

December 30, 2008

Dave Harness
Decatur Plant Manager
BP America, Inc.
Decatur Works
1401 Finley Island Road
P.O. Box 2215
Decatur, AL 35609

Re: Petition to Use an Alternative NO_x Emission Factor for Substitute Data for Unit AB8301 at the BP Decatur Plant (Facility ID (ORISPL) 880075)

Dear Mr. Harness:

The United States Environmental Protection Agency (EPA) has reviewed the July 7, 2008 petition under §75.66, in which BP America, Inc. (BP) requested to use an alternative nitrogen oxides (NO_x) emission factor for Unit AB8301 at its Decatur, Alabama Plant. EPA approves the petition, with conditions, as discussed below.

Background

BP owns and operates a gas-fired boiler, Unit AB8301, at its Decatur, Alabama facility (Decatur). Unit AB8301 typically co-fires a combination of natural gas and methane gas produced from the plant's waste treatment unit. According to BP, the unit is subject to the NO_x Budget Trading Program (NBP). Therefore, BP is required to monitor and report NO_x mass emissions and heat input data for this unit during the ozone season¹, in accordance with Subpart H of 40 CFR Part 75. Further, in every ozone season since 2004, BP has been required to hold NO_x allowances equal to the unit's ozone season NO_x mass emissions.

In order to satisfy the Part 75 emission monitoring requirements for Unit AB8301, BP uses the low mass emissions (LME) methodology described in §75.19. The unit's hourly NO_x mass emissions are calculated by substituting fuel-and-unit-specific default values of NO_x emission rate (derived from stack testing) and the unit's maximum rated heat input into Equation LM-10 in 75.19(c)(4)(ii). BP originally performed NO_x emission testing on Unit AB8301 in March 2003 to determine an appropriate default NO_x emission rate, and retested the unit in March 2008. The unit's normal fuel, i.e., the methane and natural gas mixture, was combusted during these tests.

¹ The ozone season extends from May 1 through September 30.

According to BP, Unit AB8301 is also permitted to burn fuel gas produced by the paraxylene (PX) process units at the Decatur Plant. Historically, this fuel gas has been consumed within the PX units, and there has been no excess. In May 2008, BP determined that excess PX fuel gas would become available in June and July 2008. Rather than flaring the excess gas, BP chose to combust it in Unit AB8301.

However, BP had never performed NO_x emission testing at Unit AB8301 while burning PX fuel gas. Consequently, when combustion of PX fuel gas began in June 2008, there was no suitable fuel-and-unit-specific default NO_x emission rate available for use in the Part 75 emission calculations. In the absence of a fuel-and-unit-specific NO_x emission rate derived from testing, BP would be required to report, as substitute data, the “generic” default NO_x emission rate of 1.5 lb/mmBtu for a gas-fired boiler, from Table LM-2 in §75.19.

PX fuel gas was first combusted in the unit on June 8, 2008, hour 13. BP performed a four load NO_x emission test in accordance with §75(c)(1)(iv)(A) on June 10, 2008. The test was completed at hour 15. According to §75.19(c)(1)(iv)(C)(I), the highest three-run average NO_x emissions rate obtained at any load is the NO_x emission rate that must be used for reporting purposes. The highest 3-run average NO_x emission rate obtained in the PX fuel gas testing was 0.032 lb/mmBtu.

In the July 7, 2008 petition, BP requested to use an alternative NO_x emission factor for the time period extending from June 8, 2008, hour 13, when PX fuel gas was first introduced into Unit AB8301, through June 10, 2008, hour 15, when the NO_x emission rate testing was completed. According to BP, using the generic default emission rate of 1.5 lb/mmBtu grossly overstates Unit AB8301’s NO_x emissions during this 52 hour period. The generic default NO_x emission rate is more than 40 times higher than the 0.032 lb/mmBtu emission rate determined from testing. In view of this, BP requested to use a more representative NO_x emission factor for the time period in question.

EPA’s Determination

EPA approves BP’s request to use an alternative NO_x emission rate for the combustion of PX fuel gas in Decatur Unit AB8301, in the time period extending from June 8, 2008, hour 13 through June 10, 2008, hour 15. Based on the results of the June 10, 2008 NO_x emission tests of Unit AB8301 and supplementary compliance test data for the PX process heaters combusting PX fuel gas (provided by BP on May 9, 2008) that show comparable NO_x emission rates, the Agency has concluded that use of the generic default NO_x emission factor of 1.5 lb/mmBtu from Table LM-2, as substitute data, grossly overstates NO_x emissions from the combustion of PX fuel gas and that a more representative, yet conservatively high estimate of the NO_x emission rate should be used. Therefore, for the reasons given below, EPA approves an alternative NO_x emission rate of 0.107 lb/mmBtu for the time period in question.

