

Summary of CISWI Test Procedures, Methods, and Reporting Requirements

This document provides an overview of approved methods, target pollutant units of measure, and reporting requirements for the CISWI test plan. The document is organized as follows:

- 1.0 Stack Testing Procedures and Methods**
- 2.0 How to Report Data**
- 3.0 How to Submit Data**
- 4.0 Contact Information for Questions on Test Plan and Reporting**

1.0 Stack Testing Procedures and Methods

The EPA CISWI test program includes stack test data requests for several pollutants, depending on the availability of existing test data. If you operate a CISWI unit, you were selected to perform a stack test for some combination of the following pollutants: Carbon monoxide (CO), cadmium (Cd), mercury (Hg), lead (Pb), dioxins/furans (D/F), hydrogen chloride (HCl), hydrogen fluoride (HF), metals (antimony (Sb), arsenic (As), beryllium (Be), chromium (Cr), cobalt (Co), manganese (Mn), nickel (Ni), phosphorous (P), and selenium (Se)), oxides of nitrogen (NO_x), particulate matter (PM (filterable), PM_{2.5}, condensable PM), and sulfur dioxide (SO₂).

Refer to page 1 of the Section 114 letter you received for the specific combustion unit and pollutants we are requesting that you perform emission tests for.

1.1 How to Select Sample Location and Gas Composition Analysis Methods

U.S. EPA Method 1 of Appendix A of Part 60 must be used to select the locations and number of traverse points for sampling. See <http://www.epa.gov/ttn/emc/methods/method1.html> for a copy of the method and guidance information.

Analysis of flue gas composition, including oxygen concentration, must be performed using U.S. EPA Methods 3A or 3B of Appendix A of Part 60. See <http://www.epa.gov/ttn/emc/methods/method3a.html> for Method 3A or <http://www.epa.gov/ttn/emc/methods/method3b.html> for Method 3B information.

1.2 CISWI Test Methods and Reporting

Table 1.2 presents a summary of the recommended CISWI test methods for each pollutant and possible alternative methods. For copies of the recommended U.S. EPA methods, Performance Specifications (if applicable) and additional information, please refer to EPA's Emission Measurement Center website: <http://www.epa.gov/ttn/emc/>. If you would like to use a method not on this list, please contact EPA for approval of an alternative method.

Each test should include three test runs. All pollutant concentrations should be corrected to 7% oxygen and should be reported on the same moisture basis. The recommended units of concentration for each pollutant vary, and are listed in Table 1.2. Report the results of your stack tests according the directions provided in Section 2.0 of this enclosure. In addition to the emission test data, we also require a report of the following process information taken at the time of the emissions test: Heat input; fuel/waste description, composition and feed rate; steam or hot water output (if the CISWI unit has a waste heat boiler); emissions control devices in use during the test; control device operating or monitoring parameters (including, as appropriate to the control device, flue gas flow rate, pressure drop, scrubber liquor pH, scrubber liquor flow rate, sorbent type and sorbent injection rate).

Table 1.2: Summary of CISWI Test Methods and Alternative Methods

Pollutant	Recommended Method	Alternative Method	Concentration Units (@ 7% O₂)
CO	U.S. EPA Method 10, 10A or 10B	None**	ppmvd
D/F	U.S. EPA Method 23. Collect a minimum volume of 2.5 cubic meters or have a minimum sample time of 4 hours per run.	None	ng/dscm
HCl and HF	U.S. EPA Method 26A	U.S. EPA Method 26 if there are no entrained water droplets in the sample.	ppmvd
Hg	U.S. EPA Method 29*	ASTM-D6784-02 (Ontario Hydro Method). Collect a minimum volume of 2.5 cubic meters or have a minimum sample time of 2 hours per run.	mg/dscm
Metals	U.S. EPA Method 29.* No permanganate solution needed, if Hg will not be measured. Collect a minimum volume of 4.0 cubic meters or have a minimum sample time of 4 hours per run. Determine PM emissions according to §8.3.1.1. Use ICAP for the analytical finish, but, if non-detects are determined for any metals other than phosphorous (P) or selenium (Se), repeat analytical finish for those non-detected metals using ICPMS.	U.S. EPA Method 12 may be used for Pb.	mg/dscm
PM _{2.5} from stacks without entrained water droplets (e.g., not from units with wet scrubbers)	Other Test Method 27 (OTM 27) (include cyclone catch**)	None	mg/dscm
PM _{2.5} from stacks with entrained water droplets	Report PM emissions according to §8.3.1.1. of U.S. EPA Method 29*	U.S. EPA Method 5 or 17 for PM	mg/dscm
AND	AND ASTM D5907	Standard Methods of the Examination of Water and Wastewater Method 2540B	AND mg solids / liter of scrubber

