July 17, 2017

Mr. John Tissue
Alternate Designated Representative
Colorado Bend II Power Plant
Exelon Generation
300 Exelon Way
Kennett Square, PA 19348

Re: Petition to Use an Alternative Fuel Flowmeter Calibration Procedure for Units CT7 and CT8 at the Colorado Bend II Power Plant (Facility ID (ORISPL) 60122)

Dear Mr. Tissue,

Summary:

The United States Environmental Protection Agency (EPA) reviewed the August 29, 2016 petition submitted by Colorado Bend II Power, LLC (owned by Exelon Generation) under 40 CFR 75.66(c), together with a supporting email from Exelon,[1] requesting approval of an alternative calibration procedure for fuel flowmeters that will be used to measure natural gas flow rates at the Colorado Bend II power plant. EPA approves this petition, with conditions, as discussed below.

Background

Exelon owns and operates the Colorado Bend II combined cycle power plant located in Wharton County, Texas. The plant includes two natural gas-fired combustion turbines, units CT7 and CT8, each of which serves a 360 MW electricity generator and a heat recovery steam generator (HRSG), as well as a common steam turbine serving an electricity generator with a capacity of approximately 500 MW.

According to Exelon, units CT7 and CT8 are subject to the Acid Rain Program and the Cross-State Air Pollution Rule. Exelon is therefore required to continuously monitor and report sulfur dioxide (SO_2), nitrogen oxides (NO_X), and carbon dioxide (CO_2) emissions and heat input for units CT7 and CT8 in accordance with 40 CFR part 75.

[1] Per the February 15, 2017 email from Sean Gregory to Ron Sobocinski and confirmed by the Clean Air Markets Source Management System, the ORIS Code for the Colorado Bend II Power Plant was changed from 56350 to 60122.

To meet the SO_2 emissions and heat input monitoring requirements, Exelon has elected to use the monitoring methodology in part 75, appendix D. Appendix D, section 2.1 requires continuous monitoring of the fuel flow rate to each affected unit using gas flowmeters that meet the initial certification requirements set forth in section 2.1.5 and ongoing quality assurance requirements set forth in section 2.1.6.

Appendix D, section 2.1.5 specifies three acceptable methods to initially certify a fuel flowmeter: (1) by design (this option is available for orifice, nozzle, and venturi flowmeters only); (2) by measurement under laboratory conditions using an approved method; or (3) by in-line comparison against a reference meter that either meets the design criteria in (1) above or that within the previous 365 days has met the accuracy requirements of appendix D by measurement using an approved method under (2) above. Certain approved measurement methods are listed in appendix D, section 2.1.5.1. However, the section provides that unlisted methods using equipment traceable to National Institute of Standards and Technology (NIST) standards may also be used, subject to EPA approval pursuant to a petition submitted under § 75.66(c). Section 2.1.6 generally allows ongoing quality assurance tests to be carried out using the same methods as section 2.1.5.

Units CT7 and CT8 installed Coriolis fuel flowmeters manufactured by Emerson Process Management – Micro Motion, Inc. (Emerson MMI). The flowmeters will measure natural gas using Model # CMFHC2 meters (Serial Numbers 12125904 and 12127196). Each individual fuel flowmeter must meet the initial certification requirements set forth in appendix D, section 2.1.5, and the ongoing quality assurance requirements set forth in appendix D, section 2.1.6.

Emerson has developed a calibration procedure it calls the Transfer Standard Method (TSM). According to Emerson MMI, the TSM uses equipment that is traceable to NIST standards. According to the Exelon petition, the fuel flowmeters have already been tested for initial certification using the TSM and will be calibrated for ongoing quality assurance purposes using the same method.

The Coriolis fuel flowmeters are not orifice, nozzle, or venturi flowmeters and therefore do not qualify to be certified based on their design. Further, the TSM is not listed in appendix D, section 2.1.5.1 as an approved method. However, EPA has previously evaluated and approved the use of the TSM as an alternative certification and quality assurance testing method for Coriolis fuel flowmeters at other facilities. In view of these circumstances, Exelon submitted a petition to EPA under § 75.66(c) requesting approval of the use of the TSM as an alternative certification and quality assurance testing method for Coriolis fuel flowmeters at the Colorado Bend II facility. Exelon requests that approval to use the TSM process not only for the fuel flowmeters identified by serial number above but also for any additional like-kind Coriolis fuel flowmeters that may be used at the facility in the future as backup or replacement flowmeters.

