Design and Oversight of Emissions Testing Programs

Kenley Houtz
Montrose Air Quality Services LLC

Preparing for a Source Test

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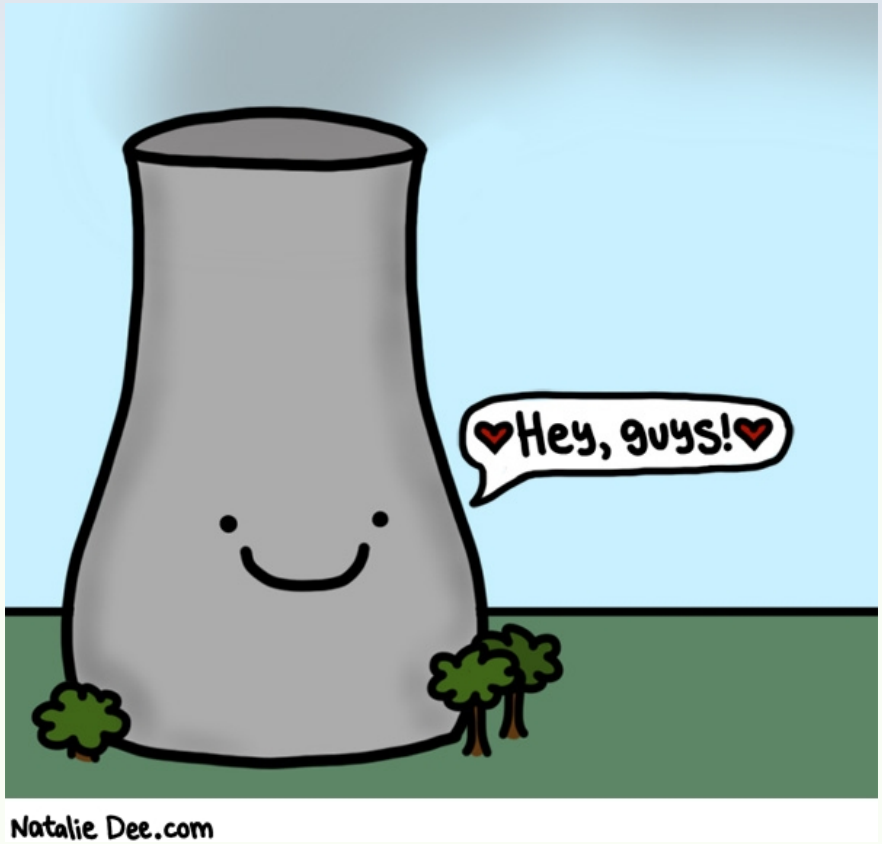
Introduction

- You've received quotes and selected a source tester – Now What?



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Source Readiness

- The dream RFP
- The reality

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Source Readiness
Supporting the Tester

- 40 CFR 60 Subpart A, Section 60.8
  - Sampling ports adequate for test methods applicable to the facility
  - Safe sampling platforms or safe work area
  - Safe access to the platforms or work area
  - Sufficient utilities to perform all necessary testing (electrical power)
- Site Visit

