STATE OF DELAWARE

Source Sampling Guidelines & Preliminary Sampling Form

State of Delaware
Department of Natural Resources and Environmental Control DNREC
Division of Air Quality
Air Surveillance Branch
715 Grantham Lane
New Castle, DE 19720

(302) 323-4542
(302) 323-4598 FAX

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INSTRUCTIONS

1. Read the included sampling guidelines.

2. Fill-out the *"Preliminary Survey Form"* and submit it to the Department for approval thirty (30) days before the start of sampling.

   (Items 1 through 11 are to be included).

3. Departmental approval must be given before the start of actual sampling. Our office must be given the opportunity to observe all stack tests under normal business hours. Unobserved testing will not be considered valid by the Department.

4. If there are any questions concerning the completion of this form or the actual sampling, please do not hesitate to contact the members of the **Source Monitoring Group*:***

   - Jeffrey C. Rogers, Program Manager *(jrogers@dnrec.state.de.us)*
   - Thomas S. Doherty, Environmental Engineer *(tdoherty@dnrec.state.de.us)*
   - Thomas A. Heck, Environmental Engineer *(theck@dnrec.state.de.us)*
   - Mark J. Lutrzykowski, Environmental Engineer *(mlutrzykows@dnrec.state.de.us)*

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SOURCE SAMPLING GUIDELINES

1. The Preliminary Survey Form shall be filled-out and submitted to the Department for approval **thirty (30) days before the start of actual sampling**. It is the operator's responsibility to make certain that any third party (testing firm, consultants, etc.), that will be involved in the proposed testing, is aware of the requirements of this document.

2. If this test is a duplication of previous sampling and process conditions have not changed, make reference to the previous testing in Sections 5 and 6, and submit only the front page.

3. The measurement methods utilized shall be those set-forth in the State of Delaware **Regulations Governing the Control of Air Pollution**." **Note: It is expected that EPA Reference Methods and EPA Protocol Calibration Gases will be used for all testing and calibrations unless prior approval is given by the Department.**

4. In addition to the requirements set-forth in the above paragraphs, the Department may require that **particulate matter** be reported separately as to the dry filter fraction, the organic extract fraction, and the residual water fraction.

5. Visible Emission Evaluation, in accordance with accepted practices, may be required. If required, a Certified Observer is to be used, and documentation of the Certification shall be included with the final sampling report. *NSPS* sources will be required to comply with the Opacity Provision published in the *Federal Register*, **Volume 50, No. 249, Friday, December 29, 1985.**

6. Unless otherwise stated in the approved protocol, all source testing shall be accomplished in triplicate, with the results reported separately.

7. For fuel-burning equipment, a sample of the fuel shall be taken during the actual sampling, an ultimate analysis **(Hydrogen, Nitrogen, Carbon, Sulfur, Oxygen and Water)** shall be completed, and the gross heating value *(BTU/lb)* shall be determined.

8. To ensure consistency in reporting, the test reporting format shall be described in the Preliminary Survey.

9. All field data forms, field information, and analytical data sheets shall be included with the final sampling report. In addition, all working calculations used in obtaining the sampling results shall be included with the final sampling report.

10. All source sampling equipment shall be properly calibrated, and the calibration data shall be included with the final sampling report. A **Certificate of Analysis** shall be provided for all calibration gases. Use of expired calibration gases or gases which have not been certified according EPA Protocol is expressly prohibited without prior approval.

11. Whenever possible the Department will provide audit samples. The audit samples are to be handled in exactly the same manner as the field samples. Analyses of the audit samples must be accomplished by the same analyst, using the same reagents, the same equipment, and the same procedures as was used in analyzing the field samples. The time and date of each individual audit and field sample analysis shall be included with the test results. The time between the analysis of the audit samples and the analysis of the field samples shall not exceed twenty-four (24) hours without prior approval of the Department.

12. Before the start of testing, Department representatives may conduct cylinder gas audits of analytical instrumentation that will be used to determine pollutant concentrations.

13. During the compliance tests, it is expected that the equipment and product being processed shall represent normal operation and reflect the permit conditions.

    For example: If an asphalt plant typically processes material which has 5% passing a 200-mesh screen, at a permit rate of 300 tons per hour, the compliance tests shall be accomplished with product which has 5% or greater passing a 200-mesh screen at a production rate of 300 tons per hour.

