May 30, 2019

Mr. Paul Peterson
Designated Representative
Orange Grove Energy, L.P.
35435 Pala del Norte Road
Pala, CA 92059

Re: Petition to use hourly gross calorific value (GCV) analysis in calculation of hourly heat input from units CTG1 and CTG2 at the Orange Grove Energy Center (Facility ID (ORISPL) 56914)

Dear Mr. Peterson:

The United States Environmental Protection Agency (EPA) has reviewed the July 9, 2018 petition submitted by Orange Grove Energy, L.P. (OGE) under 40 CFR 75.66 requesting permission to use hourly measurements, rather than monthly averages, of the gross calorific value (GCV) of pipeline natural gas to perform emission calculations for two units at OGE's Orange Grove Energy Center. EPA approves the petition, with conditions, as discussed below.

Background

OGE, which is located in Pala, California, owns and operates two nominal 50 MW, 495 MMBtu/hr natural gas-fired simple-cycle combustion turbine generators at the Orange Grove Energy Center known as units CTG1 and CTG2. Both of these units combust pipeline natural gas.

According to OGE, units CTG1 and CTG2 are subject to the Acid Rain Program. Therefore, OGE is required to continuously monitor and report sulfur dioxide (SO_2), nitrogen oxides (NO_X), and carbon dioxide (CO_2) emissions and heat input for these units in accordance with 40 CFR part 75.

Acid Rain Program units that meet the definition of "gas-fired" or "oil-fired" in 40 CFR 72.2 may use the excepted methodology in appendix D to part 75 to determine SO_2 mass emissions and unit heat input instead of installing continuous emission monitoring systems (CEMS). OGE has elected to use the appendix D methodology for units CTG1 and CTG2.

The appendix D methodology requires continuous monitoring of the fuel flow rate and periodic sampling of the fuel characteristics, including sulfur content, GCV, and density (if needed). As per section 2.3.4.1 of appendix D, the GCV of pipeline natural gas must be determined at least once in every month in which the fuel is combusted for 48 hours or more

(and at least once in each calendar quarter in which the unit operates). If multiple GCV samples are taken and analyzed in a particular month, section 2.3.4.1 provides that, "the GCV values from all samples shall be averaged arithmetically to obtain the monthly GCV." Furthermore, section 2.3.7(c)(1) of appendix D states that, "[i]f multiple samples are taken and averaged, apply the monthly average GCV to the entire month."

Thus, for units such as CTG1 and CTG2 that combust pipeline natural gas, for each hour of unit operation in a given month, the measured hourly fuel flow rate and the average monthly GCV value are used to calculate the hourly unit heat input. The hourly heat input is then multiplied by a default SO_2 emission rate of 0.0006 lb/mmBtu to calculate hourly SO_2 mass emissions.

OGE's pipeline natural gas supplier operates and maintains continuous gas chromatographs which provide hour-by-hour measurements of the GCV of the fuel burned at the facility. OGE believes the most accurate hourly heat input rates are obtained when hourly GCV values are coupled with hourly measurements of fuel flow rate. In view of this, OGE submitted a petition to EPA requesting permission to use hourly GCV values, rather than monthly averages, in the emission calculations for units CTG1 and CTG2.

EPA's Determination

EPA approves OGE's petition to use hourly measurements of the GCV of pipeline natural gas, instead of monthly average GCV values, in the emissions calculations. The Agency concurs that using hourly, rather than monthly, GCV values together with hourly fuel flow rates is likely to provide more accurate hourly heat input rate data. Furthermore, hour-by-hour measurement of the GCV far exceeds the minimum sampling frequency for pipeline natural gas (i.e., once per month) specified in section 2.3.4.1 of appendix D.

Conditions of Approval

As a condition of this approval, for periods of missing GCV data, OGE shall use substitute data values in the calculations, as follows:

a. Provided that at least one valid GCV measurement is obtained in a given month, substitute, for each hour of the missing data period, the arithmetic average of the GCV values from the hour before and the hour after the missing data incident; or

b. In accordance with section 2.4.1 of appendix D to part 75, if no valid GCV values are obtained in a given month, substitute, for each hour of the missing data period, the maximum potential GCV value of 110,000 Btu per 100 standard cubic foot (scf), from Table D-6 in appendix D.

Because OGE's fuel supplier operates the gas chromatographs and has an economic incentive to ensure that the GCV measurements produced by the chromatographs are not biased low (while OGE has an analogous economic incentive to ensure that the GCV measurements are

not biased high), EPA considers it reasonable to treat the gas chromatographs for purposes of this petition in the same manner as gas billing meters are treated under the part 75 regulations. Accordingly, in these circumstances EPA believes it is reasonable to approve OGE's petition without establishing conditions regarding the operation and maintenance of the chromatographs or related quality assurance/quality control procedures.

EPA's determination relies on the accuracy and completeness of the information provided by OGE in the July 9, 2018 petition and is appealable under 40 CFR part 78. If you have any questions regarding this determination, please contact Carlos R. Martinez at (202) 343-9747 or martinez.carlos@epa.gov.

Sincerely,

/s/
Reid P. Harvey, Director
Clean Air Markets Division

cc: Gerardo Rios, EPA Region 9
David Sodeman, San Diego APCD
Carlos Martinez, CAMD