



Maricopa County Air Quality Department

Standardized Permit Condition Guidelines for Performance Test Requirements

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INSTRUCTIONS

The purpose of this document is to provide guidance on writing permit conditions to address performance test requirements. This document provides standardized performance test requirements for similar facilities and equipment. It is designed to be a working document and covers the majority of equipment types and testing needs that may arise during the permitting process. As changes occur or new situations arise, modified or newly developed permit conditions may be added to this document to benefit the permitting process.

Both general and specific performance test requirements have been developed for a variety of equipment types and testing needs. The general performance test requirements provide the foundation for testing. The specific performance test requirements provide definition for testing based on facility operations. The specific requirements are to be inserted under the general requirement with the corresponding paragraph letter (A, B, C, etc.). The notes provided in italics are suggestions and/or additional permit conditions to be included when applicable. The permit engineer will determine if the specific requirements are appropriate for the facility in question in their present condition or if they will require modification. Additional considerations may include, but are not limited to, the following:

- Additional pollutants
- Multiple operating scenarios
- Multiple control devices
- Different testing frequency requirements (such as power generating facilities, which require annual testing)
- Industry-specific regulations (such as asphalt plant baghouses, which require testing for additional pollutants)
- Atypical test run duration and/or test runs (such as bulk gasoline terminals, which require a single 6-hour test run)
- Demonstration alternatives (such as the Optional Compliance Demonstration (OCD) alternatives developed for the semi-conductor industry, which allow a maximum outlet concentration in lieu of removal efficiency)
- Additional rule or regulation citations (i.e. general provisions and/or specific subparts of Part 60, 63 or 75 due to NSPS or MACT applicability) based on the source or facility.

An example of a complete permit condition for performance test requirements has been provided at the end of this document. This example shows how the general and specific performance test requirements combine to produce a finished permit condition for performance testing. The example presented is for a facility that has a thermal oxidizer tested for VOC destruction efficiency and VOC/NO_x/CO emissions rates and a packed-bed scrubber tested for acid removal efficiency and acid emission rates.

GENERAL PERFORMANCE TEST REQUIREMENTS

Note: The specific requirements are to be inserted under the general requirement with the corresponding paragraph letter (A, B, C, etc.). The notes provided in italics are suggestions and/or additional permit conditions to be included when applicable.

- A. Testing Requirements: The Permittee shall conduct performance tests on the following equipment within 60 days after the permit issuance date or within 60 days after the new applicable equipment has achieved the capability to operate at its maximum production rate on a sustained basis, whichever occurs last. The testing deadline may be extended by the Control Officer for good cause, but in no case shall the testing deadline, including test report submittal, extend beyond 180 days after the permit issuance date or 180 days after the new applicable equipment has achieved the capability to operate at its maximum capacity, whichever occurs last.

[County Rule 200 §309][County Rule 270 §401][SIP Rule 27 §A]

Note: For NSPS Sources, the following citation should be added to this Permit condition: [40 CFR §60.8(a)].

- B. Testing Criteria: Performance tests shall be conducted and data reduced in accordance with the test methods and procedures specified in the Test Methods section of this permit condition unless otherwise specified by the Control Officer and/or Administrator. The Control Officer and/or Administrator may specify or approve minor changes in methodology to a reference method, approve the use of an equivalent test method, approve the use of an alternative method that has been determined to be acceptable for demonstrating compliance, or waive the requirement for performance tests because the Permittee has demonstrated by other means that the source is in compliance with the standard. For NSPS facilities, only EPA has the authority to waive initial testing requirements.

[County Rule 270 §402][SIP Rule 27 §B]

Note: For true minor facilities, the language shall be replaced with the following: Performance tests shall be conducted and data reduced in accordance with the test methods and procedures specified unless otherwise specified by the Control Officer. The Control Officer may specify or approve minor changes in methodology to a reference method, approve the use of an equivalent test method, approve the use of an alternative method that has been determined to be acceptable for demonstrating compliance, or waive the requirement for performance tests because the Permittee has demonstrated by other means that the source is in compliance with the standard.

Note: For NSPS Sources, the following citation should be added to this Permit condition: [40 CFR §60.8(b)].

- C. Test Methods: Sampling sites and velocity traverse points shall be selected in accordance with EPA Test Method 1 or 1A. The gas volumetric flow rate shall be

measured in accordance with EPA Test Method 2, 2A, 2C, 2D, 2F, 2G or 19. The dry molecular weight shall be determined in accordance with EPA Test Method 3, 3A or 3B. The stack gas moisture shall be determined in accordance with EPA Test Method 4. These methods must be performed, as applicable, during each test run.

[County Rule 270 §301.1][SIP Rule 27 §B]

- D. Operating Conditions: Performance tests shall be conducted under representative operating conditions and all equipment shall be operated during testing in accordance with the most recently approved O&M Plan or according to its operations manual if no O&M Plan is required. The Permittee shall make available to the Control Officer any records necessary to determine appropriate conditions for performance tests. Operations during periods of startup, shutdown, and equipment malfunction shall not constitute representative conditions for performance tests unless otherwise specified in the applicable standard or permit conditions.

[County Rule 270 §403]

Note: For NSPS Sources, the following citation should be added to this Permit condition: [40 CFR §60.8(c)].

- E. Monitoring Requirements: The Permittee shall record all process and control equipment information that are necessary to document operating conditions during the test and explain why the conditions represent normal operation. Operational parameters shall be monitored and recorded at least once every 30 minutes during each of the required test runs and documented in the test report. The operational parameters monitored shall be capable of indicating that the equipment is operating within the permitted limits, both during and after the performance tests.

[County Rule 270 §301.1][SIP Rule 27 §B]

- F. Test Protocol Submittal: The Permittee shall submit a separate test protocol for each performance test to the Department for review and approval at least 30 days prior to each performance test unless otherwise specified in the applicable standard or in this permit. The test protocol shall be prepared in accordance with the most recent version of the Department's "Air Quality Performance Test Guidelines for Compliance Determination in Maricopa County." A completed copy of the Department's "Test Protocol Submittal Form" shall accompany each test protocol.

[County Rule 270 §301.1][SIP Rule 27 §B]

Note: For NSPS Sources, the following citation should be added to this Permit condition: [40 CFR §60.8(d)].

- G. Notice of Testing: The Permittee shall notify the Department in writing at least two weeks in advance of the actual date and time of each performance test unless otherwise specified in the applicable standard or in this permit so that the Department may have a representative attend.

[County Rule 270 §404]

Note: For NSPS Sources, the following citation should be added to this Permit condition: [40 CFR §60.8(d)].

- H. Testing Facilities Required: The Permittee shall install any and all sample ports or platforms necessary to conduct the performance tests, provide safe access to any platforms, and provide the necessary utilities for testing equipment.
[County Rule 270 §405][SIP Rule 42]

Note: For NSPS Sources, the following citation should be added to this Permit condition: [40 CFR §60.8(e)].

- I. Minimum Testing Requirements: Each performance test shall consist of three separate test runs with each test run being at least one hour in duration unless otherwise specified in the applicable standard or in this permit. The same test methods shall be used simultaneously for both the inlet and outlet measurements, if applicable, or justification for any necessary exceptions shall be provided in the test protocol. Emissions rates, concentrations, grain loadings, and/or efficiencies shall be determined as the arithmetic average of the values determined for each individual test run. Performance tests may only be stopped for good cause, which includes forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee's control. Termination of a performance test without good cause after the first test run has commenced shall constitute a failure of the performance test.
[County Rule 270 §406]

Note: If the permit or regulation requires a different number of test runs or test run duration, appropriate language should be specified in paragraph I.1) as follows: Testing for bulk gasoline terminals shall consist of one six-hour test run.

