Compilation of questions and responses for the Boiler and CISWI ICR – fifth edition, July 28, 2009

Question Category	Question	Response
Formaldehyde Testing	For the testing of formaldehyde, 0011 is the stated method. Is the version of 0011 which employs the midget impingers allowed for this testing event?	No, the isokinetic version is required.
Fuel Analysis Methods	Does EPA approve of the following alternative methods for analyzing biomass fuels? Heat Content - ASTM D5865 Moisture - ASTM D5142	Yes, both of these methods are specifically for the analyses of coal and coke fuels and can be applied to any other solid fuels. In general, any ASTM methods approved under this test plan. ASTM methods are considered to be voluntary consensus standards and meet the definitions of "equivalent" in Section 6.0 of Enclosure 1 in your Section 114 letter.
Gas-fired units	**We** are expecting very low levels of PM and Dioxins and HCL. Does EPA have any minimum catch requirements in terms of micrograms for OTM27 & OTM28 or nanograms for dioxin for this test program, or are non-detect results acceptable?	On the minimum sampling criteria, we did not specify minimum catches for either dioxin/furan or the PM testing but instead specified minimum sampling times (see http://www.epa.gov/ttn/emc/guidlnd/gd-051B.pdf). If testing results in values below the in-stack detection limit, you need to report the in-stack detection levels that apply to your tests. We will assess the data in light of the detection levels reported as we prepare summaries of the program findings. Also see further discussion of detection limits in this guidance document.
HCL/HF Testing	I am proposing to use Method 26A as per the Enclosure 1 guidance document for testing HCl/HF. Since we had no entrained droplets and were not using the front-half for particulate measurement, I proposed to sample with the large impingers at a constant rate for the duration of the 1 hour run. I have found the use of the large impingers and larger sample volume have always produced better repeatability with acid gas emissions measurement than the midget impingers as prescribed in Method 26. Please comment on the use of the hybrid Method 26/26A.	Yes, use of Method 26A with the Greenberg-Smith impingers in a constant sampling rate mode in lieu of Method 26 (midget impingers) is acceptable for this program when there are no liquid droplets in the flue gas. You should operate the train at approximately 0.75 cfm range as per Method 5 procedures. Please document clearly how you operate the trains for the testing in your report.
Methane/THC	Is Method 25A acceptable to use for the determination of methane if the FID has a methane cutter?	No, a Method 25A sampling system with a typical methane cutter is not acceptable; although, there are some THC/TGNMO measurement systems with GC separators that would qualify for this program. See: http://www.epa.gov/ttn/emc/guidlnd/gd-051B.pdf
Methane/THC	Should THC results be reported as carbon, as methane, or as propane?	The method calls for reporting concentration in terms of the calibration gas. In this case, we would expect testers to calibrate with propane. In any case, you should include in your report what calibration gas used for the tests; EPA can adjust the data to other appropriate compounds or as carbon, as needed for regulatory development.
Method 5/Method 26A	When facilities propose to use a combination 5/26A Method for compliance tests in South Carolina, we always require them to maintain the probe and filter temperature between 248 and 273 degrees F to prevent acid gas condensation. See Section 8.1.5 of Method 26A. The minimum allowable temperature for Method 5 would be 223 degrees F which could allow some condensation and subsequently bias the acid gas emission rate low. We go on to require that both of those temperatures (probe and filter) be recorded on the field data sheets. To ensure consistency between Method 26A vs. 26A/5 results, you may want to consider this potential bias.	We agree with you that the probe and filter temperatures must be maintained above 248F when using Method 26A and that recording these data are important as the method requires. We also agree that there is potential for a difference in filterable PM measurements between tests with probe temperatures as low as 223F when using Method 5 and 248F when using Method 26A for stacks with condensible acid gases (e.g., sulfuric acid). The magnitude of this potential difference is difficult to predict but the sources providing the information on these and other sampling conditions as per the ERT will allow us to assess the effect of such differences in the results.
PM Testing	Is PM10 sampling required with the PM 2.5?	You are not required to measure PM10. For stacks as small as 12 inches the blockage effects will prohibit the use of the PM2.5 in-stack cyclone (see http://www.epa.gov/ttn/emc/guidlnd/gd-051D.pdf) and you must use Method 5 (or Method 29 or 26A) and report total filterable PM as PM2.5. You should report what method you use to report the results of PM2.5.

