in excess of the prescribed emission limit, waivers on a case-by-case basis may be issued for both initial and on-going compliance stack tests. For example, a stack test waiver for identical units at a facility operating multiple natural gas-fired boilers subject to a particulate matter standard generally would be appropriate.
- Waivers can be granted only by the appropriate delegated agency. See 40 CFR § 63.91(g). See also, "*How to Review and Issue Clean Air Act Applicability Determinations and Alternative Monitoring*," EPA 305-B-99-004, Section 4.2, pp.19-22 (February 1999). If the delegated state/local agency has the authority to grant a waiver, it still should consult promptly with EPA to promote national consistency.

3. STACK TEST NOTIFICATIONS

- The primary issue is what constitutes sufficient notification of a planned stack test under the regulatory requirements. Sufficiency is defined to include both the timing of the notification, as well as the content of the notification.
- Unless specified otherwise in the subpart, both the NSPS and NESHAP programs require at least thirty (30) calendar days advance notice of a stack test [40 CFR § 60.8(d) and 40 CFR § 61.13(a) and ©], while the MACT program requires at least sixty (60) calendar days [40 CFR § 63.7(b)(1)]. The test date(s) and approximate start/end time of the test should be acceptable to both the delegated agency and the facility to allow the delegated agency an opportunity to observe the test, if desired. If for some reason the stack test must be delayed, facilities also are required to provide notification of the delay. The time frame for such notifications differs under each program. Under 40 CFR § 60.8(d), the facility is required to provide notification "as soon as possible of any delay in the original test date, either by providing at least 7 days prior notice of the rescheduled date of the performance test, or by arranging a rescheduled date with the Administrator (or delegated state or local agency) by mutual agreement." Under 40 CFR § 63.7(b)(2), if the facility must delay the test due to "unforeseeable circumstances beyond [its] control", the facility must notify the "Administrator as soon as practicable and without delay prior to the scheduled performance test date and specify the date when the performance test is rescheduled." 40 CFR § 61.13 does not address this issue.
- Generally, facilities are required to notify EPA and the delegated agency of the delay. In some instances, however, facilities are only required to notify the delegated agency of the delay. Notification to EPA in addition to the delegated agency is dependent on individual Regional delegations of these requirements. Written notification should be sent to the appropriate

state/local agency and, if required, concurrently to EPA. The rescheduled test date should be acceptable to both the delegated agency and the facility. This affords the delegated agency an opportunity to observe the test, if desired. If timely notification is not provided, the test results may be deemed unacceptable, and the source may be required to test again.

- For stack tests that are being conducted pursuant to requirements in an operating permit or an enforcement order, the time frame for notification may differ and will be governed by the permit or order.
- Notification is not necessary if the stack test is not within the scope of this guidance as discussed in the Section, "Scope of Guidance." However, facilities should notify EPA and the delegated agency if there is a potential for applicable limits to be exceeded. Furthermore, as noted previously, the data from stack tests may be subject to Title V reporting requirements and need to be considered by the source when submitting reports and certifying compliance pursuant to the Title V program.
- 40 CFR Parts 60 and 61 do not require facilities to submit site-specific test plans prior to conducting a stack test. 40 CFR § 63.7(b)(1) requires submission of such plans "upon request." See also 40 CFR § 63.7(c)(2)(i) (owner or operator shall submit site-specific test plan if requested by the Administrator). However, many delegated agencies routinely request that the plans be submitted at the time of notification for review and approval. The submission of a plan prior to the stack test helps to ensure that the testing requirements are interpreted correctly and required test methods are followed; minimizes potential problems encountered during the test; and reduces the possibility of testing errors. Ultimately, having the plan reviewed and approved prior to the test reduces the number of retests.
- The format of site-specific test plans may vary. However, certain basic elements should be addressed in a site-specific test plan to assist in national consistency, and ensure that a complete and representative stack test is conducted. 40 CFR § 63.7(c)(2)(i) states that before conducting a required performance test, the owner or operator shall develop a site-specific test plan and, if required by the Administrator, submit it for approval. The test plan shall include "a test program summary, the test schedule, data quality objectives, and both an internal and external quality assurance (QA) program." Data quality objectives are "the pretest expectations of precision, accuracy, and completeness of data." 40 CFR § 63.7(c)(2)(i). The internal QA program shall include, "at a minimum, the activities planned by routine operators and analysts to provide an assessment of test data precision; an example of internal QA is the sampling and analysis of replicate samples." § 63.7(c)(2)(ii). The external QA program shall include, "at a minimum, application of plans for a test method performance audit (PA) during the performance test." § 63.7(c)(2)(iii). In addition, a site-specific test plan generally should include chain of custody documentation from sample collection through laboratory analysis including transport, and should recognize special sample transport, handling, and analysis instructions necessary for each set of field samples. For a prototype of a sufficiently detailed site-specific test plan, see *Emission Measurement Center Guideline Document* (GD-042), "**Preparation and Review of Site-Specific Emission Test Plans**," (March 1999) (www.epa.gov/ttn/emc/guidlnd.html).

