April 24, 2004

Mr. Stephen N. Skidd
Authorized Account Representative
Cambria Cogen Company
243 Rubisch Road
Ebensburg, PA 15931

Re: Request for Approval of an Alternative F-Factor Methodology for Units 1 and 2 at the Cambria Cogeneration Plant (Facility ID (ORISPL) 10641)

Dear Mr. Skidd:

This is in response to the letter from your office dated September 29, 2003, in which El Paso Corporation (El Paso), on behalf of the Cambria Cogen Company (Cambria) requested permission under §75.66 to use an alternative method of determining the hourly F-factors for Units 1 and 2 at the Cambria cogeneration facility in Ebensburg, Pennsylvania. EPA approves the petition, with conditions, as discussed below.

Background

El Paso owns and operates two identical 85 MWe circulating fluidized bed (CFB) boilers, Units 1 and 2, at the Cambria cogeneration facility in Ebensburg, Pennsylvania. The units fire two grades of bituminous coal refuse, i.e., "gob" and supplementary "run of mine" (ROM) fuel. The main difference between these two fuels is that ROM has a higher heating value than gob. Units 1 and 2 use limestone injection to control sulfur dioxide (SO_2) emissions and use selective non-catalytic reduction (SNCR) intermittently to reduce nitrogen oxides (NO_x) emissions. The units are subject to the NO_x Budget Program under 25 Pa. Code Chapter 145. Chapter 145 requires El Paso to continuously monitor and report NO_x mass emissions and heat input from Units 1 and 2, beginning on May 1, 2002, in accordance with Subpart H of 40 CFR Part 75.

To meet the monitoring requirements of Chapter 145, Cambria has installed and certified a NO_x concentration monitoring system, a stack flow monitor, and a CO_2 monitoring system on each boiler stack. The NO_x mass emissions from Units 1 and 2 are calculated as the product of NO_x concentration and stack gas flow rate, in accordance with section 8.2 in Appendix F of Part 75. To determine unit heat input, Cambria uses Equation F-15 in Appendix of Part 75, which requires the use of a carbon-based F-factor (F_c). Since F-factors are fuel-specific, special consideration must be given to the F_c value when different types of fuels are co-fired. Under Part 75, for co-fired hours the owner or operator may either: (1) use Equation F-8 in Appendix F of Part 75 to determine an F_c factor, prorated according to the fraction of the total unit heat input contributed by each fuel; or (2) use an EPA-approved alternative method of determining F_c . On

September 29, 2003, El Paso petitioned EPA under §75.66 for permission to use an alternative F_c methodology (i.e., option (2)) for Cambria Units 1 and 2.

Cambria proposes to determine the appropriate hourly F_c values using a formula that is a composite of Equations F-7b and F-8 in Appendix F of Part 75, with certain site-specific variations. The proposed formula takes into account the quantity of limestone injected into the combustion chamber for SO_2 control. The limestone (calcium carbonate) has no heating value, but it affects the F_c value, because it decomposes at the combustion temperature and generates additional CO_2. Since F_c is, by definition, the volume of CO_2 produced per million Btu of heat input, a fluidized boiler with limestone injection will have a higher F_c factor than a boiler combusting the same quantity and type of fuel without limestone injection, because more CO_2 is produced per unit heat input.

Cambria further proposes to take daily composite samples of the fuel and to analyze them using ASTM methods for percent carbon, percent moisture, percent sulfur, percent ash, and gross calorific value (GCV). The ASTM methods used for the analyses meet the requirements of both the Pennsylvania Department of Environmental Protection's (PADEP's) Continuous Source Monitoring Manual[1] and Appendix F of Part 75. The results of these analyses would be used in conjunction with the measurements of daily fuel consumption and limestone injection to calculate an F_c factor for each day of unit operation. This F_c value would be used for each operating hour in the day. The F_c values would be calculated using spreadsheet software, with the results entered into the data acquisition and handling system.

EPA's Determination

EPA has evaluated Cambria's proposed F-factor methodology and finds the procedures to be technically sound. The Agency believes that recalculating the F_c value on a daily basis and taking into account the CO_2 generated by the limestone decomposition ensures that accurate heat input rates will be obtained for Cambria Units 1 and 2. Also, use of the proposed methodology will have no impact on the NO_x mass emissions reported for Units 1 and 2, because Cambria determines NO_x mass as the product of NO_x concentration and stack gas flow rate, and the F_c value does not enter into the calculations.

In view of these considerations, EPA conditionally approves the September 29, 2003 petition. The conditions of approval are as follows:

(1) The equipment used to measure the feed rates of the fuels to Cambria Units 1 and 2 shall be calibrated, maintained and operated according to the manufacturer's instructions. These calibration and maintenance procedures shall be included in the quality-assurance (QA) plan required by section 1 of Appendix B to Part 75;

(2) The results of the daily fuel analyses shall be kept on-site in a format suitable for

[1] This was confirmed in an E-mail from Joseph Nazzaro of PADEP, dated November 24, 2003. According to Mr. Nazzaro, the F_c procedures used by Cambria "exceed the requirements of the PADEP CEM Manual for 'non-uniform fuels'".

inspection and auditing, for a minimum of three years;

(3) Cambria shall perform formula verification testing of the spreadsheet software to ensure that the equation for calculating the prorated F-factor is properly programmed. The results of these formula verification tests shall be kept on-site, in a format suitable for inspection and auditing; and

(4) The procedure for transferring the calculated daily F_c values from the spreadsheet software to the data acquisition and handling system (DAHS) shall be included in the quality-assurance plan for Units 1 and 2.

EPA's determination in this letter relies on the accuracy and completeness of the information provided in the September 29, 2003 petition and is appealable under Part 78. If you have any questions about this determination, please contact Robert Vollaro, at (202) 343-9116. Thank you for your continued cooperation.

Sincerely,

/s/
Sam Napolitano, Director
Clean Air Markets Division

cc: Jerry Curtin, EPA Region III
Joseph Nazzaro, Pennsylvania DEP
Robert Vollaro, CAMD