

ClearSign Achieves Major Emissions Control Milestone

Novel Duplex Burner Architecture Dramatically Reduces Nitrogen Oxides (NOx) by More Than 85% to Less Than 8 Parts Per Million

SEATTLE, WA -- (Marketwired) -- 04/02/13 -- ClearSign Combustion Corporation (NASDAQ: CLIR), an emerging leader in combustion and emissions control technology for industrial, commercial and utility markets, reported today that it had measured and documented dramatic reductions in Nitrogen Oxides (NOx), down to 8 parts per million. Using a prototype burner based on its novel Duplex™ burner architecture, ClearSign was able to reduce NOx by 85%, (from 50ppm down to 8ppm) in a furnace operating at a temperature of ~1500F with O2 concentrations ranging from 2.5% to 3.2%.

"This is an extremely important and very encouraging result," said ClearSign CEO, Rick Rutkowski. "We now believe that we can target emissions of less than 5ppm NOx by the end of the second quarter. Our successful development efforts with the Duplex burner architecture suggest that we may enable a new generation of combustion systems and process heaters that can meet and beat the most rigorous NOx emissions standards, while significantly improving both energy efficiency and process throughput over currently available technology. If we're correct, we would enjoy a unique market advantage and the economic returns for virtually any industrial process would be compelling and especially so for high value processes."

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 requires that burners produce less than 9ppm of NOx no later than July, 2014. Industry groups anticipate that these limits will soon be further reduced to as low as 5ppm in some areas with the rest of the country to follow suit.

"In our conversations with customers and partners, we hear both a sense of urgency and a great deal of uncertainty as the new regulations raise the specter of costly new challenges for combustion system owner operators," Rutkowski continued.

"To address this challenge, some burner and combustion system manufacturers have been able to develop systems that can achieve the NOx targets, but inherent design tradeoffs impose high costs to energy efficiency that become prohibitive at these very low emissions levels, even with natural gas at historically low prices.

"The biggest cost associated with Low- and Ultra-Low NOx burners has been the significant loss in energy efficiency that results. This loss stems directly from the combined effect of recirculating flue gas and increasing excess air to cool the flame along with a loss of turn-down because of flame instability, and can result in increases in fuel consumption of as much as 20-30%."

According to Rutkowski, the market has long preferred low NOx and Ultra-Low NOx burners to more costly post-combustion treatment alternatives such as Selective Catalytic Reduction (SCR) systems that are more costly to install, complex to operate and consume considerable quantities of hazardous materials such as anhydrous ammonia.

"However, with the new regulations on the horizon and the inability of conventional burners to meet these criteria cost effectively," he added, "many operators are being forced to consider SCR. We believe that the market will be at an inflection point over the next two years that makes the timing of our innovation especially good."

According to ClearSign Chief Technology Officer, Joe Colannino, ClearSign's approach, unlike currently available technology, requires absolutely no external flue gas recirculation, keeps oxygen at very low levels (around 3% or below), and can maintain a stable flame throughout a wide operating range. Because of these features, the Duplex burner architecture enables significant advantages in fuel efficiency and process throughput as compared to conventional Low- and Ultra-low-NOx burners.

"Our ability to combine these features represents not only a technical breakthrough," Colannino said, "but also a significant potential breakthrough for operating economics. Our goal is to reduce NOx to unprecedented levels without introducing the design compromises that have driven cost of ownership to such prohibitive levels.

"In many instances, these improvements can translate to annual savings in the seven and eight figure range. Many traditional Low-NOx burners make use of increased flame length and reduced momentum to reduce NOx, but the resulting poor 'flame pattern' can cause flame impingement and coking. Refinery process heaters are particularly sensitive to this problem, due to the direct negative impact on product throughput and plant revenue as the firing rate must be throttled to avoid equipment damage. According to our analysis, a 3% to 7% loss in firing capacity due to poor flame pattern can cost millions of dollars annually in lost process throughput.

Removing this bottleneck could improve plant profitability by between \$12 and \$28 million per plant, per year. This is of particularly high value because it leverages so much capital plant by increasing capacity."

This latest milestone follows the announcement last June that the Company had achieved NOx levels as low as 15ppm, which is already superior to the NOx reduction performance of most commercially available Low-NOx burners (LNBs) and equivalent or superior to the performance of many Ultra-Low NOx burners (ULNBs) in the market today.

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

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.

CONTACT:

Media Contact:
Dennis S. Dobson, Jr.
(203) 258-0159

Investor Relations:
(206) 673-4848
investors@clearsign.com

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