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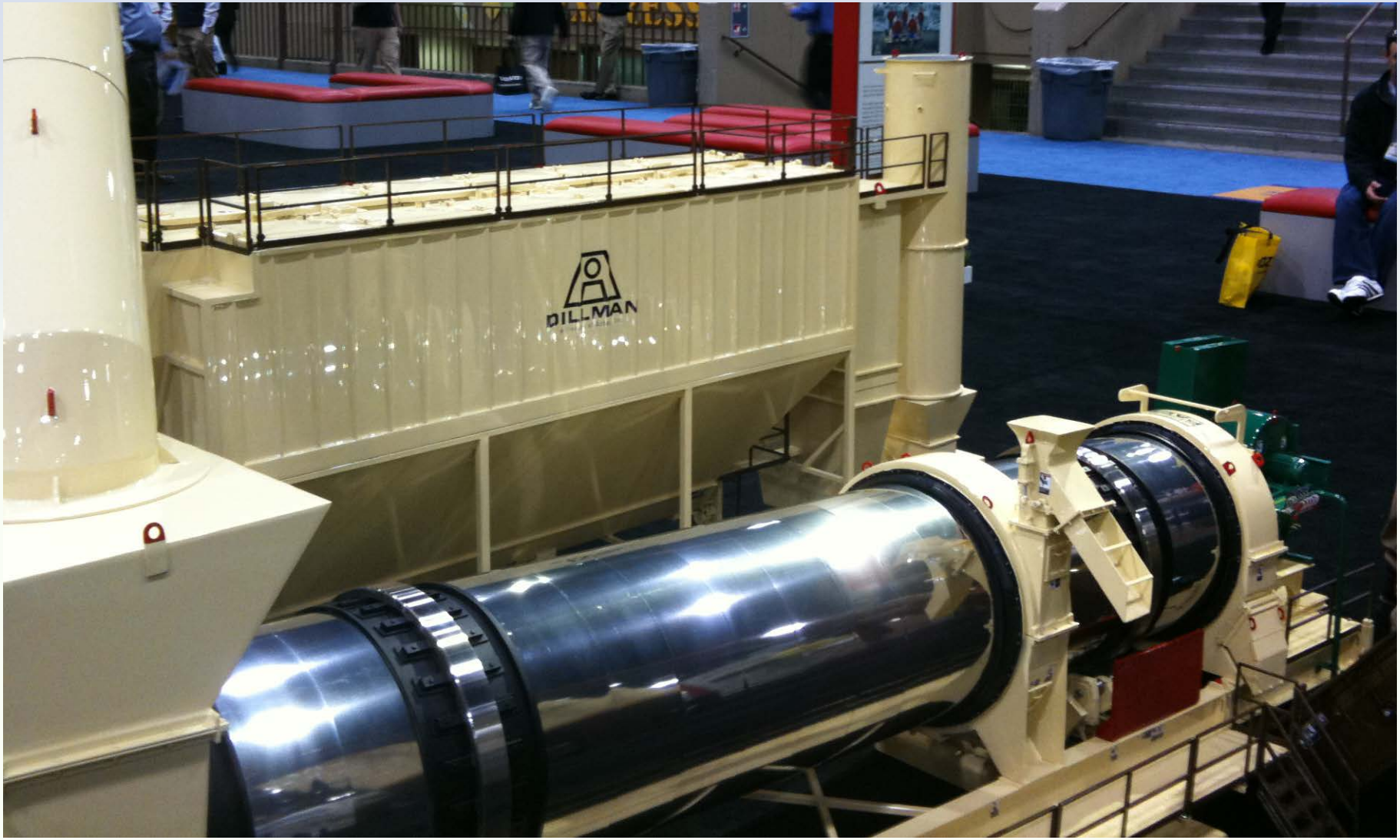
Site Visit



Site Visit

- Duct setup
  - Duct strength

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Site Visit

- Duct setup
  - Heavy equipment
  - Space for equipment

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Site Visit

- Port Placement
  - The Good
    - Two ports
    - 90 degree angles
    - 3” ID for wet methods
    - 2” ID for gases
    - Upstream/downstream
    - Rail support

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Site Visit

- Port Placement
  - The Bad
    - Port plane
    - Gas port
    - Rail support

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Site Visit

- Access
  - How do we get up there?

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Site Visit

- Access
  - Manlift
  - Is the space big enough?

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Site Visit

- Access
  - Platforms
  - Shelter

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Site Visit

- Ground support
  - Manlift Parking
  - Truck Parking

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Site Visit

- Power
  - Options for power
  - MUST be reliable
  - Dedicated power source

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Site Visit

- Process limitations
  - Batch testing
  - Night testing

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Site Visit

- Site Specific Issues
  - High moisture
  - High temperature
  - Horizontal stack

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Site Visit

- Site Specific requirements
  - General site safety
  - H_2S
  - Specific PPE
  - Specific Hazards

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The Test Plan

- “The Test Plan shall be the primary source of information on testing and quality procedures for the test project”.
  - ASTM D7036-04 (12.4)
- Minimum Requirements
  - Objectives and summary of test program
  - Description of the source, operating conditions and process to be tested
  - Description of the test matrix
  - Sampling locations
  - Test methods to be used, number of runs to be performed, sampling duration of each run
  - Process data to be collected
  - QC procedures and audits (including applicable field blanks)
  - Reporting format, reporting units and other requirements
  - Plant entry and safety requirements
  - Responsibilities of test personnel
  - Tentative test schedule

Test Plan Requirements

- What is it?
- How does it differ from a quote?

