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GUIDELINES

FOR

SOURCE TESTING

Created August 12, 2011
Revised March 25, 2025

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ACRONYMS AND ABBREVIATIONS

AQR	Clark County Air Quality Regulation
AST	Aboveground Storage Tank
CAA	Clean Air Act
CARB	California Air Resources Board
CEMS	Continuous Emissions Monitoring System
DAQ	Clark County Division of Air Quality
EPA	U.S. Environmental Protection Agency
EVR	Enhanced Vapor Recovery
GDF	Gasoline Dispensing Facility
HPV	High Priority Violation
MACT	Maximum Achievable Control Technology
MMBtu/hr	Million 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 Division of Air Quality (DAQ) 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 Facilities (GDFs) 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

DAQ 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

DAQ recognizes the EPA memorandum "Issuance of the Clean Air Act National Stack Testing Guidance" (April 27, 2009) in its entirety. A copy is provided as an appendix.

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 DAQ 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, DAQ 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 DAQ 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 in place 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, DAQ will assume that the testing will rigorously follow the approved reference method.

4.3 Waived Testing or Alternative Testing Scenario 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 DAQ implement a waived or alternative testing scenario where by only certain emission units need to be tested. This request shall be submitted to the DAQ Permitting Section in the form of an application. DAQ will consider the waived or alternative scenario permitting application using guidelines in EPA's April 27, 2009, *Clean Air Act National Stack Test Guidance*, among other factors. If DAQ approves the waived or alternative testing scenario request, DAQ will assume that performance test results for each tested unit, compliant or otherwise, are representative of all identical units in the group. The waived or alternative scenario will be incorporated in the source's permit through enforceable conditions, and will remain effective until the expiration date of the issued air quality permit or until such time as specified by the Control Officer.

5.0 PERFORMANCE TEST PROTOCOLS AND PRE-TEST NOTIFICATIONS

For GDFs, Test Notification Forms, not performance test protocols, are required. Please see Section 12 of these guidelines and the DAQ page of the Clark County website for details concerning GDF testing.

5.1 Source Responsibility

The source owner/operator should review all applicable permits, regulations and enforcement orders during preparations for performance testing. DAQ 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 DAQ will accept the company's performance test plan, procedures or results.

5.3 List of Testing Companies

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

5.4 Pre-Survey

DAQ 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

DAQ 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 DAQ and the source's owner/operator to allow DAQ an opportunity to observe the test.

5.6 Protocol Format

DAQ requires only one copy of a protocol. All protocols shall be legible and presented in a complete, understandable, and organized manner. DAQ recommends use of the EPA Emission Measurements Center Guideline Document "Preparation and Review of Site-Specific Emission Test Plans" (GD-042). 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 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 DAQ.

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 DAQ as soon as possible of any change in the original test date and time, but no later than twenty-four (24) hours in advance of the scheduled test date. This notice is needed to allow DAQ staff adequate time to schedule an on-site observation.

5.11 DAQ Protocol Review

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

Unless a federal or local regulation states otherwise, 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. DAQ 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, DAQ may prohibit a source from operating at levels greater than the level used during the performance test, or DAQ may otherwise restrict permitted production to reflect conditions equivalent to those present during the performance test. Moreover, DAQ 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, and 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 DAQ.

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 DAQ Compliance Section manager or supervisor not later than the end of the first DAQ 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 DAQ Compliance Section manager or supervisor as soon as possible, and in no case later than the end of the first DAQ business day after the occurrence. The stopped test should be reported by the owner/operator to DAQ in a 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 DAQ will report the failed test in the national air data system. Moreover, DAQ may start enforcement action and assess penalties consistent with the HPV policy and CAA Civil Penalty Policy.

7.2 Allowable Stoppages

DAQ 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 Notice of Force Majeure Stoppage

As soon as practicable after the event, the source owner/operator is required to provide to DAQ 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 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

DAQ 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 DAQ 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 DAQ 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. DAQ retains the right to request more information to make its determination. If DAQ approves the postponement, and the emission unit(s) become operational again, the owner/operator must performance test the emission unit(s) within 90 days of each emission unit's start-up date. The owner/operator must submit a new performance testing protocol to 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.

7.3.2 Postponement Due to a Force Majeure

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

7.3.3 DAQ Response to Postponement Request

DAQ 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

DAQ 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 DAQ or 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, DAQ 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 DAQ 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 DAQ 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 DAQ 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

The owner/operator shall notify DAQ as soon as possible of any change in the original test date and time, but no later than twenty-four (24) hours in advance of the scheduled test date. Otherwise, the resulting test data may be rejected and new testing may be required.

9.0 PERFORMANCE TEST REPORTS

For GDFs, Test Results Submittal Forms are required. Please see Section 12 of these guidelines and the Air Quality page at the Clark County website for details concerning GDF 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 DAQ may not be accepted, and consequently the source may be or become noncompliant..

