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# Source Test Procedures



April 17, 2020, Updated August 22, 2022

## Purpose

To establish Monterey Bay Air Resources District (MBARD) approved source test procedures and guidance for the testing of criteria and toxic pollutants from stationary sources.

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## Description

MBARD's source test permit conditions require conducting tests in accordance with MBARD test procedures. This document presents the minimum, but required, administrative and technical procedures for source tests. This guidance should be referenced whenever source testing is to occur within the MBARD's jurisdiction.

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## General Guidance

In order to standardize testing, MBARD is providing the following general guidelines to aid sources and testing contractors when planning, performing, and reporting source test results.

- *Sampling Site:* All sampling should take place in accordance with U.S. Environmental Protection Agency (EPA) Method 1 or Method 1A requirements. Any new source should take this into consideration during construction. MBARD also reserves the right to order existing sources to modify stacks in an effort to meet sampling requirements, including the addition of stack extensions and/or providing the adequate number of ports.
  - *Standard Conditions:* Standard Temperature, 68° Fahrenheit. Standard Pressure, 29.92 inches Mercury.
  - *Test Methods:* MBARD prefers the use of EPA Test Methods. MBARD will accept California Air Resources Board (CARB) or other approved Test Methods in those cases where an equivalent EPA Method is not available/adequate. MBARD expects sources and testing contractors to strictly adhere to any proposed Test Method. Any deviations from proposed methods without prior MBARD approval may be grounds for invalidation of testing results.
  - *Testing Contractors:* All testing should be performed by companies that are enrolled in the California Air Resources Board Independent Contractor Program.
  - *Testing Frequency:* For those sources that are required to perform annual source tests to determine compliance with permit conditions, testing must occur on or before December 31<sup>ST</sup> of each calendar year. ***This guidance shall supersede permit conditions that state otherwise.*** The subsequent annual source test must not occur within 90 days of the previous annual source test. Sources subject to 40 CFR part 60 and/or 40 CFR part 75 must continue to meet testing frequency requirements described in each part.
  - *Timeline:* Submit Source Test Plan 30 days prior to testing. Notify MBARD within 10 days of test, it is acceptable to include the notification with the Test Plan. Perform all testing during daylight hours, unless prior approval is granted. Submit source test results to the MBARD within 60 days of completion of the source test. ***This guidance shall supersede permit conditions that state otherwise.***
  - *Test Run Length:* For test methods that are not dependent on detection limits, MBARD recommends test runs be a minimum of 60 minutes. For methods that are dependent on detection limits, test runs shall be adequate to meet detection limit and/or sample volume requirements.
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- **Adjustments:** Adjustments of any kind that may affect the outcome of a source test, and are not absolutely necessary to maintain safe operating conditions, are prohibited on the day of the test. Unnecessary adjustments will be considered a circumvention in violation of MBARD Rule 415.3.2.2. In the event of a test failure, please review the procedure below.
- **Failed Test:** If a source test fails, or is anticipated to fail following two failed runs, the Source can make adjustments to return the equipment into compliance, and testing may resume on the same day without having to reschedule for a later date. MBARD must be notified prior to making the adjustments. The initial test will be considered a failure and may be subject to enforcement action.
- **Strip Charts:** Whenever using analyzer methods, MBARD prefers the use of continuous Strip Chart Recorders, even when not stated in the Method. Strip charts should be clearly labeled with pollutant range, calibrations, traverse points, port changes, run times, and any other pertinent testing information.
- **Continuous Data Logger:** If a strip chart is not available, data must be *continuously* collected, including during calibrations and at times between runs. The data must be labeled with calibrations, traverse points, port changes, run times, and any other pertinent testing information.
- **Submitting Results:** All Source Test Plans and Source Test Reports should be submitted via email to [reports@mbard.org](mailto:reports@mbard.org).

