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Question Category	Question	Response
Electronic Reporting Tool	The electronic Emission Test Template states: "Facilities on the Boilers and Process Heaters test plan that were selected to test for HCl that do not use Method 26A to test for HCl or HF". This is a little confusing, because what if you are using M26A – wouldn't you want to use the same form?	Yes, you should apply the ERT if you are using Method 26A. Both method 26 and 26A are supported in the ERT. That statement is in the ICR enclosure because we had already received a comment/request to use EPA Method 320 or the ASTM method for HCl. Since Method 320 is not supported, HCl and HF would not have to be reported with the ERT.
Fuel Sampling	Is method ASTM D-3684 an acceptable method for testing mercury in coal?	Yes, this is an acceptable method.
Fuel Sampling	Is method ASTM D-4208 an acceptable method for testing chlorine in coal?	Yes, this is an acceptable method.
Fuel Sampling	Based on the ERG spreadsheet for the fuel sample variability study, can you please verify that we need the following samples? • 3 samples for the emissions testing (assuming 3 days) • 9 samples for the variability study (composited every 3 days for 27 days) • Total of 12 samples	Correct, we are requesting that 12 composite samples be collected and analyzed for each fuel fired during the test. The 3 composite samples collected during the emission testing should be collected during the stack test runs for PM, mercury, metals, and HCL/HF since these are the constituents being analyzed in the fuel samples.
Fuel Sampling	Section 2.0 (Fuel Analysis Procedure and Methods), Paragraph 2 of Enclosure 1 to the ICR letter says that one fuel sample be collected during the stack test and nine additional fuel analyses (each comprised of one composite sample) spread across even intervals of a 30-day testing period. My interpretation of the nine additional samples is one sample will be taken each day for 27 consecutive days (excluding the stack test days) and the first three individual samples will be combined to create the first composite sample, then the next three individual samples combined to create the second composite sample, so on until nine composite samples are obtained. Is this correct? Each individual daily sample will be taken from a sample tap at the discharge line of the storage tank.	We agree with your interpretation of the fuel sampling scheme during the 30 day monitoring period.
Fuel Sampling	To get the most representative sample during testing, we have to sample off of the feeders going right into the boiler. Because the feeders go directly to the furnace there is no way to "stop" a belt for a sample. We feel this location would give the most representative data, but may not adhere strictly to a stop belt sampling protocol. Is this acceptable?	Yes. The manual sampling and sample preparation procedures (ASTM D2234 type II, A, B, or C and systematic spacing are acceptable alternatives to the stopped belt or ASTM D2234 type I automatic sampling procedures for the boiler MACT ICR program.
Fuel Sampling	ASTM D 4606-03 Standard Test Method for Determination of Arsenic and Selenium in Coal by Hydride Generation/Atomic Absorption appears to be an acceptable method for determination of Selenium in Coal. Is D4606 considered an equivalent method for Arsenic also? Can this method be used for Arsenic and Selenium in Biomass and Other Solids as well?	Yes. ASTM Method D4606 is considered an approved equivalent method for sampling Arsenic and Selenium in biomass and other solid fuels.

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Fuel Sampling	Please advise regarding the acceptability of the ASTM Standard Test Methods for the above captioned testing program. Mercury Concentration, Other Solids (primarily Tire Derived Fuel) - ASTM D6722-04 Total Selected Metals, Other Solids (primarily Tire Derived Fuel) - ASTM D6357-04 ICPMS Phosphorus, Coal, Biomass, Other Solids ASTM D6357-04 ICAP/ ICPMS Antimony. Coal, Biomass, Other Solids ASTM D6357-04 ICPMS Chlorine Concentration. Biomass and Other Solids ASTM D6721-01	All the ASTM test methods for fuel analysis you listed are acceptable for this testing program.
Methane/THC	Since natural gas is a small part of the fuel blend, we are expecting very low methane concentrations. Can 1 or more integrated bag/can samples (2 12-hr samples or 24-hr sample) be used for methane determination?	Yes, you may collect a single integrated gas sample each day during the 30-day monitoring period to determine the average methane concentration for that day. The sample may be collected continuously for the entire 24-hour period or may be collected intermittently. If the sample is collected intermittently, the sampling system must be designed to take at least one minute of sample during at least each 15-minute time period during the day.