Pollutant	Recommended Method	Alternative Method	Concentration Units (@ 7% O₂)
Total Dissolved Solids and Total Suspended Solids from wet scrubber recirculation liquid		for solids in scrubber recirculation liquid	recirculation liquid ^{***}
PM (condensable)	Other Test Method 28 (OTM 28)	None	mg/dscm
NO _x	U.S. EPA Method 7E	U.S. EPA Method 7, 7A, 7B, 7C, or 7D ^{****}	ppmvd
SO ₂	U.S. EPA Method 6C	U.S. EPA Method 6 ^{****}	ppmvd
O ₂	U.S. EPA Method 3A	U.S. EPA Method 3B	%
Moisture	U.S. EPA Method 4	None	%

*If both mercury and other metals will be testing using EPA Method 29, the stack test company should be diligent in the set-up and handling of the impingers to avoid cross contamination of the manganese from the permanganate into the metals catch. Alternately, the contractor may want to collect mercury on a separate train from the train used to collect the other metals.

** PM filterable is determined by including the cyclone catch.

***Also report scrubber recirculation liquid flow rate in liters/min and fuel feed rate in mmBTU/hr.

****If a combustion unit has CEMS installed for CO, NO_x and/or SO₂, the unit can report daily averages from 30 days of CEMS data in lieu of conducting a CO, NO_x and/or SO₂ stack test. In order to correlate these emissions with other stack test emissions, a portion of the CEMS data should contain emissions data collected during performance of the other requested stack tests. The CEMS must meet the requirements of the applicable Performance Specification: CO – Performance Specification 4; NO_x and SO₂ – Performance Specification 2.

2.0 How to Report Data

The method for reporting the results of any testing and monitoring requests depend on the type of tests and the type of methods used to complete the test requirements. This section discusses the requirements for reporting the data.

2.1 Reporting stack test data

If you conducted a stack test using one of the methods listed in Table 2.1, (Method 6C, Method 7E, Method 10, Method 17, Method 25A, Method 26A, Method 29, Method 101, Method 101A, Method 201A, Method 202) you must report your data using the EPA Electronic Reporting Tool (ERT) Version 3. At present, only these methods are supported by the ERT. ERT is a Microsoft® Access database application. Two versions of the ERT application are available. If you are not a registered owner of Microsoft® Access, you can install the runtime version of the ERT Application. Both versions of the ERT are available at http://www.epa.gov/ttn/chief/ert/ert_tool.html. The ERT supports an Excel spreadsheet application (which is included in the files downloaded with the ERT) to document the collection of the field sampling data. After completing the ERT, will also need to attach an electronic copy of the emission test report (PDF format preferred) to the Attachments module of the ERT.

Table 2.1: List of Test Methods Supported by ERT

Test Methods Supported by ERT
Methods 1 through 4
Method 7E
Method 6C
Method 5
Method 3A
Method 29
Method 26A
Method 25A
Method 202
Method 201A
Method 17
Method 101A
Method 101
Method 10
CT Method 40
CT Method 39

If you conducted a stack test using a method not currently supported by the ERT, you must report the results of this test in a Microsoft® Excel Emission Test Template. The Excel templates are specific to each pollutant and type of unit and they can be downloaded from (<http://www2.ergweb.com/projects/combustion/combustiontesting.html>). You must report the results of each test on appropriately labeled worksheet corresponding to the specific tests requested at your combustion unit. If more than one unit at your facility conducted a stack test using methods not currently supported by the ERT, you must make a copy of the worksheet and

update the combustor ID in order to distinguish between each separate test. After completing the worksheet, you must also submit an electronic copy of the emission test report (PDF format preferred).