Test Plan Requirements
Purpose of testing

- Why are we testing?
  - Compliance?

    Permit Requirement (Federal + State)

    vs.

    Compliance with Specific Regional Regulatory Requirements (more stringent)

  - Non-compliance?

Test Plan Requirements
Notification Requirement

You must inform your regulator of your intent to test!

- Different time frames for different agencies
  - 15 days
  - 21 days
  - 60 or 30 days and a 10 day reminder
  - 30 days
  - 60 or 30 days
  - It depends!
  - Specific Compliance Notification Forms

pscleanair.org
Puget Sound Clean Air Agency

PUGET SOUND CLEAN AIR AGENCY

1904 3rd Ave Ste 105
Seattle WA 98101-3317
Telephone: (206)689-4052; Fax: (206)343-7522
<www.pscleanair.org>
facilitysubmittal@pscleanair.org

COMPLIANCE TEST NOTIFICATION

This Notification of intended action does not constitute approval by the Agency nor does it satisfy a requirement for a test plan, if one exists.

Agency Use Only: Reg No:	*Date Received:*	*Date Logged:*

Facility Name:	**Facility Contact Information for Test** **Name:**
Facility Address (include city/state/zip):	**Phone:** **Fax:** **E-Mail:**
Test Contractor: Horizon Engineering	**Test Contractor Contact Information** **Name:**
Test Contractor Mailing Address: **13585 NE Whitaker Way** **Portland, OR 97230**	**Phone:** **Fax:** **E-Mail:**

Testing Dates: August 30- September 1, 2011

Emission Unit	Pollutant Tested	Test Method(s) (list all to be used)	Purpose for the Test (see Note below)

Any Test Method Deviations? ☐ Yes *(attach explanation)* ☐ No **Written Test Plan Required?** ☐ Yes ☐ No ☐ Unknown	**Attachments to this Notification?** ☐ Yes *(list below)* ☐ No

Person Submitting Notification:	**Affiliation:**

NOTE: For example, NSPS/NESHAP Subpart, citation, NOC Order of Approval #, PSD, Puget Sound Clean Air Agency Regulations (I, II, or III), RATA, or Other. Please include the specific requirement if you have it.

Form 50-127 (02/09 *NS*)

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ADEC Source/Performance Test Plan Summary Form

For EACH source being tested, attach a completed version of this form to the source test plans that are submitted to ADEC within 30 to 60 days prior to testing.

Name of Permittee

Facility Name

1. Reason for the Source/Performance Test:

❑ Permit Requirement: provide the following information.

Permit #_____ Application # _____

Condition _____

Deadline for Completion of Source Testing: _____

❑ ADEC Request: provide the following information.

Type of request: circle one of the following.

COBC NOV Letter Email Verbal Other (describe below)

If COBC or NOV, provide #_____

Date of the Request: _____

Deadline for Completion of Source Testing: _____

2. Source/Performance Test Information:

Source ID No.	
Source Name	
Air Pollution Control Device Being Tested	
Scheduled Testing Dates	
Pollutants Measured	
Reference Methods	
Number of Tests	
Test Conditions (Operational Loads)	
Number of Runs per Test Condition	
Duration of Each Test Run	

3. Alternative Test Plans (these require administrator approval): Detail proposed deviations from reference method protocol.

4. Sample Port Location: Attach a longitudinal section drawing of the test stack indicating the diameter or if the stack is rectangular, the cross sectional dimensions and the distances from the sampling ports to upstream and downstream disturbances.

5. Traverse Point Locations for Velocity, Particulate, and Other Sampling: Attach cross sectional drawings indicating the sampling sites with distances given for velocity, particulate, and other measurements.

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Printed Name _____ Signature _____ Date _____

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Test Plan Requirements
Contact Information

- Source Testing Company
- Testing Facility
- Facility contact name and numbers
  - On site person?
  - Consultant?
  - Billing?