- To assist in the preparation and transcription of test plans, the ***Electronic Reporting Tool*** (ERT) should be used when possible. (www.epa.gov/ttn/chief/ert/ert_tool.html). The ERT was designed to replace the time-intensive manual preparation and transcription of stationary source emissions test plans and reports currently performed by contractors for emissions sources, and the time-intensive manual quality assurance evaluations and documentation performed by the Regions or state/local agencies. The ERT provides a format that:

- Highlights the need to document the key information and procedures required by the existing EPA Federal Test Methods.
- Facilitates coordination among the source, the test contractor, and the regulatory agency in planning and preparing for the emissions test.
- Provides for consistent criteria to quantitatively characterize the quality of the data collected during the emissions test.
- Standardizes the reports.
- Provides for future capabilities to electronically exchange information in the reports with facility, state or Federal data systems.

- Test plans should be maintained by the facility consistent with the statutory and regulatory requirements, and made available to EPA, and state/local agencies upon request.

- If a facility wishes to deviate from a required test method, the facility would need to gain approval from the delegated agency in advance of the test. See 40 CFR § 60.8(b) (NSPS); 40 CFR § 61.13(h)(1) (NESHAP); 40 CFR § 63.7(e)(2) (MACT). For purposes of the NSPS and NESHAP programs, changes are divided into two separate categories: "minor " changes; and "major " changes (described in the regulations as alternative or equivalent methods). Major changes must be approved by OAQPS, while minor changes can be delegated to state/local agencies. See Memoranda from Jack R. Farmer to Allyn M. Davis, "***Delegation of New Source Performance Standards Authority to States*** " (February 24, 1983); and from Jack R. Farmer to David P. Howekamp, "***Delegation of NESHAP Authority to State/Local Agencies*** " (December 17, 1984), both included in Attachment 2 to the guidance document entitled "***How to Review and Issue Clean Air Act Applicability Determinations and Alternative Monitoring,***" EPA 305-B-99-004, (February 1999). For examples of what constitutes major versus minor changes, see the above cited memoranda.

- For purposes of the MACT program, changes to test methods are divided into three categories: "major," "intermediate," and "minor ". Major changes must be approved by OAQPS, while intermediate and minor changes can be delegated to state/local agencies. See 40 CFR § 63.91(g). Definitions of the three categories are provided in 40 CFR § 63.90.

- The facility must receive prior written approval for deviations from a test method from the

appropriate delegated agency. If the deviation is to be approved by a state/local agency, it should be in consultation with EPA, or as otherwise required by the delegation. See also "How to Review and Issue Clean Air Act Applicability Determinations and Alternative Monitoring," EPA 305-B-99-004, Section 4.2, pp.19-22 (February 1999). If a deviation from a test method has not been approved, the test results may be deemed unacceptable, and the source may be required to test again.

