

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY WASHINGTON, D.C. 20460

OFFICE OF AIR AND RADIATION

May 21st, 2025

Mr. Craig Eckberg Primary Designated Representative NRG Energy 910 Louisiana Street Houston, TX 77002

Re: Request for Changes to the PEMS Approval for Units THW31 through THW34 and THW41 through THW44 at T.H. Wharton (Facility ID (ORISPL) 3469).

Dear Mr. Eckberg:

The United States Environmental Protection Agency (EPA) has reviewed the August 8, 2019 petition submitted under 40 CFR 75.66 by NRG Energy, Inc. (NRG) requesting changes to the quality assurance requirements for the predictive emissions monitoring systems (PEMS) installed on units THW31 through THW34 and THW41 through THW44 at the T.H. Wharton power plant (Wharton). EPA approves the petition, with conditions, as discussed below.

Background

NRG owns and operates Wharton, which is located in Harris County, Texas. Units THW31, THW32, THW33, THW34, THW41, THW42, THW43, and THW44 are gas-fired combustion turbines, each of which serves an electricity generator with reported nameplate capacity of 51.3 MW as well as a heat recovery steam generator. The eight units and their associated heat recovery steam generators are grouped into two four-unit sets; each set serves a steam turbine electricity generator with a reported nameplate capacity of 113.1 MW in a "4-on-1" combined cycle configuration. According to NRG, the eight units have been subject to various EPA-administered emissions trading programs since 2008, including currently the Cross-State Air Pollution Rule (CSAPR) NO_X Ozone Season Group 2 Trading Program. NRG is therefore required to continuously monitor and report the units' NO_X mass emissions and heat input in accordance with 40 CFR part 75.

The part 75 regulations describe various types of continuous emission monitoring systems (CEMS) and other monitoring methodologies which can be used by certain units to meet the monitoring and

reporting requirements. In addition, part 75, subpart E, allows unit owners to use alternative monitoring systems that are not specified in the regulations, such as PEMS, if approved by the EPA Administrator through a petition under § 75.66. Pursuant to petition responses issued by EPA in letters dated December 30, 2008 and September 27, 2010, NRG has used PEMS when determining the reported NO_X mass emissions for Wharton units THW31 through THW34 and THW41 through THW44 since 2009 for six of the units and since 2011 for the remaining two units. The EPA letters include quality assurance requirements that NRG must comply with as conditions of the approval to use the PEMS for part 75 purposes. The current quality assurance requirements applicable to all eight units were modified and restated in the September 27, 2010 letter. As relevant here, section 4(f) of that letter, which discusses requirements for periodic relative accuracy test audits (RATAs) and relative accuracy audits (RAAs), states that NRG must perform a three-run RAA for each unit in each calendar month in which the unit operates for at least 56 hours, unless a nine-run RATA or a PEMS recertification is performed for the unit in that month.

In the August 8, 2019 petition, NRG requests two changes to the quality assurance requirements specified in the September 27, 2010 letter relating to the RAAs required for units THW31 through THW34 and THW41 through THW44. First, NRG requests a reduction in the required frequency of the RAAs from monthly to quarterly. Second, NRG requests that a grace period be allowed if a given RAA is not performed in the quarter in which it is due, comparable to the grace period allowed under the part 75 regulations with respect to certain quarterly quality assurance requirements for CEMS. NRG notes that EPA has previously granted similar requests from another facility using PEMS to meet part 75 monitoring and reporting requirements.¹

EPA's Determination

EPA has reviewed NRG's petition and has determined that the requested changes to the quality assurance requirements for units THW31 through THW34 and THW41 through THW44 are approvable for the same reasons that EPA approved the similar requests for the other facility. Accordingly, EPA is changing the frequency of the RAA requirement from monthly to quarterly (i.e., once per QA operating quarter²). RAAs for PEMS serve the function of providing comparisons of monitoring system measurements to known standards, analogous to the functions of daily calibration error tests and quarterly linearity checks for CEMS. The original monthly frequency of the RAA requirement for PEMS was chosen as a compromise between the daily frequency of calibration error tests and the quarterly frequency of linearity checks for CEMS. Based on the very high observed passing rate for RAAs by all units with approved PEMS, EPA has determined that the monthly RAA frequency may be reduced to quarterly while continuing to ensure that the reliability of PEMS data is comparable to the reliability of data obtained using CEMS, consistent with the purposes of part 75, subpart E.