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Test Plan Requirements
Scheduling

- Coordination of site and test firm's schedule
- Time to prepare test plan
  - Meet agency notification requirements
  - Time for source tester to prepare test plan and go through our internal review process
  - Client review process
- Tentative on site schedule

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Test Plan Requirements
Scheduling

- Day 1: Mobilize and setup
- Day 2: Test Boiler #1, and setup Boiler #2
- Day 3: Test Boiler #2, and setup Generator #1
- Day 4: Test Generator #1, demobilize
- Day 5: Return travel

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Test Plan Requirements
Source Description

- An explanation of the source itself
  - what is it?
  - when was it installed?
  - what does it do?
  - why does it do it?
  - Are there any control devices installed that help control emissions?
- Often this will come from the permit
- Can be provided by the client

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Test Plan Requirements
Pollutant(s) to be measured and test methods

- What are we out here looking for?
- Multiple components
  - process,
  - detection limits
  - interferences
- Multiple EPA, CTM, OTM, NCASI, ASTM
- The test method determines the results.

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Test Plan Requirements

VOC Options

OR

Test Plan Requirements
Length and Number of Test Runs

- Many regulations and permits specify
- Three runs of 60 minutes is the common approach
- RATAs require 9-12 runs – Performance Specification 2, 8.4.4
- May want a longer run to meet a detection limit
- May want shorter runs

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Test Plan Requirements
Reporting Units

- How do you want to see your results?
- Found in your permit
- Results in the units of your permit limit
  - ppm (gases)
  - gr/dscf (PM)
  - lb/hr
  - lb/MMBtu – requires process data

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Test Plan Requirements
Process conditions

- How will the source be running while we test?
- Often specified by the permit
- Normal Operation, normal maximum, % of max load
- Imposed process limitations

Source must operate at the rate specified in the permit!

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Test Plan Requirements
Process Data

- How do we prove it?
- List usually specified by the permit
  - Baghouse differential pressure
  - Hours of source operation
  - Type of material being made or used
  - Fuel consumption
- Repeatability
- Data in units of production? (lb/ton, lb/MMBtu)
- RATAs – CEMs data

Test Plan Requirements
Process Data!!

- Biggest, consistent challenge we have as source testers
- We rely on the client to provide it to us
- Without process data to match up with, our data can be meaningless and testing may need to be repeated!

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Test Plan Requirements
Fuel Samples

- Fuel and/or materials samples
  - What type of analysis will be done on the samples?
  - Who will collect the samples?
  - How will the samples be collected?
- Fuel analysis certificates

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Test Plan Requirements
QA/QC Procedures

- Continuous analyzers
  - DAS systems
  - Stratification check
  - Calibration procedures
- Manual Equipment
  - Leak checks
  - Nozzle measurement and inspection
  - Method blanks

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Test Plan Requirements
Audit Samples

- EPA Stationary Source Audit Sample Program
- Intent is to provide laboratory audit samples required for all sources, with the exception of the methods listed in 40 CFR 60, 60.8(g)(1)
- Not fully implemented – required 60 days after two accredited audit providers have audits available
- http://www.epa.gov/ttn/emc/email.html#audit
- EPA Methods 6, 7, 8, 12, 13A, 26, 26A, 29, and 101A
- Program paused as EPA must have more than one audit sample provider

Test Plan Requirements
Audit Samples

- First audits required 6/16/2013
- Audit ordering process
  - Audit sample calculation tool
  - Order form
  - Timeline for ordering – 30 days
    - Place order with audit provider
    - Audit provider approves request and sends to air agency for approval
    - Air agency approves or defaults after 15 days
    - Audit provider prepares audit and send to the tester

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Test Plan Requirements
Safety

- **A project isn't successful unless it is safe**
- Plant entry and safety requirements (ASTM D7036)
- Company safety manual
- Client safety policies

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Test Plan Requirements
Final Report Submittal

- Specified by permit
- 45-60 days after testing is complete
- Need to allow time for:
  - Lab analysis
  - Report writing
  - Report review
  - Finalizing report
- Send to agency contact

Agency Specific Test Plan Requirements

- Every agency may have specific requirements that only apply in their jurisdiction
- re state specific agencies
- CA has 50+ different regional agencies

