May 1, 2002

Mr. Terry Thompson
Alternate Authorized Account Representative
AES Warrior Run, Inc.
11600 Mexico Farms Road, S.E.
Cumberland, MD 21502

Re: Petition for Approval of an Alternative Flow Monitoring Methodology for AES-Warrior Run, Unit 001

Dear Mr. Thompson:

This is in response to your January 23, 2002 letter, in which AES Warrior Run, Inc. requested approval of an alternative stack flow rate monitoring procedure for the AES Warrior Run Cogeneration Plant. EPA approves the petition, subject to the conditions discussed below.

Background

The AES Warrior Run Cogeneration Plant (AES-WR), located in Cumberland, Maryland, is a single boiler, single-turbine/generator unit with a net electrical generating capability of 180 megawatts. The boiler, Unit 001, is a circulating fluidized bed unit that combusts coal as its primary fuel and diesel oil as a backup fuel. The facility supplies process steam and a slip-stream of exhaust gas to an on-site carbon dioxide (CO_2) recovery plant, owned and operated by AES-WR Limited Partnership, for the production of food-grade liquid CO_2.

AES-WR Unit 001 is an affected unit under the NO_x Budget Trading Program. Therefore, as of May 1, 2002, AES-WR is required to monitor and report NO_x mass emissions and heat input for Unit 001 during the ozone season, using the procedures described in Subpart H of 40 CFR Part 75. Unit 001 is currently participating in the Ozone Tansport Commission (OTC) NO_x Budget Program and has already certified continuous emission monitoring systems (CEMS) that meet Part 75 requirements on the main stack. In particular, AES-WR has installed and certified continuous monitors on Unit 001 to measure NO_x , CO_2, and stack flow rate.

Due to the nature of the cogeneration process at AES-WR, there are times when not all of the exhaust gas from Unit 001 exits to the atmosphere through the main stack. This occurs whenever a slip-stream is extracted from the exhaust gas ductwork and routed to the CO_2 recovery plant. The slip-stream is extracted using two blowers, each rated at 13,641 actual cubic feet per minute (scfm) or approximately 8,300 scfm (498,000 scfh). This represents roughly 2 to 3% of the total volume of exhaust gas from the power plant. Thus, whenever the

slip-stream is extracted, only about 97 to 98% of the exhaust from Unit 001 is measured by the stack flow monitor. This will result in underestimation of the NO_x mass emissions from the combustion process, unless the slip-stream volume is accounted for.

In the January 23, 2002 letter, AES-WR proposed to use the following methodology to address this issue. The programmable logic controller (PLC) connected to the CEMS on Unit 001 receives a digital signal from each blower, indicating whether it is in operation. When either (or both) of the blowers operate, the slip-stream is being extracted. To account for this, the CEMS data acquisition and handling system (DAHS) adds either 540,000 scfh (if one blower is operating) or 1,080,000 scfh (if both blowers are operating) to the hourly flow rate measured by the stack flow monitor. The combined flow rate (i.e., measured stack flow rate plus slip-stream flow rate) is then recorded by the DAHS and is reported to EPA in EDR record type 220. In supplementary information provided to EPA on April 12, 2002, AES-WR confirmed that the DAHS provides a continuous readout of both the unadjusted stack flow rates measured by the flow monitor and the flow rates corrected for the slip-stream volume.

EPA's Determination

EPA finds that the alternative flow measurement methodology proposed by AES-WR ensures that NO_x mass emissions from Unit 001 will not be underestimated. Supplementary information provided by AES-WR to the Agency on March 1, 2002 shows that when the slip stream is extracted, the flow rates for each blower typically range from about 6,952 scfm (at normal operating conditions) to 8,342 scfm (at maximum operating conditions). On a per-blower basis, this roughly equals 417,000 scfh during normal operation and 500,000 scfh at maximum operation. When both blowers operate, it equates to 834,000 scfh for normal operation and 1,000,000 scfh at maximum operation.

In view of this, AES-WR's proposal to add a default value of 540,000 scfh to the measured stack flow rate when one blower operates, and 1,080,000 scfh when both blowers operate, adequately compensates for the extraction of the slip-stream. The proposed default values will give conservatively high estimates of the stack gas flow rate under all process operating conditions, preventing underestimation of NO_x mass emissions, since AES-WR determines NO_x mass as the product of NO_x concentration and stack flow rate. EPA therefore approves the use of these default values for the purposes of reporting data under the NO_x Budget Trading Program.

Conditions of Approval

As conditions of approval of the proposed alternative flow monitoring methodology, AES-WR must:

(1) Perform a DAHS verification, to demonstrate that the correct default flow rate value (either 540,000 scfh or 1,080,000 scfh, as appropriate) is being added to the measured stack flow rate when the slip stream is extracted. The results of this demonstration shall be kept on-site in a format suitable for inspection; and

(2) For any hour(s) in which the slip stream is being extracted, but the digital signal indicating the number of blowers in operation is either missing, invalid or not interpretable, add 1,080,000 scfh to the measured stack flow rate(s); and

(3) Perform relative accuracy test audits (RATAs) of the flow monitor as described in (a) or (b), below. That is, either:

(a) Conduct the RATA testing at a time when the CO_2 slip-stream is not being extracted; or

(b) If the slip-stream is being extracted at the time of the RATA, compare the *unadjusted* flow rates measured by the monitor (i.e., with no correction factor for the slip-stream volume) against the reference method measurements.

EPA's determination in this letter relies on the accuracy and completeness of the information provided by AES-WR in the January 23, 2002 petition, and on March 1 and April 12, 2002 and is appealable under Part 78. If you have any questions or concerns about this determination, please contact Robert Vollaro, at (202) 564-9116. Thank you for your continued cooperation.

Sincerely,

/s/
Peter Tsirigotis, Acting Director
Clean Air Markets Division

cc: Renee McLaughlin, EPA Region III
Charles Frushour, Maryland Department of the Environment
Robert Vollaro, CAMD