

September 15, 2008

Mark Lux
Vice President and General Manager
Black Hills Corporation
350 Indiana Street, Suite 400
Golden, CO 80401

Re: Petition for Approval of Alternative Substitute Data for Sulfur Dioxide Emissions Before Initial CEMS Certification for Las Vegas Cogeneration Unit 1 (Facility ID (ORISPL) 10761).

Dear Mr. Lux:

The United States Environmental Protection Agency (EPA) has reviewed the February 22, 2008 petition under 40 CFR 75.66, in which the Black Hills Corporation (Black Hills) requested approval of alternative substitute data for sulfur dioxide (SO₂) emissions from Unit 1 at the Las Vegas Cogeneration facility before initial certification of the unit's continuous emissions monitoring system (CEMS). Black Hills provided supplemental information on August 21, 28, 29 and September 3, 2008. EPA denies the petition, as discussed below.

Background

Black Hills owns and operates a combined-cycle turbine, Unit 1, at the Las Vegas Cogeneration facility (LVC), located north of Las Vegas, Nevada. Unit 1 combusts only pipeline natural gas¹ and uses water injection and selective catalytic reduction (SCR) to control nitrogen oxides (NO_x) emissions. Black Hills provided information demonstrating that the fuel combusted at the unit is pipeline natural gas. According to Black Hills, the unit's maximum manufacturer rated and tested firing capacity is 470 mmBtu/hr.²

On May 13, 2005, Black Hills submitted to EPA a request for a determination of the applicability of the Acid Rain Program to LVC Unit 1. On February 6, 2008, EPA issued a

¹ On August 21 and 28, 2008, Black Hills provided sampling data demonstrating that only pipeline natural gas has been combusted at the unit since 2002 through February 2008.

² Black Hills has previously stated that the maximum design heat input capacity of the unit is 397 million Btu/hr. See Las Vegas Cogeneration at 4 (Feb. 6, 2008). Use of the currently provided figure of 470 million Btu/hr would not have affected the February 6, 2008 applicability determination. For purposes of this response to Black Hills' petition, EPA is relying on the currently provided figure.

determination that, as of January 1, 2002, LVC Unit 1 became an affected unit subject to the requirements of the Acid Rain Program. On February 22, 2008, Black Hills submitted a petition to EPA requesting to use an alternative methodology to calculate substitute data to account for the SO₂ emissions from LVC Unit 1 during January 1, 2002, when the unit first became subject to the Acid Rain Program, until the hour on February 13, 2008 when the unit's CEMS was certified as required under Part 75 of the Acid Rain Program regulations.

In its February 22, 2008 petition, Black Hills provided two estimates of the SO₂ emissions from LVC Unit 1 before initial CEMS certification. The first was an estimate of the actual SO₂ emissions, using company records of natural gas consumption and unit operating hours, together with the 0.0006 lb/mmBtu SO₂ emission rate for pipeline natural gas (PNG) combustion specified in section 2.3.1.1 of Appendix D to Part 75. The second estimate used more conservative substitute data values based on the unit's maximum rated heat input of 470 mmBtu/hr and the 0.002 lb/mmBtu maximum potential SO₂ emission rate for PNG combustion from Table D-6 in Appendix D to Part 75. Table 1, below, summarizes the results of Black Hills' two estimates of LVC Unit 1's SO₂ emissions before initial CEMS certification.

Table 1. Black Hill's Estimates of Actual and Potential SO₂ Emissions Before Initial CEMS Certification

Calendar Year	LVC Unit 1 Operating Hours	Estimated Actual Heat Input (mmBtu)	Estimated Actual SO ₂ Tons		Potential Heat Input (mmBtu)	Potential SO ₂ Tons	
			Calculated	Rounded		Calculated	Rounded
2002	5191	1,028,081	0.31	0	2,439,714	2.44	2
2003	4954	864,008	0.26	0	2,328,192	2.33	2
2004	5686	1,662,254	0.49	0	2,672,420	2.67	3
2005	3668	1,295,086	0.39	0	1,723,866	1.72	2
2006	3541	1,151,426	0.35	0	1,664,129	1.66	2
2007	4865	1,571,925	0.47	0	2,286,503	2.29	2
2008	332	2,111	0.00	0	156,126	0.16 ³	--
Total			0			13	

The emission totals in Table 1 were obtained by rounding the calculated SO₂ emissions for each year to the nearest whole number, i.e., decimal fractions less than 0.50 were rounded downward to the next lowest integer, and decimal fractions of 0.50 or greater were rounded upward to the next highest integer. Under this approach, Black Hills' total estimated actual SO₂ emissions were estimated as 0 tons, while its total estimated potential SO₂ emissions were 13 tons. Black Hills requested to use the potential emission figures as substitute data for the period January 1, 2002 to February 14, 2008.

