

August 13, 2001

James V. Locher  
Authorized Account Representative  
Reliant Energy, Mid-Atlantic Development, Inc.  
1001 Broad Street  
P.O. Box 1050  
Johnstown, PA 15907-1050

Re: Petition for Alternative Deadline for Monitor Certification and Alternative Monitoring for Reliant's Hunterstown Unit 4

Dear Mr. Locher:

This is in response to your October 19, 2000 petition under §75.66(a), in which Reliant Energy Hunterstown, LLC ("Reliant"): (1) informed EPA of its intention to conduct short-term simple-cycle testing in 2002 on a new combustion turbine at the Hunterstown Station (Hunterstown); and (2) proposed an alternative method of accounting for emissions during the test period, in lieu of installing and certifying continuous emission monitoring systems. As discussed below, EPA grants the petition, subject to certain conditions.

#### Background

Reliant has submitted an application for construction of Hunterstown, a proposed 800 megawatt combined cycle electric generating facility in Adams County, Pennsylvania. The facility will consist of three General Electric (GE) Frame 7FB combustion turbines with duct burners and heat recovery steam generators, connected to a single steam turbine for electric generation. A 50,000 lb/hr steam auxiliary boiler will also be constructed, and its use will be limited to unit startups. The combustion turbines, duct burners and auxiliary boiler will burn only natural gas. The combustion turbines are scheduled to commence operation in the combined-cycle mode in June 2003. According to Reliant, the combustion turbines will be affected units subject to the emission monitoring requirements of the Acid Rain Program (in 40 CFR part 75) and will also be subject to the nitrogen oxides (NO<sub>x</sub>) mass emission monitoring requirements of the Ozone Transport Commission (OTC) NO<sub>x</sub> Budget Program and the NO<sub>x</sub> Budget Trading Program under the NO<sub>x</sub> State Implementation Plan (SIP) Call (in 40 CFR part 96) and Section 126 of the Clean Air Act (in 40 CFR part 97).

Hunterstown represents the first commercial application of the GE Frame 7FB turbine. GE therefore has interest in gathering performance data on the turbine in both the simple-cycle and combined-cycle modes of operation. Because Reliant intends to purchase several of these turbines, Reliant is also interested in testing the turbine in the simple-cycle mode before commencing operation in the combined-cycle mode. Consequently, in the October 19, 2000 petition, Reliant stated that it intends to perform approximately 250 hours of simple-cycle testing on one of the Hunterstown units (Unit 4) in 2002. The proposed test period will last for about 2 to 6 months and commence in January, 2002. Because the electricity generated by the unit will be sold to the power grid during the test period, initiation of the testing will cause the unit to "commence commercial operation," as defined in §72.2.

A temporary stack will be installed during the test period, which will then be dismantled and removed from the site. Because of the temporary nature of the stack and the relatively short duration of the simple-cycle testing, Reliant requested an extension of the deadline for monitor certification for the Acid Rain Program under §75.4(b)(2). That section requires a new unit (i.e., a unit commencing commercial operation on or after November 15, 1990) to have certified continuous monitoring systems to measure the sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and carbon dioxide (CO<sub>2</sub>) emissions within 90 days of commencement of commercial operation. Reliant also proposed an alternative methodology to account for the SO<sub>2</sub> and NO<sub>x</sub> emissions and heat input during the test period. Under Reliant's approach, emissions would be determined based on: actual emissions data obtained using EPA Reference Methods; actual fuel flowrates measured by a fuel flowmeter; the results of monthly samples of the gross calorific value (GCV) of the fuel; and certain equations in part 75.

#### EPA's Determination under the Acid Rain Program

EPA agrees that Reliant should not be required to install and certify SO<sub>2</sub>, NO<sub>x</sub> and CO<sub>2</sub> monitoring systems twice for Hunterstown Unit 4, first at the temporary stack location in 2002 and then at the permanent stack location in 2003. Further, EPA believes that it is reasonable to postpone the installation of a data acquisition and handling system (DAHS) for Unit 4 until 2003, when the required continuous monitoring systems are installed at the permanent location. Consequently, EPA approves an extension of the deadline for certification of continuous monitoring systems (including a DAHS) at Unit 4 under the Acid Rain Program. The deadline will be extended until 90 days after the commencement of operation in the combined-cycle mode.

