



Test reports must follow the order shown below and must be broken out accordingly. All sections that apply must be provided. If a section is not applicable, put n/a. The test report must contain all the information required by the permit.

**A. Introduction** – Background information pertinent to the test is presented in this section, including but not limited to:

- Reasons for conducting test.(permit requirement, NSPS requirement, permit application, etc.)
- Concise statement of applicable regulations and permits, including permit numbers and issuance dates.
- Test date(s).
- Startup date and maximum production rate date for the source being tested.
- If the test is not done within 60 days after achieving the maximum production rate at which the source will operate or within 180 days after the initial startup of the source (if maximum production rate was not achieved), then explain why not.
- Brief description of plant process and pollutant points being sampled. Including stack diagram(s) with dimensions such as inside diameter, height, and port locations.
- Company name, contact person, mailing address, telephone number.
- Facility name and location.
- Name of testing organization, contact person, mailing address, telephone number.
- Name of each person present at the test and each person's affiliation.
- Unit description and permitted capacity(ies) (use derated horsepower for IC engines). Include unit make, model number, serial number, and location within plant. Identify each unit as it is identified in the permit and permit application.
- Control equipment description. Include make, model number, and serial number.

**B. Summary** – This section summarizes in tabular form the test results for each unit tested:

- For each run, show velocities (stack velocity in feet/second), flows (stack exhaust flow in actual cubic feet/minute and dry standard cubic feet/minute), concentrations, emission rates including the average of the emission rates from all runs, allowable emission limits, stack temperature and pressure, sampling times, pitot tube average results, etc. Include opacity reading if applicable. (A minimum of one visible emission reading per run is required every time a Method 5 test is done.) Also show the results of cyclonic flow determination.
- Unit operating parameters at time of test:
  - For engines include: actual horsepower (at test time), engine speed (rpm), ignition timing, intake manifold pressure, fuel consumption rate (if available), A/F ratio controller setting.
  - For residue turbines include: actual horsepower (at test time), turbine speed (rpm), fuel consumption rate, turbine exhaust temperature, ambient temperature, relative humidity. For steam injected turbines also include fuel to water ratio.
  - For heaters, boilers, or furnace include: fuel consumption rate, feedstock rate, and firebox temperature.
  - If the engine or turbine drives a compressor or pump, include suction and discharge pressures and temperatures, interstage pressures and temperatures, suction volume and type of fluid pumped or compressed. If the engine or turbine drives a generator, include output voltage, current, and power.
  - Unit operating level at time of test. If the unit was not operated at the minimum of 90% of permitted capacity (derated horsepower for IC engines) give explanation. If testing a turbine using Method 20, include the four required operating loads.
- Control Equipment Operating Parameters at Time of Test
  - Include, as applicable, pressure drops, inlet and outlet temperatures, T/R readings for electrostatic precipitators, water flow rates for scrubbers, bed temperatures for Claus sulfur recovery plants, etc.
- Comparison of Measured and Modeled Parameters (See Table 1)
  - For each unit tested, make a copy of Table 1 (page 3) and enter the required stack data. This table compares the measured emission parameters (stack height and diameter, stack gas exit velocity, and

stack gas temperature) with the parameters used in the atmospheric dispersion modeling. Disregard this section if the Division did not require atmospheric dispersion modeling for this source.

**C. Test Procedures** – This section describes the test procedures, including any variations from EPA test methods. This section includes, but is not limited to:

- Control Equipment Operating Parameters at Time of Test
- Schematic drawing of the process being tested showing emission points, sampling sites, and stack cross section. The sampling points are labeled and dimensions indicated.
- Schematic drawing of the sampling device/train used. Each component is labeled and explained in a legend.
- A brief description of the EPA reference methods used to operate the sampling train and the procedures used to recover and analyze the samples. Include sampling durations, number of test runs, calibration procedures, leak checks, cyclonic flow checks, etc.
- Any deviation from EPA reference methods or from the original protocol and who at the Air Quality Bureau approved the deviation.
- Make and model of test instrumentation and specifications including sensitivity, ?interferences?, response time, linearity, span and range, calibration dates/method.
- A brief description of the methods used to obtain plant or unit operating parameters/ conditions. Measured parameters must be clearly distinguished from derived parameters.

**D. Data and Calculations** – This section includes copies of all raw data and at least one example calculation for every derived number showing all equations used. This section includes, but is not limited to:

- All raw data used in the emissions calculations:
  - o Plant operating parameters.
  - o Unit operating parameters.
  - o Stack parameters (including cyclonic flow data).
  - o Control equipment operating parameters.
  - o Isokinetic calculations, if applicable.
- Laboratory data, including blanks, tare weights, and results of analysis.
- Labeled copies of strip charts.
- An example calculation for every calculated result showing how the result was derived from the raw data. Show all equations used and any approximations. Carry out to completion the calculations for at least one test run.
- Analysis and certification documents for calibration gases. List expiration dates. (Warning: transferring the gas to a secondary container voids the certification.
- Audit sample results (if applicable).
- Visible emissions field sheets (Method 5 or where applicable).
- Sample chain of custody, if applicable. Show names of custodians, method of transportation, departure and arrival times/locations.

**E. Appendix** – Place any additional information in this section, including but not limited to:

- Any complications during the tests or with plant operations and how these might have biased the results.
- Any special information that might be helpful for performing future tests at this site.
- Brief resumes including experience of test personnel.

**Notes:**

The Division reserves the right to withdraw or modify protocol without advance notice.

The test report must contain all information required by the permit.

**TABLE 1. MEASURED VS MODELED PARAMETERS**

Complete this table for all stacks tested. If a unit has two or more stacks, copy Table 1 and completed one table for each separate stack.

**Unit Description (engine, heater, etc.):** \_\_\_\_\_

\_\_\_\_\_

**Make and Model:** \_\_\_\_\_

**Date tested:** \_\_\_\_\_

**STACK PARAMETERS**

	Modeled	Measured	Difference
Stack diameter			
Stack height (above ground level)			
Exit gas velocity			
Exit gas temperature			

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