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Example Agency Specific Test Plan Requirements

- Variations on EPA Methods specific to the state
- Different minimum sample volumes
- Sampling replicate limitations (no more then 24 hours
- Specific forms required – pre and post test
- Specific reporting requirements

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DEQ State of Oregon Department of Environmental Quality

Example Test Plan Checklist

Source Test Plan Review Checklist

Permittee:	
Stationary Source:	
Permit No(s):	
Permit Condition(s) Requirements:	
Emission Unit Id(s):	
Test Firm:	
Plan Test Schedule:	
Plan Date:	
Plan Due Date:	
Date Received:	
Date Reviewed:	
Reviewer:	

Review Findings: Each topic includes a detailed checklist of information for consideration. The checklist was developed by the EPA for large source test projects. The level of detail required in the checklist will depend on the complexity of the test. A routine test to determine compliance for a diesel generator at a rural utility does not require the same level of detail in the test plan as that of a source test to evaluate air toxics from a hazardous waste incinerator. The required information and level of detail will be guided by the required EPA methods and the discretion of the plan reviewer. When in doubt seek guidance from your supervisor, your ADEQ Subject Matter Expert (SME), an EPA SME at the Emission Measurement Center (EMC), or an ADEC staff member experienced with source test plan review.	*NA	Addressed in the Test Plan	Acceptable	
			YES	NO
Was the source test plan received in a timely manner as specified by the permit?	☐	☐	☐	☐
Comments:				
Was the source test plan properly certified by the responsible official?	☐	☐	☐	☐
Comments:				
1.0 INTRODUCTION – Does the introduction provide an overview of the test program by identifying the following elements?				
Permittee's Name	☐	☐	☐	☐
Source Testing Firm's Name	☐	☐	☐	☐
Overall Purpose for the Testing	☐	☐	☐	☐
Applicable Regulations	☐	☐	☐	☐
Name and Location of the Source	☐	☐	☐	☐
Emission Unit(s) ID(s) to be Tested	☐	☐	☐	☐
Air Pollution Control Equipment	☐	☐	☐	☐
Emission Point(s) and Sampling Location(s)	☐	☐	☐	☐

* NA – Not Applicable
Last revision 9/10/2010 WAE
Reviewed by SAAID 7/21/2010

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Source Test Plan Review Checklist

Review Findings	*NA	Addressed in the Test Plan	Acceptable	
			YES	NO
Pollutants to be Measured	☐	☐	☐	☐
Expected Test Dates	☐	☐	☐	☐
An organizational chart or list of all participating groups, contractors, and source representatives including personnel assignments, responsibilities, qualifications and contact information	☐	☐	☐	☐
Comments:				
2.0 SOURCE DESCRIPTION – Does the source description provide the following information				
Flow Diagram (that indicates the emission and/or process stream test points) and a general description of the source's emission process	☐	☐	☐	☐
Discussion of the emission unit operation that might affect the testing or test results, ex. reduced loads	☐	☐	☐	☐
List of key operating parameters to be measured during the test, standard operating ranges, Fuel types, production rates or feed rates	☐	☐	☐	☐
Comments:				
Air Pollution Control Equipment Description Description of any air pollution control systems associated with the source being tested	☐	☐	☐	☐
Discussion of the typical control equipment operation and, if available, a schematic	☐	☐	☐	☐
List of Control equipment parameters to be measured during the test with normal operating ranges of the key parameters	☐	☐	☐	☐
Comments:				
3.0 TEST PROGRAM - Test Matrix – Does the plan include the following information?				
Sampling Locations	☐	☐	☐	☐
Number of Runs	☐	☐	☐	☐
Sample type/Pollutant(s)	☐	☐	☐	☐
Sample Method(s)	☐	☐	☐	☐

* NA – Not Applicable
Last revision 9/10/2010 WAE
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Summary

- The Seven P's
- Work with your tester to get the site prepared for a safe, accurate, and smooth test program
- Rely on your tester to create a thorough test plan
- Provide all requested information so they can complete the plan

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Kenley Houtz
East Business Development Manager - Stack
khoutz@montrose-env.com - (540) 354-0074