The extension of the deadline for certifying continuous monitoring systems at Unit 4 under the Acid Rain Program is conditioned on Reliant reporting SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> emissions and heat input data to EPA, starting 90 days after the commencement of commercial operation of the unit, i.e., starting on the date of the (unextended) deadline for monitor certification under §75.4 (b)(2). See 40 CFR 75.64(a) (requiring reporting for new units starting with the quarter that includes the monitor certification deadline specified under §75.4 (b)(2)). In other words, EPA is extending the monitoring certification deadline for Unit 4 as described in the previous paragraph, but is not similarly extending the date on which emission data must be reported.

However, EPA notes that it recently proposed (66 FR 31978, 31981 (June 13, 2001)) to revise

part 75 in such a way that the certification deadline in §75.4 (b)(2) (and, hence, the date on which emissions reporting must begin) may, in some instances, be more than 90-days after the unit commences commercial operation. Consequently, the date on which Reliant must begin reporting emissions and heat input data shall be established by the version of §75.4 (b)(2) that is final and effective on the 90<sup>th</sup> day after Unit 4 commences commercial operation.

For each hour of operation of Unit 4 on and after the date on which the reporting of SO<sub>2</sub>, NO<sub>x</sub>, and CO<sub>2</sub> emissions and heat input data is required to begin, Reliant must report such data to EPA as follows:

1. Until the required continuous monitoring systems are installed and certified, Reliant shall quantify and report emissions and heat input data for Unit 4 by using either:
  - (a) Actual emissions data, as follows:
    - (1) The SO<sub>2</sub> mass emission rate (in lb/hr) determined hourly, using the unit heat input rate, the default emission rate of 0.0006 lb/mmBtu for pipeline natural gas, and Equation D-5 in appendix D to part 75;
    - (2) The NO<sub>x</sub> emission rate (in lb/mmBtu) determined hourly, using EPA Reference Methods 7E (for NO<sub>x</sub> concentration) and 3A (for oxygen content) and Equation F-5 in appendix F to part 75;
    - (3) The CO<sub>2</sub> mass emissions (in tons/hr) determined hourly, using the unit heat input rate and Equation G-4 in appendix G to part 75;
    - (4) The unit heat input rate (in mmBtu/hr) determined hourly, using either:
      - (i) The hourly flow rate of natural gas, as measured with a fuel flowmeter meeting the requirements of appendix D, in conjunction with the gross calorific value (GCV) of the natural gas derived from monthly fuel samples, and Equation D-6 in appendix D to part 75; or
      - (ii) If, in the absence of a functional data acquisition and handling system (DAHS), hourly fuel flow rates are not able to be recorded, the hourly heat input rates may be estimated using hourly unit loads and records of long-term fuel usage. If this option is chosen, Reliant shall use Equation LM-3 in § 75.19 to calculate the total heat input to the unit during the reporting period, based on the total amount of natural gas combusted (i.e., from the fuel usage records) and the highest gross

calorific value (GCV) of the natural gas derived from monthly fuel samples. Then, Reliant shall estimate the heat input for each hour of the reporting period, using the hourly unit loads in conjunction with Equation LM-7 in § 75.19 (c)(3); or

(b) Maximum potential values, reported hourly, as follows:

- (1) The maximum potential SO<sub>2</sub> emission rate (in lb/hr), determined using the maximum potential unit heat input rate, the default emission rate of 0.0006 lb/mmBtu for pipeline natural gas, and Equation D-5 in appendix D to part 75;
- (2) The maximum potential NO<sub>x</sub> emission rate of 0.700 lb/mmBtu, calculated according to section 2.1.2.1 of appendix A, using a maximum potential NO<sub>x</sub> concentration of 150 ppm<sup>1</sup> and a maximum oxygen concentration of 16% oxygen<sup>2</sup> ;
- (3) The maximum potential CO<sub>2</sub> emission rate (in tons/hr), using the maximum potential unit heat input rate in Equation G-4 in appendix G to part 75 ;
- (4) The maximum potential unit heat input rate, calculated using Equation D-6 in appendix D to part 75. In Equation D-6, use the maximum potential fuel flow rate as defined in section 2.4.2.2 of appendix D to part 75, in conjunction with the maximum potential gross calorific value (GCV) of 1100 Btu/scf for natural gas, from Table D-6 in appendix D to part 75.

2. Emissions and heat input data for Unit 4 shall be submitted, in accordance with §75.64, on a quarterly basis, beginning with the quarter of the above-described deadline for reporting emissions and heat input data, and for each subsequent calendar quarter (including non-operating quarters). Each report shall be submitted no later than 30 days after the end of the calendar quarter and in EPA's Electronic Data Reporting (EDR) format, version 2.1.
3. Until the combined-cycle operation of Unit 4 begins in 2003, Reliant may generate the required EDR reports manually, using available computer-based tools (e.g., spreadsheets, text editors or EPA's Monitoring Data Checking (MDC) software).

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<sup>1</sup> The maximum potential NO<sub>x</sub> concentration of 150 ppm is based on emissions data reported to EPA from new gas turbines during periods of natural gas combustion, and is considered by the Agency to be more representative than the 50 ppm value for new turbines currently found in Table 2-2 of Part 75, Appendix A. In the June 13, 2001 Federal Register, EPA has proposed to remove the 50 ppm value from Table 2-2 and replace it with 150 ppm. In telephone conversations with Reliant in June, 2001 and on August 2, 2001, Reliant agreed that a MER of 0.700 lb/mmBtu based on a maximum potential concentration of 150 ppm is reasonable.

<sup>2</sup> The estimated maximum oxygen concentration of 16% during normal operation was provided by Reliant, using engineering judgment based on operating experience with combustion turbines.

## EPA's Determination under the NO<sub>x</sub> Budget Trading Program

EPA notes that the NO<sub>x</sub> Budget Trading Program under the Pennsylvania SIP (40 CFR 51.121) and Section 126 of the Clean Air Act (40 CFR part 97) require certification of continuous emission monitoring systems for NO<sub>x</sub> mass emissions by the later of 90 days after the commencement of commercial operation or May 1, 2002.<sup>3</sup> (See 25 Pa. Code Chapter 145, §145.70(2)(iii); and 40 CFR 97.70(b)(3)). Any extension of the monitor certification deadline must be requested through a petition and must be approved by EPA. (See 25 Pa. Code Chapter 145, §145.75; and 40 CFR 97.75). Because Reliant's October 19, 2000 petition references reporting of NO<sub>x</sub> mass emissions, as well as NO<sub>x</sub> emission rate, EPA is treating the petition as a request for an extension of the monitor certification date under the NO<sub>x</sub> Budget Trading Program. For the same reasons that EPA is approving an extension of the monitor certification date under Acid Rain Program, EPA maintains that a similar extension of the monitor certification date under the NO<sub>x</sub> Budget Trading Program should be approved. The deadline will be extended until 90 days after the commencement of unit operation in the combined-cycle mode.

The extension of the deadline for certifying continuous monitoring systems at Unit 4 under the NO<sub>x</sub> Budget Trading Program is conditioned on Reliant reporting NO<sub>x</sub> mass emissions and heat input data to EPA, starting on the emissions-reporting deadline under that program. The NO<sub>x</sub> Budget Trading Program requires that a unit commencing operation on or before May 1, 2002 report emissions starting May 1, 2002. See 40 CFR 97.74(d)(1)(ii).