Methane/THC	The 051b Q&A document provided by EPA indicates that a methane cutter analyzer or methane/non-methane analyzer can be used to measure and report TGNMO. Does this mean that if you employ one of these analyzers and report results as TGNMO that total hydrocarbons (THC) and methane (CH4) do not need to be measured?	No, you need to report both components. In order to assess correlations between HAPs and THC and between HAPS and TGNMO, we need data for both THC and TGNMO. We believe that the splitters used to make these kinds of measurements can measure all of these (THC, Methane, and TGNMO) at the same time, so if you have all three values you should report all three of them, but you must report THC and TGNMO.
Method 26A	As per EPA Method 26A, hydrogen halides are collected in the 0.1N H2SO4 (first two) impingers whereas halogens are collected in the 0.1 N NaOH (last two) impingers. Since we are only looking to quantify HCl and HF, can the NaOH impingers be eliminated?	Yes. Because you are required to measure only hydrogen halides, you may eliminate the final two impingers that would contain the 0.1 N NaOH solution for collecting the elemental halogens.
Method 29 – reporting Metals Data	Question 23 in the "Summary of Questions on Boiler ICR Presented During 6/18/09 Webinar" says that front and back half metals need to analyzed separately. However the reporting template on the ERG web site only has a place for one number. Please clarify. Please communicate why it is necessary to report the front and back-half metals separately.	To report the data, complete the metals tab of the Excel template file twice. The respondent can fill out the process and fuel-related information once, and then copy over the worksheet. On one of the metals tabs, indicate in the notes column that it represents metals in front half, and the other tab indicate in the notes column that it represents metals in the back half. The reason that we need the front half and back half samples from Method 29 for metals analyzed and reported separately is that this will afford us the most flexibility in analyzing and potentially developing any surrogate relationship for metals/PM/PM-fine emissions.
Method 323/Method 316	The boiler we will be testing has only two ports. To avoid traffic jams with the other concurrent tests we would like to propose using the sampling approach of Method 323 with the addition of a second impinger for breakthough testing and the analytical approach of Method 316 purely to obtain the lower detection level. With a 4-hour sample time and a sample rate of 0.4 l/min we would attain a sample detection limit of 18 ppb. There would be the added quality insurance of a paired train.	You may combine the sampling approach of proposed Method 323, including the duplicate sampling train, with the analytical approach of Method 316, provided that you: (1) use two water filled midget impingers rather than the one specified in Method 323; (2) recover and analyze the impingers separately to check for potential breakthrough; (3) do not use this procedure in any stack where there are water droplets or the stack gas is saturated with water vapor.

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Multiple Stacks	We may have a facility that must test multiple stacks for Boiler MACT. Since the reported values are concentrations and not mass emission rates, what is the appropriate way to report the data?	Measure the concentration and the flow rate from each stack and then calculate an average concentration weighted by the individual flow rates. For example, if there were two stacks having respective concentrations of C1 and C2 and flow rates of F1 and F2. The overall concentration would be: $Cavg = (C1 \times F1 + C2 \times F2)/(F1 + F2)$
Non-Detect Data	For ASTM D6784-02 (OHM): Do you have a protocol to handle averaging runs where one or two of the runs are under the DL, but at least one run is above the DL? Without guidelines I would assume that those runs under the DL would be averaged as zero. Or should we use ½ DL or the DL in the average of the runs?	Do not adjust any measured data to account for analytical or in-stack detection limits. When you encounter situations where one or more results are below the detection level of the analytical (or instrument) you should report the fact that that (those) run(s) were below the detection limit and what was that detection limit. It would also be helpful (since some laboratories differ widely on their method to determine their limit of detection) to have a brief indication on the criteria used to determine the detection limit.
