

March 19, 2001

Mr. John W. Moffett
Manager of Environmental
Compliance & System Laboratory
Kentucky Utilities Company
One Quality Street
Lexington, KY 40507-1462

Re: Kentucky Utilities' petition to use alternative missing data during unit startup

Dear Mr. Moffett:

EPA has reviewed your May 15, 2000 petition under 40 CFR 75.66(a) requesting Kentucky Utilities Company and Louisville Gas & Electric Company (collectively Kentucky Utilities) be allowed to use, as substitute data during unit startup, hourly sulfur dioxide (SO₂) mass emissions based on fuel-specific emission factors and the appropriate fuel flow rates. This methodology is to be restricted to missing data periods during unit startup when the unit burns only natural gas or fuel oil, the unit's SO₂ scrubber is not operating, and use of the maximum potential concentration (MPC) value would otherwise be required. Kentucky Utilities requests to use this methodology at several units. As discussed below, EPA approves the petition with certain conditions.

Background

Kentucky Utilities seeks to use fuel-specific emission factors with the appropriate fuel flow rates at the following coal-fired units: Cane Run Units 4, 5, and 6; Ghent Unit 1; Trimble County Unit 1, and Mill Creek Units 1, 2, 3, and 4. These units sometimes use a light-off fuel (either natural gas or fuel oil), rather than coal during the early stages of startup, and during this time, the SO₂ scrubbers are not yet in operation. Under 40 CFR 75.34, during missing data periods for a unit with add-on emission controls (such as an SO₂ scrubber), the unit must use MPC for SO₂ as the substitute value if the scrubber is not operating. Further, where a unit combusts multiple fuels, MPC must be based on the highest sulfur fuel that the unit can combust. See 40 CFR part 75, appendix A section 2.1.1.1(a). Consequently, Kentucky Utilities must substitute the MPC for coal during unit startup, even though the unit was combusting only natural or fuel oil at that time.

Kentucky Utilities requests to use an alternative to reporting the coal-based MPC. Kentucky Utilities proposes to calculate hourly SO₂ mass emissions for unit startups using default emission factors of 0.0006 lb/mmBtu for pipeline natural gas and 0.5 lb/mmBtu for distillate oil, in conjunction with the appropriate flow rates for the gas and oil fuel flowmeters.

EPA's determination

EPA approves, with certain conditions, the petition to use substitute data based on fuel-specific emission factors at unit startup when the SO₂ scrubber is not operating and only natural gas or fuel oil is combusted. EPA agrees that Kentucky Utilities' proposed methodology result in conservative substitute data that will not likely understate emissions. Further, since the methodology applies only when a unit is combusting exclusively natural gas or fuel oil and Kentucky Utilities' units burn coal except during the early stages of startups, the standard missing data procedures that will apply if the CEMS is out-of-control beyond such limited periods will continue to provide a strong incentive to fix the CEMS and continue to meet quality-assurance requirements. See 40 CFR 75.33.

Of course, the use of the coal-based MPC (along with the appropriate fuel flow rate) during startups is also conservative, but the resulting emission data will vastly overstate SO₂ emissions for startup hours, when only natural gas or fuel oil is combusted. Kentucky Utilities' methodology is sufficiently conservative to meet the purposes of substitute data, i.e., to prevent understatement of emissions and to provide a strong incentive to minimize out-of-control periods for CEMS. See 3590, 3634-35 (1993). For these reasons, EPA approves, with conditions, the use of fuel-specific emission factors for startups at: Cane Rune Units 4, 5, and 6; Ghent Unit 1; Trimble County Unit 1, and Mill Creek Units 1, 2, 3, and 4. The conditions of approval are as follows:

- (1) In lieu of using the product of a MPC for coal SO₂ emission factor times unit heat input rate to calculate substitute data for hourly SO₂ mass emissions during startup missing data periods, Kentucky Utilities shall calculate and report the hourly SO₂ concentrations in parts per million (ppm), using Equation F-1 of 40 CFR part 75, appendix F. The unit-specific startup SO₂ emission rates (in lb/hr) in the May 15, 2000 petition (presented in column 2 of the attached Table 1) shall be used to determine the appropriate SO₂ concentrations. Each SO₂ concentration calculated in this manner shall be rounded upward to the next highest multiple of 1.0 ppm. For each hour of each startup event, the stack flow rate used in Equation F-1 shall be the actual, quality-assured stack flow rate recorded by the certified flow monitor or, if a quality-assured flow rate is unavailable, the appropriate substitute data value derived from the standard missing data procedures of 40 CFR 75.31 - 75.33.
- (2) Kentucky Utilities shall report the appropriate hourly SO₂ concentrations and stack flow rates for each startup event in Electronic Data Report (EDR) record type 200, column 35 (for SO₂) and record type 220, column 39 (for flow rate). A Method of Determination Code (MODC) of "55" shall be reported in these records whenever substitute data for SO₂ concentration derived from Equation F-1 are reported. Manual entry of the estimated SO₂ concentrations and the MODC codes of 55 for these hours is permitted.

- (3) For each hour of each startup event in which the methodology described in (1), above, is applied, Kentucky Utilities shall report in EDR record type 310, column 25, the appropriate SO₂ mass emission rate (in lb/hr) as indicated in column 2 of the attached Table 1.
- (4) For each hour of a startup missing data period in which coal is burned in the unit and the SO₂ scrubber is not on-line, Kentucky Utilities shall substitute the maximum potential SO₂ concentration for that hour.

EPA's determination in this letter relies on the accuracy and completeness of the information on the May 21, 2000 petition and is appealable under 40 CFR part 78. Please contact Ms. Kim Nguyen of my staff at (202) 564-9102 if you have any questions. Thank you for your continued cooperation.

Sincerely,

/s/

Brian J. McLean, Director
Clean Air Markets Division

Attachment

cc: David McNeal, EPA, Region 4
Lynn Haynes, EPA, Region 4
Jerry Slucher Kentucky Dept. of Environmental Protection
Kim Nguyen, Clean Air Markets Division

Table 1

UNIT	FUEL-SPECIFIC START-UP SO₂ EMISSION RATE (lb/hr)
Cane Run--- Unit 4	0.2
Cane Run—Unit 5	0.2
Cane Run—Unit 6	0.2
Ghent—Unit 1	224.5
Mill Creek—Unit 1	0.2
Mill Creek—Unit 2	0.2
Mill Creek—Unit 3	210.1
Mill Creek—Unit 4	251.8
Trimble County—Unit 1	266.2