Note: For NSPS Sources, the following citation should be added to this Permit condition: [40 CFR §60.8(f)].

- J. Test Report Submittal: The Permittee shall complete and submit a separate test report for each performance test to the Department within 30 days after the completion of testing unless otherwise specified in the applicable standard or in this permit. The test report shall be prepared in accordance with the most recent version of the Department's "Air Quality Performance Test Guidelines for Compliance Determination in Maricopa County." A completed copy of the Department's "Test Report Submittal Form" shall accompany each test report.
[County Rule 270 §301.1][SIP Rule 27 §B]

- K. Compliance with Emission Limits: Compliance with allowable emission limits and standards shall be determined by the performance tests specified in this permit. If test results do not demonstrate compliance with the requirements of these permit conditions, the Permittee shall make the necessary repairs and/or adjustments to the equipment and demonstrate compliance through retesting. This will not nullify the

fact that test results did not demonstrate compliance with the requirements of the permit conditions or nullify any violations that may result from this noncompliance. In addition to compliance demonstrations, test results shall be used for annual emissions inventory purposes if the Permittee is required to complete an emissions inventory survey.

[County Rule 270 §407]

Note: For true minor facilities, the language shall be replaced with the following: Compliance with allowable emission limits and standards shall be determined by the performance tests specified in this permit. If test results do not demonstrate compliance with the requirements of these permit conditions, the Permittee shall make the necessary repairs and/or adjustments to the equipment and demonstrate compliance through retesting. In lieu of retesting, the Permittee may be able to submit an application for a permit revision to establish operational limitations or allowable emission limits based on the equipment's actual performance. Neither option will nullify the fact that test results did not demonstrate compliance with the requirements of the permit conditions or nullify any violations that may result from this noncompliance. In addition to compliance demonstrations, test results shall be used for annual emissions inventory purposes if the Permittee is required to complete an emissions inventory survey.

- L. Correspondence: All test extension requests, test protocols, test date notifications, and test reports required by this permit shall be submitted to the Department and addressed to the attention of the Performance Test Evaluation Supervisor.

[County Rule 270 §301.1][SIP Rule 27 §B]

- M. Authority: The above testing requirements represent the minimum level of testing to monitor for compliance with the emission limits in this permit. Nothing in this section shall prevent the Control Officer from requiring additional performance testing as deemed necessary to ensure permit compliance and protection of the public health and welfare.

[County Rule 200 §309][County Rule 270 §402.5]

**Specific Testing Requirements for
OXIDIZERS (THERMAL, REGENERATIVE OR CATALYTIC)
Option 1: VOC Destruction Efficiency and VOC/NO_x/CO Emission Rates**

Note: Additional citations shall be inserted for the specific rules and regulations that are applicable to the source.

- A. 1) Thermal Oxidizer:
- a) The Permittee shall measure the VOC concentration in the thermal oxidizer inlet and exhaust streams to demonstrate compliance with the minimum VOC destruction efficiency requirement and compliance with all applicable VOC emission limits of these Permit Conditions.
 - b) The Permittee shall measure the concentrations of NO_x and CO in the thermal oxidizer exhaust stream. Testing shall demonstrate compliance with all applicable NO_x and CO concentrations and/or emission limits of these Permit Conditions.
 - c) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).
[County Rule 200 §309][Arizona Testing Manual for Air Pollutant Emissions]

Note: If the destruction efficiency is tied to a minimum combustion temperature, paragraph A.1)a) should be replaced with the following: The Permittee shall measure the VOC concentration in the thermal oxidizer inlet and exhaust streams to demonstrate compliance with the minimum VOC destruction efficiency requirement at the minimum allowable combustion chamber temperature and compliance with all applicable VOC emission limits of these Permit Conditions.

Note: If the equipment exhaust gas stream contains a significant percentage of an exempt compound, that compound shall be excluded from the test results and specified in paragraph A.1)a) as follows: Testing shall be designed to exclude exempt compounds, such as acetone, to ensure that the reported results are representative of the true destruction efficiency for regulated VOCs.

Note: Each point source that is major for VOC after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

- 1. The emission rate
- 2. The nature and location of the facility

- C. 1) Thermal Oxidizer:
- a) VOC testing shall be conducted in accordance with EPA Test Method 25 or 25A. Testing to quantify exempt compounds, such as methane, shall be conducted in accordance with EPA Test Method 18.

- b) NO_x testing shall be conducted in accordance with EPA Test Method 7E. CO testing shall be conducted in accordance with EPA Test Method 10.
- E. 1) Thermal Oxidizer: The Permittee shall record the combustion chamber temperature and combustion chamber set-point temperature during the performance test.

Note: The permit engineer should ensure that the minimum combustion chamber temperature is specified elsewhere in these permit conditions. The permit needs to address maintaining the setpoint temperature used during testing and any potential permit modifications resulting from testing at a higher or lower combustion chamber temperature.

Note: If the control equipment is a catalytic oxidizer, paragraph E.1) should be replaced with the following: The Permittee shall record the catalyst bed inlet temperature and temperature difference across the catalyst bed during the performance test.

**Specific Testing Requirements for
OXIDIZERS (THERMAL, REGENERATIVE OR CATALYTIC)
Option 2: VOC Destruction Efficiency, Total Enclosure Demonstration and
VOC/NO_x/CO Emission Rates**

Note: Additional citations shall be inserted for the specific rules and regulations that are applicable to the source.

- A. 1) Thermal Oxidizer:
- a) The Permittee shall measure the VOC concentrations in the thermal oxidizer inlet and exhaust streams to demonstrate compliance with the minimum VOC destruction efficiency requirement and compliance with all applicable VOC emission limits of these permit conditions.
 - b) Testing shall demonstrate that all of the total enclosure requirements have been met.
 - c) The Permittee shall measure the concentrations of NO_x and CO in the thermal oxidizer exhaust stream. Testing shall demonstrate compliance with all applicable NO_x and CO concentrations and/or emission limits of these permit conditions.
 - d) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).
[County Rule 200 §309][Arizona Testing Manual for Air Pollutant Emissions]

Note: If the destruction efficiency is tied to a minimum combustion temperature, paragraph A.1)a) should be replaced with the following: The Permittee shall measure the VOC concentration in the thermal oxidizer inlet and exhaust streams to demonstrate compliance with the minimum VOC destruction efficiency requirement at the minimum allowable combustion chamber temperature and compliance with all applicable VOC emission limits of these Permit Conditions.

Note: If the gas stream being destroyed contains a significant percentage of an exempt compound, that compound shall be excluded from the test results and specified in paragraph A.1)a) as follows: Testing shall be designed to exclude exempt compounds, such as acetone, to ensure that the reported results are representative of the true destruction efficiency for regulated VOCs.

Note: Each point source that is major for VOC after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

1. The emission rate
2. The nature and location of the facility

- C. 1) Thermal Oxidizer:

- a) VOC destruction efficiency testing shall be conducted in accordance with EPA Test Method 25 or 25A. Testing to quantify exempt compounds, such as methane, shall be conducted in accordance with EPA Test Method 18.
 - b) The total enclosure demonstration shall be conducted in accordance with EPA Test Method 204.
 - c) NO_x testing shall be conducted in accordance with EPA Test Method 7E. CO testing shall be conducted in accordance with EPA Test Method 10.
- E. 1) Thermal Oxidizer: The Permittee shall record the combustion chamber temperature and combustion chamber set-point temperature during the performance test.

