

December 21, 2007

Mr. Edwin E. Freeman  
Alternate Designated Representative  
Tennessee Valley Authority  
1101 Market Street  
Chattanooga, TN 34702-2801

Re: Petition for an Alternative Mercury Monitor Certification Deadline for Units 1-9  
at the Kingston Fossil Plant (Facility ID (ORISPL) 3407)

Dear Mr. Freeman:

The United States Environmental Protection Agency (EPA) has reviewed the August 1, 2007 petition submitted under 40 CFR 75.80(h)(1) by the Tennessee Valley Authority (TVA), in which TVA requested an alternative mercury monitoring system certification deadline for Units 1-9 at the Kingston Fossil Plant. EPA approves the petition in part, with conditions, as discussed below.

#### Background

TVA owns and operates nine coal-fired boilers, Units 1-9, at the Kingston Fossil Plant (Kingston), located in Roane County, Tennessee. Currently, emissions from Units 1-5 discharge to the atmosphere through a common stack (CSKI15) and the emissions from Units 6-9 discharge through a second common stack (CSKI69).

Kingston Units 1-9 are subject to the emission monitoring and reporting requirements of the Clean Air Mercury Regulation (CAMR). The owner or operator of an existing unit subject to CAMR is required to install and certify a continuous mercury (Hg) monitoring system, no later than January 1, 2009. These units are also subject to the Acid Rain Program.

TVA is installing a flue gas desulfurization (FGD) system to control SO<sub>2</sub> emissions from Kingston Units 6-9 and a second FGD system to control SO<sub>2</sub> emissions from Kingston Units 1-5, with a co-benefit of reducing Hg emissions. Construction of the first FGD (for Units 6-9) is expected to be completed in the fall of 2009. Construction of the second FGD (for Units 1-5) is expected to be completed in the spring of 2010. Two new stacks will be built as part of the FGD construction projects, with the emissions from Units 1-5 exiting to the atmosphere through one stack and the emissions from Units 6-9 through the other.

When the FGD installations are complete, the emissions will again be monitored using two sets of CEMS, with one system located in each of the new common stacks.

One of the existing stacks (CSKI69) will be used as a bypass stack for Units 1-9 during startup, shutdown, and malfunction conditions and when maintenance is performed on either of the FGD systems. In the August 1, 2007 petition, TVA indicated that it may elect to report the maximum potential Hg concentration during bypass hours, rather than continuously monitoring Hg emissions at CSKI69.

Due to the timing of the FGD installations and new stack constructions, CAMR requires TVA to certify Hg monitoring systems by January 1, 2009 on the two existing common stacks and then to meet a second Hg monitoring system certification deadline on the new stacks, when construction of these stacks is completed and the FGDs become operational. The second deadline results from the requirement that TVA must install and certify a Hg monitoring system on each of the new common stacks within 90 unit operating days or 180 calendar days (whichever comes first) after emissions first exit to the atmosphere through the new stack.

In the August 1, 2007 petition, TVA requested that the January 1, 2009 monitor certification deadline be extended to coincide with the monitor certification deadlines associated with the FGD installations and construction of the new stacks. TVA proposed to report Hg emissions data in 2009 (for Units 1-9) and part of 2010 (for Units 1-5, only) using the Hg low mass emissions (HgLME) methodology described in 40 CFR 75.81(c) through (f), until completion of the FGD and new stack construction projects. After that, Hg emissions would be reported from certified Hg CEMS installed on the new stacks.

According to TVA, extending the January 1, 2009 monitor certification deadline would have a *de minimis* impact; therefore, EPA should consider extending it. Without the deadline extension, TVA would be required to purchase, install, and certify Hg monitoring systems at CSKI69 and CSKI15, only to discontinue using them in about nine months and sixteen months, respectively, when construction of the FGDs and new stacks is completed. TVA believes that the cost of certifying Hg monitors on the existing stacks would put a strain on its limited resources.

#### EPA's Determination

EPA conditionally approves TVA's petition for an extension of the January 1, 2009 Hg monitor certification deadline for Kingston Units 1-9. However, the Agency denies TVA's request to extend the deadline past December 31, 2009 for Units 1-5. Under the following unique circumstances, EPA has concluded that the January 1, 2009 Hg monitor certification deadline for these units should be conditionally extended:

- First, TVA is constructing FGD systems (including new stacks) that will reduce SO<sub>2</sub> and Hg emissions from the units. TVA is currently required to install continuous Hg monitoring systems on each of the existing stacks by January 1, 2009 and each of the new stacks after completing construction of the FGD systems.

