OFFICE OF AIR AND RADIATION
WASHINGTON, D.C. 20460

July 12, 2024

Mr. Thomas Redlinger
Vice President, Data Analytics
JP3 Measurement
5775 North Sam Houston Parkway West
Houston, TX

Dear Mr. Redlinger:

We are writing in response to your emailed letters dated April 17th, 2024, and June 10th, 2024, in which you request the broad approval of your proprietary technology and associated method for determining net heating value (NHV), measured as Btu/scf, from gas sent to an enclosed combustion device or flare subject to 40 CFR Part 60, Subpart OOOOb[1]. The U.S. Environmental Protection Agency's (EPA) Office of Air Quality Planning and Standards is the delegated authority for approval/disapproval determinations on any major alternatives to test methods and other compliance determination procedures required under 40 CFR parts 59, 60, 61, 63, and 65.

According to your request, JP3 Measurement (JP3) is requesting the use of the VeraCal optical system which consists of a near-infrared (NIR) optical spectrometer, sample process system, and reference cell for ongoing calibration verification. Specifically, JP3 is requesting the use of their VeraCal optical system for Net Heating Value[2] (NHV) measurements of gas being sent to either to an enclosed combustion or flare, located on an oil and gas site subject to Subpart OOOOb. It is our understanding; your system determines the concentrations of the hydrocarbon species with absorbance ranging from approximately 1355 – 1795 nm and the concentrations of those hydrocarbon species are used to calculate the NHV according to the procedures and calculation in ASTM D3588-98(2003). You add that your approach provides a more conservative assessment for NHV, since non-hydrocarbons gases are calculated as by difference (100% - hydrocarbon measurements) and those gases (including hydrogen) do not contribute to the NHV determination. As additional justification for this request, you identify that Subpart OOOOb allows for similar speciated measurements approaches for hydrocarbons as identified in §60.5417b(d)(8) of Subpart OOOOb, which includes:

[1] Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced after December 6, 2022, (Subpart OOOOb)
[2] Measured as Btu/scf

(a) a gas chromatograph that meets the requirements in §60.5417b(d)(ii)(B);
(b) a mass spectrometer that meets the requirements in §60.5417b(d)(ii)(C) or;
(c) a grab sampling system capable of collecting an evacuated canister sample for subsequent compositional analysis according to ASTM D1945-14.

To support your statements that your approach is similar and will provide equivalent results to the existing methods allowed in the rule, you have included supporting information from several Method 301 (40 CFR Part 63, Appendix A) tests. These tests were performed at several oil and gas sites and processes, where the NHV of the gas being sent to an enclosed combustion device or flares varied from 290 Btu/scf to as high as 1860 Btu/scf. For each test, JP3 conducted six separate test runs with each test run consisting of four replicate samples (i.e., two pairs of measured data, one pair from the candidate test method against a validated reference test method. These test, as summarized below, showed acceptable precision (T-Test) and bias
(% relative bias) between the candidate method (JP3 VeraCal) as compared to one of the reference methods included in the rule (e.g., ASTM 1945).

Site ID	Candidate Method Average NHV (btu/scf)	Reference Method Average NHV (btu/scf)	T-Test (Eq 301-13)	T-Test < 2.571[3]	% Relative Bias (Eq 301-14)	% Relative Bias <10%[4]
1	1241	1275	1.78	Yes	2.61	Yes
2	1187	1188	0.12	Yes	0.04	Yes
3	1864	1859	0.69	Yes	0.26	Yes
4	284	292	1.34	Yes	2.93	Yes
5	1048	1039	1.46	Yes	0.83	Yes
6	1029	1030	1.18	Yes	0.03	Yes

Based on a thorough review of the information you provided, including the results from the Method 301 testing, we are approving your alternative test method request to use your VeraCAL instrument for determining NHV in Btu/scf from gas being sent enclosed combustion device or flare subject to 40 CFR Part 60, Subpart OOOOb. Consistent with the other methods allowed for in the rule, this approval is predicated on 1) maintaining the design and use of the instrument as detailed in this letter and your submittal dated April 17th, 2024, and 2) the additional provisions found below:

(i) For each day in operation, you must meet the daily calibration requirement found in Section 10.2 of Performance Specification 9 of 40 CFR Part 60, Appendix B, except that a single daily calibration check can be conducted. You must use gas cylinder standard certified to an accuracy of 2 percent and traceable to National Institute of Standards and Technology

[3] When six runs are conducted, as specified in Table 301-1 of this method, the critical value of the t-statistic is 2.571 for five degrees of freedom. If the calculated t-value is less than or equal to the critical value, the bias is not statistically significant and the data are acceptable.
[4] If the relative bias is less than or equal to 10 percent, the bias of the candidate test method is acceptable.

(NIST) standard and this standard includes the compounds that are reasonably expected to be present in the gas stream.

(ii) If the instrument is located more than 0.5 meter from the sampling port, your sampling line temperature must be maintained at a minimum temperature of 60 °C (rather than 120 °C).

(iii) To determine the NHV of the vent gas, determine the product of the volume fraction of the individual component in the vent gas and the net heating value of that individual component. Sum the products for all components in the vent gas to determine the NHV for the vent gas. For the net heating value of each individual component, use the net heating value at 25 °C and 1 atmosphere.

We recognize that your letters also included a request for the use of your proprietary technology and associated method under Subpart OOOOc[5] of 40 CFR part 60, which is an Emission Guideline to be used by delegated state and local authorities to develop an individual State Plan. We are unable to address this request as the availability or applicability of this alternative method must be determined on a case-by-case basis under the emission guidelines. The owner or operator of the affected facilities using this approach must notify the responsible agency before use of this alternative method unless the use of this alternative method has been incorporated into a state's individual plan.

Because the alternative method described herein may be of use to other entities subject to §60.5417b(d)(8) and we believe it is reasonable to apply it broadly to other subject facilities, we will post this letter as ALT-157 on the EPA website at https://www.epa.gov/emc/broadly-applicable-approved-alternative-test-methods for use by interested parties.

If you have any questions regarding this approval or need further assistance, please contact Ned Shappley at (919) 541- 7903 or shappley.ned@epa.gov.

Sincerely,

STEFFAN JOHNSON

Digitally signed by STEFFAN JOHNSON
Date: 2024.07.12 12:16:36 -04'00'

Steffan M. Johnson, Group Leader

Measurement Technology Group

cc: Kim Garnett, OAQPS/AQAD (garnett.kim@epa.gov)

Gregory Fried, OECA/OC (fried.gregory@epa.gov)
Regional Testing Contacts

[5] Emissions Guidelines for Greenhouse Gas Emissions from Existing Crude Oil and Natural Gas Facilities