UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Washington, DC 20460

OFFICE OF AIR AND RADIATION

April 30th, 2025

Robert Rooney, Plant Manager & Designated Representative
Nelson Energy Center
1311 Nelson Road
Rock Falls, Illinois 61071

Re: Petition to use an alternative fuel flowmeter calibration procedure for Unit 3 and Unit 4 at the Nelson Energy Center Expansion (Facility ID (ORISPL) 60387)

Dear Mr. Rooney,

The United States Environmental Protection Agency (EPA) has reviewed the March 26, 2025, petition submitted by Invenergy Nelson Expansion, LLC (INE) under 40 CFR 75.66(c) requesting approval of an alternative calibration procedure for initial certification, ongoing quality assurance, and recertification of fuel flowmeters that are being or may be used to measure fuel flow rates for Unit 3 and Unit 4 at the Nelson Energy Center Expansion (Nelson). EPA approves this petition, with conditions, as discussed below.

Background

INE owns and operates Nelson in Lee County, Illinois. Units 3 and 4 are simple cycle combustion turbines. Each unit serves a single electricity generator with a reported nameplate capacity of 190 MW. Each unit combusts pipeline natural gas as its primary fuel with diesel fuel as its secondary fuel. According to INE, Nelson units 3 and 4 are subject to the Acid Rain Program and Cross-State Air Pollution Rule (CSAPR) trading programs for sulfur dioxide (SO_2) and annual and ozone season nitrogen oxides (NO_X). Nelson units 3 and 4 are therefore required to continuously monitor and report SO_2, NO_X, and carbon dioxide (CO_2) mass emissions, NO_X emission rate, and heat input for each unit in accordance with 40 CFR part 75.

To meet the SO_2 mass emissions and heat input monitoring requirements, INE 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 methods to 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.

Nelson units 3 and 4 are equipped with Coriolis fuel flowmeters manufactured by Emerson Micro Motion, Inc. (Emerson MMI) to measure the flow of diesel oil. The flowmeters are MMI model number F300S355ECAA and have the following serial numbers: S/N 21211923 and S/N 21212882.

INE also anticipates the possibility of using additional like-kind fuel flowmeters at Nelson 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 flow measurement equipment that is traceable to NIST standards. According to the INE petition, 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 MMI's TSM or another Appendix D 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, INE submitted a petition 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 Nelson. INE requests approval to use the Emerson MMI TSM process not only for the flowmeters identified by the serial numbers above but also for any additional like-kind Coriolis fuel flowmeters that INE may use at the facility in the future.

EPA's Determination

EPA has reviewed the information provided by INE in the March 26, 2025, petition. The petition describes the alternative calibration procedure that INE requests approval to use to verify the accuracy of the diesel oil fuel flowmeters installed at units 3 and 4 and any other like-kind Coriolis fuel flowmeters to be installed at Nelson.

EPA approves use of the Emerson MMI TSM calibration procedure for initial certification of the fuel flowmeters installed at Nelson units 3 and 4. The basis for this approval is as follows:

1. According to Emerson MMI, the alternative calibration methodology used equipment traceable to NIST standards. In the 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." According to Emerson MMI, the Primary Flow Stand is an ISO 17025-accredited calibration system that uses equipment traceable to NIST standards, and thus the reference meters used to test Nelson's flowmeters had fully traceable calibrations through an accredited path back to NIST standards.[1]

2. The calibration procedure followed for initial certification of Nelson'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 Nelson'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 each candidate flowmeter, three test runs were conducted at each of three flow rate levels with each test run lasting 20 minutes in duration.

3. 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 tables 1 and 2.

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

Table 1: Average three-run accuracy results for diesel oil fuel flowmeter S/N 21211923

Flow rate level	*Accuracy (% of URV)*
Low – normal minimum unit operating load	0.000%
Mid – load point approximately equally spaced between minimum and full operating load	0.004%
High – normal full unit operating load	0.004%

Table 2: Average three-run accuracy results for diesel oil fuel flowmeter S/N 21212882

Flow rate level	*Accuracy (% of URV)*
Low – normal minimum unit operating load	0.001%
Mid – load point approximately equally spaced between minimum and full operating load	0.003%
High – normal full unit operating load	0.009%

EPA also approves the use of the Emerson MMI TSM calibration procedure to meet the applicable ongoing quality assurance requirements for the fuel flowmeters installed on Nelson units 3 and 4 under section 2.1.6 of appendix D, subject to the following conditions:

4. The application of the Emerson MMI 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

5. 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 ongoing quality assurance requirements for like-kind Coriolis fuel flowmeters used in the future at Nelson subject to the satisfaction, for each such like-kind fuel flowmeter, of all approval conditions set forth in paragraphs (1), (2), (3), (4), and (5) 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 INE 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,

RONA BIRNBAUM

Digitally signed by RONA BIRNBAUM
Date: 2025.04.30 12:26:20 -04'00'

Rona Birnbaum, Director
Clean Air and Power Division

cc: Ron Sobocinski, CAPD
Bryan Ramirez, CAPD
Michael Compher, EPA Region 5
Mr. Kevin Mattison, Illinois EPA