- Second, TVA states that construction of the FGD system for Units 6-9 will be completed in 2009 and that continuous Hg monitoring systems will be installed and certified at the new stack upon completion of the project. However, according to TVA, construction of the FGD system for Units 1-5 will not be completed until spring of 2010, at which time continuous Hg monitoring systems will be installed and certified at the new stack.
- Third, the requirement for Hg emissions reductions under CAMR begins in 2010. With regard to Units 6-9, Hg emissions data recorded during calendar year 2009 will not be used to determine compliance with CAMR, and, due to the future installation of FGD systems and the need to install and operate continuous Hg monitoring systems in new locations on new stacks, any continuous Hg monitoring systems installed on the existing stacks, and any pre-2010 Hg emissions data from such monitoring systems on the existing stacks, would not be representative of the units' Hg monitoring systems and Hg emissions in 2010 and thereafter. However, while Hg emissions data recorded in 2009 for Units 1-5 also will not be used to determine compliance with CAMR and will not be representative of the units' Hg emissions after FGD installation, the data recorded in 2010 for Units 1-5 will be used to determine compliance.

EPA concludes that requiring Hg monitoring systems to be installed and certified in the existing stacks CSKI15 and CSKI69 during the period January 1 through December 31, 2009 would serve little or no purpose under CAMR. The Agency is therefore approving, with conditions, an extension of that certification deadline to whichever of the following dates occurs first: (a) December 31, 2009; (b) 90 unit operating days after the date on which emissions first exit to the atmosphere through the new stacks or FGD systems; or (c) 180 calendar days after the date on which emissions first exit to the atmosphere through the new stacks or FGD systems.

However, because the FGD and new stack construction project for Kingston Units 1-5 will not be completed until 2010 and Hg emissions data starting January 1, 2010 will be used to determine compliance, EPA is denying TVA's request to extend the Hg monitor certification deadline for Units 1-5 beyond December 31, 2009. The HgLME methodology that TVA requests to use in lieu of a continuous Hg monitoring system for these units after 2009 is not intended for use by units, such as these units, that have annual Hg mass emissions greater than 29 lbs. See 70 FR 28633 (May 18, 2005). Therefore, TVA must install and certify a continuous Hg monitoring system on CSKI15 by January 1, 2010.

Although EPA is extending the January 1, 2009 Hg monitor certification deadline for Kingston Units 1-9, TVA must still report Hg mass emissions using the HgLME methodology and heat input data using the existing monitoring systems under the Acid Rain Program, for these units in 2009. Although the HgLME methodology is not intended for use by units, such as Kingston Units 1-9, with annual Hg mass emissions greater than 29 lbs, allowing the HgLME methodology to be used for 2009 is a reasonable alternative for getting emissions data that are required under CAMR, but that

will not be used to determine whether the Hg emissions reductions required under CAMR (i.e., the reductions required in 2010 and thereafter) are met. In this case, Hg emissions data reported in 2009 using the HgLME methodology will not compromise the integrity of CAMR. Therefore, the conditions of this approval are as follows:

- (1) On or before December 31, 2008, TVA shall perform Hg emission testing at common stacks CSKI15 and CSKI69, as described in 40 CFR 75.81(c)(1). A minimum of three test runs with all units operating at typical, normal load levels is required for each stack, while coal is being combusted.;
- (2) From the results of these emission tests, TVA shall determine a default Hg emission factor, in  $\mu\text{g}/\text{m}^3$  at standard conditions, for each common stack. The default emission factor shall be the greater of: (a) the highest Hg concentration from any test run; or (b)  $0.50 \mu\text{g}/\text{m}^3$ ;
- (3) In 2009, for each hour of operation of Units 1-5, and for each hour of operation of Units 6-9 prior to completion of the FGD and new stack construction project, TVA shall use the appropriate default Hg concentration from (2) above to calculate the hourly Hg mass emissions in ounces from CSKI15 and CSKI69. These calculations shall be performed according to section 9.1.3 in Appendix F to 40 CFR Part 75. All Hg emissions from the units must be accounted for. For any hour that quality-assured data from the stack gas flow rate monitors are unavailable, the appropriate missing data procedures from 40 CFR Part 75, Subpart D shall be used;
- (4) Notwithstanding paragraph (3) above, TVA shall, upon request from the Tennessee Department of Environment and Conservation (TDEC):
  - (a) Perform additional Hg emission testing in 2008 and/or 2009 on the existing stacks, as described in 40 CFR 75.81(d)(4); and
  - (b) Determine a new default Hg concentration from each retest, as described in paragraph (2) above, using the new default value for reporting purposes under 40 CFR Part 75.

