October 23, 2014

To Whom It May Concern:

This letter provides a summary of the analysis 44 Energy Technologies™ performed of the Enviromotive EvacuBlast cleaning systems, including those systems’ compliance and compatibility with OEM DPF cleaning specifications and guidelines, and some comparative assessment of filter cleaning approaches and technologies.

Our findings are summarized in this letter.

**Compliance and Compatibility with OEM Specifications and Guidelines**

In April 2014, 44 Energy Technologies ("44ET") conducted a study of Enviromotive’s DPF cleaning equipment, including the EvacuBlast™ diesel particulate filter cleaning (DPF) system, the EB-9001 EvacuBlast Cabinet, the EB-9002 Regeneration Oven, the EB-9003 DPF Soot Scale, and EB-9004 DPF Inspector. The goal of the study was to evaluate the compatibility of the EvacuBlast cleaning system with DPFs from a wide variety of original equipment manufacturers (OEM) and retrofit DPF providers, including the following:

- Caterpillar
- Clean Diesel Technologies
- Cummins
- Detroit Diesel
- Donaldson
- ESW CleanTech
- Ford
- General Motors
- HUG
- International/Navistar
- Isuzu
- Paccar
- Volvo/Mack
- Johnson Matthey

44ET conducted an assessment of existing manufacturer guidelines and specifications, in-depth studies of other cleaning platforms (including FSX and SPX), and interviews with personnel from various OEM distribution channels to determine best industry practice.

Based on this study, and our industry experience, it is our opinion that the EvacuBlast cleaning equipment operates within the performance and handling specifications recommended by the major OEMs, and that the equipment and procedures conform to the OEM recommended guidelines and best practices. As a result, the EvacuBlast system is expected to be at least as safe and effective as other commonly available DPF cleaning systems, such as the FSX and SPX systems.
Comparative Assessment of Filter Cleaning Approaches

Over the past decade or so, a number of approaches to cleaning soot and ash from DPFs have been studied and put into practice. The most commonly used methods are reverse high-pressure air flow, oven heating, pulse air cleaning, and water washing. Some of these methods, such as heating and air flow, are complementary. Most cleaning methods present some risk of damage to the DPF, but there are also product design and process control steps to mitigate these risks.

The most common cleaning methods that have been commercialized are described in the table below.

Table 1: Common DPF Cleaning Methods

<table>
<thead>
<tr>
<th>Cleaning Method</th>
<th>Description</th>
<th>Potential for DPF Damage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oven Heating</td>
<td>Place DPF(s) in a temperature programmed oven. Gradually increase temperature to the 600-700°C (~1100-1300 °F) range. Heating will oxidize carbon-based soot and leave inorganic (non-carbon) ash behind for additional cleaning.</td>
<td>Overheating leading to cracking or melting if temperature controls are not utilized.</td>
</tr>
<tr>
<td>High Pressure Reverse Air Flow</td>
<td>Direct a high-pressure air jet from a nozzle close to the outlet face of the DPF. The air jet will dislodge soot and ash and transport it from the DPF to a collection bin or bag.</td>
<td>None.</td>
</tr>
<tr>
<td>Pulse Air Cleaning</td>
<td>Accumulate and quickly release a volume of air across the entire front of the DPF face at high pressure. Rapid ‘pulse’ of air intended to violently dislodge soot and ash.</td>
<td>Crack filter or blow out end plugs.</td>
</tr>
<tr>
<td>Water washing</td>
<td>Flow high volume of water from exit end of DPF, backwashing soot and ash from DPF.</td>
<td>Potential to erode or damage catalyst coating and intumescent insulating/support wrap between DPF and steel can.</td>
</tr>
</tbody>
</table>

Over the last few years, experience has shown that the oven heating and reverse high pressure air flow methods are the safest and most effective and pose the least risk to damaging the DPFs. Further, experience has shown the most effective cleaning processes employ a combination of oven heating and high pressure reverse air flow.

The industry leading suppliers of DPF cleaning equipment are Enviromotive and FSX. Both companies provide oven heating and reverse air cleaning machines, as well as scales and flow benches for measuring weight and flow restriction before and after cleaning.

For the air cleaning machines, both Enviromotive and FSX use 100 psig air as an input to drive the reverse (and forward) air jet. Both machines direct air through both the DPF inlet and outlet to provide the most effective cleaning. The FSX machine uses a higher volumetric flow rate than the
Enviromotive cleaner, necessitating a larger and more powerful air compressor. In the FSX system the movement of the high-pressure air nozzle is accomplished through automated controls, while the Enviromotive air nozzle is moved over the filter surface manually. The EvacuBlast cleaner has a unique feature of an infrared camera positioned at the DPF outlet face with a display visible to the operator. This important feature gives the operator real-time feedback as to where the soot and ash are located in the filter, allowing the operator to focus on areas with higher concentrations of soot and ash.

Summary

After reviewing OEM documentation as well as analyzing the Enviromotive EvacuBlast technologies, 44ET has made the following conclusions:

The EvacuBlast is compatible with all current OEM guidelines and specifications for cleaning.

The EvacuBlast and FSX machines use the two safest and most effective approaches to cleaning. While the FSX machine offers automated actuation of the air nozzle, the EvacuBlast offers more operator control with feedback from a digital camera. There are no apparent technological or performance features in the FSX machine that suggest it should be preferred over the EvacuBlast.

44 Energy Technologies is qualified to make an authoritative assessment on DPF cleaning technologies. We have a strong background in diesel emission control technology, having been involved with Cleaire Advanced Emission Controls (now ESW CleanTech) where we developed several state of the art diesel emission control systems as well as one of the first commercially available DPF cleaning machines.

If you have any questions, please feel free to contact me at brad.edgar@44energytech.com or (510) 789-9917.

Sincerely,

Bradley L. Edgar, Ph.D.
Chief Executive Officer
44 Energy Technologies Incorporated