Compilation of questions and responses for the Boiler and CISWI ICR – fifth edition, July 28, 2009

PM Testing	Would collecting the PM catch with the M26a train rather than the M-29 train be acceptable?	Yes, you may use the Method 26A train to measure filterable PM.
PM Testing	OTM-28 specifies that the glassware should be baked at 300 degrees C (572 degrees F) for 6 hours during the cleaning/preparation phase. Is there any variance to the temperature? Would 525 degrees F be sufficient for the baking prep?	We believe that baking glassware for this method at temperatures lower than 300° C could lead to unacceptably high blank values. The purpose of the baking at 300 C is to reduce the inorganic blank to the 0.5 to 1 mg levels. In laboratory studies, we used the standard baking at 125° C (275° F) as the finish and we found intermittent blanks over 5 mg. We did not have the time or resources to identify where between these two temperatures that would be sufficient to control the blank levels to the low level that we and the stakeholders indicated would be required for low level emissions sources. We strongly recommend that you bake the glassware at 300° C to insure that your blank values are controlled to the low levels that are possible with the method. Recognize that the method requires only one blank train and limits the blank subtraction to 2 mg. Because of the intermittent nature of the high blanks there is no guarantee that the high value will occur with the blank and is more probable to occur with one or more of the samples. My experience with another project suggests that these intermittent releases of material from glassware may survive a couple of recoveries or cleanings before they are released unexpectedly. Should you wish to evaluate the use of an oven temperature of 525° F, conduct a blank analysis study using ten to twenty impingers. If the recoveries from these samples are consistently under 1 mg, then perhaps the temperature needed to control the blank levels is below this temperature. Whatever you do for the ICR project, be sure to fully document any alternative preparation techniques that you use.
Process Parameters during testing	Does the testing require the same load each day of tests?	The unit should be at basically (+/- 10%) the same load during each day of testing.
Sampling Times	I understand the OTM-28/28 has to run simultaneously with the Method 29 train. Does this mean the run time for the OTM-27/28 has to be four hours as well?	Yes, for testing of MACT boilers, the sampling time for both PM/PM2.5 and metals is four hours. For testing of CISWI units, the minimum sampling time for metals is four hours but for PM/PM2.5 is one hour.

Section 114 authority: Data Quality	What are the expected minimum detection levels for measuring formaldehyde, HCl ,and HF using Method 320 for the boiler emissions ICR program?	Our earlier response on this issue was that the agency is not specifying numerical detection limits but instead we have specified testing conditions and methods, including test run times when appropriate, which we believe will provide data of a quality sufficient for decision making. (see http://www.epa.gov/ttn/emc/guidlnd/gd-051B.pdf) We agree that we need to expand on that response in light of this question specifically with regards to using an instrumental test method such as Method 320. First, we note that testers using instrumental methods in lieu of manual integrating methods (e.g., Method 320 in lieu of SW 846 Method 0011) need to use measurement technology and associated procedures that will provide minimum detection levels at least as low as that of the specified manual integrating test method and the test run minimum volumes and run times required in the enclosure. For example, this means the FTIR technology used to measure formaldehyde must produce an in-stack detection level at least as effective as that outlined in SW 846 Method 0011, table 2 (a DL_i adjusted for the sampling times and sampling volumes required for the ICR testing). Second, we remind source owners and testers that this ICR is authorized by the Clean Air Act section 114(a)(1) requirement to provide information for the development of emissions standards using methods that provide data necessary for the decisions. That includes applying methods and procedures resulting in data quality sufficient to support those decisions. For the most part, we can identify test methods and procedures that will satisfy those decision making needs (e.g., minimum sampling times). In other cases, we recognize that the source owners or testers can choose test procedures or equipment that could bear significantly on the quality of the data produced. An important element of that data quality is use of technology and procedures that assure acceptably low detection limits considering reasonable practical limitations. For example, source owners and testers should not automatically choose to use low quality equipment for testing (e.g.,for cost reasons) over reasonably available higher quality technology particularly if such equipment would produce data of poor quality (i.e., at least as effective as the other prescribed methods) and insufficient to support the ICR . We will review test reports provided for this program in light of this expectation and will be particularly mindful of whether the testing procedures applied are representative of reasonably available high quality measurement capabilities (e.g., comparing reported minimum measurement detection levels with required or other reported measurement capabilities). If we believe that a source owner or tester has failed to meet the requirement of the Act to provide data sufficient to support goals of the ICR, we can and will request additional measurements using improved and appropriate testing procedures.