¹ See EPA's March 16, 2015 response to a petition for the Oswald generating station, available at www.epa.gov/power-sector/part-75-petition-responses.

² A "QA operating quarter" is a calendar quarter in which a unit operates for at least 168 hours.

EPA is also granting the request for a grace period equivalent to the grace period available to units subject to the quarterly quality assurance requirements for gas monitors (i.e., linearity checks). Thus, if a required RAA is not performed by the end of the calendar quarter in which it is due, NRG has a subsequent 168 operating hour grace period in which to perform the required RAA. If the RAA is not completed prior to the 169th operating hour after the end of the quarter in which the test was due, then data from the PEMS shall be considered invalid starting with that hour and shall remain invalid until a subsequent RAA is passed.

When approving the similar RAA-related requests for the other facility, EPA also added a requirement to electronically report detailed RAA run data in addition to the already required "pass" or "fail" RAA results. Consistent with the approval of the revised RAA conditions for the other facility, EPA is adding the same reporting requirement for Wharton units THW31 through THW34 and THW41 through THW44 as a condition of this approval. This requirement will enable EPA to verify the RAA results to ensure correct reporting. Also, this level of electronic reporting detail is comparable to the level of electronic reporting instructions are provided in section 4.0 (Miscellaneous Tests) of the Quality Assurance and Certification Instructions portion of the Supplementary ECMPS Reporting Instructions for PEMS. The current version of these instructions is included as an attachment to this letter.

Conditions of Approval

The conditions of approval for the use of PEMS at Wharton units THW31 through THW34 and THW41 through THW44 as set forth in the September 27, 2010 letter are revised as follows:

1. In Table 10 (PEMS Ongoing QA/QC Tests) in section 4(b) as shown in the September 27, 2010 letter, in the "Frequency" column of the "3-run RAA" row, the word "Monthly" is deleted and replaced with the word "Quarterly".

2. The second paragraph of section 4(f) as shown in the September 27, 2010 letter (i.e., the paragraph that begins "Monthly, 3-run (minimum) relative accuracy audits (RAAs)" is deleted and replaced with the following new paragraph:

A three-run (minimum) relative accuracy audit (RAA) of the PEMS installed on units THW31, THW32, THW33, THW34, THW41, THW42, THW43, and THW44 shall be performed (as described below) in each calendar quarter in which the respective unit operates for at least 168 operating hours (i.e., in each "QA operating quarter"), except a quarter in which a full nine-run RATA or a PEMS recertification, as described in section 4(g), is performed. (Note: a RATA may be performed in lieu of any required RAA.)

3. The last sentence of the fifth paragraph of section 4(f) as shown in the September 27, 2010 letter (i.e., the sentence saying "No grace periods are allowed.") is deleted and replaced with the following new paragraph after that fifth paragraph:

If a required RAA is not completed prior to the end of the calendar quarter in which it is due, NRG has a 168 operating hour "grace period" in which to perform the required RAA. The grace

period begins with the first operating hour after the end of the quarter in which the RAA was due. If the RAA is not completed prior to the 169th operating hour after the end of that quarter, data from the PEMS shall be considered invalid starting with that hour, and NRG shall report standard part 75 substitute data for each operating hour until the hour of completion of a subsequent successful RAA.

4. The sixth paragraph of section 4(f) as shown in the September 27, 2010 letter (i.e., the paragraph that begins "Report the results of all RAAs") is deleted and replaced with the following new paragraph:

The RAA test data and results shall be maintained on-site in a form suitable for inspection for at least three years and shall be reported using the ECMPS Client Tool as described in Attachment A, Supplementary ECMPS Reporting Instructions for PEMS, in section 4.0 of the Quality Assurance and Certification Instructions.