Note: The permit engineer should ensure that the minimum combustion chamber temperature is specified elsewhere in these permit conditions. The permit needs to address maintaining the setpoint temperature used during testing and any potential permit modifications resulting from testing at a higher or lower combustion chamber temperature.

Note: If the control equipment is a catalytic oxidizer, paragraph E.1) should be replaced with the following: The Permittee shall record the catalyst bed inlet temperature and temperature difference across the catalyst bed during the performance test.

**Specific Testing Requirements for
OXIDIZERS (THERMAL, REGENERATIVE OR CATALYTIC)**

***Option 3: VOC Capture and Destruction Efficiencies
and VOC/NO_x/CO Emission Rates***

Note: Additional citations shall be inserted for the specific rules and regulations that are applicable to the source.

A. 1) Thermal Oxidizer:

- a) The Permittee shall measure the VOC concentrations in the thermal oxidizer inlet and exhaust streams to demonstrate compliance with the minimum VOC destruction efficiency requirement and compliance with all applicable VOC emission limits of these permit conditions.
- b) Testing shall demonstrate the minimum VOC capture efficiency requirement by comparing the VOC content of the raw material with the VOC concentration entering the thermal oxidizer.
- c) The Permittee shall measure the concentrations of NO_x and CO in the thermal oxidizer exhaust stream. Testing shall demonstrate compliance with all applicable NO_x and CO concentrations and/or emission limits of these permit conditions.
- d) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).

[County Rule 200 §309][Arizona Testing Manual for Air Pollutant Emissions]

Note: If the destruction efficiency is tied to a minimum combustion temperature, paragraph A.1)a) should be replaced with the following: The Permittee shall measure the VOC concentration in the thermal oxidizer inlet and exhaust streams to demonstrate compliance with the minimum VOC destruction efficiency requirement at the minimum allowable combustion chamber temperature and compliance with all applicable VOC emission limits of these Permit Conditions.

Note: If the permit or regulation requires overall VOC reduction efficiency, the affected language in paragraphs A.1)a) and b) shall be replaced with the following: The Permittee shall measure the VOC concentrations in the thermal oxidizer inlet and exhaust streams to determine the VOC destruction efficiency on a mass basis. The Permittee shall measure the VOC content of the raw material to determine the VOC capture efficiency on a mass basis as determined by comparing the VOC content of the raw material with the VOC concentration entering the thermal oxidizer. Testing shall demonstrate compliance with the minimum overall VOC reduction efficiency (capture and destruction) requirement and compliance with all applicable VOC emission limits of these permit conditions.

Note: There may be instances where not all of the VOCs contained in the raw material may be emitted during the process. In this case, the language in the note

above will need to be modified accordingly, “The Permittee shall measure the VOC concentration emitted from the raw material or retained in the final product...”.

Note: If the gas stream being captured and destroyed contains a significant percentage (any concerns about what constitutes a “significant percentage” should be discussed with the Performance Test Section) of an exempt compound, that compound shall be excluded from the test results and specified in paragraph A.1)a) as follows: Testing shall be designed to exclude exempt compounds, such as acetone, to ensure that the reported results are representative of the true capture and destruction efficiencies for regulated VOCs.

Note: Each point source that is major for VOC after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

1. *The emission rate*
2. *The nature and location of the facility*

C. 1) Thermal Oxidizer:

- a) VOC destruction efficiency testing shall be conducted in accordance with EPA Test Method 25 or 25A. Testing to quantify exempt compounds, such as methane, shall be conducted in accordance with EPA Test Method 18. If EPA Test Method 25A is being used for VOC determination, then analyzer response factors must be determined for the specific VOCs being exhausted to the thermal oxidizer. These response factors shall be used to compare the VOC content of the raw material and the VOC content entering the thermal oxidizer on an equal basis (as pentane, for instance) for proper calculation of the VOC capture efficiency.
- b) VOC capture efficiency testing shall be conducted in accordance with EPA’s “Guidelines for Determining Capture Efficiency” dated January 9, 1995 and EPA Test Methods 204 thru 204 F, as applicable.
- c) NO_x testing shall be conducted in accordance with EPA Test Method 7E. CO testing shall be conducted in accordance with EPA Test Method 10.

E. 1) Thermal Oxidizer: The Permittee shall record the combustion chamber temperature and combustion chamber set-point temperature during the performance test.

Note: The permit engineer should ensure that the minimum combustion chamber temperature is specified elsewhere in these permit conditions. The permit needs to address maintaining the setpoint temperature used during testing and any potential permit modifications resulting from testing at a higher or lower combustion chamber temperature.

Note: If the control equipment is a catalytic oxidizer, paragraph E.1) should be replaced with the following: The Permittee shall record the catalyst bed inlet

temperature and temperature difference across the catalyst bed during the performance test.

**Specific Testing Requirements for
OXIDIZERS (THERMAL, REGENERATIVE OR CATALYTIC)
AT AN EXPANDABLE POLYSTYRENE FACILITY**

***Option 4: VOC Capture and Destruction Efficiencies, Total Enclosure Demonstration,
VOC/NO_x/CO Emission Rates and Storage Emissions***

- A. 1) Thermal Oxidizer:
- a) The Permittee shall measure the VOC concentrations in the thermal oxidizer inlet and exhaust streams to demonstrate compliance with the minimum VOC destruction efficiency requirement and compliance with all applicable VOC emission limits of these permit conditions.
 - b) The Permittee shall measure the VOC content in raw EPS beads and the residual VOC content in blocks after molding for use, in combination with the VOC concentration entering the thermal oxidizer, in determining the capture efficiency from pre-expansion, drying, aging, and molding processes.
 - c) Using the test results for the VOC concentrations in the thermal oxidizer inlet and exhaust streams, the raw bead VOC content and the VOC content in block product after molding, the Permittee shall demonstrate that the applicable standards in County Rule 358 §301 thru 304 are met by using the appropriate equations in County Rule 358 §503.7.
 - d) The Permittee shall demonstrate that the aging bag farm meets all requirements of a total enclosure.
 - e) The Permittee shall measure the residual VOC content in blocks that have been cut into sheets and stored for the maximum time on site to quantify storage emissions.
 - f) The Permittee shall measure the concentrations of NO_x and CO in the thermal oxidizer exhaust stream. Testing shall demonstrate compliance with all applicable NO_x and CO concentrations and/or emission limits of these permit conditions.
 - g) Testing shall be conducted annually between June 1 and August 31.
[County Rule 358 §301-304][County Rule 358 §305.1][County Rule 358 §503]

Note: If the destruction efficiency is tied to a minimum combustion temperature, paragraph A.1)a) should be replaced with the following: The Permittee shall measure the VOC concentration in the thermal oxidizer inlet and exhaust streams to demonstrate compliance with the minimum VOC destruction efficiency requirement at the minimum allowable combustion chamber temperature and compliance with all applicable VOC emission limits of these Permit Conditions.

- C. 1) Thermal Oxidizer:
- a) VOC destruction efficiency testing shall be conducted in accordance with EPA Test Method 25 or 25A. If the Permittee is using EPA Test Method 25A for VOC determination, then an analyzer response factor must be determined for pentane. Testing to quantify exempt compounds, such as methane, shall be conducted in accordance with EPA Test Method 18.

