



OFFICE OF TRANSPORTATION AND AIR QUALITY

WASHINGTON, D.C. 20460

June 12, 2024

Mr. Marc Butler
Emerson – Micro Motion, Inc.
7070 Winchester Circle
Boulder, CO 80301

Dear Mr. Marc Butler:

This letter is in response to your alternative measurement protocol (AMP) submission of December 29, 2023, under 40 CFR 80.155(a)(3). In your letter, you requested that EPA approve the use of Emerson Micro Motion CMF (ELITE) Coriolis style flow meters as an alternative to the flow meters specified at 40 CFR 80.155(a)(2).

The regulations at 40 CFR 80.155(a) specify that the volume of biogas, renewable natural gas, and renewable compressed natural gas or liquified natural gas must be continuously measured using specified flow meters. The regulations allow for EPA to approve an alternative measurement protocol under 40 CFR 80.155(a)(3) if a party demonstrates that they are unable to continuously measure using the specified methods and the party demonstrates that the alternative measurement protocol is at least as accurate and precise as the specified methods. The regulations at 40 CFR 80.135(c)(3)(iii) and (d)(3)(iii) outline the requirements for biogas production and RNG production facilities, respectively, to request an alternative measurement protocol under 40 CFR 80.155(a)(3).

Your submission included information that described how Emerson Micro Motion CMF (ELITE) Coriolis style flow meters conduct measurement, listed applicable voluntary consensus standards bodies, described routine maintenance and calibration for Emerson Micro Motion CMF (ELITE) Coriolis style flow meters, described the measurement frequency of Emerson Micro Motion CMF (ELITE) Coriolis style flow meters, and included a comparison with supporting data between the accuracy, precision, and reliability of the alternative measurement protocol and the requirements specified in 40 CFR 80.155(a)(2).

Based on our review of your December 29, 2023, submission and the voluntary consensus standards listed in your AMP submission, the EPA approves your December 29, 2023 AMP submission and a biogas producer or RNG producer may register its facility to use Emerson Micro Motion CMF (ELITE)

Coriolis style flow meters under 40 CFR 80.155(a)(3) so long as the producer meets the conditions specified in the attachment and all other applicable regulatory requirements at 40 CFR part 80, subpart E.

We note that your submission and this AMP approval do not address whether a specific facility satisfies the criteria for the approval of an AMP under 40 CFR 80.155(a)(3)(i). A facility that intends to use Emerson Micro Motion CMF (ELITE) Coriolis style flow meters covered under this AMP approval must address this criterion in its registration submission as described in the regulations at 40 CFR 80.135(c)(3)(iii)(A) or (d)(3)(iii)(A), as applicable.

If you have any questions related to this general AMP approval, please contact Robert Anderson at anderson.robert@epa.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Byron Bunker", is positioned above the typed name.

Byron Bunker, Director
Implementation, Analysis and Compliance Division
Office of Transportation and Air Quality

EPA Determination that Emerson Micro Motion CMF (ELITE) Coriolis style flow meters meet the requirements for an alternative measurement protocol under 40 CFR 80.155(a)(3)(ii)

Summary

On December 29, 2023, Emerson submitted an alternative measurement protocol request under 40 CFR 80.155(a)(3)(ii). The regulations at 40 CFR 80.155(a) specify that the volume of biogas, renewable natural gas (RNG), and renewable compressed natural gas (CNG) or liquefied natural gas (CNG) must be continuously measured using specified flow meters. The regulations allow for EPA to approve an alternative measurement protocol under 40 CFR 80.155(a)(3) if a party demonstrates that they are unable to continuously measure using the specified methods and the party demonstrates that the alternative measurement protocol is at least as accurate and precise as the specified methods. The regulations at 40 CFR 80.135(c)(3)(iii) and (d)(3)(iii) outline the requirements for biogas production and RNG production facilities, respectively, to request an alternative measurement protocol under 40 CFR 80.155(a)(3).

Based on EPA staff review of the December 29, 2023, and have determined that Emerson Micro Motion CMF (ELITE) Coriolis style flow meters are as precise, accurate, and reliable as meters specified at 40 CFR 80.155(a)(1) so long as a facility installs, operates, calibrates, and maintains the meter consistent with the December 29, 2023, submission.

The following sections describe how the December 29, 2023, submission satisfies the applicable regulatory requirements at 40 CFR 80.135 and 80.155, and how biogas and RNG production facilities using Emerson Micro Motion CMF (ELITE) Coriolis style flow meters must submit as part of their registration submissions under 40 CFR 80.135.

Description and VCSB standards

The regulations at 40 CFR 80.135(c)(3)(iii)(B)-(C) and 80.135(d)(3)(iii)(B)-(C) require a description of how measurement would be conducted under the alternative measurement product and a description of any standards or specifications that apply for the measurement of biogas and RNG, respectively. Your December 29, 2023, submission, included a description of the Emerson Micro Motion CMF (ELITE) Coriolis style flow meters described the following VCSB standards that cover the Emerson Micro Motion CMF (ELITE) Coriolis meters:

- ISO 10790 Measurement of fluid flow in closed conduits – Guidance to the selections, installation, and use of Coriolis flowmeters (mass flow, density, and volume flow measurements);
- ASME MFC-11-2006 Measurement of Fluid Flow by Means of Coriolis Mass flowmeters;
- ASME PTC 19.5-2022 Flow Measurement Performance Codes, Section 13 Coriolis Mass Flowmeters;
- AGA Report No. 11 API MPMS Chapter 14.9 Measurement of Natural Gas by Coriolis Meter.
- ISO/IEC 17025 Testing and calibration laboratories.