- The request for a minor change or deviation from a required test method may be submitted as part of the site-specific test plan, while intermediate and major changes or deviations to test methods should be requested via written correspondence to the delegated agency or EPA as appropriate. Requests for all changes or deviations must document to the satisfaction of the delegated agency the requested change, and the rationale for the change. For a more detailed guideline regarding the content for requests for changes to test methods, see *Emission Measurement Center Guideline Document* (GD-022r3), "*Handling Requests for Approval of Minor/Major Modifications/Alternatives to Testing and Monitoring Methods or Procedures*" at <http://www.epa.gov/ttn/emc/guidlnd.html>.

- In addition to any deviations from the required test methods, the facility should document within the test plan any adjustments that will be made prior to the stack test such as tuning the burner or changing bags in a baghouse. It is not necessary, however, to describe normally scheduled periodic maintenance that may occur in the normal course of operation and maintenance of a unit. If an agency representative is present to observe the test, the facility also should notify the observer of such adjustments before the test begins.

4. OBSERVATION OF STACK TESTS

- The primary issue with respect to observing stack tests to determine and demonstrate compliance is whether a delegated agency should have an observer present for all stack tests, and if not, how often should the delegated agency be present to observe the tests.

- There is no requirement that delegated agencies be present to observe all stack tests. However, whenever possible, trained staff from delegated agencies should observe the tests to ensure that the regulatory testing requirements are being met; the site-specific test plan is being followed; and the results are being accurately and completely recorded and documented in the test report. The observer should have the access necessary to ensure that the test is being conducted properly and results reported accurately. Furthermore, the observer should be present for the duration of the test, including all test runs. The presence of an observer helps to reduce the likelihood of sample recovery and handling errors, as well as equipment errors, and to ensure that testing is conducted under the proper process conditions. Ultimately, the presence of a state/local observer reduces the number of retests. Therefore, the test date(s) and approximate start/end time of the

test should be acceptable to both the delegated agency and the facility to allow the delegated agency an opportunity to observe the test, if desired.

- If the delegated agency chooses not to observe the test, prior review of the site-specific test plan is even more critical to ensure that the test is conducted in such a manner so as to satisfy the regulatory requirements.
- If the delegated agency was not provided timely notification and an opportunity to observe the stack test consistent with applicable regulatory requirements, the resulting test data may be rejected and a new stack test may be required. If this situation prevents the facility from completing a valid stack test within the requisite time frame, the facility is in violation of the requirement to conduct a stack test and demonstrate compliance. However, if the facility provided timely notice and the delegated agency did not respond or declined to observe the test, the test results should not be rejected solely because the test was not observed by agency personnel.

5. REPRESENTATIVE TESTING CONDITIONS

- The CAA requires that facilities comply with emissions limitations and emissions standards on a continuous basis. The Act defines the terms "emissions limitation " and "emission standard " in Section 302(k), 42 U.S.C. § 7602(k), as meaning "a requirement established by the state or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis . . ." (emphasis added). The statute also authorizes penalties for multiple days of violations and establishes a presumption of continuing violations if certain conditions are met. CAA Section 113(e)(1) and (2), 42 U.S.C. §§ 7413(e)(1) and (2). EPA has consistently, in rulemaking and policy statements over many years, taken the position that the CAA requires continuous compliance with emissions limits except where compliance is explicitly excused. See, e.g., Guidance entitled "*Definition of 'Continuous Compliance' and Enforcement of O&M Violations*," (June 24, 1982) ("In the strict legal sense, sources are required to meet, without interruption, all applicable emissions limitations and other control requirements, unless such limitations specifically provide otherwise."); Credible Evidence Rulemaking, 62 FR 8314, 8323, 8324, 8326 8314 (Feb. 24, 1997) (emissions limits require continuous compliance (consistent with any averaging times) except during periods when compliance is specifically excused).
- Since the CAA requires continuous compliance with emissions limits except where explicitly excused, EPA interprets applicable regulations to require that any stack test that is conducted within the scope of this guidance must demonstrate that a facility is capable of complying with the applicable emissions standards at all times.⁴ The NSPS and MACT programs require that performance tests be conducted under such conditions as the Administrator specifies based upon the representative performance of the affected facility. See 40 CFR §§ 60.8© and 63.7(e). The MACT program further defines representative performance as normal operating conditions. 43 CFR § 63.7(e). Operations during periods of startup, shutdown and malfunction do not constitute representative conditions for the purposes of a performance test. 40 CFR §§ 60.8(c)

