

October 30, 2009

Richard Aust  
Designated Representative  
AES Deepwater, Inc.  
901 Light Company Road  
Pasadena, TX 77506

Re: Petition to Use an Alternative Substitute Data for Unit 01001 at the AES Deepwater Facility (Facility ID (ORISPL) 10670)

Dear Mr. Aust:

The United States Environmental Protection Agency (EPA) has reviewed the February 13, 2009 petition submitted by AES Deepwater Inc. (AES) under 40 CFR 75.66, in which AES requested an alternative to the use of standard missing data substitution, to account for sulfur dioxide (SO<sub>2</sub>) emissions from Unit 01001 at its Deepwater Cogeneration Plant. EPA approves the petition, with conditions, as discussed below.

#### Background

AES owns and operates a 165 megawatt tangentially-fired boiler, Unit 01001, at its Deepwater Cogeneration Plant (Deepwater) located in Harris County, Texas. Unit 01001 combusts petroleum coke. According to AES, the unit is subject to the Acid Rain Program. Therefore, AES is required to continuously monitor and report SO<sub>2</sub>, nitrogen oxides (NO<sub>x</sub>), and carbon dioxide (CO<sub>2</sub>) emissions and heat input for this unit, in accordance with 40 CFR Part 75.

Because Unit 01001 is petroleum coke-fired, AES is required to use continuous emission monitoring systems (CEMS) for SO<sub>2</sub> and stack gas volumetric flow rate to determine the unit's hourly SO<sub>2</sub> mass emissions. These monitoring systems must be initially certified according to the procedures specified in Part 75, Appendix A. Periodic, ongoing quality assurance (QA) testing of the monitoring systems is also required, under Appendix B to Part 75, to ensure that the monitors continue to generate accurate data.

One of the required certification tests of the stack flow monitoring system is a relative accuracy test audit (RATA) at three load levels. Section 2.3.1.3(c)(4) in Appendix B of Part 75 requires this 3-load RATA to be repeated at least once every five years. Prior to January 24, 2008, section 2.3.1.3(c)(4) had required the 3-load flow RATA to be done once in each period of five consecutive calendar years. However,

effective January 24, 2008, EPA revised section 2.3.1.3(c)(4) to require the test once every 20 calendar quarters.<sup>1</sup>

According to AES, the initial 3-load RATA of Unit 01001's flow monitor was performed on May 22, 2002. Under the version of Part 75 that was in effect at that time, the May 22, 2002 test satisfied the 3-load flow RATA requirement for the five consecutive calendar years 2002-2006. Under both that version of Part 75 and the revised version effective January 24, 2008, another 3-load flow RATA was required by the end of 2007 or within a 720 operating hour grace period thereafter to cover the five consecutive years 2003-2007.<sup>2</sup>

AES did not perform another 3-load flow RATA at Unit 01001 until January 28, 2009.<sup>3</sup> This was well beyond January 30, 2008, hour 23, which was the expiration date and hour of the grace period. Therefore, data from the flow monitor became invalid, starting with the first operating hour after the grace period expired, and remained invalid until the date and hour of completion of the 3-load flow RATA. During that time period, the standard missing data procedures in §75.33(c) for stack gas flow rate must be used (i.e., from January 31, 2008, hour 00 through January 28, 2009, hour 17). The missing data algorithms in §75.33(c) become increasingly conservative as the length of a missing data period increases and the percent monitor data availability (PMA) decreases. When the PMA drops below 80.0 percent, the maximum potential flow rate (MPF) must be reported for each hour of missing flow rate data. For Unit 01001, the PMA for stack gas volumetric flow rate dropped below 80.0% on April 19, 2008, hour 09.

On February 13, 2009, AES petitioned for an alternative to the standard missing data procedures of §75.33(c), believing that using the MPF for nearly nine months, from April 19, 2008 through January 28, 2009, would grossly overstate the SO<sub>2</sub> mass emissions from Unit 01001. AES requested to use a substitute data value of 28,644,000 scfh<sup>4</sup>, which is the highest flow rate recorded in a lookback period of 2,160 hours of quality-assured data immediately preceding the missing data period, in lieu of reporting the MPF when the PMA dropped below 80.0 percent. In the February 13, 2009 petition and a supplemental submission on October 1, 2009, AES explained that during 2003 through 2008, Unit 01001 operated more than 98 percent of the time at high load and that flow RATAs at the high load level were passed in the fourth quarter of each of those years, including one such RATA on December 7, 2007.

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<sup>1</sup> See 73 FR 4312, 4367, Jan. 24, 2008 (amendment 41(i), revising Part 75, Appendix B, section 2.3.1.3(c)(4)).

<sup>2</sup> See 40 CFR part 75, appendix B, section 2.3.3(a)(2).

<sup>3</sup> In the February 13, 2009 petition AES stated the flow RATA was completed on January 29, 2009; however, in an email dated March 10, 2009 AES corrected the RATA completion date to January 28, 2009, hour 17.

<sup>4</sup> Note that AES stated this flow rate value was 477 kscfm in the February 13, 2009 petition. However, all Part 75 flow rates are reported in units of scfh; therefore, the 477 kscfm must be multiplied by 60,000 to convert it to 28,644,000 scfh.