9.2 Source Responsibility

The source, not the testing company, is the responsible party and must ensure that the test report is delivered to DAQ 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 DAQ 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. For example, 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

DAQ approval must be requested as soon as possible if circumstances prevent report submission within the required time frame. The owner/operator must provide to DAQ 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

DAQ 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

DAQ recommends use of the EPA Emission Measurements Center Guideline Document "Preparation and Review of Emission Test Reports" (GD-043). 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 DAQ 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

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 Preliminary Review

DAQ 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, DAQ will notify the source and, if used, the source's testing company. DAQ will identify the test report deficiencies and will set a due date to correct them.

9.15 Final Review

Following its cursory review, DAQ 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, DAQ 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/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. (Major changes to Section 12 of the Clark County Air Quality Regulations (AQRs), "Applicability, General Requirements and Transition Procedures," became effective on July 1, 2010. In addition, AQR 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 DAQ and, pursuant to the DAQ-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.

Table 1: Test Methods for Boilers in Clark County

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
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 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 have all boiler performance test records and boiler fuel use and/or hours of operation as required by permit or regulation available, for a minimum of five years. The owner/operator shall make such documentation available for DAQ 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. Each burner efficiency test shall consist of the following inspections, repairs, and measurements:

1. Inspect the burner, and clean or replace any components as necessary.
2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize. The adjustment should be consistent with the manufacturer's specifications.
3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly.
4. Optimize total emissions for NO_x and CO consistent with the manufacturer's specifications and applicable permit condition concentration limitations.
5. Measure the concentration in the effluent stream for NO_x and CO in parts per million by volume, and for oxygen in volume percent, before and after the adjustments are made. Measurements may be on either a dry or wet basis, as long as the basis is the same before and after the adjustments are made. Measurements should be taken at high fire, mid fire, and low fire. Measurements may be taken using a portable analyzer.

If the manufacturer's recommendations and specifications are unavailable, the owner/operator may use an alternative method to perform the boiler efficiency test after obtaining the Control Officer's approval.

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 calendar year, except as allowed in Guideline 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 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, including records related to emission concentration measurements, fuel use and/or hours of operation as required by permit or regulation for minimum of five years, and shall make such documentation available for DAQ inspection upon request.

10.8 Substitution of a Performance Test for a Burner Efficiency Test

A DAQ-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 DAQ. Visible emissions

testing using Reference Method 9 (visual opacity) may 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). DAQ may impose recurring performance test requirements at a frequency of less than every five years for emission control devices if it 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 FACILITIES

12.1 Test Scheduling

The owner/operator shall schedule each vapor recovery system test with DAQ 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 7:00 a.m. Monday and 6:00 p.m. Friday, excluding holidays. The Test Notification Form (available on DAQ's website) must be used to schedule a vapor recovery system test. The owner/operator shall mail, fax or hand-deliver the completed form to DAQ; 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.

DAQ's review of a test notification submittal begins when the submittal is deemed valid. DAQ will process all requests for scheduling vapor recovery tests within 30 days after deeming a notification submittal valid. Review of a submittal may be delayed due to missing entries in the form, which could delay a scheduled vapor recovery test. Failure to test a GDF facility within regulatory and/or 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 without the prior approval of the Control Officer. The Responsible Official or designated testing company may submit a request to DAQ by email or phone to cancel the test for cause, but only before the test date. The Responsible Official or testing company must then submit a new Test Notification Form to the Control Officer by mail, fax or hand delivery no later than three business days before the new test date if the rescheduled test will take longer than five business days.

12.3 Initial, After-Repair, and Post-Reconstruction Vapor Recovery System Testing Requirements

The owner/operator of a new GDF shall conduct and pass a vapor recovery system test within 180 days of startup, then at the frequencies in Table 2. The owner/operator of a GDF that has completed repairs or reconstruction of the GDF vapor recovery system shall conduct and pass a test for the repaired or reconstructed system(s). Testing must be completed within 90 days of startup, then at the frequencies outlined in Table 2.

12.3.1 DAQ Observation

Each initial vapor recovery system test for new or reconstructed equipment will be witnessed by a DAQ inspector whenever possible.

Table 2: Vapor Recovery System Testing Procedures and Schedules

Type of Vapor Recovery System	Test Procedure	Frequency
Phase I Vapor Balance 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
	Static Torque of Rotatable Phase I Adaptors: CARB Procedure TP-201.1B	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
	Flow rate Test: CC_VRTP_1	Initial and subsequently as required by permit
Phase I Vapor Balance System EVR Requirements	Leak rate of Drop Tube/Drain Valve Assembly: CARB Procedure TP-201.1C **or** Leak Rate of Drop Tube Overfill Protection Devices and Spill Container Drain Valves: CARB Procedure TP-201.1D, as applicable.	Initial and subsequently as required by permit, and/or AQR 102.7(a)(5).
	ARID Technologies AT-150 Permeator Compliance Test Procedure: Executive order VR-201-AC and VR-202-AC Assist Phase II EVR System, if applicable	Initial and subsequently as required by permit

