



Mr. Elvis Lopez  
Energy Efficiency Solutions, LLC  
1657 Washington Street  
Holliston, MA 01746

February 28, 2012

**Subject: Test Report for Diagnostic Boiler Testing at Energy Efficiency Solutions, LLC.**

Mr. Lopez,

CK Environmental (CK) of Canton, Massachusetts was retained by Energy Efficiency Solutions, LLC (EES) to perform diagnostic emissions testing on 3 boilers using 3 different fuels (no. 4 oil, no. 2 oil, 100% bio-diesel) during 2 different test scenarios (burner booster and conventional burners) resulting in 18 test runs. All testing was conducted at ESS Labs, located in Holliston, MA. The purpose of conducting the emissions testing was to compare fuel efficiency and concentrations of the pollutants tested during different fuel/burner combinations. It was found that the heat output was similar for each operating scenario, however it was documented that the Burner Booster rate of fuel input was 13-23% less, depending on the test .

CK conducted emissions testing at each boiler for Oxygen (O<sub>2</sub>), Carbon Dioxide (CO<sub>2</sub>), Carbon Monoxide (CO), Sulfur Dioxide (SO<sub>2</sub>), Oxides of Nitrogen (NO<sub>x</sub>), Total Hydrocarbons (THC) and Hydrogen Sulfide (H<sub>2</sub>S), gas volumetric flow rate and stack gas moisture content utilizing generally accepted test methods. The H<sub>2</sub>S was measured via dragger tubes and was negligible for all of the Burner Booster operating scenarios. CK personnel witnessed and collected smoke tests during the diagnostic program. A “Bacharach-Shell” smoke test was completed for each test condition and on all occasions the smoke readings were either the same or slightly improved to ZERO-when using the Burner Booster Technology.

Appendix A contains the reduced field data. Field data sheets are contained in Appendix B. Appendix C contains facility data.

Test runs 5 and 6 do not have actual fuel data used during the period due to fuel restriction issue on the test day. The field observations during the testing suggest that the fuel used for runs 5 & 6 was similar to that used during test # 4.

The diagnostic testing was performed on January 17-18 2012. CK staff on-site was Michael Kelley and Rich Gioielli (781 828-5200 or e-mail: mkelley@ckenvironmental.com).



Table 1-1 and 1-2 contained in Appendix A summarize the diagnostic testing that was performed. Please let Michael Kelley, the project manager, know if you have any questions.

Thank you,

A handwritten signature in black ink that reads 'Katherine Orlowski'.

Katherine Orlowski, QSTI  
Project Engineer