- b) Testing to determine the VOC content in raw beads and molded blocks shall be conducted in accordance with either SCAQMD Method 306-91 or BAAQMD Method 45. Alternatively, the Permittee may test molded blocks in an enclosed test chamber using EPA Test Method 25 or 25A.
- c) For overall capture efficiency demonstration, the Permittee shall use the methodology in County Rule 358 §503.7 and EPA's "Guidelines for Determining Capture Efficiency" dated January 9, 1995, as applicable. If the Permittee is using EPA Test Method 25A for VOC determination, then an analyzer response factor must be determined for pentane. This response factor shall be used to compare the VOC content of both the raw and finished material and the VOC content entering the thermal oxidizer on an equal basis (as pentane) for proper calculation of the VOC capture efficiency.
- d) The total enclosure demonstration shall be conducted in accordance with EPA Test Method 204.
- e) Testing to determine the VOC content in cut sheets shall be conducted in accordance with either SCAQMD Method 306-91 or BAAQMD Method 45. Alternatively, the Permittee may test cut sheets in an enclosed test chamber using EPA Test Method 25 or 25A.
- f) NO_x testing shall be conducted in accordance with EPA Test Method 7E. CO testing shall be conducted in accordance with EPA Test Method 10.

[County Rule 358 §503]

- D. 1) Thermal Oxidizer: The Permittee shall test the destruction efficiency for each operating scenario (combination of pre-expansion, drying, aging and molding processes) that occurs during normal operation. If aging occurs alone during normal operation, this scenario must also be tested. Performance tests shall be conducted while operating under representative bead pre-expansion, drying, aging and molding conditions and shall result in the manufacture of a saleable product. The facility shall test using either the highest VOC content of bead that will be used by the facility or another commonly used bead type selected by the Department.

[County Rule 358 §503]

Note: The permit engineer can specify all operating scenarios for which testing is expected to occur.

- E. 1) Thermal Oxidizer: The Permittee shall record the VOC content of the EPS beads processed, bead usage rates for each process, aging time of beads and actual operating times of each process during the performance test. The Permittee shall record the pressure differential across the bead aging bag farm, the oxidizer combustion chamber temperature and combustion chamber set-point temperature during the performance test.

Note: The permit engineer should ensure that the minimum combustion chamber temperature is specified elsewhere in these permit conditions. The permit needs to address maintaining the setpoint temperature used during testing and any potential

permit modifications resulting from testing at a higher or lower combustion chamber temperature.

Note: If the control equipment is a catalytic oxidizer, paragraph E.1) should be replaced with the following: The Permittee shall record the catalyst bed inlet temperature and temperature difference across the catalyst bed during the performance test.

- I. 1) Testing shall encompass one complete operating cycle that is representative of daily operations. At the completion of the test, the aging bags shall have the same mass of beads as at the beginning of the test (i.e. empty-to-empty or full-to-full). Normal aging times shall apply during testing. If the prepuff is normally aged overnight, then testing shall also occur overnight.

**Specific Testing Requirements for
COMBINED CYCLE SYSTEMS (RENEWAL)
AT A POWER GENERATING FACILITY**
PM₁₀, VOC, Ammonia, Formaldehyde and Hexane Emission Rates

- A. 1) Combined Cycle Systems: The Permittee shall measure emission concentrations and emission rates (as applicable) to determine compliance with the emission limits of these permit conditions by conducting performance tests as specified in the table below.

[County Rule 200 §309][County Rule 210 §302.1c(2) and (3)][40 CFR 60.8]

Note for TSD: Refer to the Monitoring/Recordkeeping Requirements permit conditions for NO_x and CO Continuous Emissions Monitoring for RATA requirements which apply to NO_x and CO CEMS.

Note for TSD: 40 CFR Subpart Da Performance Testing for Duct Burners: The Permittee satisfied the initial testing requirements of 40 CFR 60, Subparts A and Da following issuance of the previous permit. If the Control Officer requires additional testing under 40 CFR 60, Subparts A and Da, the applicable procedures described in §60.50Da shall be followed.

[40 CFR §60.50Da]

Note for TSD: 40 CFR Subpart GG Performance Testing for Combustion Turbines: The Permittee satisfied the initial test requirements of 40 CFR 60 Subparts A and GG following issuance of the previous permit. If the Control Officer requires additional testing under 40 CFR 60, Subparts A and GG, the applicable procedures described in §60.335(a) and (b) with the alternatives provided in §60.335(c) shall be followed.

[40 CFR §60.335]

Stack Performance Test Requirements

Pollutant	Test Method	Testing Frequency
NO _x	RATA testing in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F	RATA testing in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F
CO	RATA testing in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F	RATA testing in accordance with 40 CFR Part 75, Appendix B and 40 CFR Part 60, Appendix F
PM ₁₀	EPA Test Methods 201A ¹ and 202	Annually, between 11 and 13 months from the date of the last PM ₁₀ test.
VOC	EPA Test Methods 25A and 18	Annually, between 11 and 13 months from the date of the last VOC test.
Ammonia	EPA Conditional Test Method CTM-027 or Bay Area Air Quality Management	Within 12 months of the permit issuance date at the same time as the annual PM ₁₀ test. Subsequent tests

	District Source Test Procedure ST-1B	shall be performed every three years (within 34 to 38 months of the previous test). In addition, an ammonia test shall occur within 90 days following complete SCR system catalyst replacement.
Formaldehyde	EPA Conditional Test Method CTM-037	Within 12 months of the permit issuance date at the same time as the annual PM ₁₀ test.
Hexane	Compendium Test Method TO-15	Within 12 months of the permit issuance date at the same time as the annual PM ₁₀ test.

¹ For PM10 testing, EPA Test Method 5 may be substituted for EPA Test Method 201A if the Permittee agrees to assume that all particulates are PM10.

[County Rule 200 §309][County Rule 210 §302.1c(2) and (3)]
 [County Rule 210 §302][County Rule 270] [40 CFR §60.8]
 [40 CFR §60.50Da; 60.50Da(f)][40 CFR §60.335(a) and (b)]
 [40 CFR Part 60, Appendix F]

Note: The permit engineer shall remove the ammonia testing requirement if the combined cycle systems do not include SCR.

Note: The permit engineer shall remove the formaldehyde and hexane testing requirements if the facility has previously undergone performance testing for formaldehyde and hexane.

- D. 1) Combined Cycle Systems: The Permittee shall conduct the performance tests on each combined cycle system when operating either at full load available on the day of testing or at an alternative load level established and approved as part of the test protocol. Full load available on the day of testing includes operation of the combined cycle system with duct burners operating and any other means of increasing generator output (evaporative coolers, chillers, power augmentation, etc.) unless atmospheric conditions preclude their use. RATA tests shall be conducted at one of the two most frequently used load levels as determined under 40 CFR Part 75, Appendix A, section 6.5.2.1(d).
 [County Rule 210 §302][County Rule 270][40 CFR Part 75, Appendix A]

Note: The duct burner reference should be omitted if the combined cycle systems are not equipped with duct burners.

- E. 1) Combined Cycle Systems:
 a) The Permittee shall record the combustion turbine generator output, HRSG steam production rates, steam turbine generator output, NO_x concentration, CO concentration, SCR inlet NO_x concentration, combustion turbine fuel

flow rate, duct burner fuel flow rate, SCR inlet temperature and ammonia injection rate during the performance test.