PM Testing	In Section 1.7 of OTM-27 there is a statement regarding the mass of PM that should be collected: "…you must extend the sampling time so that you collect the minimum mass necessary for weighing on each portion of this sampling train." This statement is referring to the use of OTM-27 as a replacement for M5 or M17, however it seems to imply that there is a requirement for a minimum mass to be collected for OTM-27. I don't see any place where the minimum mass is specified. Are there any guidelines for what the minimum mass should be? In the ERT report that we will need to fill out after testing there is a request to report in parentheses the detection limit if the result is under the DL. This is something that is normally associated with methods such as M29 or M23, but what about OTM-27? For example, in Oregon the DEQ requires the test company report the emissions based on a default of 20 mg if less than 20 mg of sample was collected for the entire train, front half plus back half. For OTM-27 we will be using a 5 place balance and weighing to a constant weight of 0.05mg. In the case of sources that have control devices the mass of $PM_{2.5}$ collected may be very low, even in a 2-4 hour test. If a specified mass isn't required then I would expect that there will be many $PM_{2.5}$ results that will be very low, and potentially meaningless. Another consideration is that the since there is normally a bidding process, if Test Company A bids for 2 hour runs and Test Company B bids for 8 hour runs, Company A will get the project, but Company B would have provided much more representative results. In the absence of a mass requirement, I would be concerned that a lot of the data reported may not be representative.	For the purposes of the ICR, you are required to perform the testing only for the indicated time period. If you measure values lower than detection limit results with these times, it will become our issue to resolve. While other guidelines may propose a minimum of 20 mg of PM collected, this may not be feasible in all situations Laboratory data EPA developed many years ago indicates that with good techniques, the standard deviation of blank Method 5/17 samples is on the order of 0.4 mg. The precision and accuracy of the balance is probably not the limiting factor in this variation of measurements. If one were to assume that this level of precision is achieved with non blank samples, the detection limit for PM on filters (say with 201A) is about 1.5 mg and that one could be within 10% of actual mass when you collect 4 to 5 mg of sample.
PM Testing	Section 1.6 of OTM-27 there is a statement regarding the maximum stack temperature: "This method may not be suitable for sources with stack gas temperatures exceeding 260°C (500°F)." For very clean sources that have good control devices it doesn't seem that there would be any problem just using M5/OTM-28 and assuming that all particulate matter collected is less than $PM_{2.5}$. However, for sources such as small refuse burning incinerators with only secondary combustion as a control device, using M5/OTM-28 would bias the $PM_{2.5}$ results high. This might be fine for a "worse-case" compliance determination, but would not be ideal for establishing an emission standard. The outlet temperatures may be in the range of 1000-1800 ºF.	The issues of wet stack conditions and hot stack conditions are issues that we now address with the statement to use EPA Method 5 and consider all the material as PM10 or PM2.5. For the purpose of the ICR, if you encounter either of these conditions follow the directions and guidance in Guideline Documents 51, 51A, 51B and 51C (and any subsequent GD51 documents). These are located at http://www.epa.gov/ttn/emc/guidlnd.html .

PM Testing	If only the $PM_{2.5}$ head is used (without the PM_{10} head), does this affect the equations shown in the method? OTM 27 states that sampling can be performed using only the $PM_{2.5}$ head, but I don't see where it mentions if the equations need to be modified. I am talking specifically about equations that directly affect the sampling rate and $PM_{2.5}$ cut diameter. I am assuming that the equations don't need modification, but want to verify that this is correct. We are starting our 1st test program on Monday and the test port will not accommodate a $PM_{10}/PM_{2.5}$ head configuration.	In OTM 27 (and the proposed Method 201A), the equations are the same for all the configurations of the particle sizing cyclones. Of course if you do not use the PM10 cyclones Equation 32 (Actual Particle Cut Diameter for Cyclone I) is a moot point since you should not care whether you would have achieved the correct PM10 cut diameter if you would have used that cyclone.
PM Testing	For OTM 28: Is there any reason that ice water can't be used in the 1st section of the sample box where the knockout impinger needs to be kept at less than 85ºF? Section 8.4.2 has the <85ºF requirement, but I don't see why it would hurt to use ice water to cool the impinger.	You may use ice-water to maintain the condenser box temperature. The purpose of the divided box with somewhat different temperature requirements is to minimize the potential to form sulfate artifact in the first two impingers and to maximize the collecteion of water vapor for calculating the moisture content of the sampled gas. Recognizing the increased potential to form sulfate artifact in the first two impingers, you can put the first two impingers in the same box or part of the box for the impingers that are intended to collect water vapor passing through the first two impingers and the back up filter. The temperature at the exit of the back up filter will be much lower than 85F and satisfy the requirements of the method. For the purposes of the ICR we would encourage stack testers to maintain the exit temperatures as near 85F as possible without exceeding that temperature and consistent with minimizing sulfate bias.
