



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

SEP 11 2012

OFFICE OF  
AIR AND RADIATION

Mr. Dale Herendeen  
Environmental Manager  
Resolute Forest Products  
5300 Cureton Ferry Road  
Catawba, SC 29704

Re: Petition to Use Alternative Default Nitrogen Oxides (NO<sub>x</sub>) Emission Rates to Report NO<sub>x</sub> Mass Emissions from Unit 001 at Resolute Forest Products' Catawba Operations Plant (Facility ID (ORISPL) 2440)

Dear Mr. Herendeen:

The United States Environmental Protection Agency (EPA) has reviewed the July 20, 2012 petition submitted under 40 CFR 75.66 and 96.375 by Resolute Forest Products (Resolute), in which Resolute requested to use alternative NO<sub>x</sub> emission rates to report NO<sub>x</sub> mass emissions from Unit 001 at the Catawba Operations facility. EPA approves the petition in part, with conditions, as discussed below.

Background

Resolute owns and operates the Catawba Operations facility (Catawba), which is a paper mill located in York County, South Carolina. Catawba Unit 001 is a tangentially-fired swing boiler with a maximum rated heat input capacity of 375 mmBtu/hr, although in practice, the maximum heat input is 270 mmBtu/hr, due to steam limitations. Unit 001 is permitted to combust natural gas and fuel oil and has no emission controls. According to Resolute, the unit is subject to the Clean Air Interstate Rule (CAIR) ozone season NO<sub>x</sub> emissions trading program. Therefore, Resolute is required to continuously monitor and report NO<sub>x</sub> mass emissions and heat input for Unit 001, in accordance with Subpart H of 40 CFR Part 75. To meet these monitoring and reporting requirements, Resolute has implemented the low mass emissions (LME) methodology in 40 CFR 75.19.

In order for an affected unit in the CAIR ozone season NO<sub>x</sub> program to initially qualify for, and to subsequently retain, LME status, the unit must emit no more than 50 tons of NO<sub>x</sub> during the ozone season (i.e., from May 1 through September 30).<sup>1</sup> Since 2008, Catawba Unit 001 has been able to meet this requirement, because the unit operates only when other bark-fired units that produce process steam for the plant are unavailable due to required maintenance.

<sup>1</sup> See §§75.19(a)(1)(i)(A)(3) and (b)(1).

The LME methodology does not require the installation of continuous emission monitoring systems (CEMS) to quantify NO<sub>x</sub> emissions. Rather, default NO<sub>x</sub> emission rates are used for reporting purposes. The owner or operator either may use fuel-specific “generic” default NO<sub>x</sub> emission rates from Table LM-2 in §75.19 or may determine fuel-and-unit-specific default NO<sub>x</sub> emission rates by conducting emission testing, in accordance with section 2.1 of Appendix E to Part 75.<sup>2</sup> If the latter option is selected, the NO<sub>x</sub> emission rate values obtained from the emission testing may be used for a maximum of 5 years (20 calendar quarters) following the calendar quarter in which the testing is performed.<sup>3</sup> The tested NO<sub>x</sub> emission rates expire at the end of the 20<sup>th</sup> calendar quarter; at that point, the owner or operator must either perform retests to determine new fuel-and-unit-specific NO<sub>x</sub> emission rates or begin using the generic values from Table LM-2.

To ensure that Unit 001’s reported ozone season NO<sub>x</sub> mass emissions will not exceed 50 tons, Resolute has elected to perform emission testing to determine fuel-and-unit-specific default NO<sub>x</sub> emission rates. The most recent emission tests were performed in the first quarter of 2007; these tests expired at the end of the first quarter of 2012. However, Unit 001 operated for 242 hours in the second calendar quarter portion of the 2012 ozone season (i.e., May and June), after the tests expired. As of June 30, 2012, Appendix E retests of Unit 001 had not yet been done. Therefore, in May and June 2012, Resolute used the generic NO<sub>x</sub> emission rates from Table LM-2 to calculate and report Unit 001’s NO<sub>x</sub> mass emissions.