If you have CO CEMS that meets Performance Specification 4 or a SO₂ and/or NO_x CEMS that meets Performance Specification 2 installed at your combustion unit, and you used CEMS data to meet CO, SO₂ and/or NO_x test requirements at your facility, you must report daily averages from 30 days of CEMS data in a Microsoft® Excel CEMS Template. The Excel templates are specific to each pollutant and type of unit and they can be downloaded from (<http://www2.ergweb.com/projects/combustion/combustiontesting.html>).

2.2 Required Fields for ERT Reporting

Some of the fields contained in the ERT were already collected during the 2008 combustion survey and these data will not be recollected in the ERT. This section outlines the required data entry fields for the ERT in order to satisfy the requirements of this ICR combustion test program. Appendix A lists each field within the ERT and notes whether or not the field is required or optional.

3.0 How to Submit Data

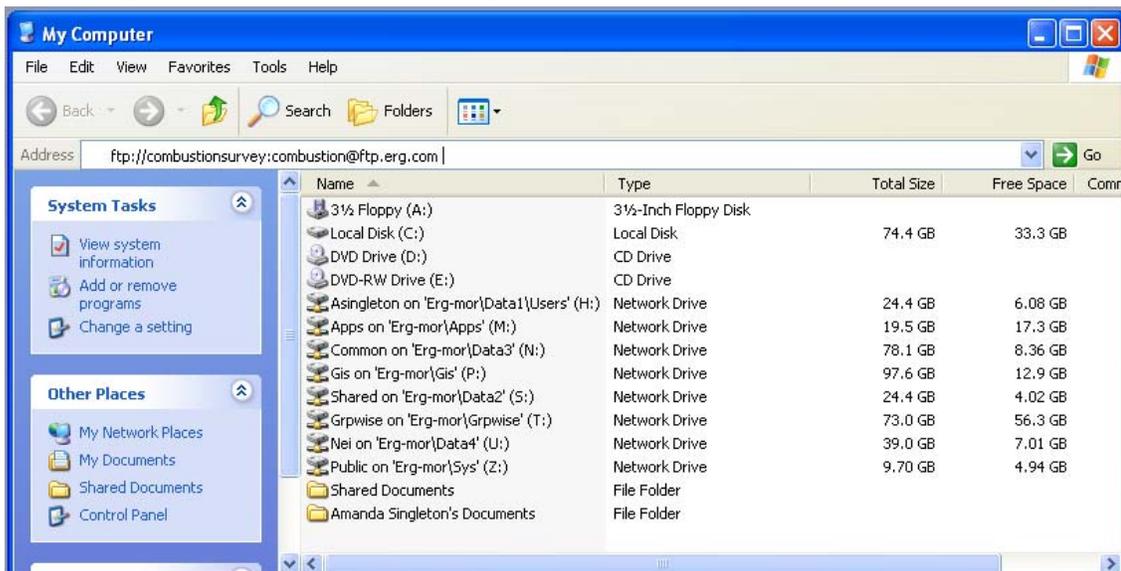
You may submit your data in one of three ways as listed below. However, in order to avoid duplicate data and keep all data for a particular facility together, we request that you submit all of the data requested from your facility in the same way. To submit your data:

- E-mail an electronic copy of all requested files to combustionsurvey@erg.com.
- If the files are too large for your e-mail system, you may upload the electronic files to a FTP site (see directions for FTP site procedures below).
- Mail a CD or DVD containing an electronic copy of all requested files to the EPA address shown in your Section 114 letter. If no electronic copy is available, mail a hard copy of all requested files to the EPA address shown in your Section 114 letter.
- If you are submitting Confidential Business Information (CBI), you must mail a separate CD or DVD containing only the CBI portion of your data to the EPA address shown in your Section 114 letter.

The steps below outline how to upload files to the FTP site by using “My Computer” as well as by using an FTP Client software.

Directions for accessing the FTP site via “My Computer”...

Step 1: Go to “My Computer” and enter <ftp://combustionsurvey:combustion@ftp.erg.com> in the address bar. A window will open containing other files that have been uploaded to the FTP.



