

## **ClearSign Demonstrates Further 40% NOx Reduction, Sets New Record of 3 PPM**

**Novel Duplex™ Burner Architecture continues to set new records for NOx abatement, exceeding performance of currently available technology with no requirement for costly after-treatment.**

COLORADO SPRINGS, Colo., June 24, 2013 [/PRNewswire/](#) -- ClearSign Combustion Corporation (NASDAQ: CLIR) today announced that it has measured and documented a *further 40% reduction* in emissions of Nitrous Oxides (NOx), now down to 3 parts per million (PPM) from its previous record of 5 PPM announced just last month. This most recent demonstration was performed using a prototype burner based on ClearSign's novel [Duplex™ Burner Architecture](#), again in a furnace operating at a temperature of up to 1600 F with excess oxygen concentrations from between 1% and 3%.

The company is making this announcement at the American Boiler Manufacturers' (ABMA) 2013 Summer Meeting in Colorado Springs, CO.

"We are elated to be able to share these exciting results with our industry peers at the ABMA conference," said CEO Rick Rutkowski. "To the best of our knowledge, ClearSign's Duplex Burner Architecture is the first technology platform ever to achieve NOx results like this. Importantly, this has been achieved inside the furnace, promising significant gains in energy efficiency and a dramatically reduced cost of ownership as compared to either traditional burner technology or post-combustion treatments such as Selective Catalytic Reduction (SCR). We believe this represents an industry first, one that may be seen as a market disrupting approach to managing emissions without sacrificing efficiency. This could put ClearSign in an enviable position as we move rapidly towards commercialization of this important technology."

The company announced these new results one day after CTO Joe Colannino delivered his well-received technical paper, "Electrodynamic Combustion Control™ (ECC™) Technology for Combustion Systems" to his technical colleagues and industry senior management at the ABMA.

Colannino commented, "The Duplex Burner Architecture is proving to be a powerful approach to reducing NOx to unprecedented levels, without elevating CO, and while maintaining customary or lower levels of O2 in the stack. Additionally, flame length is dramatically reduced -- by 90% or more -- compared to existing Low-NOx burners. This kind of performance is extremely important in many industries including petrochemical applications where flame shape can play a critical role in affecting throughput. Poor flame pattern and long flames in Low-NOx burners for process heaters can lead directly to constraints that can cost millions of dollars in lost production annually as heater capacity must be reduced to accommodate the elongated flames. ClearSign's Duplex technology appears to eliminate the tradeoffs inherent in traditional NOx abatement approaches -- tradeoffs I and other combustion engineers have had to manage throughout our professional careers."

Rick Rutkowski continued, "We set an aggressive goal of reducing NOx to 2PPM later in 2013, and with this most recent announcement, I am more confident than ever that we will achieve this milestone using a combination of ClearSign's Electrodynamic Combustion Control (ECC) and Duplex Burner Architecture technologies.

"Tomorrow, President Obama is expected to announce major new environmental regulations aimed at further reducing pollution from both new and existing coal-fired power plants. Although this is only one of the markets that ClearSign is developing, it provides a clear signal that environmental regulations in the United States will only become more stringent in the future, making new approaches and technologies even more important to industry than ever. With the President's announcement, and what we are hearing at the conference, there is a great deal of urgency and uncertainty as ongoing regulations continue to introduce costly new challenges to combustions system operators."

According to ClearSign, strict new NOx control regulations are being implemented over the next two years in several regions of the country including Texas and California. California's South Coast Air Quality Management District's Rule 1146.1 requires that burners produce less than 9PPM of NOx no later than July, 2014. Additionally, 75% of larger industrial boilers of between 20 and 50 MMBtu/h must reduce NOx emissions to 5PPM or below by January 1st 2014, and 100% of boilers of this size must meet this strict limit by no later than Jan 1st 2016. Industry groups anticipate that these limits will soon be required in other areas of the country, with national standards to follow.

### **About ClearSign Combustion Corporation**

ClearSign Combustion Corporation designs and develops technologies that aim to improve key performance characteristics of combustion systems including energy efficiency, emissions control, fuel flexibility and overall

cost effectiveness. Our Electrodynamic Combustion Control™ (ECC™) platform technology improves control of flame shape and heat transfer and optimizes the complex chemical reactions that occur during combustion in order to minimize harmful emissions. For more information about the Company, please visit [www.clearsign.com](http://www.clearsign.com)

### **Cautionary note on forward-looking statements**

This press release includes forward-looking information and statements within the meaning of the Private Securities Litigation Reform Act of 1995 and the provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Except for historical information contained in this release, statements in this release may constitute forward-looking statements regarding our assumptions, projections, expectations, targets, intentions or beliefs about future events that are based on management's belief, as well as assumptions made by, and information currently available to, management. While we believe that our expectations are based upon reasonable assumptions, there can be no assurances that our goals and strategy will be realized. Numerous factors, including risks and uncertainties, may affect our actual results and may cause results to differ materially from those expressed in forward-looking statements made by us or on our behalf. Some of these factors include the acceptance of existing and future products, the impact of competitive products and pricing, general business and economic conditions, and other factors detailed in our Quarterly Report on Form 10-Q and other periodic reports filed with the SEC. We specifically disclaim any obligation to update or revise any forward-looking statement whether as a result of new information, future developments or otherwise.

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