For each hour of operation of Unit 4 on and after May 1, 2002, Reliant must report NO<sub>x</sub> mass emissions and heat input data to EPA as follows:

1. Until the required continuous monitoring systems are installed and certified, Reliant shall quantify and report NO<sub>x</sub> mass emissions and heat input for Unit 4 by using either:
  - (a) Actual emissions data, as follows:
    - (1) The NO<sub>x</sub> mass emissions (in lb) determined hourly, using the NO<sub>x</sub> emission rate in lb/mmBtu (as derived from EPA Reference Methods 7E and 3A and Equation F-5 in appendix F to part 75), the unit heat input rate, and Equation F-24 in appendix F to part 75;
    - (2) The unit heat input rate (in mmBtu/hr) determined hourly, using either:
      - (i) The hourly flow rate of natural gas, as measured with a fuel flowmeter meeting the requirements of appendix D, in conjunction with the gross calorific value (GCV) of the natural gas derived from monthly fuel samples, and Equation D-6 in appendix D to

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<sup>3</sup> EPA notes that it recently proposed (66 FR 32047-48) to revise part 97. The proposed revisions will not affect the date on which Reliant must begin reporting NO<sub>x</sub> mass emissions and heat input data under the NO<sub>x</sub> Budget Trading Program.

part 75; or

(ii) If, in the absence of a functional data acquisition and handling system (DAHS), hourly fuel flow rates are not able to be recorded, the hourly heat input rates may be estimated using hourly unit loads and records of long-term fuel usage. If this option is chosen, Reliant shall use Equation LM-3 in § 75.19 (c)(3) to calculate the total heat input to the unit during the reporting period, based on the total amount of natural gas combusted (i.e., from the fuel usage records) and the highest gross calorific value (GCV) of the natural gas derived from monthly fuel samples. Then, Reliant shall estimate the heat input for each hour of the reporting period, using the hourly unit loads in conjunction with Equation LM-7 in § 75.19 (c)(3); or

(b) Maximum potential values reported hourly, as follows:

- (1) The maximum potential NO<sub>x</sub> emission rate of 0.700 lb/mmBtu, calculated according to section 2.1.2.1 of appendix A, using a maximum potential NO<sub>x</sub> concentration of 150 ppm and a maximum oxygen concentration of 16% O<sub>2</sub>;
  - (2) The maximum potential unit heat input rate, calculated using Equation D-6 in appendix D to part 75. In Equation D-6, use the maximum potential fuel flow rate as defined in section 2.4.2.2 of appendix D to part 75, in conjunction with the maximum potential gross calorific value (GCV) of 1100 Btu/scf for natural gas, from Table D-6 in appendix D to part 75.
2. NO<sub>x</sub> mass emissions and heat input data for Unit 4 shall be submitted, in accordance with the NO<sub>x</sub> Budget Trading Program regulations, on a quarterly basis, beginning with the quarter of the above-described deadline for reporting NO<sub>x</sub> mass emissions and heat input data, and for each subsequent calendar quarter (including non-operating quarters). Each report shall be submitted no later than 30 days after the end of the calendar quarter and in EPA's Electronic Data Reporting (EDR) format, version 2.1.
  3. Until the combined-cycle operation of Unit 4 begins in 2003, Reliant may generate the required EDR reports manually, using available computer-based tools (e.g., spreadsheets, text editors or EPA's Monitoring Data Checking (MDC) software).

EPA's determinations in this letter rely on the accuracy and completeness of the information provided by Reliant in the October 19, 2000 petition and in supplemental

information dated January 19, May 10, 2001, and August 2, 2001, and are appealable under part 78. If you have any further questions or concerns about this matter, please contact Robert Vollaro at (202) 564-9116. Thank you for your continued cooperation.

Sincerely,

/s/

Brian J. McLean, Director  
Clean Air Markets Division

cc: Linda Miller, EPA Region III  
Joseph Nazzaro, Pennsylvania DEP  
Ron Davis, Pennsylvania DEP  
Robert Vollaro, CAMD