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## Source Test Plan

Before conducting any source test within MBARD's jurisdiction, a Source Test Plan (STP) must be submitted no later than 30 days prior to testing. Any deviations from accepted Test Methods or Analytical Methods must be approved, in writing, by MBARD prior to testing and must be included in the STP. MBARD will review the STP and will notify the source of any amendments or modifications deemed necessary. Any deviations from the STP without prior authorization from MBARD may invalidate testing results. MBARD does not require a specific format for the STP, however, the appropriate information must be included

The STP shall include, at a minimum, the following:

- Name, address, email, and telephone number(s) for the facility contact of the source to be tested
- Name, address, email, and telephone number(s) for the testing firm personnel, including field and office staff
- Permit number(s) of the source(s) to be tested
- Proposed test dates, proposed test time
  - All source tests should be scheduled during daylight hours, Monday-Friday
- Brief description of the facility and of each source to be tested
- Sampling site description, including stack dimensions and equivalent diameter distances from upstream and downstream disturbances
- Scope of the project, including:
  - Purpose of the test: compliance, RATA, start up, etc.

- Pollutants/contaminants for which the tests are conducted
- Pollutants/contaminants permit and/or rule concentration and emission rate limits
- Test Methods proposed for each pollutant to be tested
  - Number and length of test runs per method
- Proposed deviations to Test Methods, if any
  - Any proposed deviations must be explicitly stated in the STP, and must include adequate justification for the proposed deviation, and must be approved, in writing, by MBARD.
- Process/operational conditions to be maintained during the testing
  - Operational and/or process production rates shall be designated by the permit or agreed to prior to the test
  - If not stipulated on the permit to operate, process rates shall be adequate to demonstrate the equipment is operating during conditions representative of normal operations
  - Instrumentation (process and control equipment) data shall be collected during the testing to verify production rates and ensure equipment is functioning according to permit parameters. This data must be collected at least **twice** per run
- Quality Assurance/Quality Control measures to be followed for each proposed test method

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### Source Test Observation

All source tests shall be scheduled to occur during daylight hours, Monday-Friday, so MBARD personnel may observe the tests. Should conditions arise where meeting this timeframe would compromise operational conditions or the safety of testing personnel, an alternate time should be presented to MBARD, prior to testing, preferably in the STP.

During the test, MBARD personnel shall be granted access to:

1. Real time data collected by testing contractors
2. Operational and/or process information from the source
3. Testing platforms and testing apparatus
4. Any other location MBARD personnel deem necessary to validate testing operations

Should MBARD find it necessary to observe the source test, a fee will be assessed in accordance with MBARD Rule 302.

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### Source Test Report

All Source Test Reports (STR) shall be submitted to MBARD within *60 days* of the completion of the source test. ***This guidance shall supersede permit conditions that state otherwise.*** The STR should be a detailed account of the source test and should include all aspects of the source test program, including any interruptions to process/operations, any deviations to test methods not previously approved by MBARD, all information which will validate testing results, and

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any failed runs or aspects of test methods. MBARD will review the STR and will notify the source of any amendments or modifications deemed necessary. MBARD will not accept source test reports with illegible documentation such as field data sheets or strip charts. MBARD does not require a specific format for the STR, however, the appropriate information must be included.

The Source Test Report shall include, at a minimum, the following:

- Name, address, email, and telephone number(s) for the facility contact of the source tested
- Name, address, email, and telephone number(s) for the testing firm personnel, including field and office staff
- Permit number(s) of the source(s) tested
- Date(s) of the test
- Statement which signifies the accuracy and authenticity of the report, with the signatures of a Responsible Official from the source and the testing company.
- Summary of the Test Program. This should include, at a minimum, the following:
  - Scope of the project, including the purpose of the test and the pollutants/contaminants for which the tests were conducted
  - Brief description of the facility and of each source tested
  - Personnel present during the test, including from the source, testing contractor, and MBARD
  - Test Methods and Analysis Methods
  - Approved deviations to source test methods
  - Any deviations from the source test plan
  - Any issues encountered during the test, including all those that could invalidate testing results
  - Process description including the operating parameters encountered during the test, and any disruptions/changes to the process or operation that could have affected results
- Results of the Test Program. This should include, at a minimum, the following:
  - Discussion of results, specifically addressing any failed test or individual test run
  - Results in Tabular Form
  - Each source tested should have a separate table
  - Each table should include:
    - Pollutant concentrations
    - Pollutant emission rates
    - Pollutant permit/rule concentration and emission rate limits
    - Stack gas flow rate
    - Process/Operational rate

