

March 14, 2013

Edward Trump
Designated Representative
Entergy Rhode Island State Energy, LP
P.O. Box 19840
24 Shun Pike
Johnston, RI 02919

Re: Petition to Use Continuous Gross Calorific Value Analysis at the Rhode Island State Energy Center, LP (Facility ID (ORISPL) 55107)

Dear Mr. Trump:

The United States Environmental Protection Agency (EPA) has reviewed the May 30, 2012 petition submitted by Entergy Rhode Island State Energy, LP (Entergy RISE LP) 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 emissions calculations for the Rhode Island State Energy Center (RISEC). EPA approves the petition, with conditions, as discussed below.

Background

Entergy RISE LP owns, and NextEra Energy Operating Services, Inc. operates, the RISEC, which is located in Johnston, Rhode Island. The facility consists of two combined-cycle combustion turbines with supplementary firing, known as Units RISEP1 and RISEP2. Both of these units combust pipeline natural gas (PNG).

According to Entergy RISE LP, Units RISEP1 and RISEP2 are subject to the Acid Rain Program. Therefore, Entergy RISE LP is required to continuously monitor and report sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon dioxide (CO₂) 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 alternative methodology in Appendix D of Part 75 to determine SO₂ mass emissions and unit heat input, instead of installing continuous emission monitoring systems (CEMS). Entergy RISE LP has elected to use Appendix D for Units RISEP1 and RISEP2.

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). According to 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 PNG is combusted for 48 hours or more.¹ 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.”²

Thus, for units such as RISEP1 and RISEP2 that combust pipeline natural gas, for each hour of unit operation in a given month the measured hourly fuel flow rate is used together with the average GCV value for that month to determine the hourly unit heat input. The hourly heat input is then multiplied by a default SO₂ emission rate of 0.0006 lb/mmBtu to calculate the hourly SO₂ mass emissions.

Entergy RISE LP operates and maintains continuous gas chromatographs which provide hour-by-hour measurements of the GCV of the pipeline natural gas at the RISEC. Entergy RISE LP believes that 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, Entergy RISE LP submitted a petition to EPA on May 30, 2012 requesting permission to use hourly GCV values, rather than monthly averages, in the emissions calculations for Units RISEP1 and RISEP2.

EPA’s Determination

EPA approves Entergy RISE LP’s petition to use hourly measurements of the GCV of pipeline natural gas, instead of using monthly average GCV values, in the emissions calculations for the RISEC. 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 PNG (i.e., once per month) specified in section 2.3.4.1 of Appendix D.

Conditions of Approval

The conditions of this approval are as follows:

- (1) Entergy RISE LP shall operate and maintain the on-line gas chromatographs at the RISEC in accordance with the manufacturer’s instructions.
- (2) The RISEC’s quality control/quality assurance (QA/QC) program (which is required by section 1 of Appendix B to Part 75) shall include information on

¹ However, at least one GCV analysis must be performed for each quarter in which the unit operates for any amount of time.

² Note that the requirements to average multiple GCV samples and to apply the average value to the entire month were added to Part 75 in January 2008 (see 73 FR 4312, 4332, Jan. 24, 2008).

the maintenance and quality-assurance activities associated with the gas chromatographs.

- (3) For periods of missing GCV data, Entergy RISE LP 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 40 CFR 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 scf, from Table D-6 in Appendix D.

EPA's determination relies on the accuracy and completeness of the information provided by Entergy RISE LP in the May 30, 2012 petition and is appealable under 40 CFR Part 78. If you have any questions regarding this determination, please contact Louis Nichols at (202) 343-9008 or Nichols.Louis@epa.gov.

Sincerely,

/s/

Reid P. Harvey, Director
Clean Air Markets Division

cc: Susan Lancey, EPA Region 1
Karen L. Peltier, Rhode Island DEM
Louis Nichols, CAMD