

Welcome May 2015 Program Briefing

Maricopa County Performance Test Program

May 20, 2015



Maricopa County
Air Quality Department



WALK MORE USE CFLS MORE CARPOOL MORE
BIKE MORE RAKE MORE TELECOMMUTE
MORE DRIVE HYBRIDS MORE CONSOLIDATE
ERRANDS MORE RIDE PUBLIC TRANSPORTATION
MORE USE ENERGY EFFICIENT APPLIANCES
MORE CARRY REUSABLE TOTE BAGS MORE
CONSIDER SOLAR MORE RUN COLD WATER
CYCLES MORE USE REUSABLE CONTAINERS
MORE CONSERVE ELECTRICITY MORE REDUCE
WOODBURNING MORE RECYCLE MORE USE
ELECTRIC LAWN AND GARDEN EQUIPMENT
MORE REFUEL AFTER DARK MORE RIDE
THE BUS MORE RIDE THE LIGHT RAIL MORE
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Disclaimer

This presentation is for Maricopa County requirements

- Your business or operation may be subject to other Agencies



Performance Testing Overview

Maricopa County Air Quality
Department



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Agenda

- Performance Test Section
 - Staff
- Performance Test
 - What is it
 - Why required
 - Deadlines
- Performance Test Process
 - Protocol
 - Test
 - Report

- Permit Engineering Division
 - Performance Testing
 - Title V Permitting
 - Non-Title V Permitting
- Performance Test Section Staff:
 - Supervisor – Scott Treece
 - Air Quality Engineer – Quyen Nguyen
 - Engineering Associate – David Kim
 - Engineering Associate – Emily Lem
 - Engineering Associate – Marcos Cartagena

What is a performance test?

- Physical measurement of emissions from a control device or a process
 - Examples: crematory, boiler, hot mix asphalt plant, kilns, powerplants
- Common names: stack test, source test, emissions test, compliance test



Purpose of a performance test

- Determine compliance with emission limits and/or standards
- Verify effectiveness of control devices
- Develop emission factors for "new" processes
- To obtain more accurate or updated emission factors

How do you know if a performance test is required?

- Air Quality Permit
 - “Performance Testing” Section
 - “Testing Requirement” Section
- Maricopa County Rules
 - Example Rules 270 and 358
- EPA’s Code of Federal Regulations (CFRs)
 - Example 40 CFR Part 60, Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

When is the deadline for a performance test?

- Standard: within 60/90 days after the source has reached the capability to operate at its maximum production rate
 - “Normal operation” not design capacity
- Some permits have a set date for when the performance test must be completed
- Failure to test within the set timeline may result in a Notice of Violation
- Extension: allows up to 180 days after initial start-up
 - A written request must be submitted to department

How often are performance tests required?

- Annual Testing
 - Title V
 - Synthetic Minors
 - BACT
- Once every 5 years
 - Most NTV
- Other
 - Some sources have a mix of annual and 5 year testing
 - Some pollutants have different frequency



A performance test is required, what next?

- Find stack testing company
 - Source Evaluation Society
 - <http://www.sesnews.org/?q=Stack>
 - Contact more than one company for bids
 - Contact others in your industry for recommendations
- Once you select a stack testing company, they will go over your permit to see what kind of testing is required and prepare a test protocol on your behalf for submittal to MCAQD

Tasks of the Performance Test Section

- Test Protocol Reviews
- Performance Test Observations
- Test Report Reviews
- Intra-Departmental Support
 - Permitting Division
 - Compliance Division
 - Enforcement
 - Emission Inventory Division

Submitting a Test Protocol

- Submit at least 30 days prior to desired test date
- Electronic submittal (PDF) is preferred
- Must include: *Performance Test Protocol Submittal Form*
 - Signed by the facility rep and test company rep
 - http://www.maricopa.gov/qa/divisions/permit_engineering/PerformanceTestEvaluation.aspx
- Information to provide with protocol:
 - Process description
 - Control equipment information (manufacturer, model number, serial number, rated capacity, etc)
 - Test methods to be conducted and any requested deviations



What happens during test protocol review?

- Process and control device:
 - Verify the correct equipment is being scheduled for testing as required by permit
- Methods:
 - Verify valid test methods are being proposed
 - Evaluate all proposed deviations (case by case)
 - Confirm test sampling locations
- “Comments” section of the Test Protocol Review – very important
 - Where deviations approvals/disapprovals, test plan changes, and additional test requirements will be found

Test Day

- Process rate:
 - Plan on operating at or near maximum capacity
 - Have enough materials/orders/etc to operate as necessary to complete performance test
- No changes allowed
 - No changes to the process or control equipment can be made once testing starts
- Communication
 - It is key to communicate with your test company on start/stop times and any interruptions during test



Test Day Observations

- The test section tries to cover 100% of all the tests
- We are on site to ensure tests are conducted properly and to provide solutions/answers when problems arise
- Multiple engineers is possible
 - Multiple observers are sent out for: large sites with multiple units being tested, challenging facilities and test companies
- Usually on site for 2 good runs
 - Good runs are those that pass leak checks, calibrations checks, and experience little or no process problems
 - Good run does not necessarily mean “in compliance with limits”



How are stack emissions calculated?

- Stated simply:

$$\text{Pollution Emission Rate} = \text{Stack Pollutant Concentration} \times \text{Stack Flow Rate}$$

- Gases: Pollutant concentration is measured using analyzers
 - Particulate matter: Test train captures particulate matter on a filter
 - Stack flow rate is usually measured using a manometer and pitot tube
- Results are typically based on the average of three valid test runs.



Once Test is Done

- Test report is due 30 days after test completion
 - Title V sources have 45 days
- Must include with report:
 - *Performance Test Report Submittal Form*
 - *Signed by facility rep and test company rep*
 - All raw data logger data in digital format such as Excel
 - Laboratory reports, chain of custodies, calculations

Test Report Review

- Review of submitted report:
 - All the raw data from the test report(s) are entered into MCAQD spreadsheets to recalculate/verify all the values/emission factors are accurate
 - Notes taken during performance test will also be used to validate and evaluate data in final report
- Compliance determination letter will be issued to
 - The facility
 - Testing company
 - Emissions Inventory Division
- Any Notice of Violation will also be sent at this time if necessary



Test Results

- Confirm compliance with limits and standards
- Enforcement actions
- Calculate annual emissions
- Update emission factors
- Possible use with future permitting actions

Recap of 2014

- The Performance Test Section Observed
 - 77 Source Tests
 - 167 Units were tested
 - Types of Units Tested:

| | | |
|---------------------------|----------------|--------------|
| Engines | Boilers | SVEs |
| Flares | Scrubbers | CTGs |
| Baghouses\Dust Collectors | Cremation Unit | CAUs |
| Burn-off ovens | Kilns | TO\RTO\RCTOs |

- Permits:
 - 2,895 Sources w/ authority to operate under General Permits
 - 1,319 Sources w/ NTV Permits
 - 28 Synthetic Minors
 - ~20% have performance testing requirements
 - 31 Sources w/ Title V Permits

Performance Test Section Contacts

- Scott Treece – Performance Testing and Title V Permitting Supervisor: 602.372.1341
- Quyen Nguyen – Air Quality Engineer: 602.506.6904
- David Kim – Engineering Associate: 602.506.7086
- Emily Lem – Engineering Associate: 602.506.5297
- Marcos Cartagena – Engineering Associate: 602.506.6011

- Link to test section information:
 - http://www.maricopa.gov/aq/divisions/permit_engineering/PerformanceTestEvaluation.aspx

Any Questions?

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