According to Resolute, Unit 001’s reported NO<sub>x</sub> mass emissions for May and June 2012 would have been only 8 tons if the NO<sub>x</sub> emission rates from the expired 2007 emission tests had been used in the calculation, whereas use of the Table LM-2 values resulted in reported NO<sub>x</sub> mass emissions of 63 tons for May and June, which exceeds the 50 ton ozone season limit for LME units. Ordinarily, this would disqualify Unit 001 from using the LME methodology and would require Resolute to install and certify Part 75-compliant monitoring systems by December 31 of next year (2013).<sup>4</sup> However, the Table LM-2 NO<sub>x</sub> emission rates for fuel oil and natural gas combustion (i.e., 2.0 and 1.5 lb/mmBtu, respectively) are approximately 7 to 9 times higher than the highest NO<sub>x</sub> emission rates obtained in the 2007 emission tests. In view of this, Resolute submitted a petition to EPA on July 20, 2012, requesting permission to recalculate Unit 001’s ozone season NO<sub>x</sub> mass emissions using more reasonable NO<sub>x</sub> emission rates in order to retain the unit’s LME status.

According to Resolute, its failure to schedule an Appendix E retest of Unit 001 in the first quarter of 2012 was clearly an oversight, but there were mitigating circumstances. Turnover in environmental staff at the site at the beginning of the year may have been a factor. Also, Resolute did not expect to be reporting emissions data for Unit 001 in 2012, because the Cross-State Air Pollution Rule (CSAPR) was scheduled to take effect in 2012 as a replacement for CAIR, and CSAPR applies only to electric utility units. The South Carolina Department of Health and Environmental Control even sent a letter to the plant affirming that Unit 001 would no longer be

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<sup>2</sup> See §75.19(c)(1)(ii).

<sup>3</sup> See §75.19(c)(1)(iv)(D).

<sup>4</sup> See §75.19(b)(2).



subject to CAIR. Therefore, at the end of the 2011 ozone season, Resolute believed that its CAIR-related obligations had been fulfilled. However, CSAPR was challenged legally and on December 30, 2011, the U.S. Court of Appeals for the D.C. Circuit stayed CSAPR and ordered EPA to continue administering CAIR pending completion of judicial review. According to Resolute, confusion over Unit 001's status (i.e., in CAIR, out of CAIR, back in CAIR) is the most likely reason why the retest requirement for Unit 001 was overlooked.

In the July 20, 2012 petition, Resolute requested permission to recalculate Unit 001's 2012 ozone season NO<sub>x</sub> mass emissions using the fuel-and-unit-specific NO<sub>x</sub> emission rates from the expired 2007 emission tests. Resolute believes that if the tested values are used rather than the generic NO<sub>x</sub> emission rates from Table LM-2, the reported NO<sub>x</sub> mass emissions will much more closely represent the actual emissions. Further, a comparison of the 2007 test results (i.e., 0.275 lb/mmBtu for oil combustion and 0.165 lb/mmBtu for natural gas) to the results of a previous test from 2002 (i.e., 0.275 lb/mmBtu for oil combustion and 0.148 lb/mmBtu for natural gas) shows that through the years, the NO<sub>x</sub> emission rates from oil and gas combustion have remained about the same. Therefore, according to Resolute, the fuel-and-unit-specific default NO<sub>x</sub> emission rates from the 2007 tests should be reasonably representative of Unit 001's current emission characteristics.

Resolute asserts that the nature of the LME provisions ensures that emissions will not be underreported. For example, Resolute reports Unit 001's maximum rated heat input for every operating hour, regardless of the actual heat input.<sup>5</sup> According to Resolute, this results in over-reporting of the unit's NO<sub>x</sub> mass emissions by 26 percent. Other LME provisions, such as the requirement to use the highest value from each multi-load fuel-and-unit-specific NO<sub>x</sub> emission rate test in the emissions calculations, are also designed to ensure that the reported emissions are conservatively high. Even if there is some variance in fuel-and-unit-specific NO<sub>x</sub> emission rates, Resolute believes that the conservative nature of LME methodology tends to overshadow this.

Recognizing that EPA might deny its request to continue using the results of the expired 2007 emission tests, Resolute proposed a second alternative method for recalculating Unit 001's 2012 ozone season NO<sub>x</sub> mass emissions. Specifically, Resolute proposed to use fuel-specific maximum potential NO<sub>x</sub> emission rate (MER) values, determined in accordance with section 2.1.2.1 in Appendix A of Part 75, in lieu of using the generic default NO<sub>x</sub> emission rates from Table LM-2.

According to Resolute, this alternative is consistent with §75.19(a)(4). That section discusses cases where the owner or operator of a qualifying LME unit intends to perform emission testing to ensure that LME status is maintained, but the tests have not yet been performed when the LME methodology begins to be used. In such cases, in the interval of time prior to completion of the initial fuel-and-unit-specific NO<sub>x</sub> emission rate tests, the owner or operator must calculate NO<sub>x</sub> mass emissions using either use the generic default NO<sub>x</sub> emission rates from Table LM-2 or MER values "calculated in accordance with § 72.2 of this chapter and section 2.1.2.1 of appendix A to this part." Resolute asserts that although §75.19(a)(4) specifically addresses NO<sub>x</sub> emissions reporting in the interim period between initial LME qualification and the first fuel-and-unit-specific tests, there is no reason why a MER value would not be similarly suitable for reporting after a fuel-and-unit-specific emission test expires.

