January 6, 2020

Mr. Donald G. Atwood
Designated Representative
CPV Towantic, LLC
50 Braintree Hill Office Park
Suite 300
Braintree, MA 02184

Re: Petition to use an alternative fuel flowmeter calibration procedure for units 1 and 2 at the CPV Towantic Energy Center (facility ID (ORISPL) 56047)

Dear Mr. Atwood:

The United States Environmental Protection Agency (EPA) has reviewed the April 6 and May 15, 2018 petitions and subsequent email dated 5/7/2018 submitted by CPV Towantic, LLC (CPV Towantic) 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 1 and 2 at the CPV Towantic Energy Center (TEC). EPA approves this petition, with conditions, as discussed below.

Background

CPV Towantic owns and operates units 1 and 2 at the CPV TEC in Oxford, Connecticut. CPV TEC units 1 and 2 are combined cycle combustion turbines each serving an electricity generator with a nominal design rating of 285 megawatts as well as a common steam turbine and electricity generator with a nominal rating of 280.5 megawatts. The units combust pipeline natural gas as a primary fuel and ultra-low sulfur diesel as a secondary fuel. According to CPV Towantic, units 1 and 2 are subject to the Acid Rain Program. CPV Towantic 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 Towantic 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 TEC units 1 and 2 are being equipped with Coriolis fuel flowmeters manufactured by Emerson Process Management – Micro Motion, Inc. (Emerson MMI) to measure fuel flow. Two fuel flowmeters (model CMFHC2M811N2BAE, serial numbers 12137440 and 12138445) will be used to measure the flow of pipeline natural gas. Two additional fuel flowmeters (model F300H, serial numbers 14524993 and 14642178) will be used to measure the flow of ultra-low sulfur diesel fuel. CPV Towantic also anticipates the possibility of using additional like-kind fuel flowmeters at units 1 and 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 Towantic petitions, each flowmeter identified above has been tested for initial certification using the Emerson MMI 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 Emerson MMI 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 Emerson MMI TSM as an alternative certification and quality assurance testing method for Coriolis flowmeters at other facilities. In view of these circumstances, CPV Towantic submitted petitions to EPA under § 75.66(c) requesting approval of the use of the Emerson MMI TSM as an alternative certification and quality assurance testing method for Coriolis flowmeters at the CPV TEC. CPV Towantic requests approval to use the Emerson MMI TSM process not only for the flowmeters identified by the serial numbers above but also for additional like-kind Coriolis fuel flowmeters that CPV Towantic may use at the facility in the future.

EPA's Determination

EPA has reviewed the information provided by CPV Towantic in the April 6 and May 15, 2018 petitions and subsequent email dated 5/7/2018. The petition describes the alternative calibration procedure that CPV Towantic requests approval to use to verify the accuracy of the natural gas and ultra-low sulfur diesel fuel flowmeters installed on units 1 and 2 and any other like-kind Coriolis fuel flowmeters to be installed at the CPV TEC.

EPA approves use of the Emerson MMI TSM calibration procedure for initial certification of the fuel flowmeters (serial numbers 12137440, 12138445, 14524993, and 14642178) installed on CPV TEC units 1 and 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 TEC's flowmeters had fully traceable calibrations through an accredited path back to NIST standards.[1]

A2. The calibration procedure followed for initial certification of CPV TEC's flowmeters met the requirements of section 2.1.5.2(a) of appendix D to part 75 for in-line testing of a 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 TEC'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 12137440 Accuracy (% of URV)**	**Flowmeter s/n 12138445 Accuracy (% of URV)**
Normal minimum unit operating load	0.004%	0.004%
Mid unit operating load	0.004%	0.003%
Normal full unit operating load	0.001%	0.001%

Table 2 – Average three-run ultra-low sulfur diesel fuel flowmeter accuracy results

Flow rate level	**Flowmeter s/n 14524993 Accuracy (% of URV)**	**Flowmeter s/n 14642178 Accuracy (% of URV)**
Normal minimum unit operating load	0.002%	0.000%
Mid unit operating load	0.003%	0.000%
Normal full unit operating load	0.008%	0.002%

[1] The Primary Flow Stand calibration system is equipment that has been accredited by NVLAP according to ISO 17025.

EPA also approves the use of the Emerson MMI TSM calibration procedure to meet the applicable on-going quality assurance requirements for the fuel flowmeters installed on CPV TEC units 1 and 2 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 Emerson MMI 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 TEC 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 Towantic 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/

Reid P. Harvey, Director
Clean Air Markets Division

cc: Ron Sobocinski, CAMD
Jenny Jachim, CAMD
Ms. Susan Lancey, EPA Region I
Ms. Cinda Lautenschlegar, Connecticut DEEP