In order to use the LME methodology for a gaseous fuel other than natural gas, §75.19(c)(1)(ii) requires the owner or operator to perform emission testing to determine a fuel-and-unit-specific NO_x emission rate. However, for these other gaseous fuels, the regulation does

not expressly state how to report NO_x emissions prior to completion of the required testing. The rule text that most nearly addresses this issue is found in §75.19(a)(4). Section 75.19(a)(4) describes a situation in which the owner or operator believes that a unit can qualify for and maintain LME status based on NO_x emission testing, but the required emission tests have not yet been performed at the time of the LME application. In such cases, if the generic NO_x emission rate in Table LM-2 is inappropriately high and might preclude LME qualification, the owner or operator is allowed to use a more representative NO_x emission rate (e.g., an estimate based on available historical test data) for the purposes of LME qualification, but is not permitted to use that emission rate for reporting. Until the NO_x emission testing required by §75.19(c)(1)(iv)(A) is successfully completed, §75.19(a)(4) requires either the generic default NO_x emission rate from Table LM-2 or the maximum potential NO_x emission rate (MER) to be reported. Thus, a conservatively high generic or maximum potential NO_x emission rate is the appropriate value to report in the absence of a fuel-and-unit-specific NO_x emission test.

However, Part 75 does not provide a maximum potential NO_x concentration value (from which the NO_x MER is derived) for any type of gaseous fuel other than natural gas. Section 2.3.1.1 of Appendix D specifies a default SO₂ emission rate of 0.0006 lb/mmBtu for pipeline natural gas (PNG) combustion. This default emission factor closely approximates the actual SO₂ emission rate from the combustion of PNG, which has a sulfur content of 0.5 grains/100 scf or less. Appendix D requires-- in the absence of a fuel contract or tariff specifying sulfur content-- annual sampling to determine the sulfur content of the gas in order to show that the gas still meets the definition of PNG and qualifies for the 0.0006 lb/mmBtu emission rate. See 40 CFR Part 75, Appendix D, section 2.3.1.4(e). In the event that the required annual fuel sampling is not performed, a substitute SO₂ emission rate value of 0.002 lb/mmBtu must be reported for each unit operating hour until the gas sampling requirement has been met. See 40 CFR Part 75, Appendix D, section 2.4.1. The 0.002 lb/mmBtu emission rate is found in Table D-6 of Appendix D and represents the maximum potential SO₂ emission rate for PNG combustion.

The ratio of the maximum potential SO₂ emission rate to the established SO₂ emission rate for PNG combustion is 0.002/0.0006, or 3.33. Multiplying the highest 3-run average obtained in the June 10, 2008 NO_x emission testing of Unit AB8301 (i.e., 0.032 lb/mmBtu) by 3.33 results in a NO_x MER value of 0.107 lb/mmBtu for PX fuel gas. EPA believes that this MER value is consistent with the purposes of missing data substitution, which are to provide owners and operators with a strong incentive to collect the emissions data required by Part 75 in a timely manner and to ensure that emissions are not underreported.

Conditions of Approval

The conditions of this approval are as follows:

- (1) BP shall resubmit the 2nd and 3rd quarter, 2008 electronic data report (EDR) for Decatur Unit AB8301, no later than January 30, 2009;

- (2) BP shall include three separate 531 records² in the 2nd quarter EDR:
- a. In the first 531 record, report: “NOXU” in column 10; “0.028” in column 14; “LBMMBTU” in column 27; “LM” in column 34; “NNG” in column 37; “A” in column 40; “TEST” in column 41; “20080501” in column 45; and “00” in column 53. Leave columns 55 and 63 blank.
 - b. In the second 531 record, report: “NOXU” in column 10; “0.107” in column 14; “LBMMBTU” in column 27; “LM” in column 34; “OGS” in column 37; “A” in column 40; “DATA” in column 41; “20080608” in column 45; “13” in column 53; “20080610” in column 55; and “15” in column 63.
 - c. In the third 531 record, report: “NOXU” in column 10; “0.032” in column 14; “LBMMBTU” in column 27; “LM” in column 34; “OGS” in column 37; “A” in column 40; “TEST” in column 41; “20080610” in column 45; and “16” in column 53. Leave columns 55 and 63 blank.

EPA’s determination relies on the accuracy and completeness of the information provided by BP in the July 7, 2008 petition and on May 9, 2008 and is appealable under Part 78. If you have any questions or concerns about this determination, please contact Venu G. Ghanta, at (202) 343-9009. Thank you for your continued cooperation.

Sincerely,

/s/

Sam Napolitano, Director
Clean Air Markets Division

cc: David McNeal, EPA Region IV
Stacey Gardner, South Carolina DHEC
Kevin Tran, CAMD
Venu Ghanta, CAMD

² Note that 531 is the number of an EDR record type (RT) in the unit’s monitoring plan. For a LME unit, RT 531 specifies, among other things, each default NO_x emission rate used for Part 75 reporting and the effective date of the emission rate.