- Sampling and Analytical Procedures. This should include, at a minimum, the following:
  - Sampling site description, including a diagram or photograph of stack dimensions, port location, and equivalent diameter distances from upstream and downstream disturbances
  - Description of sampling equipment
  - Summary of Test methods and Analysis methods used
  - Quality Assurance/Quality Control measures followed for each method
- Appendices. This should include, at a minimum, the following:
  - Sample Calculations for 1 complete test run
  - Method Specific Results for each test run, i.e.:
    - EPA 7E Run1 minute data with associated pre/post calibrations, stratification check calculation, and other supporting data, etc.
    - EPA Method 5 run results with isokinetic percent, gas velocity, moisture determination, etc.
  - Data Acquisition. This should include, at a minimum, the following:
    - Strip Chart clearly labeled with pollutant range, calibrations, traverse points, port changes, run times, and any other pertinent testing information
    - Continuous minute data, including during times of calibrations and between runs. This should be clearly labeled with pollutant range, calibrations, traverse points, port changes, run times, and any other pertinent testing information
  - Copies of original field data sheets
  - Copies of original process/operational data recordings
    - If available, source should provide printouts of continuous process data
  - Equipment and Gas Cylinder calibrations, including pre/post, if applicable
  - Laboratory Data. This should include, at a minimum, the following:
    - Full laboratory reports
    - All supporting/validation data
    - Pertinent pre/post calibrations of analytical equipment
    - Chain of Custody records
  - Certifications
    - California Air Resources Board Independent Contractor Program Certification
    - ASTM D7036 conformance certificate/letter, when applicable
    - QSTI certifications for testing personnel
    - Other “in house” Qualified Individual certifications for testing personnel
  - Permit(s) to Operate

***If MBARD finds the STR unsatisfactory, MBARD will notify the source and may require a re-test. A rejected source test report may result in a permit violation.*** A STR may be rejected for multiple reasons, including, but not limited to:

- Missing data
- Illegible data sheets
- Incorrect calculations
- Inadequate quality assurance/quality control procedures
- Unnecessary adjustments
- Deviations from test methods not previously approved, in writing, by MBARD.

## Test Method Guidance

MBARD has several rules (404, 419, 420, 427, 431) which require the use of EPA Test Methods found in 40 Code of Federal Regulations (CFR) Part 60, Appendix A, or their equivalent. MBARD prefers the use of EPA Methods whenever possible, but will accept other approved Test Methods when an equivalent EPA Method is not available/adequate. For instance, MBARD prefers Bay Area Air Quality Management District’s test method ST-1B for ammonia testing.

MBARD expects all source testing to strictly adhere to Test Method standards and requirements, unless otherwise approved, in writing, by MBARD. The chart below summarizes some method specific guidance in order to meet method standards and/or MBARD requirements.

Test Method	Guidance
EPA and CARB Method 1 (or Method 1A depending on duct and stack diameter )	<ul style="list-style-type: none"> <li>• Sampling ports must meet equivalent diameter distances</li> <li>• If ports do not meet equivalent diameter distances, and an appropriate location is not available, evidence must be provided indicating the site is acceptable</li> <li>• Difference in traverse point selection for circular and rectangular stacks</li> <li>• Stacks &lt;10’ diameter should have 2 ports</li> <li>• Stacks &gt;10’ diameter should have 4 ports</li> </ul>
EPA 3A,6C,7E, and 10	<ul style="list-style-type: none"> <li>• Reduced traverse point sampling is only allowed if a stratification check has been performed and meets method requirements</li> <li>• If using O<sub>2</sub> to determine stratification, the alternative limits as described in</li> </ul>

Test Method	Guidance
	<p>EPA 3A must be used</p> <ul style="list-style-type: none"> <li>• Stratification determination calculations should be included in the source test report</li> </ul>
CARB 100	<ul style="list-style-type: none"> <li>• To meet MBARD requirements, the NO<sub>2</sub> converter efficiency check calibration gas must be within 10-95% of calibrated analyzer range.</li> <li>• Reduced traverse point sampling is only allowed if a stratification check has been performed</li> <li>• If using O<sub>2</sub> to determine stratification, the alternative limits as described in EPA 3A must be used</li> <li>• Stratification determination calculations should be included in the source test report</li> </ul>
EPA Method 18	<ul style="list-style-type: none"> <li>• Samples should be integrated over the course of the run</li> </ul>
EPA Method 19	<ul style="list-style-type: none"> <li>• Source must provide evidence fuel meters utilized to derive stack gas flow rate data are calibrated</li> </ul>