TVA shall notify EPA upon receipt of a request for retesting from TDEC. TVA shall also provide test notifications to EPA and to TDEC, at least 21 days in advance of the scheduled date for each retest. Absent a request from TDEC for retesting, the periodic retests described in 40 CFR 75.81(d)(4) are not required.

- (5) In 2009, TVA shall comply with the applicable recordkeeping and reporting requirements in 40 CFR 75.84 for Kingston Units 1-9;
- (6) Starting on the date and hour when emissions first exit to the atmosphere through the new common stacks serving Kingston Units 1-5 and Units 6-9,

TVA shall begin reporting emissions data from the new stacks for all parameters;

- (7) For the monitoring systems installed on the new common stacks, TVA shall follow the applicable monitor certification and data validation guidelines in Questions 16.14 through 16.16 in the “Part 75 Emissions Monitoring Policy Manual”. For the purposes of this approval, those general guidelines are extended to include Hg monitoring systems;
- (8) TVA shall install and certify a continuous Hg monitoring system at the new common stack for Kingston Units 6-9 by whichever of the following dates occurs first: (a) December 31, 2009; (b) 90 unit operating days after the date on which emissions first exit to the atmosphere through the new stack or FGD system; or (c) 180 calendar days after the date on which the emissions first exit to the atmosphere through the new stack or FGD system;
- (9) For Kingston Units 1-5, a continuous Hg monitoring system (i.e., either a continuous emissions monitoring system (CEMS) or a sorbent trap system) must be installed and certified on the existing common stack CSKI15 by December 31, 2009. Upon completion of the FGD installation, a permanent monitoring system must be installed and certified on the new common stack within 90 unit operating days or 180 calendar days (whichever comes first) after emissions first exit to the atmosphere through the new stack;
- (10) In 2010, for each hour of operation of Units 1-9, TVA shall report hourly Hg mass emissions and heat input using data recorded by continuous Hg monitoring systems. The Hg mass emissions calculations shall be performed according to section 9.1.3 of Appendix F to 40 CFR Part 75. All Hg emissions from the units must be accounted for. For any hour that quality-assured data from the Hg or stack gas flow rate monitors are unavailable, the appropriate missing data procedures from 40 CFR Part 75, Subpart D shall be used;
- (11) If any of the Hg monitoring system certification deadlines specified in (8) or (9) above is not met, TVA shall report the maximum potential Hg concentration (MPC) (as defined in section 2.1.7.1 of Appendix A to 40 CFR Part 75) for each stack location at which the deadline was not met. The MPC shall continue to be reported at each such location until a continuous Hg monitoring system has been certified at that location; and
- (12) After completion of the FGD system (including the new stack) for Units 6-9, TVA shall report the maximum potential Hg concentration (MPC) (as defined in section 2.1.7.1 of Appendix A to 40 CFR Part 75) for each hour in which the emissions from Units 1-5 or Units 6-9 (as applicable) are routed through bypass stack CSKI69, unless and until TVA installs and certifies a continuous Hg monitoring system at CSKI69.

EPA's determination relies on the accuracy and completeness of the information provided by TVA in the August 1, 2007 petition and is appealable under 40 CFR Part 78. If you have any questions about this determination, please contact Venu Ghanta, at (202) 343-9009. Thank you for your continued cooperation.

Sincerely,

/s/

Sam Napolitano, Director  
Clean Air Markets Division

cc: David McNeal, EPA Region IV  
Jeryl Stewart, Tennessee DEC  
Venu Ghanta, CAMD