PM Testing	Based on my understanding, Method OTM-28 only requires that the gas stream at the exit of the CPM filter (filter between the dry and wet impingers) be maintained less than 85 degrees F. It is also my understanding that the final version of EPA Method 202, when promulgated, will have a minimum temperature requirement as well. For this program, is it only necessary to worry about the maximum temperature limit or should we be concerned about a minimum temperature limit as well.	OTM-28 does not specify a lower temperature limit and, for this testing program, you are required to follow the procedures in the existing OTM-28. The comment period for the revision of Method 202 closed on June 26. While there were several comments on the condensable collection temperature, EPA has not made any decision on whether to establish a minimum temperature limit. As stated above, we recommend that source testers minimize artifact formation by maintaining the maximum temperature practicable without exceeding the methods maximum of 85 F.

PM Testing	We are conducting PM2.5 testing on a stack with a 16" diameter. You had mentioned that you would look into seeing if the area of the head was too big for the size of the stack. If it is not possible to do testing, you mentioned just performing Method 5 for total. What is your decision on this matter?	We made several measurements of a PM2.5 head with a 47-mm filter holder attached. The design of these filter holders varies from manufacturer to manufacturer, so these blockage calculations should be considered as estimates of a typical PM2.5 cyclone with a filter holder attached to the probe. Our measurement for this configuration indicates that the minimum blockage (at the first sample point) would be about 4.82 square inches (since the inlet to a PM2.5 cyclone is located about 2.75 inches from the end of the cyclone). The maximum blockage (when the cyclone head is inserted into the stack to a depth of 18 inches) would be approximately 20.7 square inches. These values would correspond to a minimum blockage of about 1.9 percent, a maximum blockage of 8.1 percent, and an average blockage of about 5.0 percent. For a stack diameter of 16 inches, the minimum blockage would continue to be about 4.82 square inches and the maximum blockage would be reduced to about 18.7 square inches (since less probe sheath would be in the stack). These values would correspond to a minimum blockage of about 2.4 percent, a maximum blockage of 9.3 percent, and an average blockage of about 6.0 percent. When the pitot assembly is added, the minimum blockage for the case when the PM2.5 cyclone and the 47-mm filter holder is used would be about 5.32 square inches at the first sample point and about 32.0 square inches when the assembly in inserted all the way into the stack. Minimum blockage would be about 2.1 percent, maximum would be about 12.6 percent and average would be about 7.3 percent. Since this exceeds the maximum 6% blockage, this arrangement would not be acceptable for an 18 inch duct. This arrangement would be acceptable only for duct diameters exceeding 22 inches in diameter. One interesting item of note is that since the inlet to a PM2.5 cyclone is located about 2.75 inches from the end of the cyclone, the tester would be unable to collect a stack gas sample from traverse points 5 or 6. The traverse points would be located 2.6 and 0.8 inches from the far wall of the stack, respectively. The source tester should use the procedures in EPA Method 1 section 11.3.2.2 for sampling these points which can not be reached due to the length of the PM2.5 cyclone. In this situation, three points would be sampled at the location of traverse point 4 for the duration required for all three points (4, 5 & 6). If in measuring your PM2.5 cyclone, filter holder, probe sheath and pitot you find that the average blockage for the components exceed 6% of the duct area you should modify the hardware as follows until the blockage is less than 6%: (1) Use one of the procedures in Method 1a and remove the pitot from the sample train. Either locate the pitot at a downstream location or measure the velocities before and after conducting the emissions tests. (2) Move the filter holder from the in-stack location to a heated box. Run the probe from the stack to the filter at or near the in stack temperature. Recover all the material from the turnaround cup to the filter as required in Section 8.7.5.5(d). (3) Perform EPA Method 5 in lieu of OTM 27.

