



OFFICE OF TRANSPORTATION AND AIR QUALITY

WASHINGTON, D.C. 20460

July 16, 2024

Martin Schlebach
Emerson Automation Solutions
7070 Winchester Circle
Boulder, CO 80301

Dear Mr. Schlebach:

This letter is in response to your alternative measurement protocol (AMP) submission of February 3, 2024, under 40 CFR 80.155(a)(3). In your letter, you requested that EPA approve the use of the Emerson Rosemount gas ultrasonic flow meters as an alternative to the flow meters specified at 40 CFR 80.155(a)(2) for the measurement of renewable natural gas.¹

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(d)(3)(iii) outline the requirements for 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 Rosemount gas ultrasonic flow meters conduct measurement, listed applicable voluntary consensus standards bodies, described routine maintenance and calibration for Emerson Rosemount gas ultrasonic flow meters, described the measurement frequency of Emerson Rosemount gas ultrasonic 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).

¹ In your February 3, 2024, submission, you described the following Emerson Rosemount gas ultrasonic flow meter models: Rosemount Ultrasonic Meters models 3412, 3414, 3415, 3416, 3417 and 3418. For purposes of this letter, the term Emerson Rosemount gas ultrasonic flow meters include all of the ultrasonic flow meter models included in your February 3, 2024, submission.

Based on our review of your February 3, 2024, submission and the voluntary consensus standards listed in your AMP submission, the EPA approves your February 3, 2024 AMP submission for RNG, and an RNG producer may register its facility to use Emerson Rosemount gas ultrasonic 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 Rosemount gas ultrasonic 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 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 Rosemount gas ultrasonic flow meters (Rosemount Ultrasonic Meters models 3412, 3414, 3415, 3416, 3417 and 3418) meet the requirements of 40 CFR 80.155(a)(3)(ii)

Summary

On February 3, 2024, Emerson Automation Solutions submitted an alternative measurement protocol request under 40 CFR 80.155(a)(3)(ii) for Emerson Rosemount gas ultrasonic flow meters (Rosemount Ultrasonic Meters models 3412, 3414, 3415, 3416, 3417 and 3418). 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 liquified 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 February 3, 2024, and have determined that Emerson Rosemount gas ultrasonic flow meters (Rosemount Ultrasonic Meters models 3412, 3414, 3415, 3416, 3417 and 3418) 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 February 3, 2024, submission.

The following sections describe how the February 3, 2024, submission satisfies the applicable regulatory requirements at 40 CFR 80.135 and 80.155, and how RNG production facilities using Emerson Rosemount gas ultrasonic 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 RNG, respectively. Your February 3, 2024, submission, included a description of the Emerson Rosemount gas ultrasonic flow meters (Rosemount Ultrasonic Meters models 3412, 3414, 3415, 3416, 3417 and 3418) described the following VCSB standards that cover the Emerson Rosemount gas ultrasonic flow meters:

- AGA Report No. 9
- OIML R137 gas meter certification
- Measurement Canada gas meter certification (<https://ised-isde.canada.ca/site/measurement-canada/en/s-g-03-specifications-approval-type-gas-meters-ancillary-devices-and-associated-measuring>)
- ASME PTC 19.5
- ASME MFC-5.1 – 2011 (R2018)

Any facility wishing to utilize this AMP approval must note in their registration submission under 40 CFR 80.135 that they are using a Emerson Rosemount gas ultrasonic flow meters as described in this 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 Rosemount gas ultrasonic flow meters installed at their facility.²

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.

Data shown in your February 3, 2024, submission demonstrate that the Emerson Rosemount gas ultrasonic flow meters are compliant with accuracy and repeatability specifications in AGA Report No. 9. Your February 3, 2024, submission also described reliability and maintenance requirements for the Emerson Rosemount gas ultrasonic flow meters.

Calibration should be performed according to AGA Report No. 9 Section 6 or another recognized standard, such as ISO/IEC 17089-1, that specifies calibration and custody transfer. Additionally, the calibration laboratory should meet requirements for a competent laboratory, such as ISO/IEC 17025. Any facility wishing to utilize this AMP approval must note in their registration submission under 40 CFR 80.135 that the facility intends to meet the calibration specifications in AGA Report No. 9 at a competent calibration laboratory 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 Rosemount gas ultrasonic 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 Rosemount gas ultrasonic 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 February 3, 2024, submission gas velocities for each transducer pair are sampled 40 time per second to compute average gas flow rates that are reported at 1Hz. This meets the minimum measurement frequency stated in the 40 CFR 80.2 and is

² Note, the facility should not submit copies of referenced VCSB standards as part of their registration submission.

consistent with the definition of continuous measurement at 40 CFR 80.2.³ Based on your submission, facilities that use Emerson Rosemount gas ultrasonic flow meters should be able to measure and record data within the 40 CFR 80.2 specification.

Any facility wishing to utilize this 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 February 3, 2024, submission, you included information including supporting data that compared the accuracy, precision, and reliability of Emerson Rosemount gas ultrasonic flow meters and meters specified at 40 CFR 80.155(a)(1).

Based on our review of your February 3, 2024, submission, and the listed VCSB standards, we have determined that Emerson Rosemount gas ultrasonic flow meters are as accurate, precise, and reliable as flow meters specified at § 80.155(a)(2). Any facility using Emerson Rosemount gas ultrasonic flow meters covered under this 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 Rosemount gas ultrasonic flow meters and the meters specified at 40 CFR 80.155(a)(2).

³ 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."