



## PROPOSED TEST PLAN PROTOCOL

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

Name and Title of Contact: \_\_\_\_\_

Address of Contact: \_\_\_\_\_

Telephone Number of Contact: \_\_\_\_\_

Proposed Test Date: \_\_\_\_\_

### **Source Information**

Type of Source: \_\_\_\_\_

Identification of Source to be tested: \_\_\_\_\_

Permit Number of Source: \_\_\_\_\_

Address of Source: \_\_\_\_\_

Initial Startup Date: \_\_\_\_\_

### **Testing Firm Information**

Name of Firm: \_\_\_\_\_

Address: \_\_\_\_\_

Name and Title of Contact: \_\_\_\_\_

Telephone Number: \_\_\_\_\_

Number of Employees of Firm: \_\_\_\_\_

Number of Employees Engaged in Air Pollution Source Testing (Including Support Personnel): \_\_\_\_\_

Location and Description of Laboratory Facilities: \_\_\_\_\_

Subcontractor(s) Utilized by Firm for Source Testing Activities: \_\_\_\_\_

Number of Air Pollution Sources Previously Tested by Firm: \_\_\_\_\_

Types of Sources Previously Tested by Firm: \_\_\_\_\_

**PERFORMANCE TEST INFORMATION**

List all pollutants to be sampled.

	Pollutant	Number of Sampling Points	Total Time per Test Run	Number of Test Runs	Test Methods to be Used
1					
2					
3					
4					
5					

For particulate (PM), PM<sub>10</sub>, PM<sub>2.5</sub> tests, indicate the length of each run to collect 7.62 milligrams, 4.32 milligrams, and 4.05 milligrams of sample respectively. Use the estimated emissions after control as the stack gas concentration.

When calculating the sample time, the length of each run should be such that sample catches listed above will be collected. Any variation from this must be pre-approved by the Department. Should the sample catch be less than the lower detection limit (LDL) of 2.54 milligrams for PM, 1.44 milligrams for PM<sub>10</sub>, or 1.35 milligrams for PM<sub>2.5</sub> after applying the above method, the test may be subject to rejection or the LDL sample weight may be assumed.

Include a description of any test procedures to be used in the conduct of the performance tests which differ from the specified method(s). \_\_\_\_\_

Use the space below for a drawing (or include separately) with the sampling location showing the stack or duct dimensions, air pollution control equipment, fans and location(s) of disturbances which affect the sampling location determination.

Axial fans and cyclone collectors generally cause flow conditions which are not suitable for testing and do not give reliable results. It is generally advisable to install flow straighteners in such situations. Please indicate if such problems are anticipated and what has been done to correct the flow problems prior to testing. Please refer to 40 CFR 60, Appendix A, Reference Method 2.

## PROTOCOL SUPPLEMENT – OPERATING DATA

This form is to be filled out and returned with the test protocol.

Maximum Continuous Process Weight (Manufacturer's Rating): \_\_\_\_\_

Historical Average Process Weight: \_\_\_\_\_

Historical Maximum Process Weight: \_\_\_\_\_

Product Recycling Capability: Yes  No

Type and Sources of Fuels Normally Burned: \_\_\_\_\_

Type of Control Equipment: \_\_\_\_\_

Range of Pressure Drop Across Control Equipment: \_\_\_\_\_ Inches of Water

Average Pressure Drop: \_\_\_\_\_ Inches of Water

Person Responsible For This Data: \_\_\_\_\_

Person Responsible For Collecting Process Data During Actual Testing: \_\_\_\_\_

Complete and submit one of these forms for each test to be conducted. This information is especially important to determine the operating conditions of the equipment under which the tests will be conducted. The tests must be conducted while operating at maximum capacity or the highest capacity which this source will be operated. **Failure to test at the permitted capacity may result in derating this source.**

This information is also required to be submitted on the forms found at the end of the protocol package. These two forms, the Compliance Emission Test Operating Data and the Air Pollution Control Equipment Operating Data forms, must be filled out with the data collected on the actual date of the tests. **Failure to complete the forms on the day of the testing may be cause for rejecting the tests.**

## SAFETY CONCERNS

List any special safety concerns, including possible hazardous chemical exposures, at your facility. This should include the area near the process being tested as well as the sampling location. **Also include a list of personal safety equipment that will be required to audit the testing.** Unexpected hazardous conditions are grounds for canceling testing.