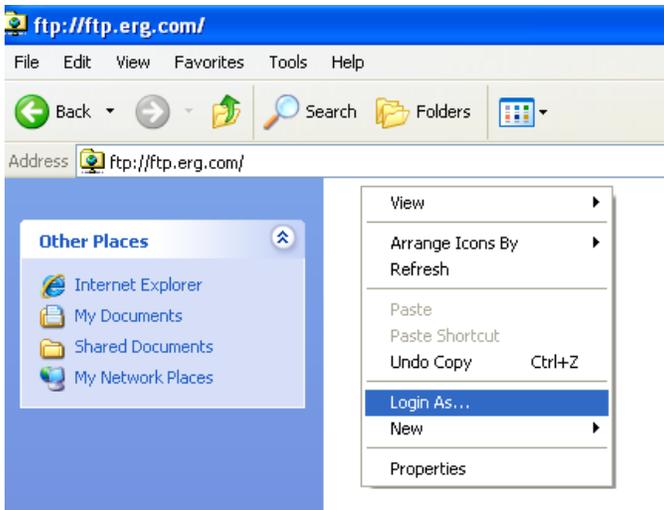
Step 2: Create a folder containing all of your survey response files. You may name the folder as follows, without using any spaces in the folder name: “StateAbbreviation_FacilityName_City” (e.g., NC_NCStateUniversity_Raleigh). Copy

and paste the entire folder from your computer to the window pointing to <ftp://combustionsurvey:combustion@ftp.erg.com>.

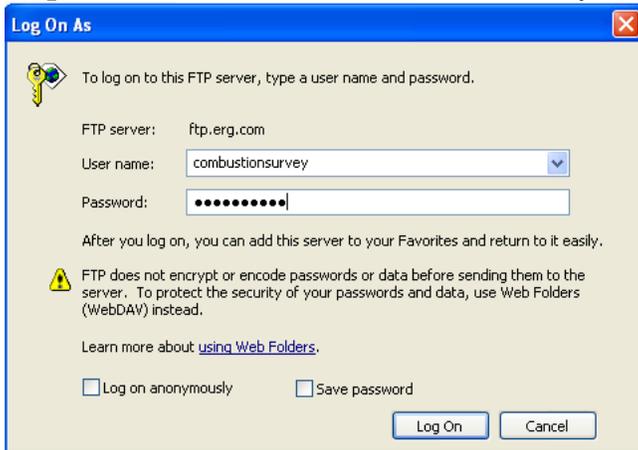
Step 3: If you get an error saying you do not have permission to put files on the server, you may need to manually enter a username and password. Otherwise proceed to step 4.



Step 3a: To manually enter a username and password, Right click on your mouse inside the FTP window and select "login as".



Step 3b: Enter Username: "combustionsurvey" and password "combustion".



Step 3c: Copy and paste your files from your computer to the FTP site.

Step 4: To ensure that your files have been uploaded, please wait for the file transfer to complete before shutting the FTP window.

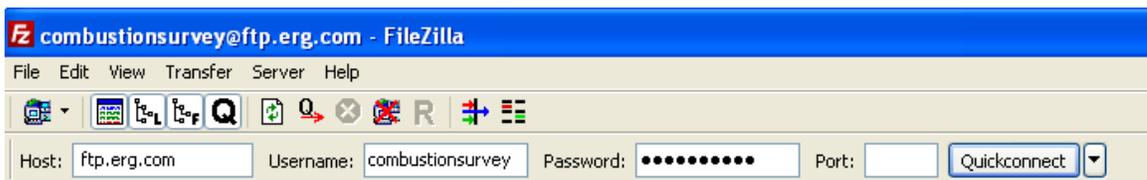
Step 5: Send an e-mail to combustionsurvey@erg.com that lists the names of the folders you have uploaded to the FTP site.

Directions for accessing the FTP site via an FTP Client Software...

