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Subject: FYI Q & A ON THE BUBBLE

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PULP & PAPER MACT II

1. Everyone is interested in the bubble. However, for the basis (either scfm, CaO, or BLS), what is the time frame requirement for the initial performance testing? Do all the units have to be tested at the same time, or can there be some flexibility (within one week, two week, six months,?). For most of these mills, it will be difficult to have all equipment running at maximum capacity concurrently for concurrent IPTs.

Answer: The bubble equations assume that the equipment (recovery furnaces, smelt dissolving tanks, and lime kilns) are all tested at approximately the same time since these processes are all interconnected. Sources should generally test at the maximum representative operating capacity at which they intend to operate. Sources would need to re-conduct performance tests if current operation is not representative of the

operation during the previous performance test such that the change in operation may adversely affect compliance. The burden is on the source to demonstrate that they are able to comply with the emission limits when operating under conditions which vary from those in place during the most recent prior performance test. Note that the smelt dissolving tank (SDT) receives smelt directly from the furnace, so a recovery furnace running at maximum capacity should presumably equate to maximum capacity for the SDT. However, a mill does not necessarily have to run the lime kiln at maximum capacity when the recovery furnace is run at maximum capacity because the mill has the ability to store lime mud rather than send it directly to the lime kiln. Conversely, a mill could run the lime kiln at maximum capacity (by using greater quantities of stored lime mud during the 3-hour test) while the recovery furnace is not running a maximum capacity. (We need to discuss the previous two sentences, not sure I agree or understand) The BLS_{tot} term in equation 1 refers to the average total black liquor solids fired in all recovery furnaces included in the bubble (i.e., average ton/day value) as measured *during the performance test*. Therefore, if the furnace and SDT are tested on a different day than the lime kiln and there is significant variation in the black liquor solids firing rates on those two days, then it could affect the outcome of the calculations. Ideally the mill would complete the initial performance test within one week and the BLS_{tot} value would be the average value measured during the test period (not just the day the furnace was tested) and should be fairly constant. It's not clear why a mill could not run their various equipment at maximum capacity during the performance test period given their ability to store process materials used in each step of the chemical recovery process. Also, it would be cheaper for a mill to test within a short time period (testing crew only has come to the mill one time).

Note that a mill may conduct testing prior to the initial performance test or use previous data to help them establish their proposed bubble limits that they will submit for approval. It's also possible that these previous performance test will consist of data collected at different times. However, they still have to conduct an initial performance test to demonstrate compliance with the proposed limits, and that test presumably would be conducted within the same week. If the test data used by the mill to develop the proposed limits was all collected within the same time period (e.g., one week) and under maximum representative operating conditions, further testing may not be required in order to receive approval for those limits.

2. (Depends on the answer from No. 1) If tests are not run concurrently, how will establishment of the basis (specifically $BLStot$) be handled? For example, Is the $BLStot$ in Eq. 1 (for calculation of bubble limit) equivalent to the $BLStot$ in Eq. 4 (Lime Kiln calculation of proposed individual limit)? Or is the $BLStot$ in Eq. 4 related to the CaO

production rate and equivalent BLS rate during the specific IPT on the lime kilns? If this is the case, can a mill incorporate a lag time in the calculation of the equivalent BLS_{tot}? I may just be confused on the intent of the BLS_{tot} basis here?

ANSWER: The BLS_{tot} value should be the same value wherever it is used and it should be the average value measured during the performance test. Depending upon the number of sources that must be tested, the performance test could last a week; in such cases, the average black liquor solids firing rate (ton BLS/day) measured during the testing that week represents BLS_{tot}.

In order for the bubble equation to work, all of the emissions data has to be converted to a lb/ton of BLS basis. For the equations to be valid, the same value must be used for BLS_{tot} in all of the equations. If a different value for BLS_{tot} was used in Equation 4 than in Equation 1, then Equation 1 would have to be modified to split out the recovery furnaces and lime kilns such that separate lb/ton of BLS values were calculated for each grouping (e.g., create a BLS_{tot-rf} and BLS_{tot-lk}) to account for the different BLS firing rates during testing and to ensure a consistent basis for the calculations. Note that if a mill uses different values for BLS_{tot} in equations 1 and 4, the bubble would become less stringent if the BLS_{tot} value used in equation 4 is lower than the value used in equation 1 and more stringent if the BLS_{tot} value is higher than the value in equation 1.

3. It would appear that the performance testing is necessary prior to development of the bubble calculation and development of individual emission unit limits? If that is the case, it would appear that the initial performance testing is due 180 days after the compliance date, and that the bubble demonstration is due within 60 days after the initial performance test is due (63.9(h)). Does this mean that the bubble demonstration and proposed emission limits are due to us within 240 days after the final compliance date (March 23, 2004 for existing sources)? 63.867 requires that the emission limits must be submitted as part of the notification of compliance status required under subpart A (General Provision). If a facility is given a one year extension to March 23, 2005, is all this due on the compliance date of March 23, 2005, or does the facility get a one year extension on the testing and the compliance status notification to 180 - 240 days after the March 23, 2005 date?

