

May 31, 2006

Willard K. Smith
Designated Representative
Director, Reedy Creek Energy Services, Inc.
Post Office Box 10000
Lake Buena Vista, FL 32830-1000

Re: Petition to Use an Alternative Calibration Method for the Oil Flow Meters
Installed on Unit 32432 at the Reedy Creek Improvement District facility (Facility
ID (ORISPL) 7254)

Dear Mr. Smith:

This is in response to your September 10, 1998 petition under §75.66(c) in which Reedy Creek Energy Services, Inc. (RCES) requested to use an alternative method to certify the oil flowmeters installed on Unit 32432 at the Reedy Creek Improvement District facility in Lake Buena Vista, Florida (Reedy Creek). EPA approves the petition for the reasons discussed below.

Background

_____ Reedy Creek Unit 32432 is a General Electric gas-fired turbine with a heat recovery steam generator. The unit combusts both natural gas and distillate oil and is subject to the Acid Rain Program. Therefore, RCES is required to continuously monitor and report sulfur dioxide (SO₂), nitrogen oxides (NO_x), and carbon dioxide (CO₂) emissions and heat input for Unit 32432, in accordance with 40 CFR Part 75.

_____ To meet the SO₂ monitoring requirements of the Acid Rain Program, RCES has elected to use the procedures in Appendix D of Part 75, in lieu of installing continuous SO₂ and stack flow monitors. Section 2.1 of Appendix D requires hourly measurement of the fuel flow rate, using a certified fuel flowmeter. Section 2.1.5.1 of Appendix D lists the acceptable certification methods for various types of fuel flowmeters. However, the accuracy tests of the oil flowmeters installed on Unit 32432, which were performed by EG&G Flow Technology (EG&G), used a calibration method that is not among those listed in Section 2.1.5.1.

Appendix D allows the owner or operator to petition EPA under §75.66(c) to use a fuel flowmeter calibration method other than those listed in Section 2.1.5.1, provided that the alternative calibration procedure uses equipment that is traceable to National Institute of Standards and Technology (NIST) standards. Therefore, on September 10, 1998 RCES

requested to use the EG&G calibration methodology to satisfy the Part 75 certification requirements for the oil flow meters installed on Reedy Creek Unit 32432. The petition was submitted as part of the initial certification application for the unit.

On October 22, 1998, EPA notified RCES that its certification application for Unit 32432 was incomplete. To address this deficiency, the Agency asked RCES to provide additional information, including, among other things, a more detailed description of the alternative calibration procedure that was used for the oil flowmeters. RCES submitted the requested information on November 25, 1998. The Florida Department of Environmental Protection (DEP) then reviewed the certification application and, on December 18, 1998, sent a letter to EPA suggesting that the alternative oil flowmeter calibration method used by RCES satisfies the requirements of Part 75, Appendix D. However, no formal approval of RCES' September 10, 1998 petition to use the alternative method was ever issued by EPA.

EPA's Determination

EPA concurs with the Florida DEP's recommendation for approval of the alternative method used by EG&G to calibrate the oil flowmeters installed on Reedy Creek Unit 32432. The Agency finds the EG&G test protocol to be well-conceived, commencing with an inspection of the flowmeters and the accompanying paperwork to verify that the paperwork matches the meters being calibrated. For each flowmeter, the protocol also provides detailed procedures for: (1) installing the flowmeter in the test section; (2) verifying that the flowmeter and its electronics are communicating appropriately; (3) performing pre-flow checks of the data acquisition system; (4) performing the actual calibrations; (5) processing the data; and (6) reviewing the test results.

The EG&G methodology (i.e., the Microtrak and Omnitrak liquid calibration system) uses a primary standard, positive displacement calibrator to establish the accuracy of an oil flowmeter. The calibrator is a laboratory grade device that has direct traceability to NIST standards via water draw validation. The displacement of a piston forces a calibration fluid of known kinematic viscosity (which is controlled to simulate the customer's operating conditions) through a precisely honed, chrome plated stainless steel cylinder of known cross-sectional area and into the flowmeter being calibrated. Compressed air drives the piston in the precision honed flow tube at a constant rate, displacing the liquid in the tube and causing it to flow through the test section, which contains the meter being calibrated. The displaced liquid is then stored in the liquid reservoir. A linear encoder mounted on the piston shaft generates pulses which represent precise amounts of liquid displaced by the piston, and this pulse train is used to calculate the exact rate of flow. At the same time, flowmeter output pulses are monitored, and the measured flow rates are compared to that provided by the calibrator. The use of a double chronometry technique ensures that only complete pulses are taken into account. The EG&G methodology is conservatively estimated to have a "worst-case" accuracy of ± 0.5 of the upper range value, with an uncertainty of $\pm 0.12\%$. This far exceeds the required ± 2.0 percent accuracy requirement of Appendix D, section 2.1.5.

In view of these considerations, EPA approves RCES' petition to use the EG&G calibration procedures for the oil flowmeters installed on Unit 32432 at Reedy Creek, both for

initial certification and for ongoing quality-assurance (QA). Therefore, supply and return oil flowmeters with serial numbers of 2001147 and 2001160 are approved for use in the Acid Rain Program. However, note that although these oil flowmeters are approved for Part 75 reporting, the original certification tests of the meters are more than five years old and have expired. Therefore, if and when oil is burned in Unit 32432, RCES shall not rely on the original certification tests to quality-assure the oil flow rate data. Rather, the results of more recent (non-expired) successful accuracy tests of the flowmeters are required for QA purposes. In the absence of such tests, the missing data routines for oil flow rate must be applied until the required tests are performed and passed.

EPA's determination relies on the accuracy and completeness of the information provided in RCES' September 10, 1998 petition, and the supporting data and information provided by RCES and EG&G. This determination is appealable under Part 78. If you have any questions regarding this correspondence, please contact Manuel J. Oliva at (202) 343-9009. Thank you for your continued cooperation.

Sincerely,

/s/

Sam Napolitano, Director
Clean Air Markets Division

cc: David McNeal, Region, EPA Region IV
Errin Pichard, Emissions Monitoring Section, Florida DEP
Manuel J. Oliva, EPA CAMD