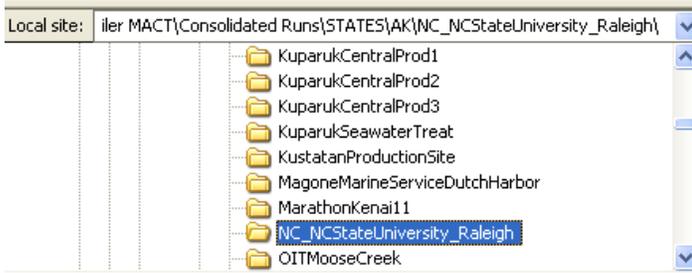
FTP Client software programs prevent FTP timeout errors and are available for free on the internet. Contact your MIS support staff for instructions on your company FTP software or download a copy of FileZilla Client FTP software at (<http://filezilla-project.org/download.php>).

Step 1: Download and Install FTP Client Software.

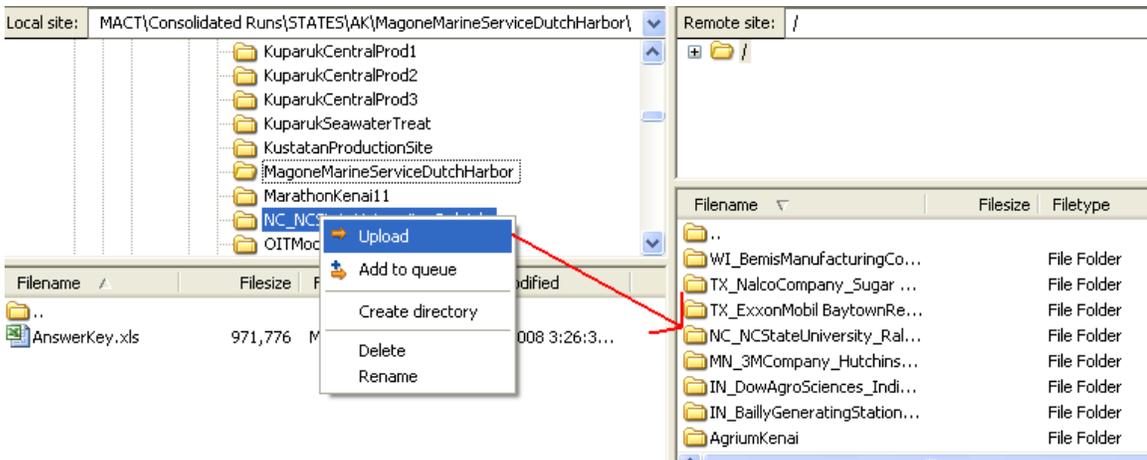
Step 2: Enter host "ftp.erg.com", Username: "combustionsurvey", and Password: "combustion". Then select the "Quickconnect" button. A screenshot of how this looks in Filezilla is shown below.



Step 3: Go to the "Local site" window in FileZilla (or other FTP Client software) and navigate to the location where your files are saved. Be sure to name the folder containing your files as follows: "StateAbbreviation_FacilityName_City" (e.g., NC_NCStateUniversity_Raleigh).



Step 4: Right click on the folder containing your files to be submitted and select “upload”. The file should automatically copy to the remote site location on FTP site. In the figure below the folder “NC-NCStateUniversity_Raleigh” was uploaded to the FTP site and now appears in the remote site window. You can click on the folder in the remote site window to ensure that all the folder contents have uploaded correctly.



Step 5: Send an e-mail to combustionsurvey@erg.com that lists the names of the folders you have uploaded to the FTP site.

4.0 Contact Information for Questions on Test Plan and Reporting

For questions on how to report data using the ERT, contact:

Ron Meyers (U.S. EPA)
(919) 541-5407
myers.ron@epa.gov

OR

Barrett Parker (U.S. EPA)
(919) 541-5635
parker.barrett@epa.gov

For questions on the test methods contact:

Peter Westlin (U.S. EPA)
(919) 541-1058
westlin.peter@epa.gov

OR

Gary McAlister (U.S. EPA)
(919) 541-1062
mcalister.gary@epa.gov

For questions on the CISWI test plan, including units selected to test, test methods, reporting mechanisms other than the ERT, contact:

Brian Shrager (U.S. EPA)
(919) 541-7689
shrager.brian@epa.gov

For questions on uploading files to the FTP site, contact:

Kristen James
ERG (contractor support)
(919) 468-7828
combustionsurvey@erg.com