July 8, 2019

Mr. Jeff Ahrens
Alternate Designated Representative
CPV Fairview, LLC
2862 William Penn Ave.
Jackson Township, PA 18708

Re: Petition to use an alternative fuel flowmeter calibration procedure for units CT-1 and CT-2 at the CPV Fairview Energy Center (facility ID (ORISPL) 60589)

Dear Mr. Ahrens:

The United States Environmental Protection Agency (EPA) has reviewed the February 12, 2019 petition and subsequent emails dated April 29, May 1, and May 17, 2019 submitted by CPV Fairview, LLC (CPV Fairview) under 40 CFR 75.66(c) requesting approval of an alternative calibration procedure for fuel flowmeters that are being or may be used to measure fuel flow rates at units CT-1 and CT-2 at the CPV Fairview Energy Center. EPA approves the petition, with conditions, as discussed below.

Background

CPV Fairview owns and operates the CPV Fairview Energy Center in Jackson Township, Pennsylvania. CPV Fairview Energy Center CT-1 and CT-2 are combined cycle combustion turbines each serving an electricity generator with a nominal design rating of 341 megawatts as well as a common steam turbine and electricity generator. The units will combust pipeline natural gas which may be blended with up to 25% ethane. According to CPV Fairview, CT-1 and CT-2 are subject to the Acid Rain Program and the Cross-State Air Pollution Rule. CPV Fairview 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 the units in accordance with 40 CFR part 75.

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

Section 2.1.5 specifies three acceptable ways 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 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.

CPV Fairview Energy Center CT-1 and CT-2 are being equipped with sets of Coriolis fuel flowmeters manufactured by Emerson Process Management – Micro Motion, Inc. (Emerson MMI) to measure fuel flow. Two fuel flowmeters (model CMFHC2M453N2BAEZZX, serial numbers 12156058 and 12156171) will be used to measure the flow of natural gas fuel. Two additional fuel flowmeters (same model, serial numbers 12152072 and 12152352), will be used to measure the flow of blended natural gas-ethane fuel. CPV Fairview also anticipates the possibility of using additional like-kind fuel flowmeters at CT-1 and CT-2 in the future. Each individual flowmeter must meet the initial certification requirements set forth in section 2.1.5 of appendix D and the ongoing quality assurance requirements set forth in section 2.1.6.

Emerson MMI 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 CPV Fairview petition, each flowmeter identified above has been tested for initial certification using the TSM and will be calibrated for ongoing quality assurance purposes using the same method.

Coriolis flowmeters are not orifice, nozzle, or venturi flowmeters and therefore do not qualify for certification based on their design. Further, the TSM is not listed in section 2.1.5.1 of appendix D 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 flowmeters at other facilities. In view of these circumstances, CPV Fairview 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 flowmeters at the CPV Fairview Energy Center. CPV Fairview requests approval to use the TSM process not only for the flowmeters identified by the serial numbers above but also for additional like-kind Coriolis fuel flowmeters that CPV Fairview may use at the facility in the future.

EPA's Determination

EPA has reviewed the information provided by CPV Fairview in the February 12, 2019 petition and subsequent emails dated April 29, May 1, and May 17, 2019. The petition describes the alternative calibration procedure that CPV Fairview requests approval to use to verify the accuracy of the natural gas fuel flowmeters being installed at CT-1 and CT-2 and any other like-kind Coriolis fuel flowmeters to be installed at the CPV Fairview Energy Center.

EPA approves use of the Emerson MMI TSM calibration procedure for initial certification of the fuel flowmeters (serial numbers 12156058, 12156171, 12152072 and 12152352) being installed on CPV Fairview Energy Center CT-1 and CT-2. The basis for this approval is as follows:

A1. The alternative calibration methodology used equipment traceable to NIST standards. In Emerson MMI's TSM, the candidate fuel flowmeter to be tested for accuracy is calibrated against a reference meter that was calibrated against a "Global Reference Meter" which, in turn,

was 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 CPV Fairview's flowmeters had fully traceable calibrations through an accredited path back to NIST standards.

A2. The calibration procedure followed for initial certification of CPV Fairview's flowmeters met the requirements of section 2.1.5.2(a) of appendix D to part 75 for in-line testing of candidate flowmeter by comparison against a reference flowmeter. Specifically:

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

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

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

A3. At each tested flow rate level, the fuel flowmeters demonstrated accuracy better than the accuracy requirement specified in section 2.1.5 of appendix D – 2.0 percent of the flowmeter's upper range value (URV). The test results are summarized in Table 1 and Table 2 below.

Table 1 – Average three-run natural gas fuel flowmeter accuracy results

Flow rate level	**Flowmeter s/n 12156058 Accuracy (% of URV)**	**Flowmeter s/n 12156171 Accuracy (% of URV)**
Low – 40% of full unit operating load (minimum operating load)	0.000%	0.000%
Mid – 70% of full unit operating load	0.001%	0.001%
High – 100% of full unit operating load	0.000%	0.000%

Table 2 – Average three-run natural gas-ethane blend fuel flowmeters accuracy results

Flow rate level	**Flowmeter s/n 12152072 Accuracy (% of URV)**	**Flowmeter s/n 12152352 Accuracy (% of URV)**
Low – 40% of full unit operating load (minimum operating load)	0.002%	0.002%
Mid – 70% of full unit operating load	0.001%	0.004%
High – 100% of full unit operating load	0.000%	0.004%

EPA also approves the use of the TSM calibration procedure to meet the applicable on-going quality assurance requirements for CT-1 and CT-2 fuel flowmeters under section 2.1.6 of appendix D, subject to the following conditions:

B1. The application of the TSM for each future accuracy test must meet the requirements of section 2.1.5.2(a) of appendix D as part of the basis for EPA's approval of use of the TSM for the initial certification of the fuel flowmeters; and

B2. 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.

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 CPV Fairview Energy Center subject to the satisfaction, for each such like-kind fuel flowmeter, of all approval conditions set forth in paragraphs (A1), (A2), (A3), (B1), and (B2) 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 CPV Fairview and is appealable under 40 CFR part 78. If you have any questions regarding this determination, please contact Charles Frushour at (202) 343-9847 or by e-mail at frushour.charles@epa.gov. Thank you for your continued cooperation.

Sincerely,

/s/
Reid P. Harvey, Director
Clean Air Markets Division

cc: Charles Frushour, CAMD
Paul Arnold, EPA Region 3
Charles Zadakis, Pennsylvania Department of Environmental Protection (PADEP)