December 3, 2009

Mr. Stephen R. Gossett
Senior Environmental Associate
Eastman Chemical Company
P.O. Box 511
Kingsport, TN 37662-5000

Re: Petition for Approval of a Default F_c Factor for Treated Landfill Gas at the Eastman Chemical Company (Facility ID (ORISPL) 50481)

Dear Mr. Gossett:

The United States Environmental Protection Agency (EPA) has reviewed the April 30, 2009, petition submitted under 40 CFR §75.66(l) by Eastman Chemical Company (Eastman), in which Eastman requested to apply the default carbon-based factor (F_c) for natural gas to a site-specific mixture of natural gas and treated landfill gas. Eastman also asked EPA to consider changing the definition of "natural gas" in 40 CFR 72.2. EPA approves the petition, in part, as discussed below.

Background

Eastman owns and operates nine coal-fired boilers at its Tennessee Operations. According to Eastman, the boilers are subject to the Clean Air Interstate Rule (CAIR) for ozone season[1] oxides of nitrogen (NO_x). Therefore, Eastman is required to continuously monitor and report ozone season NO_x mass emissions and heat input for these units, in accordance with Subpart H of 40 CFR Part 75. To meet the Part 75 monitoring requirements, Eastman has installed and certified continuous emission monitoring systems (CEMS) for NO_x, carbon dioxide (CO_2), and stack gas volumetric flow rate.

The Eastman units combust small amounts of natural gas, primarily to facilitate startups. To determine heat input and NO_x emissions for the boilers, Eastman uses a F_c factor, which represents the volume (standard cubic feet) of CO_2 generated per million British thermal units (Btu) of heat input, together with measurements of NO_x concentration, CO_2 concentration, and stack gas flow rate. During the 2008 ozone season 0.7 percent of the heat input to these boilers was from natural gas combustion.

Eastman has recently begun receiving a supply of treated landfill gas, which is bled into the facility's natural gas distribution system. Data provided by Eastman with the April 30, 2009, petition show that the methane content of the landfill gas is about 93 percent, the nitrogen

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

content is roughly 6 percent, and the CO_2 content is less than 0.5 percent. The heating value of the gas is about 950 Btu per standard cubic foot. According to Eastman, the landfill gas meets the definition of "natural gas" in 40 CFR 60.41(b).[2] However, landfill gas is excluded from the definition of natural gas in 40 CFR 72.2, because: (a) it is not a naturally-occurring mixture of hydrocarbons produced in formations beneath the earth's surface; and (b) it may have highly variable sulfur content. In view of this, Eastman asked EPA to consider revising the Part 72 definition of natural gas, to make it consistent with the definition in Part 60.

According to Eastman, the mixture of natural gas and treated landfill gas is used only as a startup fuel. Landfill gas is expected to make up less than five percent of the gas mixture, and the contribution of the landfill gas to the plant's total heat input is on the order of one twentieth of one percent. Therefore, rather than determining a prorated site-specific F_c factor for each hour in which the gas mixture is combusted (pursuant to 40 CFR Part 75, Appendix F, section 3.3.6), Eastman proposed to use the default F_c value for natural gas (i.e., 1040 standard cubic feet (scf) CO_2 per million British Thermal Units (mmBtu)) from Appendix F for all hours when natural gas and landfill gas are co-fired.

EPA's Determination

EPA approves Eastman's petition to use the natural gas default F_c value of 1040 scf CO_2 per mmBtu for the site-specific mixture of natural gas and treated landfill gas combusted at Eastman's Tennessee Operations. The basis for this approval is as follows. Using the default F_c factor for natural gas in the calculations in lieu of using prorated hourly F_c values will have little effect on the reported emissions. If anything, it will produce slightly more conservative emissions estimates. The reported NO_x emissions are directly proportional to F_c, and the results of nine samples of the landfill gas provided by Eastman as an attachment to the April 30, 2009 petition show that the F_c of the gas averaged just over 860 scf CO_2 per mmBtu, or about 17 percent lower than the F_c value of natural gas. Further, the sample results indicate that the F_c value of the treated landfill gas is consistent and has low variability.

Regarding Eastman's request for EPA to consider revising the definition of natural gas in 40 CFR 72.2, i.e., to make it consistent with the definition in 40 CFR 60.41Da, EPA can only revise regulations within the context of a rulemaking providing for public notice and opportunity for comment and not in the context of a petition for alternative monitoring requirements. EPA also notes that the existing definition of the term "natural gas" reflects use of the term in several cap and trade programs, including the Acid Rain Program, which covers sulfur dioxide (SO_2) emissions, and the CAIR trading programs, which cover SO_2 and NO_x emissions. Because landfill gas often has a highly variable sulfur content and heat content, it is not appropriate to classify it as natural gas for the purposes of reporting SO_2 emissions. Fuels classified as natural gas are assumed to have low sulfur variability and are permitted to use default emission factors to quantify SO_2 emissions. "Other" gaseous fuels such as landfill gas may not use emission factors unless the owner or operator demonstrates that the fuel has low sulfur variability. In the

2. The Agency notes that the definition referenced by Eastman is actually found at 60 CFR 60.41Da.

absence of such a demonstration, daily or hourly sampling for the total sulfur content of the fuel is required.[3]

EPA's determination relies on the accuracy and completeness of Eastman's April 30, 2009, petition and is appealable under 40 CFR Part 78. If you have any questions regarding this correspondence, please contact Art Diem at (202) 343-9340. Thank you for your continued cooperation.

Sincerely,

/s/
Sam Napolitano, Director
Clean Air Markets Division

cc: David McNeal, EPA Region IV
Barry Stephens, Tennessee Division of Air Pollution Control
Art Diem, CAMD

3. See 40 CFR 75, Appendix D, Table D-5 and section 2.3.6.