⁴ Complying with the applicable standards "at all times " does not include allowable periods of start-up, shutdown, and malfunction as provided in 40 CFR §§ 60.8 (c) and 63.7(e)(1).

and 63.7(e). The Part 61 NESHAP program requires that emission tests be conducted “under such conditions as the Administrator shall specify "based on design and operational characteristics of the source." 40 CFR § 61.13(e). Individual standards may more specifically define operating conditions under which performance tests should be conducted. In the absence of such specifications, the question often arises as to what operating conditions should be used when conducting a stack test. If operating conditions are not indicated by the applicable requirements in individual standards, they should be developed as part of the site-specific test plan.

- In light of the fact that: (a) the Act requires that facilities continuously comply with emission limits; (b) the NSPS, MACT, and NESHAP programs all require that performance tests be conducted under such conditions as the Administrator specifies; and (c) the NSPS and MACT programs further require that such tests be conducted under representative operating conditions; EPA recommends that performance tests be performed under those representative (normal) conditions that:

- represent the range of combined process and control measure conditions under which the facility expects to operate (regardless of the frequency of the conditions); and
- are likely to most challenge the emissions control measures of the facility with regard to meeting the applicable emission standards, but without creating an unsafe condition.

- The following are factors that should be considered in developing the plan for a performance test that challenges to the fullest extent possible a facility’s ability to meet emissions limits.

- For a facility operating under an emission rate standard (e.g., lb/hr) or concentration standard (e.g., $\mu\text{g}/\text{m}^3$), normal process operating conditions producing the highest emissions or loading to a control device would generally constitute the most challenging conditions with regard to the emissions standard. If operating at maximum capacity would result in the highest levels of emissions, operating at this level would not create an unsafe condition, and the facility expects to operate at that level at least some of the time, EPA recommends that the facility should conduct a stack test at maximum capacity or the allowable/permitted capacity.

- For a facility operating under a control or removal efficiency standard (e.g., 98 percent control or removal of a specified pollutant), lower emissions loading at the inlet of a control device within the range of expected process operating conditions may often be the most challenging emissions control scenario for purposes of achieving the applicable standard. For facilities required to achieve such control or removal efficiency standards,

EPA recommends that the performance test include operating the facility under such expected lower emissions loading conditions.

- The test plan should generally include use of fuel, raw materials, and other

process/control equipment that the facility expects to use during future operations that would present the greatest challenge in meeting applicable emissions standards. To demonstrate the facility's ability to meet concentration standards and emissions rate standards, for example, the facility generally should use the fuel or raw materials that it expects to use and that have the highest emissions potential for the regulated pollutant(s) being tested. In instances where alternative processing materials are expected to be used by the facility and those materials are known to adversely impact emissions quality or the functioning of control measures, the facility generally should use the material that is likely to cause the greatest challenge in meeting applicable emissions standards. For concentration and emissions rates standards, the facility generally should process the material that it expects to use during future operations that is likely to cause the highest emissions. For control or removal efficiency standards, other factors may apply such as using fuels or raw materials that contain or produce pollutants that are more difficult to combust or otherwise remove.

- A facility is not required automatically to retest if the initial test does not represent the range of combined process and control measure conditions under which the facility expects to operate, or if the test does not challenge to the fullest extent possible the facility's ability to meet applicable emission standards without creating an unsafe condition. Furthermore, the facility is not required automatically to retest if the facility's operating conditions subsequently vary from those in place during the performance test. The delegated agency must determine whether retesting is warranted; however, in both instances, the facility is responsible for demonstrating to the satisfaction of the delegated agency that the facility is able to continuously comply with the emissions limits when operating under expected operating conditions, taking into consideration the factors discussed above in this section.
- This guidance does not affect the ability of delegated agencies to prohibit a facility from operating at levels of capacity different from the level used during the stack test, or to restrict production to reflect conditions equivalent to those present during the stack test.