## EPA's Determination

EPA approves, with conditions, AES's February 13, 2009 petition to use an alternative substitute data methodology to calculate the SO<sub>2</sub> mass emissions from Deepwater Unit 01001, in the time period extending from April 19, 2008, hour 09 through January 28, 2009, hour 17 (i.e., the time period when MPF would be reported according to Part 75 missing data procedures).

According to AES, from May 22, 2002 (the date of the last 3-load flow RATA) through 2008, Unit 01001 has, on average, operated at high load more than 98 percent of the time, and successful annual flow RATAs were performed at high load in the fourth calendar quarter of each year from 2003 through 2007. In light of these circumstances EPA finds that: the data recorded by the flow monitor in 2003 - 2007 and in the subsequent 720 operating hour grace period for completing a 3-load flow RATA (which expired on January 30, 2008, hour 23) are quality-assured and suitable for use in missing data substitution; and that the data recorded for the rest of 2008 and through January 28, 2009, while not quality assured, provide a reasonable approximation of likely stack flow rates during the latter period.

In view of this, EPA finds that standard missing data substitution would require AES to report the MPF value of 35,264,000 scfh<sup>5</sup> for each hour during April 19, 2008 to January 28, 2009 and that this value would be 126% of the likely actual hourly stack flow of 28,000,000 scfh (i.e., the average of the reported hourly stack flow rates from April 19, 2008 through January 28, 2009). EPA concludes that the use of standard missing data would grossly overstate the stack flow rates for Unit 01001 and that the use of alternative missing data substitution is appropriate in this case.

Therefore, the Agency approves the use of an alternate substitute data value of 31,920,000 scfh for stack gas volumetric flow rate, in lieu of reporting the MPF, for each unit operating hour in the time period extending from April 19, 2008, hour 09 through January 28, 2009, hour 17. Rather than substituting the highest quality assured flow rate recorded in any load range (load "bin") in a 2,160 hour lookback immediately preceding the missing data period (i.e., 28,620,000), as AES requested in the petition, EPA believes that a more representative flow rate value (i.e., 31,920,000) is found by looking back at the data for a longer period, i.e., the preceding 12 months. EPA believes that the use of this alternative substitute data value will result in a reasonable, yet conservatively high estimate of Unit 01001's emissions. This is consistent with the purposes of the standard missing data procedures, which are to ensure that emissions are not underreported, and to provide a strong incentive for owners and operators to ensure that monitoring systems (here, CEMS) are properly operated and maintained.

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<sup>5</sup> AES incorrectly stated in the February 13, 2009 petition that the MPF applied would be 796.9 KSCFM (i.e., 47,814,000 scfh) calculated as described in section 2.1.4.1 of Part 75 appendix A; however, EPA finds that the correct MPF is the value identified in Unit 01001's electronic monitoring plan (i.e., 35,264,000 scfh).

## Conditions of Approval

The conditions of this approval are as follows:

- (1) AES shall resubmit the first, second, third, and fourth quarter 2008 electronic data reports for Deepwater Unit 01001, no later than October 31, 2009. The first quarter 2009 report shall also be submitted by that date. All reports shall be submitted in XML format, using the ECMPS Client Tool.
- (2) For each unit operating hour in the time period extending from January 31, 2008, hour 00 through April 19, 2008, hour 08, AES shall apply the standard missing data substitution procedures in §75.33(c) for stack gas volumetric flow rate.
- (3) For the time period extending from April 19, 2008, hour 09 through January 28, 2009, hour 17, AES shall report a substitute data value of 31,920,000 scfh for stack gas volumetric flow rate, in lieu of reporting the MPF. AES may continue to use this substitute data value until the percent monitor data availability (PMA) for stack gas flow rate returns to 80.0 percent.
- (4) AES shall report a Method of Determination Codes (MODC) of “55” for volumetric flow rate in the MONITOR HOURLY VALUE DATA record, for each hour in which the approved alternative substitute data value of 31,920,000 scfh is reported.
- (5) In each quarterly report submitted in accordance with paragraph (1), above, AES shall explain the reason for using the MODC of 55 in the “Submission Comment” field of the EMISSIONS record.
- (6) AES shall address the SO<sub>2</sub> allowance accounting issues for Unit 01001 with Mr. Kenon Smith, who may be reached at (202) 343-9164, or by e-mail at [smith.kenon@epa.gov](mailto:smith.kenon@epa.gov).

EPA’s determination relies on the accuracy and completeness of the information provided by AES in the February 13, 2009 petition and in the subsequent e-mails dated February 27, March 5, March 10, and October 1, 2009, and is appealable under Part 78.

If you have any questions regarding this determination, please contact Travis Johnson, either at (202) 343-9018 or at [Johnson.Travis@epa.gov](mailto:Johnson.Travis@epa.gov). Thank you for your continued cooperation.

Sincerely,

/s/

Sam Napolitano, Director  
Clean Air Markets Division

cc: Mr. John Smith, Texas CEQ  
Joyce Johnson, EPA Region VI  
Travis Johnson, CAMD  
Kenon Smith, CAMD