Except as otherwise indicated above, the conditions of approval stated in the September 27, 2010 letter remain in effect.

EPA's determination relies on the accuracy and completeness of the information provided by NRG in the August 8, 2019 petition and is appealable under 40 CFR part 78. If you have any questions regarding this determination, please contact Charles Frushour at 202-343-9847 or by e-mail at frushour.charles@epa.gov. Thank you for your continued cooperation.

Sincerely,

Rona Birnbaum, Director Clean Air and Power Division

cc: Carolyn Maus, Texas Commission on Environmental Quality Emad Shahin, US EPA Region 6

Attachment A

Supplementary ECMPS Reporting Instructions for PEMS

For a unit with an approved petition to use a predictive emissions monitoring system (PEMS), use the following PEMS-specific supplementary instructions, in conjunction with the ECMPS reporting instructions, to prepare the required submittals. Unless otherwise noted, for fields or data elements not specifically addressed in these instructions, you should follow the ECMPS reporting instructions. These guidelines are organized by the three ECMPS submittal types: I – Monitoring Plan; II – Quality Assurance and Certification; and III – Emissions Reporting.

I. Monitoring Plan Reporting Instructions

Section 6.0---Monitoring Method Data

Parameter Code. Report "NOXR" for NO_X Rate.

Monitoring Method Code. Report "PEM" to indicate NO_X rate is calculated using a petition approved PEMS methodology.

Substitute Data Code. Report "SPTS".

Section 7.0---Component Data

The PEMS monitoring system consists of either one or two data acquisition and handling system (DAHS) components. For single-component PEMS systems or for systems where the PEMS software and standard DAHS software have the same manufacturer/provider, model or version number, report one DAHS component. If the PEMS software and the standard DAHS software have different manufacturer/providers, model or version numbers, report two DAHS components. Otherwise report the DAHS components normally as you would according to section 7.0 of the ECMPS Monitoring Plan Reporting Instructions. You may also report the additional components of "DL" to indicate a data logger or recorder or "PLC" to indicate a programmable logic controller.

Section 8.0---Monitoring System Data

<u>Monitoring System ID.</u> Assign a unique three character alphanumeric ID for each PEMS monitoring system.

System Type Code. Report system type code "NOXP" to indicate this is a NO_X emission rate PEMS system.

System Designation Code. Report "P" to indicate this is the primary monitoring system.

Section 8.2---Monitoring System Component Data

Associate each DAHS component with the NOXP system described as above. While you may associate additional components such as a data logger or a programmable logic controller with the system, a PEMS must have a minimum of one associated DAHS component.

Section 10.0---Monitoring Default Data

Parameter Code. Report "NOXR" as the parameter monitored. (You must report one default record for each fuel type.)

Default Value. Report the fuel specific maximum potential NO_x emission rate (MER), in units of Ib/mmBtu.

Default Units of Measure Code. Report "LBMMBTU".

Default Purpose Code. Report "MD" for missing data.

Fuel Code. Report "NFS" to indicate Non-Fuel-Specific.

Operating Condition Code. Report "A" for any hour.

Default Source Code. Report "DATA" to indicate the value was determined from unit/stack testing.

II. Quality Assurance and Certification Instructions

Section 2.4.2---RATA Data

Number of Load Levels. Report "1".

Note: On-going RATAs are performed at the normal operating level only. Recertifications are performed following procedures in Part 75, Appendix A, section 6.5, using three operating levels (low, mid, and high) as defined in Part 75, Appendix A, section 6.5.2.1. Only the normal operating level data are reported; the data for the other two operating levels are kept on-site.

<u>**Relative Accuracy.**</u> Report the result of the relative accuracy test, as required and defined for the appropriate test method and in Part 75, Appendix A. Leave this field blank for a RATA that is aborted prior to completion due to a problem with the monitoring system.

RATA Frequency Code. Report "2QTRS" (for semiannual frequency) or "4QTRS" (for annual frequency), depending on the RATA results.