Soot-Blowing:

- Soot-blowing is the cleaning of heat exchanger surfaces by the use of steam or air to dislodge accumulated material such as ash. The Agency guidance on this issue states that soot-blowing is a routine operation constituting representative process conditions. Emissions from soot-blowing cannot be discarded as being the result of an upset condition, and it would be erroneous to stop soot-blowing for the purpose of conducting a stack test. Agency guidance outlines the procedures for including soot-blowing while stack testing. The frequency with which facilities perform soot-blowing can vary significantly and the agency guidance addresses this issue by allowing facilities to weight the soot-blowing data in the performance tests based on the frequency of the soot-blowing.⁵ See Memoranda from John S. Seitz to David Kee "*Inclusion of*

⁵ Under EPA-approved SIPs, some states may allow soot-blowing emissions to be excluded as an element of a comprehensive stack test. This approach, however, is not applicable

Soot-Blowing Emissions in Subpart D Compliance Testing" (August 31, 1987); from Kathleen M. Bennett to Directors, Air & Waste Management Divisions "*Restatement of Guidance on Emissions Associated with Soot-Blowing*" (May 7, 1982); from Edward E. Reich to Sandra S. Gardebring "*Representative Testing Requirements*" (November 21, 1980); Memoranda from Edward E. Reich to Leslie Carothers "*Integration of Soot-Blowing Emissions with Routine Operating Data for Existing Facilities*" (March 12, 1979); from Edward E. Reich to Enforcement Division Directors, Air and Hazardous Material Division Directors, and Surveillance and Analysis Division Directors "*NSPS Determination - Subpart D*" (March 6, 1979); and Memoranda from Edward E. Reich to Robert L. Markey "*Determination of Applicability to Subpart D*" (June 29, 1977).

6. STOPPAGES

- The primary issue is whether it is appropriate to stop a stack test being conducted to determine and demonstrate compliance once it has been started, and if so, under what circumstances.
- There are no regulatory provisions in the NSPS, NESHAP, or MACT programs that address whether a facility is allowed to stop a stack test once it has been started.⁶ Depending on the circumstances surrounding the stoppage, the facility may be found in violation of the requirement to conduct a stack test, the underlying regulatory requirement, or both. For example:
 - If a facility stopped the stack test because it was exceeding applicable emission standards and would have failed the test, it would be considered in violation of both the requirement to conduct a stack test (if it does not complete a performance test by the applicable deadline) and to comply with the underlying regulatory requirement or permit condition. Consistent with 40 CFR §§ 60.11 and 61.12, any credible evidence may be used to demonstrate non-compliance. For major sources, the test should be reported in the Title V quarterly or semi-annual deviation reports, and taken into consideration as part of the annual compliance certifications. In addition, the stoppage should be reported as a failure in the national air data system, and an enforcement action should be initiated and penalties assessed consistent with the HPV Policy and CAA Civil Penalty Policy.
 - If a facility is forced to stop a test due to a Force Majeure Event, the facility shall provide written notification to the Administrator in accordance with the applicable

to stack tests required by 40 CFR Parts 60, 61, and 63.

⁶ However, under 40 CFR § 63.7(e), the results of a test run may, upon approval from the Administrator, be replaced with the results of an additional test run in the event that a test run is discontinued because of forced shutdown or other circumstances discussed in the regulation. Under 40 CFR § 60.8(f), if a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued for certain types of circumstances beyond the owner or operator's control, the results of two runs may be used with the Administrator's approval.

regulations. The performance test shall be conducted as soon as practicable after the force majeure occurs. Whether to grant an extension to the performance test deadline is solely within the discretion of the Administrator. Until an extension has been approved by the Administrator, the facility remains strictly subject to the performance test requirements of the applicable regulations. 40 CFR §§ 60.8(a)(1-4), 61.13(a)(3-6), 63.7(a)(4).