[County Rule 210 §302][County Rule 270]

- b) The Permittee shall record and report with the final test report the CO emission data collected by the CO CEMS during the VOC performance test.
[County Rule 210 §302.1][County Rule 270 §403][40 CFR §60.8(c)]
[40 CFR §64.4(c)]

Note: The reference to duct burner fuel flow rate, SCR inlet temperature and ammonia injection rate should be omitted if these operating parameters are not applicable.

I. 1) Combined Cycle Systems:

- a) The sampling time and sample volume for each PM₁₀ test run shall be at least 120 minutes and 1.70 dscm (60 dscf).
[40 CFR §60.48a(b)]
- b) If compliance with the ammonia limit included in these permit conditions is not demonstrated using the results of three one-hour minimum test runs, the performance test shall be repeated with each of the three test runs being at least eight hours in duration.
[County Rule 200 §309]

- J. 1) Combined Cycle Systems: The test reports associated with the required formaldehyde and hexane stack tests shall include an analysis of the facility's major source status with regard to total HAP emissions. In conducting the analysis, the Permittee shall use the results of the performance tests to compute annual emission rates for formaldehyde and hexane. In order to estimate annual emission rates of the remaining HAPs, the Permittee shall use either EPA-approved emission calculation methods or the calculation methods included in the most recently submitted Title V permit application. Should the analysis indicate that the facility is a major source for total HAP emissions (i.e., above 25 tons of total HAPs per year), the Permittee shall conduct testing on additional HAPs in order to verify the major source status.

[County Rule 200 §309]

**Specific Testing Requirements for
BAGHOUSES**

Option 1: PM Emission Rate and/or Grain Loading and Opacity

Note: Additional citations shall be inserted for the specific rules and regulations that are applicable to the source.

- A. 1) Baghouse:
- a) The Permittee shall measure the PM concentration in the baghouse exhaust stream to demonstrate compliance with all applicable grain loading and/or emission rate requirements of these permit conditions.
 - b) A visible emissions evaluation shall demonstrate compliance with the opacity requirement.
 - c) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).
[County Rule 200 §309][Arizona Testing Manual for Air Pollutant Emissions]

Note: Each point source that is major for PM after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

- 1. *The emission rate*
- 2. *The presence of HAPs in the PM*
- 3. *The nature and location of the facility*

- C. 1) Baghouse:
- a) PM testing shall be conducted in accordance with EPA Test Method 5.
 - b) The visible emissions evaluation shall be conducted in accordance with EPA Test Method 9.
- E. 1) Baghouse: The Permittee shall record the baghouse pressure drop during the performance test.

**Specific Testing Requirements for
BAGHOUSES**

Option 2: PM Removal Efficiency, PM Emission Rate and Opacity

Note: Additional citations shall be inserted for the specific rules and regulations that are applicable to the source.

- A. 1) Baghouse:
- a) The Permittee shall measure the PM concentrations in the baghouse inlet and exhaust streams to demonstrate compliance with the minimum PM removal efficiency requirement and compliance with all applicable PM grain loading and/or emission limits of these permit conditions
 - b) A visible emissions evaluation shall demonstrate compliance with the opacity requirement.
 - c) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).
[County Rule 200 §309][Arizona Testing Manual for Air Pollutant Emissions]

Note: Each point source that is major for PM after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

- 1. *The emission rate*
- 2. *The presence of HAPs in the PM*
- 3. *The nature and location of the facility*

- C. 1) Baghouse:
- a) PM testing shall be conducted in accordance with EPA Test Method 5.
 - b) The visible emissions evaluation shall be conducted in accordance with EPA Test Method 9.
- E. 1) Baghouse: The Permittee shall record the baghouse pressure drop during the performance test.

**Specific Testing Requirements for
BAGHOUSES
AT A WOODWORKING FACILITY**
Option 3: PM₁₀ Removal Efficiency or PM Emission Rate

- A. 1) Baghouse: The Permittee shall measure the PM₁₀ concentrations in the baghouse inlet and exhaust streams to demonstrate compliance with the minimum PM₁₀ removal efficiency requirement. Alternatively, the Permittee can measure the PM concentration in the exhaust stream of the baghouse to demonstrate compliance with all applicable grain loading and/or emission limits of these permit conditions.

Note: An initial test is required for each baghouse; however, further testing is not required upon permit renewal.

- C. 1) Baghouse: PM₁₀ testing shall be conducted in accordance with EPA Test Method 201A. PM testing shall be conducted in accordance with EPA Test Method 5.

Note: EPA Test Method 202 is not required for PM₁₀ testing as the presence of condensables is not anticipated.

- E. 1) Baghouse: The Permittee shall record the total weight of all process materials and baghouse pressure drop during the performance test.

**Specific Testing Requirements for
BAGHOUSES
AT A HOT MIX ASPHALT FACILITY**
Option 4: PM/PM₁₀/VOC/SO_x/NO_x/CO Emission Rates and Opacity

- A. 1) Baghouse:
- a) The Permittee shall measure the PM concentration in the baghouse exhaust stream to demonstrate compliance with all applicable grain loading and/or emission rate requirements of these permit conditions.
 - b) The Permittee shall measure the PM₁₀ concentration in the baghouse exhaust stream to demonstrate compliance with all applicable grain loading and/or emission rate requirements of these permit conditions.
 - c) The Permittee shall measure the concentrations of VOC in the baghouse exhaust stream. Testing shall demonstrate compliance with all applicable VOC emission limits of these permit conditions.
 - d) The Permittee shall measure the concentrations of SO_x in the baghouse exhaust stream. Testing shall demonstrate compliance with all applicable SO_x emission limits of these permit conditions.
 - e) The Permittee shall measure the concentrations of NO_x and CO in the baghouse exhaust stream. Testing shall demonstrate compliance with all applicable NO_x and CO concentrations and/or emission limits of these permit conditions.
 - f) A visible emissions evaluation shall demonstrate compliance with the opacity requirement.
 - g) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).
[County Rule 200 §309][Arizona Testing Manual for Air Pollutant Emissions]
[40 CFR §60.92(a)]

Note: Each point source that is major for PM after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

1. *The emission rate*
 2. *The presence of HAPs in the PM*
 3. *The nature and location of the facility*
- C. 1) Baghouse:
- a) PM testing shall be conducted in accordance with EPA Test Method 5.
 - b) PM₁₀ testing shall be conducted in accordance with EPA Test Methods 201A and 202. EPA Test Method 5 will be accepted in lieu of EPA Test Method 201A if the Permittee agrees to assume that all particulates are PM₁₀.

- c) VOC testing shall be conducted in accordance with EPA Test Method 25 or 25A. Testing to quantify exempt compounds, such as methane, shall be conducted in accordance with EPA Test Method 18.
- d) SO_x testing shall be conducted in accordance with EPA Test Method 6C.
- e) NO_x testing shall be conducted in accordance with EPA Test Method 7E. CO testing shall be conducted in accordance with EPA Test Method 10.
- f) The visible emissions evaluation shall be conducted in accordance with EPA Test Method 9.

[40 CFR §60.93(a)]

Note: If the asphalt plant manufactures asphalt containing RAP, then multiple testing scenarios shall be specified in paragraph D.1) as follows: The Permittee shall conduct two separate performance tests of the asphalt plant and baghouse under the following two operating scenarios: Representative operating conditions while manufacturing asphalt containing 100% virgin material and representative operating conditions while manufacturing asphalt containing RAP. The asphalt material composition shall include the maximum percentage of RAP desired to be utilized at the facility.