EPA's Determination

EPA agrees that the fuel combusted in Unit 1 during 2002 through February 2008 is

³ This value for the first 45 days in 2008 would be added to the monitored data for the rest of first quarter 2008.

pipeline natural gas, but, as discussed below, EPA denies Black Hills' February 22, 2008 petition. Black Hills provided sampling data from its gas supplier showing that the gas purchased for combustion at Unit 1 during 2002 through February 2008 qualifies as pipeline natural gas. Specifically, data from analysis of the multiple samples taken in 2002 showed that Unit 1's fuel initially qualifies as pipeline natural gas under section 2.3.1.4(a)(3) of Appendix D to Part 75 because each sample contained 0.5 grains or less of total sulfur per 100 standard cubic feet, was composed of at least 70 percent methane, and had gross calorific value of between 950 and 1100 btu per standard cubic foot and therefore meet the definition of pipeline natural gas. See 40 CFR 72.2 (definition of "pipeline natural gas"). The sampling data for 2003 through February 2008 includes multiple samples taken each year, with some samples for each year having data on total sulfur, percent methane, and gross calorific value and some samples for each year having data only on total sulfur or only on percent methane and gross calorific value. Because all of the sampling data on total sulfur content shows total sulfur of 0.5 grains or less per 100 standard cubic feet, EPA finds that the fuel meets the requirements, under section 2.3.1.4(e) of Appendix D to Part 75, for continued qualification as pipeline natural gas. (EPA also notes that, while not required under section 2.3.1.4(e) of Appendix D, all the sampling data on percent methane and gross calorific value also continue to fall within the parameters for pipeline natural gas.) EPA concludes that Black Hills has demonstrated that Unit 1 combusted only pipeline natural gas during 2002 through February 2008.

Under Appendix D to Part 75, standard substitute data, calculated using maximum potential data values, must be used for operating hours when quality-assured data are not available. For pipeline natural gas, the maximum potential value for the SO₂ emission rate and the maximum potential gross calorific value are 0.002 lb/mmBtu and 110,000 Btu/100 scf respectively. For a unit where only one type of fuel is combusted, the maximum potential value for fuel flow is the maximum fuel flow rate that the unit is capable of combusting (in scf/hr for natural gas). See 40 CFR part 75, appendix D, Table D-6 (concerning maximum potential values for SO₂ emission rate and gross calorific value) and sections 2.4.2.1 and 2.4.2.2 6 (concerning maximum potential values for fuel flow rate). Thus, for each year, the maximum potential SO₂ emissions are the product of unit operating hours during the year and the maximum potential values for SO₂ emission rate, fuel flow rate, and gross calorific value.

Black Hills requested to calculate the unit's potential SO₂ emissions for each year using a different methodology than that required under Part 75. Instead of using maximum potential fuel flow and maximum potential gross calorific value, Black Hills requested to use the unit's maximum rated heat input capacity to determine the potential SO₂ mass emissions from LVC Unit 1 before initial CEMS certification. While the emissions data resulting from Black Hill's alternative methodology are shown in Table 1 above, the emissions data resulting from using the standard substitute data provisions in Part 75, as outlined above, are as follows:

Table 2. Standard Substitute Data for SO₂ Emissions from LVC Unit 1 Before Initial CEMS Certification

Calendar Year	Operating Hours Per Year	Maximum Fuel Flow Rate (HSCF/hr)	Gas GCV/Heat Content (Btu/HSCF)	Calculated HI (mmBtu/hr)	Gas Total Sulfur (lbs/mmBtu)	Calculated SO ₂ Mass (lbs)	Rounded SO ₂ Mass (tons)
2002	5191	6,000 ⁴	110,000	660	0.002	6852.12	3
2003	4954	6,000	110,000	660	0.002	6539.28	3
2004	5686	6,000	110,000	660	0.002	7505.52	4
2005	3668	6,000	110,000	660	0.002	4841.76	2
2006	3541	6,000	110,000	660	0.002	4674.12	2
2007	4865	6,000	110,000	660	0.002	6421.80	3
2008	332	6,000	110,000	660	0.002	438.24 ⁵	--
						Total	17

As reflected in Tables 1 and 2 above, use of the standard substitute data provisions in this case results in emissions data (in tons) that are similar to the data resulting from Black Hills' alternative methodology and that are not an unreasonable amount of tons higher than Black Hills' estimate of actual emissions for LVC Unit 1. Under these circumstances, EPA maintains that the standard substitute data for the unit does not grossly overstate the unit's emissions. On the contrary, the standard substitute data conservatively overstate the unit's emissions, consistent with the purposes of missing data substitution, i.e., which are to provide a strong incentive for owners and operators to ensure that all required continuous monitoring systems are installed and certified in a timely manner and to ensure that emissions are not underreported.

For these reasons, EPA denies Black Hills' petition to use an alternative methodology for calculating substitute data for the unit. By October 30, 2008, Black Hills must submit first, second, and third quarter emissions data reports for LVC Unit 1 using the standard substitute data under Part 75, as described above.⁶

EPA's determination relies on the accuracy and completeness of the information provided by Black Hills in the February 22, 2008 petition and on August 21, 28, 29 and September 3, 2008, 2008 and is appealable under Part 78. If you have any questions regarding this determination, please contact Edgar Mercado, either at (202) 343-9440 or at mercado.edgar@epa.gov.

Please contact Kenon Smith of my staff, either at (202) 343-9164 or at smith.kenon@epa.gov, to resolve the allowance accounting issues associated with this

⁴ This is the maximum fuel flow rate for LVC Unit 1, according to the monitoring plan submitted by Black Hills for LVC Unit 1.

⁵ This value for the first 45 days in 2008, expressed in tons (i.e. 0.22 tons), must be added to the monitored data for the rest of first quarter 2008.

⁶ The October 30, 2008 reporting deadline, established in this response to Black Hill's petition, is in addition to, and does not supersede, the monitoring, reporting, and recordkeeping requirements to which LVC Unit 1 became subject starting on January 1, 2002.

determination. Thank you for your continued cooperation.

Sincerely,

/s/
Sam Napolitano, Director
Clean Air Markets Division

cc: Steven Frey, EPA Region IX
Kenon Smith, EPA, CAMD
Coleen Cripps, Nevada Division of
Environmental Protection
Edgar Mercado, EPA, CAMD