EPA's Determination

EPA reviewed the information provided by Exelon in the August 29, 2016 petition and a subsequent e-mail describing the alternative calibration procedure for verifying the accuracy of the gas flowmeters to be used at the Colorado Bend II power plant.

1. The Agency approves use of the Emerson MMI TSM calibration procedure for initial certification of the Colorado Bend II power plant units CT7 and CT8 fuel flowmeters (Serial Numbers 12125904 and 12127196). The basis for this approval is as follows:

   a. The alternative calibration methodology uses equipment traceable to NIST standards. In Emerson MMI's TSM,[2] the candidate fuel flowmeters to be tested for accuracy are calibrated against reference meters that have been calibrated against a "Global Reference Meter" which, in turn, has been calibrated using Micro Motion's "Primary Flow Stand." The Primary Flow Stand is an ISO 17025-accredited calibration system that uses equipment traceable to NIST standards. Thus, the reference meters used to test Exelon's fuel flowmeters have fully traceable calibrations through an accredited path back to NIST standards.

   b. The calibration procedure followed for initial certification of Exelon's two fuel flowmeters met the requirements of part 75, appendix D, section 2.1.5.2(a) for in-line testing of a candidate fuel flowmeter by comparison against reference flowmeters. Specifically:

      - The reference flowmeters and secondary elements (i.e. temperature transmitters and pressure transducers) used to test Exelon's fuel flowmeters had been calibrated within 365 days prior to the comparison testing;

      - The comparison testing was performed in a laboratory over a period of less than seven operating days;

      - For each fuel flowmeter, three test runs were conducted at each of three flow rate levels with each test run lasting 20 minutes in duration.

   c. At each tested flow rate level, each fuel flowmeter demonstrated accuracy better than the accuracy requirement specified in appendix D, section 2.1.5, which is 2.0 percent of the flowmeter's upper range value (URV). The test results are summarized in Tables 1 and 2 below.

[2] See Emerson MMI Calibration Procedure and Results found in Attachments C and D of Exelon's request.

Table 1 – Average three run fuel flowmeter accuracy results S/N 12125904[3]

Flow rate level	Accuracy (% of upper range value)
Low (12.5% of URV)	0.027%
Mid (50% of URV)	0.047%
High (100% of URV)	0.046%

Table 2 – Average three run fuel flowmeter accuracy results S/N #12127196

Flow rate level	Accuracy (% of upper range value)
Low (10% of URV)	0.038%
Mid (50% of URV)	0.047%
High (100% of URV)	0.088%

2. EPA also approves the use of the TSM calibration procedure to meet the applicable on-going quality assurance requirements at the Colorado Bend II power plant units CT7 and CT8 fuel flowmeters under appendix D, section 2.1.6, subject to the following conditions:

   a. The application of the TSM for each future accuracy test must meet the requirements of part 75, appendix D, section 2.1.5.2(a) listed above as part of the basis for EPA's approval of use of the TSM for the initial certification of the fuel flowmeters; and

   b. The three flow rate levels tested in each future accuracy test must correspond to: (1) normal full unit operating load; (2) normal minimum unit operating load, and (3) a load point approximately equally spaced between the full and minimum unit operating loads.

[3] In their petition, Exelon provided data for five tested flow rate levels but erroneously identified the low and mid flow rate levels for the normal operating range. This table reflects the corrected low and mid flow rate values.

3. EPA further approves the use of the TSM calibration procedure to meet the applicable initial certification and on-going quality assurance requirements for like-kind Coriolis fuel flowmeters used in the future at the Colorado Bend II power plant subject to the satisfaction, for each such like-kind fuel flowmeter, of all approval conditions set forth in paragraphs (1) and (2), respectively, of this approval for the fuel flowmeters identified by serial numbers above.

EPA's determination relies on the accuracy and completeness of the information provided by Exelon and is appealable under 40 CFR part 78. If you have any questions regarding this determination, please contact Ron Sobocinski at (202) 343-9722 or by e-mail at Sobocinski.Ron@epa.gov. Thank you for your continued cooperation.

Sincerely,

/s/
Richard A. Haeuber, Acting Director
Clean Air Markets Division

cc: Albert Hatton, Exelon Generation
Kenneth Poletti, Exelon Generation
Raymond Magyar, EPA Region VI
Carolyn Maus, Texas CEQ
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