Sampling Times	In the Q&A document that's set up in table form (not the one that's in Q1, Q2, etc. format), there are a few "Sampling Times" questions that we're not seeing as having consistent answers. The question that asks: "Are you requiring a minimum sample volume or run time for formaldehyde testing by Method 0011?" is answered with "The 2 hours …criteria apply to the use of Method 0011….". Two questions down, "Do THC and CH4 also then need to be run for the duration of the formaldehyde …testing….?" EPA answers with "….The THC and CH4 sampling time should be the same as formaldehyde and D/F testing, 4 hours.". Which is correct, 2 hours or 4 hours? Another pair of sampling time questions earlier in the table essentially duplicates the 2 hour/4 hour answer for formaldehyde testing, so there are two places that say 2 hours, and two that refer to 4 hours. Testing contractors are seeing these requirements differently in their proposals, so I would appreciate your response as soon as possible.	I agree that we were not as clear as we could have been in these responses. The formaldehyde sampling times for CISWI tests with SW 846 Method 0011 can be 1 hour as stated in the compilation GD 51B. For the boiler testing, the sampling time for formaldehyde testing is a minimum of 2 hours (or 2.5 m3) with SW 856 0011 unless the formaldehyde testing is conducted simultaneously with the D/F testing. In that case, the sampling times should correspond to the D/F sampling time of 4 hours.
Sampling Times	EPA Method 316 for formaldehyde indicates that a detection limit of 11.3 ppb is possible with a 30 ft3 sample. If this detection limit acceptable and (as indicated in the first Q and A) breakthrough is concern and needs to be assessed, why is it necessary to run for more than 1 hour if a one-hour sample gives you the necessary dl and minimizes the chance of breakthrough. If a 1-hour sample run time is not considered adequate, what run time or sample volume would you require for this method.	Although shorter sampling times might be sufficient to ensure that you collected measurable amounts of formaldehyde, it would be preferable for consistency to have all of the methods that collect an integrated sample of formaldehyde operated for about the same time/same sample volume.
Sampling Times	Based on a previous question I had asked, it seemed clear that for dioxins/furans and formaldehyde testing that as long as the 2.5 M3 sample volume was collected, the run time could be adjusted accordingly (i.e., a four hour run time was not necessary). However, the 051b Q&A document states that for CISWI sources, the dioxin/furan run time has to be 4-hours minimum. Nonetheless, the ICR test plan still states that for CISWI sources, a 2.5M3 sample volume is all that is necessary. Please clarify.	You may sample for shorter times for CISWI sources provided you always collect at least the specified minimum sample volume.
Wet Stack Testing	Based on the fuels (coal, wood, etc..) and previous test data, THC concentrations are expected to be low (~1 ppm) on some boilers that we anticipate testing. Therefore, setting a span value of1.5-2.5 times the expected concentration and meeting calibration and drift requirements specified in M25A will not be possible. Has this issue been addressed so there is a uniform approach by testing companies?	In this case the span value could be set at a higher value such as 10 ppm.
Wet Stack Testing	A boiler that burns wood bark, paper, TDF with a small percentage of natural gas. CO concentration is expected to vary but O2/THC/CH4 is expected to remain relatively constant. The flue gas is controlled with two (2) WESP's, and both units have exhaust stacks. The expected moisture is ~30 percent (saturated), and there are no CEMS on this unit. Since the WESP's operation will affect formaldehyde emissions, is simultaneous testing required on both stacks?	Formaldehyde emissions should be measured simultaneously from both stacks.
Wet Stack Testing	The WESP's should not have an effect on CO and CH4, but could affect THC emissions (assuming water soluble). Can one (1) stack be monitored for CO, THC and CH4 for the 30-day period?	It is acceptable to monitor CO, CH4, and THC from only one of the stacks.

Wet Stack Testing	Due to PM loading and moisture, a dilution system (versus full extractive) is preferred assuming THC can be accurately quantified at these low levels. If using a dilution system, are heated sample lines required for the THC system?	Not necessarily. It is acceptable to dilute the sample to prevent water condensation in the sampling system provided the dilution does not drop the THC concentration below the detection limit. You must keep the sample gas above the water dew point at all times when transporting it from the stack to the instrument used to measure the THC. If you are able to dilute the sample enough so that the dew point of the diluted gas is below ambient temperature, you are not required to use a heated sample line.
Wet Stack Testing	Since the source is saturated (WESP control), is monitoring temperature and using saturation calculations acceptable for continuous moisture determination?	Yes. Because the source is saturated with water vapor, you may monitor the temperature of the gas stream continuously and calculate the volume of water vapor in the gas stream using the saturation vapor pressure at the measured temperature.