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

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OFFICE OF
AIR AND RADIATION

Bob Hough
Decatur Plant Manager
A. E. Staley Manufacturing Company/
Tate & Lyle
2200 East Eldorado Street
Decatur, IL 62525

Re: Petition to Use a Default Moisture Constant for Unit 1-25 at A. E. Staley/Tate & Lyle's Decatur Facility (Facility ID (ORISPL) 10867)

Dear Mr. Hough:

This is in response to your letter, dated December 13, 2004, in which A. E. Staley Manufacturing Company/Tate & Lyle (Staley) requested under §75.66 to use a default moisture constant for Unit 1-25 at the Decatur, IL facility, for the purposes of reporting nitrogen oxides (NO_x) mass emissions and heat input data under the NO_x Budget Program. EPA approves the petition in part, and with conditions, as discussed below.

Background

Staley's Decatur, Illinois facility consists of three boilers, Units 123-08, 123-09 and 1-25, which are subject to the NO_x Budget Program, under Title 35, Subtitle B, Chapter I, Subchapter c, Part 217, Subpart U of the Illinois Administrative Code (IAC). These regulations require Staley to continuously monitor and report NO_x mass emissions and heat input for Units 123-08, 123-09 and 1-25, in accordance with Subpart H of 40 CFR Part 75.

Unit 1-25 is a natural gas-fired boiler, rated at 273 MMBtu/hr, maximum heat input. Staley uses dry-extractive NO_x and oxygen (O_2) continuous emission monitoring systems (CEMS) and a stack flow monitor to meet the NO_x Budget Program monitoring and reporting requirements for Unit 1-25. Staley uses Equation N-2, which is equivalent to Equation F-26 in Appendix F of Part 75, to calculate NO_x mass emissions[1].

Equation N-2 requires a correction for stack gas moisture content. According to §75.71(b)(2), this means that Staley must install, certify, and operate a continuous moisture monitoring system on Unit 1-25. In the December 13, 2004 petition, Staley requested permission

[1]Revised EDR Version 2.1 Reporting Instructions, Table 22, p. 143

to use a default moisture constant of 13.58% H_2O, in lieu of installing a moisture monitoring system. Staley provided the results of 11 moisture runs that were taken during stack testing of Unit 1-25 on September 21 and 23, 2004. The moisture data were collected at three operating loads (low, mid, and high). The average stack gas moisture content from these runs was 14.32%, with a standard deviation of 1.1% H_2O and a confidence coefficient of 0.74% H_2O. Staley used these results to determine the proposed default moisture value of 13.58% H_2O, by subtracting the confidence coefficient from the average value.

EPA's Determination

EPA approves Staley's petition to use a default moisture constant to calculate the hourly NO_x mass emissions and heat input rate for Unit 1-25. However, the approved default moisture value is 13.2% H_2O, rather than 13.58% H_2O, as proposed by Staley.

When EPA approves the use of a default value for a parameter (e.g., moisture) that can be continuously monitored, the approved default value must be conservative, i.e., it must ensure that emissions are not under-reported. In Equation N-2, which Staley uses to calculate the NO_x mass emissions for Unit 1-25, the percent moisture is subtracted from 100 in the numerator of the equation. Therefore, lower moisture values will give higher NO_x mass emission rates. For the 11 moisture runs submitted by Staley, the moisture values ranged from 12.39 to 15.63% H_2O, and averaged 14.32% H_2O.

In responding to previous petitions of similar nature, EPA has generally approved default values that are more conservative than the average values derived from the data provided by the petitioners. In most cases, either the 10th percentile value or the 90th percentile value (depending upon the position of the moisture correction term in the equation) has been approved. In view of this, EPA approves a default value of 13.2% H_2O, which is the 10th percentile value from the data set provided by Staley. The approved value is slightly lower (more conservative) than the value of 13.58% proposed by Staley.

The conditions of this approval are as follows:

(1) Staley may use the approved default moisture value of 13.2% H_2O for Part 75 reporting, beginning with the 2005 ozone season;

(2) Staley shall represent the default moisture value in record type 531 of the quarterly electronic data reports (EDRs) submitted to EPA;

(3) Staley shall resubmit the 3rd quarter, 2004 EDR for Unit 1-25, replacing the reported moisture value of 13.6% H_2O in record type 212 with the minimum potential moisture value; and

(4) Each time that the required relative accuracy test audits (RATAs) of the Unit 1-25 continuous monitoring systems are performed , Staley shall analyze the moisture data from all of the RATA runs and shall determine the 10th percentile value. If the new 10th percentile value is lower than the approved default value of 13.2% H_2O, Staley shall immediately begin reporting the new 10th percentile value, and shall represent this change in EDR record type 531.

EPA's determination in this letter relies on the accuracy and completeness of the information provided by Staley in the December 13, 2004 petition and is appealable under Part 78. If you have any questions about this determination, please contact Louis Nichols, at (202) 343-9008. Thank you for your continued cooperation.

Sincerely,

Sam Napolitano, Director
Clean Air Markets Division

cc: Cecelia Mijares, EPA Region V
Kevin Mattison, IEPA
Louis Nichols, CAMD