Note: If the asphalt plant manufactures rubberized asphalt, then multiple testing scenarios shall be specified in paragraph D.1) as follows: The Permittee shall conduct two separate performance tests of the asphalt plant and baghouse under the following two operating scenarios: Representative operating conditions while manufacturing asphalt containing 100% virgin material and representative operating conditions while manufacturing rubberized asphalt.

- E. 1) Baghouse: The Permittee shall record the asphalt material composition, production rate, temperature and baghouse pressure drop during the performance test.

**Specific Testing Requirements for
PACKED-BED SCRUBBERS**
Option 1: Acid Removal Efficiency and Acid Emission Rate

Note: Additional citations shall be inserted for the specific rules and regulations that are applicable to the source.

A. 1) Scrubber:

- a) The Permittee shall measure the ___ concentrations in the scrubber inlet and exhaust streams to demonstrate the minimum ___ removal efficiency requirement and compliance with all applicable ___ concentrations and/or emission limits of these permit conditions.
- b) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).
[County Rule 200 §309][Arizona Testing Manual for Air Pollutant Emissions]

Note: The permit engineer should insert the appropriate acid (HCl, HF, etc.) and removal efficiency in paragraph A.1)a) above.

Note: Each point source that is major for the specified acid after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

1. *The emission rate*
2. *Whether the specified acid is a HAP*
3. *The nature and location of the facility*

C. 1) Scrubber:

- a) ___ testing shall be conducted in accordance with EPA Test Method 26 or 26A.

Note: The permit engineer should insert the appropriate acid (HCl, HF, etc.) in paragraph C.1)a) above.

- E. 1) Scrubber: The Permittee shall record the scrubber pressure drop, scrubber liquid recirculation rate, makeup water flowrate, and, if available, scrubber liquid pH level during the performance test.

**Specific Testing Requirements for
PACKED-BED SCRUBBERS
(ALONE OR IN CONJUNCTION WITH COMPOSITE MESH-PAD SYSTEMS)
Option 2: Chromium Concentration**

A. 1) Scrubber:

- a) The Permittee shall measure the concentration of total chromium in the scrubber exhaust stream to demonstrate compliance with all applicable concentrations and/or emission limits of these permit conditions.
- b) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).

[County Rule 200 §309][Arizona Testing Manual for Air Pollutant Emissions]
[County Rule 370 §302.12][40 CFR §63.342(c)]

Note: If the scrubber is controlling emissions from mixed sources, the Permittee shall calculate the allowable mass emission rate according to 40 CFR 63.344(e) and specified in paragraph A.1)a) as follows: If the scrubber is also controlling emissions from sources performing different types of chromium operations or sources not subject to 40 CFR 63 Subpart N, the Permittee shall follow the special compliance provisions provided in 40 CFR 63.344(e).

[County Rule 370 §302.12][40 CFR §63.344(e)]

Note: Each point source that is major for total chromium after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

1. *The emission rate*
2. *The nature and location of the facility*

C. 1) Scrubber:

- a) Total chromium concentration testing shall be conducted in accordance with EPA Test Method 306 or 306A.

[County Rule 370 §302.12][40 CFR §63.344(c)]

- E. 1) Scrubber: The Permittee shall establish site-specific operating parameters during testing following the procedures in 40 CFR 63.344(d). The site-specific operating parameters for a scrubber are the pressure drop across the system and the velocity pressure at the scrubber inlet.

[County Rule 370 §302.12][40 CFR §63.343(c)]

Note: The permit should contain the following language elsewhere in the permit, "Following the performance test, the average pressure drop and inlet velocity pressure measured over the three test runs becomes the compliant value and the compliant range is ± 1 inch of water column from the pressure drop value and ± 10 percent from the velocity pressure value as the compliant range."

G. 1) Scrubber: The Permittee shall notify the Department in writing at least 60 calendar days in advance of the actual date of the performance test so that the Department may have a representative attend.
[County Rule 370 §302.12][40 CFR §63.347(d)]

I. 1) Scrubber: The sampling time and sample volume shall be at least 120 minutes and 60 dscf, respectively.
[County Rule 370 §302.12][40 CFR §63.344(c)]

Note: If the scrubber is controlling emissions from mixed sources, the Permittee shall calculate the test run duration according to 40 CFR 63.344(e) and specified in paragraph I.1) as follows: If the scrubber is also controlling emissions from sources performing different types of chromium operations or sources not subject to 40 CFR 63 Subpart N, the Permittee shall follow the special compliance provisions provided in 40 CFR 63.344(e).

[County Rule 370 §302.12][40 CFR §63.344(e)]

J. 1) Scrubber: The permittee shall complete and submit the test report to the Department no later than 90 days following the completion of the performance test.
[County Rule 370 §302.12][40 CFR §63.347(f)]

**Specific Testing Requirements for
ENCLOSED FLARES
AT A LANDFILL FACILITY**
NMOC Destruction Efficiency and VOC/NO_x/CO Emission Rates

A. 1) Enclosed Flare:

- a) The Permittee shall measure the VOC concentrations in the flare inlet and exhaust streams to demonstrate compliance with either the minimum VOC destruction efficiency requirement or the maximum outlet NMOC concentration. Testing shall also demonstrate compliance with all applicable VOC emission limits of these permit conditions.
- b) The Permittee shall measure the concentrations of NO_x and CO in the flare exhaust stream. Testing shall demonstrate compliance with all applicable NO_x and CO concentrations and/or emission limits of these permit conditions.
- c) The Permittee shall determine the volumetric flow rate and dry molecular weight of the gas streams in order to perform the necessary calculations.
- d) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).

[County Rule 200 §309][County Rule 321 §301][County Rule 360 §301.74]
[Arizona Testing Manual for Air Pollutant Emissions][40 CFR §60.752(b)]

Note: The permit engineer should ensure that both options, the minimum VOC destruction efficiency requirement of 98% and the maximum outlet NMOC concentration of 20 ppm_{vd} as hexane at 3% O₂, appear elsewhere in the permit conditions.

Note: If the destruction efficiency is tied to a minimum combustion temperature, paragraph A.1)a) should be replaced with the following: The Permittee shall measure the VOC concentrations in the flare inlet and exhaust streams to demonstrate compliance with either the minimum VOC destruction efficiency requirement at the minimum allowable combustion temperature or the maximum outlet NMOC concentration. Testing shall also demonstrate compliance with all applicable VOC emission limits of these permit conditions.

Note: Each point source that is major for VOCs after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

1. *The emission rate*
2. *The nature and location of the facility*

C. 1) Enclosed Flare:

- a) VOC testing shall be conducted in accordance with EPA Test Method 25, 25C or 18. In cases where the outlet concentration is less than 50 ppm as carbon

(8 ppm as hexane), EPA Test Method 25A should be used in place of EPA Test Method 25. If using EPA Test Method 18, the minimum list of compounds to be tested shall be those published in the most recent Compilation of Air Pollutant Emission Factors (AP-42).

- b) NO_x testing shall be conducted in accordance with EPA Test Method 7E. CO testing shall be conducted in accordance with EPA Test Method 10.
- c) EPA Test Method 3 or 3A shall be used to determine the O₂ content for correcting the NMOC concentration as hexane to 3 percent O₂. EPA Test Method 19 shall be used to determine the exhaust stream flowrate.