Section 2.1.2.1(b) of Appendix A of Part 75 states that the NO<sub>x</sub> MER is calculated by substituting the maximum potential NO<sub>x</sub> concentration (MPC) "in conjunction with the minimum

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<sup>5</sup> See §75.19(c)(3)(i).



expected CO<sub>2</sub> or maximum O<sub>2</sub> concentration (under all unit operating conditions except for unit startup, shutdown, and upsets) and the appropriate F-factor into the applicable equation in appendix F to this part." Five options are described for determining the NO<sub>x</sub> MPC. The simplest approach ("Option 2") is to use the appropriate unit-specific default NO<sub>x</sub> MPC value from Table 2-2 of Appendix A. A default MPC value of 380 ppm is defined in Table 2-2 for tangentially-fired (T-fired) boilers that combust oil and gas. However, Unit 001 is not a typical T-fired utility boiler; the unit operates at much higher excess air levels (i.e., much higher flue gas O<sub>2</sub> concentrations) than most units. Because of this, the emissions from the boiler are highly diluted and the default MPC value from Table 2-2 is several times higher than the unit's actual MPC.

Since Option 2 is inappropriate for Unit 001, Resolute proposed to use "Option 3," which allows sources to use NO<sub>x</sub> emission rate test results to establish the MPC. Where emission test results are used to establish the MPC, section 2.1.2.1(b) of Appendix A allows quality-assured O<sub>2</sub> data recorded concurrently with the MPC (i.e., fuel-specific O<sub>2</sub> data) to be used in computing the MER. According to section 2.1.2.1(d) of Appendix A, Option 3 requires testing at multiple loads, "at the highest excess O<sub>2</sub> level expected under normal operating conditions." Part 75 does not specify how recent the test results must be.

Resolute used data from the 2007 and 2002 emission tests of Unit 001 to calculate the MER values. For each fuel, the highest NO<sub>x</sub> concentration measured at any load during either of the two tests was taken to be the MPC and was used together with the highest O<sub>2</sub> value measured at any load for that fuel to calculate the MER. For natural gas, the NO<sub>x</sub> MPC was 37 ppm and the highest O<sub>2</sub> concentration was 16.9% O<sub>2</sub>, resulting in a MER value of 0.201 lb/mmBtu. For oil, the NO<sub>x</sub> MPC was 99 ppm and the highest O<sub>2</sub> concentration was 14.1% O<sub>2</sub>, resulting in a MER value of 0.334 lb/mmBtu. Both the oil and natural gas MER values are approximately 20 percent higher than the fuel-and-unit-specific NO<sub>x</sub> emission rates from the 2007 emission tests.

However, section 2.1.2.1(a) of Appendix A states that the MPC is not fuel-specific but instead "shall be based upon whichever fuel or blend combusted in the unit produces the highest level of NO<sub>x</sub> emissions."<sup>6</sup> As just noted, Unit 001's NO<sub>x</sub> MPC for fuel oil was higher than the unit's NO<sub>x</sub> MPC for natural gas. Accordingly, based on the information provided to EPA, the MER value of 0.334 lb/mmBtu calculated for fuel oil (using oil-specific O<sub>2</sub> data) is also the proper MER value to use for natural gas.

#### EPA's Determination

EPA denies Resolute's petition to use the default NO<sub>x</sub> emission rates from the expired 2007 emission tests of Catawba Unit 001 to recalculate the unit's 2012 ozone season NO<sub>x</sub> mass emissions. However, the Agency approves Resolute's alternate proposal to use maximum potential NO<sub>x</sub> emission rate (MER) values in the recalculations, modified as discussed above with respect to the MER value to be used in hours when the unit combusts natural gas. The approved MER values are 0.334 lb/mmBtu for both fuel oil and natural gas. EPA believes that these MER values are sufficiently conservative to ensure that emissions are not underreported. This approval is subject to the conditions stated below.

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<sup>6</sup> See also §72.2 (MER definition listing sections of Part 75 where the MER used should be fuel-specific, and omitting §75.19(a)(4) from that list).

