9/25/2012

Mr. Jeffery A. Harter
Designated Representative
Indianapolis Power & Light Company
6925 N. State Road 57
Petersburg, IN 47567-0436

Re: Petition for Approval of a 7-Day Calibration Error Test Exemption for the Bypass Stack on Unit 2 at the Petersburg Generating Station (Facility ID (ORISPL) 994)

Dear Mr. Harter:

The United States Environmental Protection Agency (EPA) has reviewed the February 29, 2012 petition submitted under 40 CFR 75.66 by Indianapolis Power & Light (IPL), requesting approval of an exemption from performing 7-day calibration error tests of the continuous emission monitoring systems (CEMS) installed on the Unit 2 bypass stack at the Petersburg Generating Station (Petersburg). EPA approves the petition, with conditions, as discussed below.

Background

IPL owns and operates four coal-fired boilers, Units 1, 2, 3, and 4, at the Petersburg Generating Station, which is located near Petersburg, Indiana. Unit 2 serves a generator with a nameplate capacity of 253 megawatts (MW). The unit is subject to the Acid Rain Program, the Clean Air Interstate Rule (CAIR) annual trading programs for sulfur dioxide (SO_2) and nitrogen oxides (NO_x), and the CAIR ozone season NO_x trading program. Therefore, IPL is required to continuously monitor and report SO_2, NO_x, and carbon dioxide (CO_2) emissions and heat input data for Unit 2 in accordance with 40 CFR Part 75. To meet these monitoring requirements, IPL has installed and certified continuous emission monitoring systems (CEMS) for SO_2, NO_x, CO_2, and stack gas volumetric flow rate.

Petersburg Unit 2 has a flue gas desulfurization (FGD) system to reduce SO_2 emissions. During normal operation of Unit 2, flue gases are routed through the FGD to the main exhaust stack, known as "MS2S". Occasionally, however, it becomes necessary to bypass the FGD (e.g., for scheduled maintenance) and to send the flue gases through the bypass stack, "MS2B".

IPL intends to install a new flow rate monitoring system on bypass stack MS2B[1]. According to IPL, all required certification tests of the CEMS, except for the 7-day calibration error tests, can be completed within a reasonable amount of time. However, because the bypass

[1] See August 21, 2012 e-mail from Angelique Oliger, IPL, to Louis Nichols, EPA.

stack is used so infrequently, it could take weeks or even months to complete the 7-day calibration error test. According to IPL, the 7-day test could be expedited by forcing a bypass of the FGD solely for the purpose of completing a 7-day calibration error test, but this would increase SO_2 emissions unnecessarily.

In view of these considerations, the February 29, 2012 petition requests an exemption from conducting future 7-day calibration error tests of the CEMS installed on bypass stack MS2B. The basis for the request is that the infrequent use of the bypass stack is similar to the intermittent operation of a "peaking unit" (as defined in 40 CFR §72.2). Under sections 6.3.1 and 6.3.2 of Appendix A to Part 75, CEMS installed on peaking units are exempted from performing 7-day calibration error tests.

A peaking unit is defined in 40 CFR 72.2 as a unit that has: (a) an average capacity factor of 10.0% or less during the previous three calendar years and (b) a capacity factor of 20.0% or less in each of those calendar years. On a heat input basis, "capacity factor" is defined in §72.2 as the ratio of a unit's actual annual heat input (in million British thermal units) to the unit's maximum potential annual heat input (i.e., the maximum rated hourly heat input times 8,760). Expressing this ratio as a percentage gives:

$$\%\,CF = \frac{HI_{annual}}{8760\,HI_{max}}\ x\ 100 \qquad \text{(Equation A)}$$

Where:

% CF = Annual capacity factor of the unit (%)
HI_{annual} = Total (actual) annual heat input to the unit (mmBtu)
HI_{max} = Maximum rated hourly heat input to the unit (mmBtu/hr)
8760 = Number of hours in a calendar year (hr)
100 = Conversion factor from a decimal fraction to a percentage

Equation A above can be modified to determine % CF for a bypass stack such as MS2B, by redefining HI_{annual} as the "total (actual) annual heat input to the unit during hours when the bypass stack was used". When IPL performed this calculation for MS2B, the annual capacity factors of the bypass stack for calendar years 2009, 2010, and 2011 were found to be well within the limits established for peaking units. Table 1 below shows that the capacity factor of MS2B was less than 2.0% in each year, and the 3-year average capacity factor was less than 1%.

Table 1: Annual Capacity Factor of Bypass Stack MS2B (2009 through 2011)

Annual Capacity Factor:			
2010	**2011**	**2012**	**3 year average capacity factor**
0.6%	1.5%	0.5%	0.9%

EPA's Determination

EPA approves IPL's February 29, 2012 petition for an exemption from performing future 7-day calibration error tests of the CEMS installed on Petersburg Unit 2's bypass stack (MS2B). The basis of this approval is twofold: (1) the infrequent usage and low annual capacity factor of the bypass stack; and (2) the unacceptability of bypassing an emissions control device such as an FGD solely for the purpose of performing a 7-day calibration error test.

The purpose of the 7-day calibration error test is to demonstrate that the day-to-day calibration drift of a CEMS is minimal over an extended period of unit operation. Section 6 of Appendix A to Part 75 requires the test to be performed over 7 consecutive unit or stack operating days. However, for a CEMS installed on a peaking unit that operates sporadically, or for a bypass stack that is seldom used, the test loses its significance.

The conditions of this approval are as follows:

(1) Beginning with calendar year 2012 and for each subsequent calendar year, IPL shall calculate the total annual heat input (mmBtu) to Petersburg Unit 2 during hours when bypass stack MS2B is utilized.

(2) Beginning with calendar year 2012 and for each subsequent calendar year, IPL shall use the result from item (1) above to calculate the annual capacity factor for bypass stack MS2B, in accordance with the modified version of Equation A described above.

(3) For the 3-year period beginning with calendar years 2010 through 2012 and for each subsequent 3-year period (i.e., 2011-2013, 2012-2014, etc.), IPL shall calculate the arithmetic average of the annual bypass stack capacity factors for the individual years.

(4) If, at the end of a particular calendar year, the annual capacity factor of the bypass stack (item (2) above) exceeds 20.0% for that year, or if the 3-year average annual capacity factor, i.e., for that year and the two previous calendar years (item (3) above), exceeds 10.0%, then, for each CEMS installed on the bypass stack that has

never undergone a 7-day calibration error test, IPL shall perform a diagnostic 7-day calibration error test soon as practicable after the end of that year.[2]

EPA's determination relies on the accuracy and completeness of IPL's February 29, 2012 petition and the associated electronic data reports and is appealable under 40 CFR Part 78. If you have any questions regarding this determination, please contact Louis Nichols at (202) 343-9008 or by e-mail at Nichols.Louis@epa.gov. Thank you for your continued cooperation.

Sincerely,

/s/
Reid Harvey, Director
Clean Air Markets Division

cc: Loretta Lehrman, USEPA Region V
David Cline, IDEM
Louis Nichols, CAMD

[2] Note that this is consistent with Part 75, Appendix A, section 6.3.3, which requires a diagnostic 7-day calibration error test to be performed when a unit loses peaking unit status. However, unlike section 6.3.3, which requires the 7-day test to be completed within one year, no specific deadline is set for IPL to complete the test, due to the unpredictable nature of bypass stack operation from year-to-year. Instead, the test must be completed "as soon as practicable" after the end of the year in which the annual or 3-year average bypass stack capacity factor exceeds the threshold value.