Compilation of questions and responses for the Boiler and CISWI ICR – fifth edition, July 28, 2009

Section 114 authority: Data Quality	EPA has received reported concerns from state field inspectors about test plans that propose short cuts in the testing requested by EPA. In one case the facility proposes shorter test runs of one hour instead of the 4 hours requested. In another, the fuel sampling would omit testing for chlorine for the blended fuel. These are just a few examples. Several states are concerned that no entity is reviewing the test plans and if sources are deviating from the instructions the test results may not provide the desired data needed to develop the revised rule.	Based on the schedule required for collecting and compiling the ICR data, there is not time available for EPA to review each facility's test plan. However, similar to the response provided above for minimum detection levels, we remind source owners and testers that this ICR is authorized by the Clean Air Act section 114(a)(1) requirement to provide information for the development of emissions standards using methods that provide data necessary for the decisions. This 114 requirement includes applying methods and procedures resulting in data quality sufficient to support those decisions. In light of these concerns, EPA will be reviewing the reported results and test reports to ensure that the methods and procedures used during the tests followed EPA guidance for this ICR. If EPA believes that a source owner or tester has failed to meet the requirement of the Act to provide data sufficient to support goals of the ICR, we can and will request additional measurements using improved and appropriate testing procedures.
Small Boilers	A less than 10 million btu/hr natural gas fire boiler with a stack diameter of approximately 12 inches runs up through the building roof. We plan to test from the roof. I would like to know if for the purposes of this test program, EPA would accept more than one set of sample ports located on three levels to run simultaneous sampling trains.	Yes, it is acceptable to conduct tests from multiple ports at different levels in the stacks (e.g., separated by 2 or more stack diameters) would be an acceptable means to allow simultaneous sampling with different test methods. With such a small stack and the multiple sampling trains, you probably want to measure flow rate at the most upstream location to avoid any interference.
Soot-blowing	Obviously a soot-blowing run is required for PM but what other pollutants need to be included in a soot-blowing run? This is important as many facilities will be unable to conduct all the test methods simultaneously and will have to schedule alternate runs on other days so assurances that the appropriate time has passed since their next scheduled soot blow is needed. Some facilities blow soot every other day and you would not want them to conduct another soot-blowing run for another pollutant on back to back days if their normal schedule is every 2 days.	The expected effects of soot blowing on measured results very likely applies to metals emissions as well as to PM emissions. As we have indicated, we have requested that sources conduct PM and metals emissions measurements simultaneously. In that way, we will have data that represents the effects of soot blowing for both of these pollutant groups. We expect that soot blowing would have little to no effect on emission's of D/F, HCL, or the organic emissions.
Wet Stacks	The boiler has an ESP control device but the stack moisture is 30% or better with water droplets. They are concerned in deviating from the OTM27 method since it is not a "wet scrubber" as specified within the letter. We are proposing 5/OTM-28 as the proper approach, does EPA agree in this case?	Enclosure 1 referred to wet scrubber control technology as an example of situations in which water droplets often carry over to the stack; however, Method OTM 027 is not applicable in any situation where there are water droplets in the stack regardless of the control technology applied (see http://www.epa.gov/ttn/emc/guidlnd/gd-051B.pdf). In such cases, one should apply Method 5 or one of the accepted alternatives for measuring filterable PM.