### Conditions of Approval

The conditions of this approval are as follows:

- 1) Resolute shall use the approved NO<sub>x</sub> MER values to calculate Catawba Unit 001's NO<sub>x</sub> mass emissions only for unit operating hours in the 2012 ozone season.
- 2) Resolute shall update Unit 001's electronic monitoring plan to reflect the use of the approved MER values, as follows:
  - (a) Add an "End Time" of "05/02/2012, hour 08" to the 2.0 lb/mmBtu and 1.5 lb/mmBtu monitoring default records for oil and natural gas that have a "Begin Time" of "05/01/2012, hour 00", an "Operating Condition" code of "A" and a "Source of Value" code of "DEF".
  - (b) Create monitoring default records for the approved MER values of 0.334 lb/mmBtu (for both oil and natural gas), with "Begin Time" of "05/02/2012, hour 09", and coded with an "Operating Condition" of "A" and a "Source of Value" of "DATA".
- 3) Resolute shall use the approved MER values to recalculate Unit 001's ozone season NO<sub>x</sub> mass emissions for May and June 2012, and shall use the ECMPS Client Tool to resubmit the second quarter 2012 electronic data report within 30 days of receipt of this approval.
- 4) Notwithstanding Condition "1)" above, if Appendix E retests of Unit 001 are performed before the end of the 2012 ozone season and Unit 001 is operated in the remainder of the ozone season after completion of those tests:
  - (a) The default NO<sub>x</sub> emission rates from the retests shall be used in the emissions calculations, starting with the first ozone season operating hour after completion of the tests;
  - (b) Resolute shall update the electronic monitoring plan by creating new monitoring default records to reflect the default NO<sub>x</sub> emission rates from the retests. The "Begin Time" for each record shall be the hour immediately after the date and hour of completion of the retest. The "Operating Condition" code shall be "A", and the "Source of Value" code shall be "TEST"; and
  - (c) For each monitoring default record for an approved MER value, Resolute shall add an "End Time" corresponding to the date and hour of completion of the retest.
- 5) If Appendix E retests of Unit 001 are performed after the last unit operating hour in the 2012 ozone season, but prior to the start of the 2013 ozone season, the default



NO<sub>x</sub> emission rates from the retests shall be used to calculate and report Unit 001's ozone season NO mass emissions, starting on May 1, 2013. Resolute shall also update the electronic monitoring plan, by:

- (a) Adding an "End Time" of "09/30/2012, hour 23" to the monitoring default records for the approved MER values; and
  - (b) Creating new monitoring default records to reflect the default NO<sub>x</sub> emission rates from the retests. The "Begin Time" for each record shall be "05/01/2013, hour 00"; the "Operating Condition" code shall be "A"; and the "Source of Value" code shall be "TEST".
- 6) If no Appendix E retests of Unit 001 are performed prior to the start of the 2013 ozone season, then, starting on May 1, 2013, Resolute shall use the generic default NO<sub>x</sub> emission rates for oil and natural gas from Table LM-2 in §75.19 to calculate the unit's ozone season NO<sub>x</sub> mass emissions, until such retests are performed. Resolute shall also update the electronic monitoring plan by:
- (a) Adding an "End Time" of "09/30/2012, hour 23" to the monitoring default records for the approved MER values; and
  - (b) Creating monitoring default records for the generic Table LM-2 default NO<sub>x</sub> emission rates (i.e., 2.0 lb/mmBtu for oil and 1.5 lb/mmBtu for natural gas). The "Begin Time" for each record shall be "05/01/2013, hour 00"; the "Operating Condition" code shall be "A", and the "Source of Value" code shall be "DEF".
- 7) Resolute shall provide EPA with a copy of the written approval of the South Carolina Department of Health and Environmental Control required for the requested use of alternative default NO<sub>x</sub> emission rates (as modified and approved by EPA) pursuant to 40 CFR 96.375(b)(1). This copy should be directed to the attention of Carlos R. Martinez, whose contact information is provided below.

EPA's determination relies on the accuracy and completeness of the information provided by Resolute in its July 20, 2012 petition, and is appealable under 40 CFR Part 78. If you have any questions regarding this determination, please contact Carlos R. Martinez at (202) 343-9747 or by e-mail at [martinez.carlos@epa.gov](mailto:martinez.carlos@epa.gov). Thank you for your continued cooperation.

Sincerely,



Richard Haeuber, Acting Director  
Clean Air Markets Division

cc: David McNeal, USEPA Region IV  
Michael Shroup, South Carolina DHEC  
Carlos R. Martínez, CAMD  
Craig Hillock, CAMD