Overall Bias Adjustment Factor. Report the overall bias adjustment factor (BAF) for the system determined from the RATA data

Section 2.4.3---RATA Summary Data

Mean CEM Value. Report the arithmetic mean of the PEMS values for the normal operating level.

<u>Bias Adjustment Factor.</u> Report the BAF for each passing RATA performed at the normal operating level.

Section 2.4.4---RATA Run Data

<u>CEM Value.</u> Report the average value recorded by the PEMS for each RATA run.

Section 4.0---Miscellaneous Tests

Both the 3-run Relative Accuracy Audit (RAA) and the PEMS training (linear correlation and F-test) QA test results are reported using the miscellaneous test type.

To report the 3-run RAA tests using the miscellaneous test type, do the following:

<u>Test Type Code.</u> Report "PEMSACC" for a 3-run RAA performed with a reference method or portable analyzer.

Monitoring System ID. Report the PEMS NO_X monitoring system ID.

Test Result Code. Report "Pass" or "Fail", as applicable.

<u>Test Comment</u>. For each run, report the reference method or portable analyzer reading and the PEMS reading as specified by the PEMS petition approval.

To report the PEMS training tests (linear correlation and F-tests) do the following:

Test Type Code. Report "OTHER".

Monitoring System ID. Report the PEMS NO_X monitoring system ID.

Test Reason Code. Report either "INITIAL" or "RECERT", as applicable.

Test Description. Report either "PEMS Initial Certification" or "PEMS Recertification", as applicable.

Test Comment. Report the results of the F-test and correlation analysis (r-test) as specified by the PEMS petition approval.

Section 5.0----QA Certification Event Data

Monitoring System ID. Report the monitoring system ID of the NO_X PEMS system.

<u>QA Cert Event Code.</u> Report the appropriate PEMS specific event code. (See section 5.0, Table 42 of the ECMPS Quality Assurance and Certification Reporting Instructions for a list of appropriate event codes).

<u>Required Test Code.</u> Report the appropriate PEMS specific required test code. (See section 5.0, Table 43 of the ECMPS Quality Assurance and Certification Reporting Instructions for a list of appropriate required test codes).

<u>Conditional Begin Date</u>. If conditional data validation is used, report the date and hour that the probationary PEMS daily QA/QC test was successfully completed according to the provisions of § 75.20(b)(3)(ii).

Note: For PEMS, you may only use conditional data validation if the "event" in column 16 requires RATA testing. If you elect to use conditional data validation, you must complete the RATA within the allotted time in § 75.20(b)(3)(iv).

<u>Conditional Begin Hour.</u> If applicable, report the hour during which conditional data validation began.

III. <u>Emissions Reporting Instructions</u>

Section 2.2---Daily Test Summary Data

Monitoring System ID. Report the three character Monitoring System ID for the NOXP system.

<u>Component ID.</u> Report the PEMS software component ID.

Test Type Code. Report "PEMSCAL" for daily PEMS calibration tests.

Section 2.4.1---Monitor Hourly Value Data

Do not report a Monitor Hourly Value record. PEMS hourly data should be reported using the Derived Hourly Value records as discussed below.

Section 2.4.2---Derived Hourly Value Data

Parameter Code. Report "NOXR".

<u>Unadjusted Hourly Value</u>. Report the average unadjusted NO_X emission rate for the hour, rounded to three decimal places, as determined by the PEMS. For hours in which you use missing data procedures, leave this field blank.

<u>Adjusted Hourly Value</u>. For each hour in which you report NO_X emission rate in unadjusted hourly value, apply the appropriate bias adjustment factor (BAF) to the unadjusted average NO_X emission rate, and report the result rounded to three decimal places. If the bias test is passed, the BAF will be

1.000. For each hour in which you use missing data procedures, report the appropriate substitute value.

MODC Code. Report a MODC of "03" for each hour in which the PEMS provides a quality-assured NO_X emissions rate. Report a MODC of "55" when you report the fuel-specific maximum potential NO_X emission rate (MER). During hours when you use other missing data procedures, report the appropriate MODC listed in section 2.5.2, Table 26 of the ECMPS Emissions Reporting Instructions.