August 21, 2006

Donald E. Kom
Designated Representative
City of Ames Iowa
Electric Administration Division
502 Carroll Ave. P.O. Box 811
Ames, IA 50010-0811

Re: Petition to Use an Alternative Oil Flowmeter Accuracy Test Method for Unit GT2 at the Dayton Avenue Substation (Facility ID (ORISPL) 6463)

Dear Mr. Kom:

This is in response to your June 22, 2006 petition under §75.66, in which the City of Ames requested to use an alternative calibration procedure to quality-assure data from the oil flowmeter installed on Unit GT2 at the Dayton Avenue Substation. EPA approves the petition, for the reasons discussed below.

Background

The City of Ames ("the City") owns and operates a simple cycle combustion turbine, Unit GT2, at the Dayton Avenue Substation, located in Ames, Iowa. The unit combusts distillate oil and is subject to the Acid Rain Program. Therefore, the City is required to continuously monitor and report sulfur dioxide (SO_2), nitrogen oxides (NO_x), and carbon dioxide (CO_2) emissions and heat input for Unit GT2, in accordance with 40 CFR Part 75.

Unit GT2 qualifies as a low mass emissions (LME) unit under §75.19(b). Therefore, instead of using continuous emission monitors to determine the hourly SO_2 mass emissions and heat input for Unit GT2, the City uses a default SO_2 emission rate in combination with the long-term fuel flow methodology described in §75.19(c)(3)(ii). Section §75.19(c)(3)(ii) provides three options for implementing the long-term fuel flow method: (1) use of fuel billing records; (2) use of oil tank drop measurements; or (3) use of a fuel flowmeter certified according to Appendix D of Part 75. The City is currently using option (3).

Section 2.1.5.1 of Appendix D lists the acceptable calibration methods for the initial certification and ongoing quality-assurance of various types of fuel flowmeters. Ever since Unit GT2 commenced commercial operation in 2005, the City has used the methods to calibrate the oil flowmeter installed on Unit GT2. However, in the June 22, 2006 petition, the City requested approval of an alternative flowmeter calibration method that is not listed among the methods in Section 2.1.5.1. Appendix D allows the owner or operator to petition EPA under §75.66(c) to use a fuel flowmeter calibration method other than those in Section 2.1.5.1, provided that the alternative calibration procedure uses equipment that is traceable to National Institute of

Standards and Technology (NIST).

The requested alternative calibration method is a primary standard liquid calibration system manufactured by Flow Technology Incorporated (FTI). The City desires to use the FTI system for future calibrations of the oil flowmeter. The City believes that FTI is the most qualified laboratory to perform calibrations of the Unit GT2 flowmeter, because FTI is the manufacturer of the meter.

EPA's Determination

EPA has previously approved petitions from two other facilities to use the FTI calibration procedure[1]. Prior to issuing those petition approvals, the Agency carefully reviewed the protocol that FTI uses to calibrate their oil flowmeters and found it to be well-conceived. The protocol commences with an inspection of the flowmeter and accompanying paperwork to verify that the paperwork matches the meter being calibrated. The protocol also provides detailed procedures for: (1) installing the flowmeter in the test section; (2) verifying that the flowmeter and its electronics are communicating appropriately; (3) performing pre-flow checks of the data acquisition system; (4) performing the actual calibrations; (5) processing the data; and (6) reviewing the test results.

FTI uses a primary standard, positive displacement calibrator to establish the accuracy of an oil flowmeter. The calibrator is a closed-loop laboratory grade device that has direct traceability to NIST standards. The displacement of a piston forces a calibration fluid of known kinematic viscosity (which is controlled to simulate the customer's operating conditions) through a precisely honed, chrome-plated stainless steel cylinder of known cross-sectional area and into the flowmeter being calibrated.

A precise optical technique is used to measure the piston displacement. As the piston moves downstream through the cylinder, a photoelectric sensor, which is attached to the shaft, passes by an etched glass rule. The photoelectric sensor produces an electrical pulse each time an etched line interrupts the light beam impinging on it. The frequency of the pulses (i.e., pulses per second) is measured, from which the piston velocity and the volumetric flow rate of the calibration fluid are calculated. This "reference"calibration fluid flow rate is then compared against the flow rate measured by the flowmeter being calibrated, and the accuracy of the meter is determined. According to the supplementary information provided by the City with the June 22, 2006 petition, the estimated uncertainty of the reference volumetric flow rate measurements made with these calibrators is ∀0.05%.

In view of these considerations, EPA approves the City's petition to use the FTI calibration procedures for future calibrations of the oil flowmeter installed on Unit GT2 at the Dayton Avenue Subtation.

EPA's determination relies on the accuracy and completeness of the information

[1] The approvals were issued on June 27, 2005 for the Pyramid Generating Station (ORIS Code 7975) and on September 19, 2005 for the Arvah B. Hopkins Station (ORIS Code 688).

provided in the City of Ames' June 22, 2006 petition, and is appealable under 40 CFR Part 78. If you have any questions regarding this correspondence, please contact Robert Vollaro, at (202) 343-9116. Thank you for your continued cooperation.

Sincerely,

/s/
Sam Napolitano, Director
Clean Air Markets Division

cc: Jon Knodel, EPA Region VII
Christopher Kjellmark, Iowa DNR
Robert Vollaro, EPA CAMD