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## PROTOCOL SUPPLEMENT

- 1) Copies of current calibration data must be available to the observer prior to the beginning of the test. This calibration data will include, but is not necessarily limited to the meter box, pitot tubes, and temperature gauges. If 0.84 is assumed for the pitot tube coefficient, it must be documented that the equipment meets the design criteria.
- 2) All equipment must be in good working order prior to arriving on site. Except for extraordinary circumstances, delays solely to broken equipment may result in the test being canceled by the observer. All glassware must be clean and free of especially for SO<sub>2</sub>, HCl and similar tests.
- 3) Unless specifically mentioned to the contrary in the test method or agreed to in writing in a pretest conference, glass-lined probes must be used for all tests. Spare liners must be available in case one or more is broken. The breaking of a glass liner is not an acceptable excuse for using steel liners. Particular attention should be paid to the probe and filter box heating elements.
- 4) Enough spare equipment should be on hand to replace any that should break down. If necessary this should include consoles. Delays due to broken equipment may be cause for canceling the test.
- 5) All members of the test crews should be familiar with the test methods in order to conduct the tests in strict accordance with the test methods.
- 6) No variations from the reference methods will be accepted in the field unless agreed to by the observer or by prior written agreement. The determination of whether the departure from the method will affect the test results will be made by the observer.
- 7) **The Air Quality Division must be notified in writing by the affected facility at least 15 days prior to conducting any test that will be submitted for a compliance demonstration.** This notification must be made by the source, not the consultant or contractor. Failure to notify the appropriate staff may result in the test being rejected. You should call the Air Quality Division at (319) 892-6054.
- 8) The two forms attached at the end of this protocol must be correctly and accurately filled out by the responsible plant personnel. One form concerns the production levels during the test. Tests are to be conducted at full capacity. **If the tests are conducted at less than full capacity, the source may be limited to this level of production.** The other form contains control equipment operating data. The appropriate section should be filled out. If the source does not have any control equipment, this should be indicated on the form. Both forms must be signed by a representative of the facility.

The following information shall be provided:

1. Sampling Equipment Information

The manufacturer and model of the sampling equipment to be used by the tester for the performance tests, along with a description of any equipment which *may* differ from that required by the specified methods.

2. Test Procedures

A description of any test procedures to be used in the conduct of the performance tests which *may* differ from the specified method(s).

3. Analytical Procedures

A description of any analytical procedures which differ from the specified method(s).

4. Data Sheets

A sample of all field data sheets which do not provide the data shown on the example sheets in 40 CFR 60 for the specified method(s).

5. Air Pollution Control Equipment

A description of the air pollution control equipment including as a minimum the following:

- a) Types and manufactures of all control equipment
- b) Design or guarantee efficiency
- c) Design gas volume at full load (acfm);
- d) Design pressure drop;
- e) Description of any preconditioning equipment;
- f) Normal operating conditions of air pollution control equipment;
- g) Normal maintenance schedule on control equipment, such as cleaning, replacement of components, checking for leaks, and repairs;
- h) Description of fly ash handling and disposal system; and
- i) Any problems with air pollution control equipment performance, operation, and maintenance.

## SOURCE TEST REPORT FORMAT

- I. **Cover** Should Indicate the name and location of the plant, the specific source tested, the name and address of the testing firm (or agency), and the month and year of the tests.
- II. **Certification** A page including a certification by the test team leader that he is the person responsible for the test data, and one by the reviewer of the report (normally the supervisor of the team leader) attesting to the authenticity and accuracy of the report.
- III. **Table of Contents**
- IV. **Introduction** Pertinent background information should be presented in this section. This information shall include, but not be limited to the following:
  1. Name, address, and owner of plant;
  2. Test purpose;
  3. Name and address of testing organization;
  4. Test dates;
  5. Pollutants tested;
  6. Names of persons present for tests (industry and agency); and
  7. Any other important background information
- V. **Summary of test results** A summary of the test result: necessary to evaluate the process with respect to the applicable emission standard(s) should be presented in this section. This information shall include, but not be limited to, the following:
  1. A summary of the emission results;
  2. Allowable emissions;
  3. Isokinetic sampling rates, when applicable;
  4. The operating level of the process during the tests;
  5. A description of the collected samples; and
  6. Discussion of errors, both real and apparent, in the tests.
- VI. **Facility operation during testing** This section shall contain a description of the facility, including, but not limited to, the following:
  1. General description of the facility, including the air pollution control equipment, and the process principle;
  2. A discussion of the maximum and normal operating conditions;
  3. Presentation of the process data for the tests, with calculations where necessary to show the production or burning rates, to demonstrate that the operating conditions are sufficiently representative of those required for testing. Calculation may be included in the Appendix;
  4. Process and control equipment flow diagram; and
  5. Any changes in operating conditions from those previously agreed upon by the source and agency.
- VII. **Sampling and analytical procedures** A description of the sampling and analytical methods should be presented in this section. The information shall include, but not be limited to, the following:

1. A description of the sampling location(s) and sampling points;
2. Schematic drawings of the facility showing sampling location(s), major and minor flow disturbances, and stack or duct cross section(s) with the dimensions indicated;
3. A description of the sampling equipment;
4. Schematic drawings of the sampling trains (may be included in the Appendix);
5. A description of the sampling procedures, with a discussion of deviations from the standard methods, along with the sampling times;
6. A brief description of the analytical procedures, with a discussion of deviations from the standard methods; and
7. A description of the methods employed for other types of sampling and analyses, such as fuel.