[County Rule 321 §301][County Rule 360 §301.74][40 CFR §60.754(d)]

Note: If the flare is equipped with condensate injection, then two testing scenarios shall be specified in paragraph D.1) as follows: The Permittee shall conduct two separate performance tests of the flare under the following two operating scenarios: Representative operating conditions with condensate injection and representative operating conditions without condensate injection.

- E. 1) Enclosed Flare: The Permittee shall record the combustion chamber temperature and landfill gas flow rate during the performance test.

[County Rule 321 §301][County Rule 360 §301.74][40 CFR §60.756(b)]

Note: If the flare is equipped with condensate injection, then the condensate injection rate shall be added to the operational parameters specified in paragraph E.1).

**Specific Testing Requirements for
VAPOR PROCESSING SYSTEMS
AT A BULK GASOLINE TERMINAL**
VOC Destruction/Removal Efficiency and VOC Emission Rate

- A. 1) Vapor Processing System:
- a) The Permittee shall measure the VOC concentrations in the vapor processing system inlet and exhaust streams to demonstrate compliance with the minimum VOC removal efficiency requirement and all applicable VOC concentrations and/or emission limits of these permit conditions.
 - b) The Permittee shall determine the volumetric flow rate of the gas streams in order to perform the necessary calculations.
 - c) Immediately prior to testing, the Permittee shall monitor for vapor leakage at all potential sources in the terminal's vapor collection system equipment while a gasoline tank truck is being loaded. The Permittee shall repair all leaks with readings that exceed the maximum allowable leakage concentration before conducting the performance test.
 - d) The vapor collection system backpressure at every loading position shall be tested at least once during the performance test. The highest instantaneous backpressure that occurs during each loading shall be recorded. Loading shall be accomplished in a manner that prevents the backpressure from exceeding the maximum allowable backpressure.
 - e) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).

[County Rule 350 §308] [County Rule 351 §302 and 401]
[Arizona Testing Manual for Air Pollutant Emissions][40 CFR §60.503(b) and (d)]

Note: The permit engineer should ensure that the minimum VOC destruction efficiency requirement of 95%, the maximum allowable leakage concentration of 10,000 ppm as methane and the maximum allowable backpressure of 18 inches of water appear elsewhere in the permit conditions.

Note: If the facility is equipped with a combustion vapor processing system, the following requirements shall be inserted between paragraphs A.1d) and e): The Permittee shall measure the concentrations of NO_x and CO in the vapor processing system exhaust stream. Testing shall demonstrate compliance with all applicable NO_x and CO concentrations and/or emission limits of these permit conditions.

Note: Each point source that is major for VOCs after control shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

1. *The emission rate*
2. *The nature and location of the facility*

Regardless of size, testing for vapor leaks as specified in paragraph A.1)c) shall be conducted on an annual basis.

- C. 1) Vapor Processing System:
- a) VOC testing shall be conducted in accordance with EPA Test Method 25A or 25B. The calibration gas shall be either propane or butane.
 - b) Flow rate measurements for inlet streams shall be conducted in accordance with EPA Test Method 2A. Flow rate measurements for exhaust streams of non combustion vapor processing systems shall be conducted in accordance with EPA Test Method 2A. Flow rate measurements for exhaust streams of combustion vapor processing systems shall be conducted in accordance with EPA Test Method 2B.
 - c) Testing for vapor leaks shall be conducted in accordance with EPA Test Method 21.
 - d) Testing for the vapor collection system backpressure shall be conducted in accordance with the procedures specified in 40 CFR §60.503(d).
[40 CFR §60.503(b) and (c)]

Note: If the facility is equipped with a combustion vapor processing system, paragraph C.1)e) shall be added as follows: NO_x testing shall be conducted in accordance with EPA Test Method 7E. CO testing shall be conducted in accordance with EPA Test Method 10.

- E. 1) Vapor Processing System: The Permittee shall furnish the vapor leakage results with any subsequent repairs, terminal records from gasoline dispensing meters for each loading rack, and maximum backpressure readings taken during the performance test. The Permittee shall record the _____ during the performance test.

Note: The permit engineer should insert the appropriate operating parameter in the paragraph above. If the facility is equipped with a combustion vapor processing system, the operating parameter will be combustion chamber temperature. If the facility is equipped with a carbon adsorber, the operating parameters will be the adsorber vacuum pressures and bed temperatures.

- I. 1) The three-run requirement of 40 CFR 60.8 does not apply to this type of facility. The performance test shall be six hours in duration during which at least 300,000 liters of gasoline shall be loaded. If the vapor processing system is intermittent in operation, the performance test shall begin at a reference vapor holder level and shall end at the same reference point. The test shall include at least two startups and two shutdowns of the vapor processor. If this does not occur under automatically controlled operations, the system shall be manually controlled. The performance test shall be conducted in intervals of five minutes.

[40 CFR 60.503]

**Specific Testing Requirements for
BOILERS
*NO_x/CO Emission Rates***

Note: Additional citations shall be inserted for the specific rules and regulations that are applicable to the source.

A. 1) Boiler:

- a) Testing shall measure the concentrations of NO_x and CO in the boiler exhaust stream. Testing shall demonstrate compliance with all applicable NO_x and CO concentrations and/or emission rate requirements of these permit conditions. NO_x and CO test results shall be corrected to 3% O₂.
- b) Following the initial performance test for this permit, the Permittee shall conduct a performance test every year (within 11 to 13 months of the previous test).
[County Rule 200 §309][Arizona Testing Manual for Air Pollutant Emissions]

Note: Each point source that is major for NO_x or CO shall test according to the above schedule. For non-major point sources, the permit engineer shall determine whether initial testing shall be required and, if so, the testing frequency considering the following:

1. *The emission rate*
2. *The nature and location of the facility*

C. 1) Boiler:

- a) NO_x testing shall be conducted in accordance with EPA Test Method 7E. CO testing shall be conducted in accordance with EPA Test Method 10.

E. 1) Boiler: The Permittee shall record the steam temperature, steam pressure and percent fire during the performance test.

EXAMPLE

THERMAL OXIDIZER – Option 1: *VOC Destruction Efficiency and VOC/NO_x/CO Emission Rates*

PACKED-BED SCRUBBER – Option 1: *Acid Removal Efficiency and Acid Emission Rate*

- A. Testing Requirements: The Permittee shall conduct performance tests on the following equipment within 60 days after the permit issuance date or within 60 days after the new applicable equipment has achieved the capability to operate at its maximum production rate on a sustained basis, whichever occurs last. The testing deadline may be extended by the Control Officer for good cause, but in no case shall the testing deadline, including test report submittal, extend beyond 180 days after the permit issuance date or 180 days after the new applicable equipment has achieved the capability to operate at its maximum capacity, whichever occurs last.

