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February 3, 2009

Chad Schlichtemeier
Air Quality NSR Program Supervisor
Air Quality Division
Wyoming Department of Environmental Quality
122 West 25th Street
Herschler Building, 4-W
Cheyenne, WY 82002



Subject: Medicine Bow Fuel & Power LLC
Proposed Integrated Gasification and Liquefaction Plant
(PSD Air Quality Permit Application AP-5873)
Response to WDEQ request for clarification regarding PM₁₀

Dear Chad Schlichtemeier,

We received the following information yesterday in an email from URS in response to a verbal question from Andrew Keyfauber yesterday about the PM₁₀ emission calculations and BACT analysis in the Medicine Bow Fuel & Power air permit application that was prepared by URS Corp.

In summary:

The emission calculations, BACT analysis, and air quality impact analyses consider total PM₁₀ (condensable + filterable fractions).

Details:

Emission Calculation

Refer to Appendix B of the permit application, page B-3 through B-11 for the turbines. Note on these calculation pages that a PM₁₀ emission rate of 0.013 lb/MMBtu was used for the turbines, for an emission rate of 10 lb/hr. Refer also to Appendix C, for the manufacturer guarantee for the turbines. You can see on the manufacturer's sheet that 5 lb/hr PM₁₀ is guaranteed, but this is noted to be only the front-half catch (the filterable fraction). This value was doubled, to 10 lb/hr, in order to account for the condensable fraction.

Next, refer to Appendix B, pages B-12 through B-15, for the heaters/boiler. Note the PM₁₀ emission factor used is 7.5E-3 lb/MMBtu (7.6 lb/MMscf). This is directly from EPA's AP-42

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document, Table 1.4-2, and is the emission factor for total PM₁₀ (condensable + filterable).

Therefore, the PM₁₀ combustion emissions in the application are based on emission factors for total PM₁₀.

Modeling/Ambient Impact Analysis

The ambient impact analysis for PM₁₀ is based on the calculated emission rates. Thus, the ambient impact analysis considers total PM₁₀ emissions.

BACT Analysis

Pages 4-15 through 4-16 of the permit application present the PM₁₀ BACT analysis for the gas turbines. The bottom of page 4-15 presents the selected BACT (use of clean fuels with low potential PM₁₀ emissions and good combustion practices), and notes the proposed PM₁₀ permit limits for fuel gas mixture and natural gas combustion. Please note there is a typographical error on this page, as the emission factor of 0.013 lb/MMBtu is noted to be only the filterable portion. As stated above, and shown in Appendices B and C, this value represents both the filterable and condensable PM₁₀ fractions. Therefore, this limitation should be considered as the total PM₁₀ emission rate. The reference to filterable PM₁₀ only is an error.

Pages 4-22 and 4-23 of the application presents the PM₁₀ BACT analysis for the heaters and boiler. No reference is made in this section to either filterable or condensable PM₁₀, and the total PM₁₀ emission factor used in the emission calculation is cited on page 4-23. Thus, the heater/boiler PM₁₀ BACT analysis represents total PM₁₀ emissions.

We hope the above information answers your question about PM₁₀. If you have any questions about this, please call or email me.

Sincerely,

A handwritten signature in black ink, appearing to read "Jude Rolfes".

Jude Rolfes
Senior VP Engineering, Construction and Asset Management

cc: Andrew Keyfauver, WY DEQ –Air Quality Division, Air Quality Engineer
Robert Moss, DKRW Advanced Fuels, Environmental & Permits Engineer
Susan Bassett, URS Corp, EH&S Air Quality Team Leader
Katrina Winborn, URS Corp, Sr. Air Quality Specialist

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