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

OCT 15 2003

OFFICE OF
AIR AND RADIATION

Roman B. Gallo
Authorized Account Representative
International Paper, Prattville Mill
100 Jensen Road
Prattville, AL 36067

Re: Petition for Approval of a Site-specific F_C Factor for the Prattville, Alabama Paper Mill (Facility ID (ORISPL) 52041), Units Z006 and Z008

Dear Mr. Gallo:

EPA has reviewed your July 28, 2003 petition under §75.66(a) in which International Paper (International) requested to use a site-specific default F_C factor of 1,920 scf $CO_2/10^6$ Btu for Units Z006 and Z008 at the Prattville, Alabama paper mill. EPA approves the petition, for the reasons discussed below.

Background

International owns and operates two boilers (Units Z006 and Z008) at its Prattville, Alabama paper mill. The units combust both fossil fuels and non-fossil fuels. Table 1, below, provides a breakdown of the fuels burned by each boiler.

Table 1. Fuels Combusted by Boilers Z006 and Z008

Unit ID	Fossil Fuel	Non-fossil Fuel
Z006	Fuel Oil Natural Gas	Bark / Wood waste Condensate Stripper Off-Gas (SOG)
Z008	Bituminous Coal Fuel Oil Natural Gas	Bark / Wood waste Condensate Stripper Off-Gas (SOG)

Units Z006 and Z008 are affected units in the NO_X Budget Trading Program under the Alabama Department of Environmental Management's (ADEM's) Code R. 335-3-8 regulation. Code R.335-3-8 requires International to monitor and report nitrogen oxides (NOx) mass emissions and heat input for Units Z006 and Z008 in accordance with Subpart H of 40 CFR Part

75, beginning on May 1, 2003.

The monitoring plan submitted by International for Units Z006 and Z008 indicates that International will use Equations F-6, F-15 and F-24 from Appendix F of Part 75 to calculate NO_X mass emissions and heat input for the two boilers. Equations F-6 and F-15 each contain a fuel-specific, carbon-based F-factor (F_c), which represents the ratio of the volume of carbon dioxide (CO_2) generated to the calorific value of the fuel combusted. Table 2 shows the F_C factor for each type of fuel combusted by Units Z006 and Z008.

Table 2. Fc Factors by Fuel Type

Fuel Type	**F_C Factor (scf CO_2 / mmBtu)**	**Reference**
Bituminous Coal	1,800	Part 75, Appendix F, Table 1
Fuel Oil	1,410	Part 75, Appendix F, Table 1
Natural Gas	1,040	Part 75, Appendix F, Table 1
SOG	1,747	Calculated per fuel analysis
Bark	1,920	Part 75, Appendix F, Table 1
Wood waste	1,830	Part 75, Appendix F, Table 1

The F_C factors for coal, fuel oil, natural gas, bark and wood waste provided in Table 2 were taken from Part 75, Appendix F, section 3.3.5, Table 1. The F_C factor for condensate stripper off-gas (SOG) was derived by the use of Equation 7b in Part 75, Appendix F, section 3.3.6. The carbon content (%C) and gross calorific value (GCV) of the SOG used in Equation 7b are based on ultimate analyses of seven months of fuel data, using the methods provided in Part 75, Appendix F, sections 3.3.6.1 and 3.3.6.2. SOG consists primarily of methanol and 99.5% of the data examined indicated that the SOG methanol content was between 40% and 60%. For the F_C factor of SOG to exceed the F_C of bark, the methanol content of the SOG would have to exceed 77%. This, the F_C factor for SOG, is significantly lower than that of bark.

Note that the heat input of the SOG contributes only a small percentage of the overall heat input to the boilers. As a result, SOG is only a minor component of the actual composite F_C factor. Over the past three years, SOG has accounted for only 1.4% of the heat input to Unit Z006 and 0.8% of the heat input to Unit Z008, and the amount of SOG combusted is expected to remain relatively constant in future years.

For affected units that combust a combination of fossil fuels and wood residue, section 3.3.6.3 in Appendix F of Part 75 states that the F-factor is subject to the Administrator's approval. Section 3.3.6.4 of Appendix F further specifies that for such units, Equation F-8 should be used to prorate the F_C factor, according to the fraction of the total unit heat input contributed by each fuel. In the July 28, 2003 petition, International requested permission to use the highest F_C factor for any of the fuels combusted in the units (i.e., the F_C value for bark) as a representative F_C factor for all operating conditions, instead of prorating F_C on an hourly basis. According to International, determining representative, prorated hourly F_C factors for Units Z006 and Z008 are not feasible at this time (but if a workable methodology is found, the company will petition ADEM for permission to use it).

Therefore, International requested to use an F_C value of 1,920 scf CO_2/mmBtu for all hours of operation of Units Z006 and Z008, in lieu of prorating F_C. According to International, version 2.2 of EPA's Electronic Data Reporting (EDR) Instructions recommends that (in the instructions for record type 520), for co-firing of fuels, you should either use a prorated F_C factor or the highest F_C factor for all fuels burned.

EPA Determination

EPA approves International's petition to use the highest F_C value for any of the fuels combusted in Units Z006 and Z008 (i.e., the F_C value of 1,920 scf $CO_2/10^6$ Btu, for bark) for all hours of operation of the units, for the following reasons. First, determining the proportions for each type of fuel burned each hour and prorating the F_C factor on this basis appears to be difficult in this case because proportions of fuel may vary significantly over time and several types of fuel are used. Second, the F_C value has no effect on the reported NO_X mass emissions for these units. The NO_X mass emissions are calculated by multiplying the NO_X emission rate in lb/mmBtu (from Equation F-6) by the heat input rate in mmBtu/hr (from Equation F-15). The F_C factor is in the numerator of Equation F-6 and is in the denominator of Equation F-15 . Therefore, when the two equations are multiplied together, the F_C factors cancel out. In other words, the NO_X mass emissions are derived from measured values of NO_X concentration and stack flow rate and not affected by the selected F_C. Third, the default F_c value of 1,920 scf $CO_2/10^6$ Btu is conservatively high, which, according to Equation F-15, will most likely result in a underestimation of unit heat input during co-fired hours. If future NO_X emission credits (i.e., allowances) for Units Z006 and Z008 are allocated on the basis of historical unit heat input, underestimation of the heat input will ensure that the units do not receive more than the appropriate number of NO_X allowances. EPA also notes that using the highest F_C value in lieu of a prorated value for units that co-fire different fuels is consistent with EPA's guidance in the EDR Reporting Instructions for record type 520.

EPA's determination in this letter relies on the accuracy and completeness of the information provided by International in the July 28, 2003 petition, and is appealable under Part 78. If you have any questions or concerns about this determination, please contact Manuel J. Oliva, at (202) 564-0162.

Sincerely,

Sam Napolitano, Acting Director
Clean Air Markets Division

cc: Wilson Haynes, EPA Region IV
Ron Gore, Alabama Department of Environmental Management
Manuel J. Oliva, EPA CAMD