



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

MAR 27 2014

OFFICE OF
AIR AND RADIATION

Mr. Jimmy Don Havins
Designated Representative
T.C. Ferguson Power Plant
P.O. Box 220
Austin, TX 78767-0220

Re: Petition to Use an Alternative Fuel Flowmeter Calibration Procedure for Units CT-1 and CT-2 at the T.C. Ferguson Power Plant (Facility ID (ORISPL) 4937)

Dear Mr. Havins:

The United States Environmental Protection Agency (EPA) has reviewed the May 20, 2013 petition submitted by the Lower Colorado River Authority (LCRA) under 40 CFR 75.66(c), together with supporting e-mails from LCRA,¹ requesting approval of an alternative calibration procedure for two fuel flowmeters that will be used to measure natural gas flow rates at the T.C. Ferguson Power Plant. EPA approves the petition, with conditions, as discussed below.

Background

LCRA owns and is preparing to operate two natural gas-fired combustion turbines (Units CT-1 and CT-2) at its T.C. Ferguson Power Plant (Ferguson) in Llano County, Texas, with commercial operation scheduled to commence in the third quarter of 2014. Units CT-1 and CT-2 will each be rated at 270 MW in combined cycle configuration (including their shares of the capacity of the steam turbine generator). The units will be subject to the Acid Rain Program and to the Clean Air Interstate Rule annual trading programs for sulfur dioxide (SO₂) and nitrogen oxides (NO_x). LCRA will therefore be required to continuously monitor and report SO₂, NO_x, and carbon dioxide emissions and heat input for Units CT-1 and CT-2 in accordance with 40 CFR Part 75.

To meet the SO₂ emissions and heat input monitoring requirements, LCRA 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 a gas flowmeter that meets initial certification requirements set forth in Section 2.1.5 and ongoing quality assurance requirements set forth in Section 2.1.6.

¹ LCRA sent additional supporting information in emails dated May 30, November 18, December 4, and December 11, 2013.

Section 2.1.5 of Appendix D specifies three acceptable ways to initially certify a fuel flowmeter: (1) by design (this option is available for orifice, nozzle, and venturi-type 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 of Appendix D. However, the section provides that unlisted methods using equipment traceable to National Institutes of Standards and Technology (NIST) standards may also be used, subject to EPA approval pursuant to a petition submitted under 40 CFR 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.

The Coriolis flowmeters that will be used to measure natural gas flow rates at Ferguson Units CT-1 and CT-2 were manufactured by Emerson Process Management-Micro Motion, Inc. (Emerson MMI). 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 LCRA petition, the 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 flowmeters are not orifice, nozzle, or venturi-type flowmeters and therefore do not qualify to be certified based on their design. Further, the TSM is not listed in Section 2.1.5.1 of Appendix D as an approved method. In view of these circumstances, LCRA submitted a petition to EPA under §75.66(c) requesting approval of the TSM as an alternative certification and quality assurance testing method.

EPA's Determination

EPA has reviewed the information provided by LCRA in the May 20, 2013 petition and subsequent e-mails describing the alternative calibration procedure that LCRA requests approval to use to verify the accuracy of the gas flowmeters to be used at Ferguson Units CT-1 and CT-2.

1. The Agency approves use of the Emerson MMI Transfer Standard Method (TSM) calibration procedure for initial certification of the CT-1 and CT-2 flowmeters (Serial Numbers 12082270 and 12082465). The basis for this approval is as follows:
 - a. The alternative calibration methodology uses equipment traceable to NIST standards. In Emerson MMI's Transfer Standard Method,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 LCRA's flowmeters have fully traceable calibrations through an accredited path back to NIST standards.

² See Emerson MMI Control Procedure 79 (CP 79).

- b. The calibration procedure followed for initial certification of LCRA’s two flowmeters met the requirements of Part 75, Appendix D, section 2.1.5.2(a) for in-line testing of candidate flowmeters by comparison against reference flowmeters. Specifically:
- The reference flowmeters used to test LCRA’s 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 flowmeter, three test runs were conducted at each of three flow rate levels with each test run lasting more than 20 minutes in duration; and
 - The pressure and temperature transmitters were calibrated prior to the comparison. The pressure transmitters were calibrated on-site using an ISO 17025 accredited calibration service. The temperature calibrations were performed by the ISO 17025-accredited original supplier using a secondary reference provided by LCRA.
- c. At each tested flow rate level, each fuel flowmeter demonstrated accuracy better than the accuracy requirement specified in Section 2.1.5 of Appendix D, which is 2.0 percent of the flowmeter’s Upper Range Value (URV). The test results are summarized in Table 1 below.

Table 1 – Average Three Run Fuel Flowmeter Accuracy Results

Flow Rate Level	Accuracy (% of Upper Range Value)	
	Serial No. 12082270	Serial No. 12082465
Low (6% of URV)	0.004%	0.004%
Mid (32% of URV)	0.007%	0.005%
High (63% of URV)	0.003%	0.002%

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

- 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
- 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's determination relies on the accuracy and completeness of the information provided by LCRA and is appealable under 40 CFR Part 78. If you have any questions regarding this determination, please contact Travis Johnson at (202) 343-9018 or by e-mail at Johnson.Travis@epa.gov. Thank you for your continued cooperation.

Sincerely,



Reid P. Harvey, Director
Clean Air Markets Division

cc: Travis Johnson, CAMD
Raymond Magyar, EPA Region VI
Sandy Simko, Texas TCEQ