From: "Yanochko, David M." <dmyanochko@ftch.com>
To: "Brunner, Julie" <BrunnerJ1@michigan.gov>, "Melissa Byrnes" <byrnesm@michigan.gov>
Date: 8/21/2008 4:10:56 PM
Subject: FW: WCEV Mercury Emission Calculation

Julie & Melissa - The response below from Burns & Roe (the "Owner's Engineers" of the project) addresses your question in an email from earlier this afternoon regarding the gross MW output for the WCEV.

Please let me know if you have any further questions regarding this issue.

Dave Yanochko
FTC&H

-----Original Message-----
From: Lagomarsino, John [mailto:JLagomarsino@roe.com]
Sent: Thursday, August 21, 2008 3:52 PM
To: Yanochko, David M.; Kohl, Steven; Robinson, Michael; Brian L. (WP) Warner; Campbell, William; Fraser, Robert (ENSR); Rainio, Aku
Cc: Caudell, John F.
Subject: RE: WCEV Mercury Emission Calculation

The relationship (the industry refers to it as "heat rate") between boiler fuel heat input and plant output (MW) is equipment-specific and, therefore, varies from plant to plant. Further, it varies with ambient conditions, load, fuel composition and equipment condition/age. The permitted boiler fuel input limit must be high enough to allow for the worst case combination of these factors realistically anticipated.

The boiler fuel heat input limit of 3030 MMBtu/hr is Burns and Roe's recommendation for the maximum boiler heat input that could be needed to produce net plant output of 300 MW over the life of the WCEV project.

The mercury emission limit is stated in terms of lbs Hg/GWh of gross plant output. Gross plant output is greater than net plant output because the gross includes the parasitic electrical loads needed to run the plant's own equipment such as pumps, fans, AQCS equipment, etc.

In new and clean condition with all other factors at "typical" values, it is our best engineering judgement that the gross plant heat rate would be 8730 Btu/gross kWh and that the plant's gross output would be 347 MW.

So, on this basis, Ms. Brunner's calculation can be re-stated as follows:

12.6 lb Hg/TBtu in coal x 1 TBtu/1,000,000 MMBtu x 3030 MMBtu/347 MW x 1000 MW/GW x (1 - 0.93) = 0.0077 lb Hg/GW-hr

Please let us know if there are further questions regarding this calculation.

--John Lagomarsino / Aku Rainio

CC: "William Presson" <PressonW@michigan.gov>, "Brian L. (WP) Warner" <bwarner@wpsci.com>, "Kohl, Steven" <SKohl@wnj.com>, "Robinson, Michael" <MRobinson@wnj.com>, "Campbell, William" <WCampbell@ensr.aecom.com>, "Fraser, Robert (ENSR)" <RFraser@ensr.com>, "Caudell, John F." <jfcaudell@FTCH.com>, "Linck, Jacquelyn" <jflinck@FTCH.com>, "Susan, James" <jasusan@FTCH.com>