    If a steam-generating unit is being tested which has soot-blowing operation 10% of the time, then the compliance tests shall include soot-blowing at least 10% of the time while at the permitted operating rate.

    The Air Pollution Control Operating Permit will be based on the process and control equipment operating parameters sustained during the tests, and a record of these parameters shall be included with the final sampling report.

14. Safe working conditions, safe sampling platforms, and safe access to sampling platforms and other areas where testing is being conducted shall be provided by the party responsible for the source. For tests results to be accepted, Department representatives must be able to safely observe all portions of the testing. Unsafe conditions may require retesting under safe conditions so that the test results can be accepted by the Department. (Unsafe conditions include, but are not limited to, pollutant concentrations greater than OSHA workplace standards, weather conditions, or unsafe structures.)

Please refer to the State of Delaware, Regulations Governing the Control of Air Pollution, Regulation 17, Section 2.3 and Regulation 20, Section 1.4 for more information.

STATE OF DELAWARE – DNREC

Division of Air Quality

SOURCE SAMPLING PRELIMINARY SURVEY

1. Name of Plant to be Sampled

DATE

Mailing Address (Street or P.O.Box) City State County Zip Code

2. Names of Plant Representatives (Environmental & Safety) Title Telephone

Environmental:

Safety:

3. Major Activity at this Location

☐ Manufacturing ☐ Commercial ☐ Apartment
☐ Governmental ☐ Institutional ☐ Power Generation

4. Source Sampling Responsibility: ☐ Consultant ☐ In-House

If *consultant*: Name, Address and Telephone Number:

5. Type of Process to be Sampled:

Rated Capacity: Maximum Operating Rate:

6. Parameters to be sampled:*(List)*:

7. Estimated Date of Sampling Start-Up:

Estimated Time for complete Sampling:

8. *Provide Working Diagram of Area to be Sampled, showing: Process Equipment, Ports, Flow Interferences, and scaffolding.*

Accepted: ☐

Rejected: ☐

Signature:

Date:

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SOURCE SAMPLING PRELIMINARY SURVEY

9. *Provide cross-sectional sketch of stack or duct to be sampled, showing Sampling Ports, Sampling Points, and Dimensions. For a duct, also sketch one (1) equal area, and show dimensions. (Include Working Platform)*

Stack Diameter *(ft):*

Duct Cross-Sectional Area *(ft^2):*

Number of Test Points:

Number of Equal Areas:

Square Footage of each Equal Area *(Duct):*

Ratio of *Length: Depth* for each Equal Area *(Rect. Duct):*

Nearest *Upstream* Disturbance to Sampling Location *(Stack Diameters)*:

Nearest *Downstream* Disturbance to Sampling Location *(Stack Diameters)*:

Ambient Temperature:

Water Sprays prior to Site:

Dilution Air prior to Site:

Elevator to Site:

Available Electricity and Distance:

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SOURCE SAMPLING PRELIMINARY SURVEY

10. *Describe complete sampling approach, including type of equipment, equipment calibration, calibration standards, sampling, and analysis techniques. All applicable EPA Quality Assurance **("QA")** Criteria are required. The Department may conduct additional QA Audits.*

NOTE: Equipment Calibration shall include nozzles, probes, multi-point Δp for pitots, and multi-point ΔH for orifice meters, thermometers and dry gas meters.

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11. *List all available production and control equipment operating parameters related to the process to be tested. Indicate which parameters are collected by an automated data collection system, which would require manual collection, and which, if any, are available in an electronic format (such as a computer diskette).*

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12. Initial Velocity Traverse Data

Ambient Temperature: °*F* Barometric Pressure: *in. Hg* Stack Pressure: *in. Hg*

Molecular Weight (Stack Gas): Pitot Tube Capacity:

FIELD DATA:

				CYCLONIC FLOW DETERMINATION	
TRAVERSE POINT	**STACK VELOCITY HEAD Δp (in.H_2O)**	**STACK TEMPERATURE (°F)**	**STACK VELOCITY (fps)**	**Δp @ 0° REFERENCE**	**ANGLE (α) which yields a NULL Δp**
				AVERAGE α[1]	

1(Must be < 10° to be acceptable).