VIII. **Appendix**

1. A summary of all data used in the calculations.
2. Calculations for all data submitted.
3. Copies of **all raw** field data sheets, (initialed by observer, where applicable) including those indicating sampling point locations,
4. Laboratory report, complete with analytical data sheets and chain of custody list.
5. Production and/or operational data, signed by a plant official if provided by the source.
6. Calibration procedures and work sheets for sampling equipment.
7. Copies of calibration records for plant or process Instrumentation.
8. Pertinent correspondence concerning the tests.
9. Any other information necessary to assist the agency in making a determination of compliance.



**Compliance Emission Test Operating Data**  
**(Submit with Source Test Final Report)**

Owner: \_\_\_\_\_

Date: \_\_\_\_\_

Source: \_\_\_\_\_

Permit #: \_\_\_\_\_

Maximum Continuous Process Rate: (Manufacturer's Rating) \_\_\_\_\_

Historical Average Process Rate: \_\_\_\_\_

Historical Maximum Process Rate: \_\_\_\_\_

Types and Sources (if any) of Fuels Normally Burned: \_\_\_\_\_

Type of Fuel Burned During Test: \_\_\_\_\_

Approximate Quantities of Fuels used Annually: \_\_\_\_\_

Recycling Capability:  
Recycling in Progress

YES  
 YES

NO  
 NO

**Process Data During Runs**

	Run 1	Run 2	Run 3
<b>Process Rate wet**</b> (gal/hr, lb/hr, tons/hr, etc.)			
<b>% Moisture</b>			
<b>Process Rate dry**</b> (gal/hr, lb/hr, tons/hr, etc.)			
<b>How Process Rate was Determined</b>			

Person Responsible for Data \_\_\_\_\_

Signature: \_\_\_\_\_

Title/Position: \_\_\_\_\_

\*\* Please indicate in the same units as the historical information

**AIR POLLUTION CONTROL EQUIPMENT OPERATING DATA**  
(Submit with Source Test Final Report)

Plant \_\_\_\_\_ Location \_\_\_\_\_  
 Source Type \_\_\_\_\_ Rated Production \_\_\_\_\_  
 Date \_\_\_\_\_ Time \_\_\_\_\_ Actual Production \_\_\_\_\_  
 Air Flow Data \_\_\_\_\_ Run No. \_\_\_\_\_

Mechanical Collector:

Tube Dia. \_\_\_\_\_ in. Number of Tubes \_\_\_\_\_ Design  $\Delta p$  \_\_\_\_\_ in. H<sub>2</sub>O Gas Temp \_\_\_\_\_ °F  
 Observed  $\Delta p$  \_\_\_\_\_ in H<sub>2</sub>O Design cfm/tube @ Observed  $\Delta p$  \_\_\_\_\_ @ \_\_\_\_\_ °F  
 Fan Rated H.P. \_\_\_\_\_ Operating Volts \_\_\_\_\_ Operating Amps \_\_\_\_\_

Electrostatic Precipitator

Field No.	Primary Voltage (volts)	Primary Current (amps)	Secondary Voltage (KV)	Secondary Current (ma)	Spark Rate (per min)

Scrubber:

Type \_\_\_\_\_  $\Delta p$ (across scrubber) \_\_\_\_\_ in H<sub>2</sub>O  
 Fan Rated HP \_\_\_\_\_ Operating Volts \_\_\_\_\_ Operating Amps \_\_\_\_\_  
 Liquid Circulation Rate \_\_\_\_\_ gal/min. % Make-up \_\_\_\_\_ Blowdown \_\_\_\_\_ gpm  
 Scrubbing Water Change Interval \_\_\_\_\_  
 Settling Tank Cleaning Interval \_\_\_\_\_

Baghouse:

Pressure-Positive \_\_\_\_\_ Negative \_\_\_\_\_ No. Compartments \_\_\_\_\_  
 Type Cleaning \_\_\_\_\_ Clean Cycle \_\_\_\_\_ min  
 Avg. Baghouse  $\Delta p$  \_\_\_\_\_ in H<sub>2</sub>O  $\Delta p$  Range \_\_\_\_\_  
 Fan: Rated H.P. \_\_\_\_\_ Operating Volts \_\_\_\_\_ Operating Amps \_\_\_\_\_

Cyclone:

Type \_\_\_\_\_  $\Delta p$  \_\_\_\_\_ in H<sub>2</sub>O Diameter \_\_\_\_\_  
 Fan Rated HP \_\_\_\_\_ Operating Volts \_\_\_\_\_ Operating Amps \_\_\_\_\_

Person Responsible for Data \_\_\_\_\_

Signature \_\_\_\_\_

Title/Position \_\_\_\_\_

\* Averages of operating data taken during actual test run unless requested otherwise.