Any facility wishing to utilize this general AMP approval must note in their registration submission under 40 CFR 80.135 that they are using an Emerson Micro Motion CMF (ELITE) Coriolis style flow

meter as described in this general AMP approval letter and must note in their registration submission under 40 CFR 80.135 which VCSB standards they intend to use for their Emerson Micro Motion CMF (ELITE) Coriolis style flow meters installed at their facility.¹

Calibration and maintenance

The regulations at 40 CFR 80.135(c)(3)(iii)(D) and 80.135(d)(3)(iii)(D) require a description of all routine maintenance and the frequency that such maintenance will be conducted for an alternative measurement protocol.

Attachments B and C of your December 29, 2023, submission described how the water calibration of Emerson Micro Motion CMF (ELITE) Coriolis style flow meters applicability to gas flow measurements. Additionally, data shown in Attachment C demonstrate that the Emerson Micro Motion CMF (ELITE) Coriolis style flow meters are compliant with accuracy and repeatability specifications in AGA 11. Attachments B and E of your December 29, 2023, submission also described reliability and maintenance requirements for the Emerson Micro Motion CMF (ELITE) Coriolis style flow meters. Based on our review of the VCSB standards cited in your December 29, 2023, submission, calibration must be performed according to ASME PTC 19.5-2022, ASME MFC-11-6, AGA 11, ISO/IEC 17025, and ISO/IEC 10790. If the Coriolis flowmeter is calibrated with water, the equivalency to RNG flow must be demonstrated. Any facility wishing to utilize this general AMP approval must note in their registration submission under 40 CFR 80.135 that the facility intends to meet the calibration specifications in ASME PTC 19.5-2022, ASME MFC-11-6, AGA 11, and ISO/IEC 17025 or describe an alternative maintenance and calibration procedure. If utilizing an alternative calibration procedure, the facility must describe how the alternative will ensure proper operation of the meter in their registration submission. Based on our review of your submission, the maintenance procedures you specify should help ensure reliable operation of Emerson Micro Motion CMF (ELITE) Coriolis style flow meters if followed. Any facility wishing to utilize this AMP approval must note that they intend to follow the manufacturer recommended maintenance requirements for the Emerson Micro Motion CMF (ELITE) Coriolis style flow meters or suggest an alternative maintenance procedure. If utilizing an alternative maintenance procedure, the facility must describe how the alternative will ensure proper operation of the meter in their registration submission. If utilizing an alternative maintenance and/or calibration procedure, the facility must describe how the alternative will ensure proper operation of the meter.

Measurement frequency

The regulations at 40 CFR 80.135(c)(iii)(E) and 80.135(d)(iii)(E) require facilities to submit a description of the frequency of all measurements and how often such measurements will be recorded under the alternative measurement protocol. According to your December 29, 2023, submission: "Micro Motion ELITE Coriolis meters compute flow rate, total quantity, and other variable measurements on a nearly continuous basis (e.g., updating computations at 100 cycles per second). Analog (continuous 4-20 mA signal) and pulse (e.g., up to 10,000 HZ) output channels are available from a Coriolis meter. Producers utilizing Micro Motion ELITE Coriolis meters can record at this frequency or greater...". You also noted that the frequency of measurement shall be at minimum of every one (1) second consistent with the

¹ Note, the facility should not submit copies of referenced VCSB standards as part of their registration submission.

definition of continuous measurement at 40 CFR 80.2.² Based on your submission, facilities that use Emerson Micro Motion CMF (ELITE) Coriolis style flow meters should be able to measure and record data within the 40 CFR 80.2 specification.

Any facility wishing to utilize this general AMP approval must include a description of the frequency of measurement and how often such measurements will be recorded as part of their registration submission under 40 CFR 80.135. If the facility intends to meet the frequency specified in the definition of continuous measurement at 40 CFR 80.2, the facility should note that. If the facility wishes to use a less frequent measurement or recording frequency, the facility must specify what that frequency is and include a demonstration over how that frequency will result in measurement equivalent or better than the specified measurement and recording rates for continuous measurement at 40 CFR 80.2.

Accuracy, precision, and reliability comparison

The regulations at 40 CFR 80.135(c)(3)(iii)(F) and 80.135(d)(3)(iii)(F) require a comparison between the accuracy, precision, and reliability of the alternative measurement protocol and the requirements specified in 40 CFR 80.155(a)(1) and (2), as applicable, including any supporting data. In your December 29, 2023, submission, you included information including supporting data that compared the accuracy, precision, and reliability of Emerson Micro Motion CMF (ELITE) Coriolis style flow meters and meters specified at 40 CFR 80.155(a)(1).

Based on our review of your December 29, 2023, submission, and the listed VCSB standards, we have determined that Emerson Micro Motion CMF (ELITE) Coriolis style flow meters are as accurate, precise, and reliable as flow meters specified at § 80.155(a)(2). Any facility using Emerson Micro Motion CMF (ELITE) Coriolis style flow meters covered under this general AMP approval should note in their registration submission under 40 CFR 80.135 that they are relying on EPA's determination in this letter to demonstrate the comparison of accuracy, precision, and reliability of Emerson Micro Motion CMF (ELITE) Coriolis style flow meters and the meters specified at 40 CFR 80.155(a)(2).

² The regulations at 40 CFR 80.2 define "continuous measurement" as "the automated measurement of specified parameters of biogas, treated biogas, or natural gas as follows: (1) For in-line GC meters, automated measurement must occur and be recorded no less frequent than once every 15 minutes. (2) For flow meters, automated measurement must occur no less frequent than once every 6 seconds, and weighted totals of such measurement must be recorded at no more than 1 minute intervals. (3) For all other meters, automated measurement and recording must occur at a frequency specified at registration."