ANSWER: Yes, the bubble demonstration and proposed emission limits are due within 240 days after the final compliance date for existing sources. Sources given a 1 year extension would follow the General Provision of subpart A (40 CFR, part 63) requirements for extensions (see 63.6(i)). Based on my review of the General Provisions, it does not specifically state that all dates would be extended by 1 year. Note that at sections 63.6(i)(6)(i)(B) and (D), the General Provisions states that the request for a compliance extension should include a "compliance schedule, including the date by which each step toward compliance is reached," and should specify "whether the owner or operator is also requesting an extension of other applicable requirements (e.g., performance testing requirements)." So, it sounds like the requestor may have some flexibility in developing their own compliance schedule. Note also that the latest version of the General Provisions says that only EPA can grant a compliance extension.

4. For the continuous monitoring of the pressure drop and flow rate for scrubbers - for data logging, is the 3-hour average a discreet average, or is it a rolling average (that

updates every 15 minutes). The violation requirements are written (in violation if more than six or more 3-hour average values within any 6 month reporting period are over) in verbiage that would suggest discreet periods (however there is the caveat that for nonopacity monitoring, no more than one exceedance will be attributed in any given 24-hour period?)? For Subpart S, the monitoring was determined to mean rolling averages, but I think the definition of a violation was different?

ANSWER: The 3-hour averages are meant to be rolling averages; for these non-opacity averages, no more than one exceedance will be attributed in a 24-hour period.

5. How do we treat black liquor gasification if the combustion gases are being sent to a power boiler?

ANSWER: The final rule defines recovery furnaces and semichemical combustion units to include black liquor gasification (BLG) systems. Therefore, BLG systems are required to meet the same emission limits as kraft and soda recovery furnaces (if the BLG system is at a kraft pulp mill) or the semichemical combustion units (if the BLG system is in place at a semi-chemical pulp mill). We are aware of only two black liquor gasification systems—one at Weyerhaeuser in NC and one at Georgia Pacific in Big Island, VA. We do not have much information on the BLG system at Weyerhaeuser; our understanding was that that system was a very small scale system put in place to process excess black liquor in lieu of the mill installing a new furnace or having to expand the capacity of an existing furnace. The system at Georgia-Pacific is newer and may not be fully constructed/operational yet. The designs of the black liquor gasification systems vary. Some gasification systems include a waste heat boiler which is the last piece of equipment in the gasification system. Waste heat boilers may be unfired (no additional supplemental fuel required) or may require supplemental fuel to raise the gas temperature. The emissions from the waste heat boiler would represent the emissions from the gasification system (emissions from supplemental fuel firing, if any, probably would contribute only minimally to the emissions), and thus, the performance of the gasification process would be based on whether or not these emissions from the waste heat boiler meet the applicable standards. In the case of the BLG system proposed for Georgia-Pacific's Big Island, VA semichemical mill, the combustion gases and product gases from the gasifier are sent to the waste heat boiler. The BLG combustion gases go directly to the waste heat boiler, but the product gases are sent through control devices (to remove PM and H₂S) before entering the waste heat boiler. Because the Georgia-Pacific mill is a semichemical mill, the emissions from the BLG system (as measured at the outlet of the waste heat boiler) must meet a gaseous organic HAP limit of 2.97 lb/ton BLS, measured as total hydrocarbons (THC as carbon) or achieve a 90% reduction. If the combustion gases are sent to a power boiler not affiliated with the gasification system (e.g., an onsite wood waste boiler), then the source will have to develop and submit an alternative compliance plan via the requirements in the General Provisions because subpart MM does not address situations where recovery furnace combustion gas would be sent to a power boiler. Note that semichemical mills that route their semichemical combustion unit emissions to a regenerative thermal oxidizer (RTO) must conduct a performance test and maintain the operating temperature of the RTO above a minimum temperature established during the performance test. When the BLG emissions are routed to a power boiler, the emissions from the power boiler include emissions from the combustion of non-BLG sources (e.g., bark, oil, coal), so performance test data would not be meaningful in regards to demonstrating compliance with the otherwise

applicable recovery furnace or semichemical combustion unit emission limit. Thus in most rules, performance testing is not required in these situations as long as the gases are introduced to the power boiler at a point (e.g., firebox) that ensures their destruction and the power boiler operates at a sufficiently high temperature. The source still must meet any applicable emission requirements for the power boiler (e.g., industrial boilers NSPS/NESHAP), however.