Table 2 continued: Vapor Recovery System Testing Procedures and Schedules		
Type of Vapor Recovery System	**Test Procedure**	**Frequency**
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
	Static Torque of Rotatable Phase I Adaptors: CARB Procedure TP-201.1B	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_VRTP_1	Initial and subsequently as required by permit
Phase I/II Vapor Balance System & Phase I EVR Requirements	Leak rate of Drop Tube/Drain Valve Assembly: CARB Procedure TP-201.1C **or** Leak Rate of Drop Tube Overfill Protection Devices and Spill Container Drain Valves: CARB Procedure TP-201.1D, as applicable.	Initial and subsequently as required by permit, and/or AQR 102.7(a)(5).
	ARID Technologies AT-150 Permeator Compliance Test Procedure: Executive order VR-201-AC and VR-202-AC Assist Phase II EVR System, if applicable	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
	Static Torque of Rotatable Phase I Adaptors: CARB Procedure TP-201.1B	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 Assist System & Phase I EVR Requirements	Leak rate of Drop Tube/Drain Valve Assembly: CARB Procedure TP-201.1C **or** Leak Rate of Drop Tube Overfill Protection Devices and Spill Container Drain Valves: CARB Procedure TP-201.1D, as applicable.	Initial and subsequently as required by permit, and/or AQR 102.7(a)(5).
	ARID Technologies AT-150 Permeator Compliance Test Procedure: Executive order VR-201-AC and VR-202-AC Assist Phase II EVR System, if applicable	Initial and subsequently as required by permit

Table 2 continued: Vapor Recovery System Testing Procedures and Schedules		
Type of Vapor Recovery System	**Test Procedure**	**Frequency**
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
	Static Torque of Rotatable Phase I Adaptors: CARB Procedure TP-201.1B	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 Exhibit 4 (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 Exhibit 5 (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 Exhibit 4 (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, 800, and 900)	Initial and subsequently as required by permit
	Healy 900 CARB Executive Order VR 201-1, Exhibit 7, 9 (if applicable), and 14	Initial and subsequently as required by permit
Phase I/II Healy Vapor Assist & Phase I EVR Requirements	Leak rate of Drop Tube/Drain Valve Assembly: CARB Procedure TP-201.1C **or** Leak Rate of Drop Tube Overfill Protection Devices and Spill Container Drain Valves: CARB Procedure TP-201.1D, as applicable.	Initial and subsequently as required by permit, and/or AQR 102.7(a)(5).
	ARID Technologies AT-150 Permeator Compliance Test Procedure: Executive order VR-201-AC and VR-202-AC Assist Phase II EVR System, if applicable	Initial and subsequently as required by permit

12.3.2 Other Systems

For all Healy Vapor Recovery Systems not cited in Table 2, the source shall conduct any additional testing procedures described in the corresponding CARB certification document (the CARB Executive Order, as revised), initially and subsequently, as required by the operating permit.

12.4 Test Results

After each vapor recovery system test (pass or fail), the owner/operator is responsible for submitting a GDF Certification of Vapor Recovery System Test Results Submittal Form (available on DAQ's website) and supporting documents to the Control Officer within 60 days from the date of the vapor recovery system test. The test results form is only valid if it is complete and signed by the Responsible Official for the equipment being tested, who must certify that the test results are true, accurate and complete. Test results shall be submitted by mail, fax or hand delivery. The test report can be submitted by the source, by the owner/operator's testing company, or by a consultant, but the source is the responsible party and must ensure that the report is delivered to DAQ within the specified timeline.

12.5 Failed or Incomplete Test Results

If a source fails or is unable to complete a vapor recovery system test, the owner/operator shall comply with all of the requirements in this section.

12.5.1 Remediation of Failed or Incomplete Testing

The owner/operator shall notify the Control Officer, by email or phone, within 24 hours of equipment test failure or incomplete testing. If repairs and retesting can be made within five business days of the original scheduled test date, the owner/operator shall make the repairs and perform and pass the required test(s). If the equipment cannot be repaired and retested in five business days, the owner/operator shall make all necessary repairs and schedule a re-test of the affected facility by submitting a new Test Notification Form to the Control Officer by mail, fax, or hand delivery no later than three business days before the new test date. After re-testing (pass or fail), the owner/operator shall submit a Test Results Submittal Form (available on DAQ's website) and supporting test documents to the Control Officer within 15 days of the test completion.

12.5.2 Unsuccessful Remediation of Failed or Incomplete Testing

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

12.5.3 DAQ Observation of Repeat Vapor Recovery System Tests

After a failed test, the Control Officer may require the owner/operator to conduct any subsequent vapor recovery system test in the presence of a DAQ representative.

12.6 Subsequent Vapor Recovery System Testing Requirements

The owner/operator shall conduct and pass subsequent vapor recovery system tests on or before the anniversary date of the previous passing 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 DAQ upon request.

For more information, contact:

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