

March 1, 2007

George Wilson  
Designated Representative  
Boston Generating, LLC  
9 Bridge Street  
North Weymouth, MA 02191

Re: Petition to Use an Alternative Test Method to Determine the Sulfur Content of Diesel Oil for Units 1 and 2 at the Fore River Station (Facility ID (ORISPL) 55317)

Dear Mr. Wilson:

The United States Environmental Protection Agency (EPA) has reviewed the October 31, 2006 petition under '75.66, in which Boston Generating, LLC (Boston Generating) requested to use an alternative method to determine the sulfur content of the diesel oil combusted in Units 11 and 12 at the Fore River Station. EPA approves the petition, for the reasons given below.

#### Background

Boston Generating owns and operates the Fore River Station in North Weymouth, Massachusetts. The facility consists of two combined-cycle combustion turbines, Units 11 and 12, which are subject to the Acid Rain Program and to the NO<sub>x</sub> Budget Program, under Massachusetts Department of Environmental Protection (MADEP) regulations 310 CMR 7.27 and 7.28. These regulations require Boston Generating to continuously monitor and report sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), and carbon dioxide (CO<sub>2</sub>) emissions and heat input for Units 11 and 12, in accordance with 40 CFR Part 75.

Units 11 and 12 are permitted to combust either natural gas or diesel oil. The units have historically fired only natural gas, but are being commissioned to fire oil. According to Boston Generating, Ultra Low Sulfur Diesel (ULSD) oil, which has a sulfur content of approximately 15 ppmw, will be the principal type of fuel oil combusted in the units. Boston Generating uses the methodology in Appendix D to Part 75 to estimate the SO<sub>2</sub> mass emissions from Units 11 and 12. Section 2.2 of Appendix D requires oil sampling to be performed periodically to determine the fuel's sulfur content, gross calorific value, and, if necessary, density. The methods approved for sulfur content determination are listed in section 2.2.6 of Appendix D.

In the October 31, 2006 petition, Boston Generating requested to use ASTM D 5453-06, "Standard Test Method for Determination of Total Sulfur in Light Hydrocarbons, Spark Ignition Engine Fuel, Diesel Engine Fuel, and Engine Oil by Ultraviolet Fluorescence", to determine the sulfur content of the diesel oil being delivered to, and combusted at, the Fore River facility. ASTM D 5453-06 would be used instead of the approved oil sampling methods listed in section

2.2.6 of Appendix D. Boston Generating based its request on the fact that ASTM D 5453-06 is the analytical method of choice of Intertek Caleb Brett, the firm selected to conduct the oil sampling and analysis for Fore River Units 11 and 12. According to Intertek Caleb Brett (which is a major provider of sampling and analysis services and operates thirty laboratories nationwide), ASTM D 5453-06 is also the predominant method used industry-wide to determine the sulfur content of ULSD.

The October 31, 2006 petition also notes that ASTM D 5453-06 is included among the approved sulfur analysis methods in other EPA regulations governing stationary sources that fire diesel oil, including Subparts GG and KKKK of the New Source Performance Standards (NSPS) regulations in 40 CFR Part 60. ASTM D 5453-06 is also an approved method for two important EPA mobile source regulations. Under 40 CFR 80.46(a)(3)(i), it is used to determine the sulfur content of gasoline, and under 40 CFR 80.580(c)(2), it is used to determine the sulfur content of 500 ppmw sulfur transportation diesel oil.

Finally, the petition references contacts made with Mr. Joe Sopata of the Fuels Support Programs Section of the EPA Office of Transportation Air Quality, Division of Transportation and Regional Programs. According to Boston Generation, Mr. Sopata has indicated that ASTM D 5453-06 is the method typically proposed by laboratories seeking certification to perform sulfur analysis of ULSD oil under the mobile source regulations.

Boston Generation provided a copy of ASTM D 5453-06 as an attachment to the October 31, 2006 petition.

#### EPA's Determination

EPA approves Boston Generating's request to use ASTM D 5453-06 to determine the sulfur content of the diesel oil combusted in Units 11 and 12 at the Fore River facility, for the purpose of satisfying the periodic fuel sampling and analysis requirement in section 2.2 of 40 CFR Part 75, Appendix D. The basis of this approval is two-fold.

First, the results of an EPA-sponsored round-robin test program conducted on various candidate methods for determining the sulfur content of ULSD have shown that ASTM D 5453-06 is well-suited for this purpose.<sup>1</sup> According to Mr. Christopher Laroo, an environmental scientist in EPA's Office of Transportation and Air Quality (OTAQ) and a key participant in that program, the results of the program showed that ASTM D-5453-06 is one of the best methods with regard to repeatability and reproducibility of the measurements. The method also has been proven to be very precise when proper quality-assurance and quality control (QA/QC) procedures are implemented.<sup>2</sup>

Second, according to Mr. Joe Sopata of EPA, ASTM D 5453-06 is currently the method

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<sup>1</sup> Laroo, Christopher A., Mason, Robert L., and Janet P. Buckingham, "Ultra Low Sulfur Diesel (ULSD) Sulfur Test Method Variability: A Statistical Analysis of Reproducibility from the 2005 U.S. EPA ULSD Round-Robin Test Program", U.S. EPA, Office of Transportation and Air Quality, Copyright SAE International, 2006.

<sup>2</sup> E-mail message from Christopher Laroo of OTAQ to Theresa Alexander of CAMD, January 22, 2007.

of choice of most of the petroleum industry for determining the sulfur content of ULSD and is also an approved alternative method for determining the sulfur content of gasoline.<sup>3</sup>

The CAMD's determination relies on the accuracy and completeness of the information provided by Boston Generating in the October 31, 2006 petition and is appealable under Part 78. If you have any questions about this determination, please contact Theresa Alexander, at (202) 343-9747. Thank you for your continued cooperation.

Sincerely,

/s/

Sam Napolitano, Director  
Clean Air Markets Division

cc: Ian Cohen, EPA Region I  
Patricio Silva, Massachusetts DEP, Division of Air Quality  
Theresa Alexander, CAMD

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<sup>3</sup> E-mail message from Joe Sopata of OTAQ to Theresa Alexander of CAMD, January 19, 2007.