7. POSTPONEMENTS

- The primary issue is whether it is appropriate to postpone a stack test to determine and demonstrate compliance once it has been scheduled, and if so, under what circumstances. See also the discussion of delays in conducting the performance test in the Section, "Stack Test Notifications."
- Postponements should be treated similar to stoppages. If a postponement results in the facility failing to complete the test within the required time frame, the facility is in violation of the requirement to test.
- Regardless of whether the postponement affects a facility's ability to test in a timely manner, the delegated agency should carefully scrutinize the circumstances surrounding the postponement to determine whether the facility was in violation of the underlying emission limitations, and therefore, postponed the test to avoid a documented violation. Consistent with 40 CFR §§ 60.11 and 61.12, any credible evidence may be used to demonstrate non-compliance or compliance.

8. TEST REPORTS

- The primary issue is what information is needed to adequately document the results of a stack test conducted to determine and demonstrate compliance.
- The written test report should be sufficient to assess compliance with the underlying regulatory requirements, permit conditions, or enforcement order, and adherence to the test requirements. When reviewing the site-specific test plan, the delegated agency should identify for the facility any information that should be included in the test report. During the actual test program, there are usually modifications to the procedures specified in the site-specific test plan, and these modifications should be documented in the test report.
- Similar to the site-specific test plan, certain basic elements should be addressed in a test report to document the testing conditions and results, and enable the delegated agency to determine whether a complete and representative stack test was performed. For a prototype of a sufficiently detailed test report, see *Emission Measurement Center Guideline Document* (GD-043), "*Preparation and Review of Emission Test Reports*," (December 1998) (www.epa.gov/ttn/emc/guidlnd.html). If the test report does not contain sufficient information with which to adequately review the testing process and data results, it is within the discretion of

the delegated agency to request additional information, or require another test if appropriate.

- The test report should include chain-of-custody information from sample collection through laboratory analysis including transport. It also should include sufficient raw data and cross correlations in the appendices such that a new set of calculations including statistics could be independently generated from the raw data if necessary (e.g., median versus geometric-mean).
- The test report should be submitted to the delegated agency as soon as possible after completion of the stack test and, at a minimum, in compliance with any underlying regulatory requirements. For stack tests being conducted pursuant to 40 CFR Part 60, the test report is to be submitted within 180 days after the initial startup date or within 60 days after reaching maximum production rate. § 60.8(a). For those tests being conducted pursuant to 40 CFR Part 61, the test report is to be submitted within 31 days after completion of the test. § 61.13(f). If the test is being conducted pursuant to 40 CFR Part 63, the test report must be submitted within 60 days after the test is completed unless another time frame is specified in the applicable subpart. § 63.9(h)(2)(i)(G). In addition, all test reports should be maintained consistent with the requirements of the CAA and its implementing regulations, and made available to EPA upon request. To assist in the preparation and transcription of test plans, the ERT should be used when possible.

Rounding of Significant Figures:

- For clarification on how the results of a stack test should be calculated and reported, this guidance defers to the current Agency guidance. See Memorandum from William G. Laxton and John S. Seitz to New Source Performance Standards/National Emission Standards for Hazardous Pollutants Compliance Contacts "*Performance Test Calculation Guidelines*" (June 6, 1990). After reiterating the established procedure concerning the use of the metric system in expressing compliance standards, the guidance states that all emission standards should have at least two significant figures and at least five significant digits are to be carried in intermediate calculations.
- When rounding off the calculated emission numbers, the guidance affirms the practices of the American Society for Testing and Materials:
 - If the first digit to be discarded is less than five, the last digit retained should not be changed. When 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 retained should be increased by one unit. When 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 no adjustment made if it is an even number.
 - For example, if the emission standard is 90, 90.357 would be rounded to 90, 90.639 would be rounded to 91, 90.500 would be rounded to 90, and 91.500 would be rounded to

92. See Laxton and Seitz, pp. 3-4.

VIII EPA ROLE

- As part of EPA's oversight responsibilities, EPA may observe stack tests whenever the Agency deems appropriate. The Agency also will review test reports as needed to verify that the tests are being conducted properly, and that the results are being accurately interpreted and reported by state/local agencies.
- Consistent with CMS and the State Review Framework, EPA will periodically conduct analyses to evaluate whether stack tests are being properly conducted and sufficiently and effectively utilized to determine compliance; and whether the results are being accurately reported in a timely manner.