[County Rule 270 §401][SIP Rule 27 §A][40 CFR §60.8(a)]

1) Thermal Oxidizer:

- a) The Permittee shall measure the VOC concentration in the thermal oxidizer inlet and exhaust streams to demonstrate a minimum VOC destruction efficiency of 95% by weight at a minimum combustion chamber temperature of 1600°F. Testing shall be designed to exclude the exempt compound acetone to ensure that the reported results are representative of the true destruction efficiency for regulated VOCs. Testing shall also demonstrate compliance with all applicable VOC emission limits of these Permit Conditions. Facility-wide VOC emissions are limited to 5.0 ton/mo and 60.0 ton/yr.
- b) The Permittee shall measure the concentrations of NO_x and CO in the thermal oxidizer exhaust stream. Testing shall demonstrate compliance with all applicable NO_x and CO concentrations and/or emission limits of these Permit Conditions. Facility-wide NO_x emissions are limited to 2.0 ton/mo and 24.0 ton/yr. Facility-wide CO emissions are limited to 4.0 ton/mo and 48.0 ton/yr.
- c) Following the initial performance test for this permit, the Permittee shall conduct a performance test every 24 to 30 months from the initial test date.

2) Scrubber SC-3:

- a) The Permittee shall measure the HCl concentrations in the scrubber inlet and exhaust streams to demonstrate a minimum HCl removal efficiency of 95% by weight. Testing shall also demonstrate compliance with all applicable HCl concentrations and/or emission limits of these permit conditions. Facility-wide HCl emissions are limited to 1.0 ton/mo and 12.0 ton/yr.

- B. Testing Criteria: Performance tests shall be conducted and data reduced in accordance with the test methods and procedures specified in the Test Methods section of this permit condition unless otherwise specified by the Control Officer

and/or Administrator. The Control Officer and/or Administrator may specify or approve minor changes in methodology to a reference method, approve the use of an equivalent test method, approve the use of an alternative method that has been determined to be acceptable for demonstrating compliance, or waive the requirement for performance tests because the Permittee has demonstrated by other means that the source is in compliance with the standard. For NSPS facilities, only EPA has the authority to waive initial testing requirements.

[County Rule 270 §402][SIP Rule 27 §B][40 CFR §60.8(b)]

- C. Test Methods: Sampling sites and velocity traverse points shall be selected in accordance with EPA Test Method 1 or 1A. The gas volumetric flow rate shall be measured in accordance with EPA Test Method 2, 2A, 2C, 2D, 2F, 2G or 19. The dry molecular weight shall be determined in accordance with EPA Test Method 3, 3A or 3B. The stack gas moisture shall be determined in accordance with EPA Test Method 4. These methods must be performed, as applicable, during each test run.

[County Rule 270 §301.1][SIP Rule 27 §B]

1) Thermal Oxidizer:

- a) VOC testing shall be conducted in accordance with EPA Test Method 25 or 25A. Testing to quantify exempt compounds, such as methane, shall be conducted in accordance with EPA Test Method 18.
- b) NO_x testing shall be conducted in accordance with EPA Test Method 7E. CO testing shall be conducted in accordance with EPA Test Method 10.

2) Scrubber SC-3:

- a) HCl testing shall be conducted in accordance with EPA Test Method 26 or 26A.

- D. Operating Conditions: Performance tests shall be conducted under representative operating conditions and all equipment shall be operated during testing in accordance with the most recently approved O&M Plan or according to its operations manual if no O&M Plan is required. The Permittee shall make available to the Control Officer any records necessary to determine appropriate conditions for performance tests. Operations during periods of startup, shutdown, and equipment malfunction shall not constitute representative conditions for performance tests unless otherwise specified in the applicable standard or permit conditions.

[County Rule 270 §403][SIP Rule 27 §B][40 CFR §60.8(c)]

- E. Monitoring Requirements: The Permittee shall record all process and control equipment information that are necessary to document operating conditions during the test and explain why the conditions represent normal operation. Operational parameters shall be monitored and recorded at least once every 30 minutes during each of the required test runs and documented in the test report. The operational parameters monitored shall be capable of indicating that the equipment is operating within the permitted limits, both during and after the performance tests.

[County Rule 270 §301.1][SIP Rule 27 §B]

- 1) Thermal Oxidizer: The Permittee shall record the combustion chamber temperature and combustion chamber set-point temperature during the performance test.
 - 2) Scrubber SC-3: The Permittee shall record the scrubber pressure drop, scrubber liquid recirculation rate, makeup water flowrate, and, if available, scrubber liquid pH level during the performance test.
- F. Test Protocol Submittal: The Permittee shall submit a separate test protocol for each performance test to the Department for review and approval at least 30 days prior to each performance test. The test protocol shall be prepared in accordance with the most recent version of the Department’s “Air Quality Performance Test Guidelines for Compliance Determination in Maricopa County.” A completed copy of the Department’s “Test Protocol Submittal Form” shall accompany each test protocol.
[County Rule 270 §301.1][SIP Rule 27 §B]
- G. Notice of Testing: The Permittee shall notify the Department in writing at least two weeks in advance of the actual date and time of each performance test so that the Department may have a representative attend.
[County Rule 270 §404][40 CFR §60.8(d)]
- H. Testing Facilities Required: The Permittee shall install any and all sample ports or platforms necessary to conduct the performance tests, provide safe access to any platforms and provide the necessary utilities for testing equipment.
[County Rule 270 §405][SIP Rule 42][40 CFR §60.8(e)]
- I. Minimum Testing Requirements: Each performance test shall consist of three separate test runs with each test run being at least one hour in duration unless otherwise specified in the applicable standard or in this permit. The same test methods shall be used simultaneously for both the inlet and outlet measurements, if applicable, or justification for any necessary exceptions shall be provided in the test protocol. Emissions rates, concentrations, grain loadings, and/or efficiencies shall be determined as the arithmetic average of the values determined for each individual test run. Performance tests may only be stopped for good cause, which includes forced shutdown, failure of an irreplaceable portion of the sample train, extreme meteorological conditions, or other circumstances beyond the Permittee’s control. Termination of a performance test without good cause after the first test run has commenced shall constitute a failure of the performance test.
[County Rule 270 §406][40 CFR §60.8(f)]
- 1) Thermal Oxidizer: There are no additional specific testing requirements for this equipment.
 - 2) Scrubber: The sampling time and sample volume shall be at least 120 minutes and 60 dscf, respectively.

- J. Test Report Submittal: The Permittee shall complete and submit a separate test report for each performance test to the Department within 30 days after the completion of testing. The test report shall be prepared in accordance with the most recent version of the Department's "Air Quality Performance Test Guidelines for Compliance Determination in Maricopa County." A completed copy of the Department's Test Report Submittal Form shall accompany each test report.
[County Rule 270 §301.1][SIP Rule 27 §B]
- K. Compliance with Emission Limits: Compliance with allowable emission limits and standards shall be determined by the performance tests specified in this permit. If test results do not demonstrate compliance with the requirements of these permit conditions, the Permittee shall make the necessary repairs and/or adjustments to the equipment and demonstrate compliance through retesting. This will not nullify the fact that test results did not demonstrate compliance with the requirements of the permit conditions or nullify any violations that may result from this noncompliance. In addition to compliance demonstrations, test results shall be used for annual emissions inventory purposes if the Permittee is required to complete an emissions inventory survey.
[County Rule 270 §407]
- L. Correspondence: All test extension requests, test protocols, test date notifications, and test reports required by this permit shall be submitted to the Department and addressed to the attention of the Performance Test Evaluation Supervisor.
[County Rule 270 §301.1][SIP Rule 27 §B]
- M. Authority: The above testing requirements represent the minimum level of testing to monitor for compliance with the emission limits in this permit. Nothing in this section shall prevent the Control Officer from requiring additional performance testing as deemed necessary to ensure permit compliance and protection of the public health and welfare.
[County Rule 200 §309][County Rule 270 §402.5]