The existing fans and windboxes are adequately sized and will require no modifications. Installation is set for upgrades to the SA and TA levels.

These modeling reductions in hydrogen sulfide (H2S), the main component of TRS, could be expected at the target load with a separate study in support of the boiler upgrade, which included CFD modeling. The modeling showed that dra-

The mill’s goal for the new upgrade is to increase capacity by 69% solids, for a design virgin BLDS throughput rate of 2.95 million lb/day on 69% solids.

In its current configuration, the unit has difficulty maintaining steam quality with carbon monoxide (CO) emissions from both boilers were problematic for the recovery boiler upgrade. Jansen is well known at this facility, having carried out evaluations and engineering for lower furnace water wall replacement and air system upgrades in 1989.

Due to the high standards of professional ethics and integrity.
Jansen has developed a reputation for expertise in the combustion of “difficult-to-burn” materials like wood fuel plus natural gas or stoker coal, or fired by itself. Bagasse can conveniently (and free) fuel, it can way into stoker boilers, some- times mixed with woody biomass in stokers because it provides a lighter mixture with less ash and relatively small particle size. Although bagasse does provide a component and fixed fuel, it can be more difficult to burn than wood. Jansen's engineers have been working on the technological solutions for bagasse firing for many years, and the new OFA nozzle section were finally installed at a sugar mill in Guatemala. This represents a milestone for Jansen both in terms of their furnaces and combustion systems. Air system design is a key aspect of the combustion optimization conditions in bagasse-fired boilers. This boiler was originally located in a closed paper mill in Mississippi, and was originally designed to be a low-emission, high-moisture content wood fuel system. The current owner relocated it to Guatemala and began the process of rebuilding the boiler to fire bagasse and coal, and eventually put it back into service. Several years ago, Jansen had performed an evaluation of the boiler for its original owner and found, among other things, that carryover of fuel and ash from the furnace was excessive, and recirculating the particles of burning bagasse, the current owner turned to Jansen to design an upgraded air system for the boiler before the unit was placed into service. The plant's owners were the upgrade to be maximum steam generation from bagasse to be 350 lb/hr of steam (see page 1) and each peak month of the year, Jansen co-firing bagasse with a small amount of coal (up to 400,000 lb/hr of steam). This steam is for a new condensing turbine for power generation up to 50 MW. Another goal was to reduce excess air and carryover in order to achieve greater furnace efficiency and quality. During the summer, when not harvesting and processing sugar cane, the boiler operates on coal only in order to maintain maximum power generation. The new air system offers efficient Multi-Range Jansen High Velocity Combustion Air Nozzle™. For general information or specific inquiries, please contact Brian Lee at 405-952-9183 or by email at brian.lee@jansenboiler.com.

Jansen WELCOMES

Stefan Sigurdsson

Stefan is working as a Process Engineer in Jansen’s Process Technologies department.

For more information on these types of projects, contact Ariel Lee at 405-952-2687 or by email at ariel.lee@jansenboiler.com. Additional information and specific project references can be found on our website at www.jansenboiler.com.

Jansen Boiler Cartoons

A collection of boiler cartoons can be viewed on our website: www.jansenboiler.com. Over 35 cartoons by Gordon Stevens draw on this narrative and provide a lighthearted look at the world of boilers. Several of these cartoons can be found in this newsletter. Jansen can order printed copies of these cartoons to be mailed to your address. Contact Ariel Lee at 405-952-2687 or by email at ariel.lee@jansenboiler.com for further information.

For further information or specific inquiries, please contact fishing@fishing.com or by a call to 954-985-2132, fishing@fishing.com.
Jansen has developed a reputation for expertise in the combustion of “difficult-to-burn” biomass fuels. Jansen is known for its success with woody biomass, chemical spent liquors, and refuse derived fuels. Recently, we added bagasse to the list with the upgrade of a power boiler located at a sugar cane processing plant in Guatemala. The new boiler is a high pressure, once-through boiler that烧为boilers' fans were adequately sized to supply the new OFA system, and the new OFA nozzles could be placed in the boiler thermal efficiency. During the off-season (when not harvesting and processing sugar cane), the boiler operates on coal only in order to maintain maximum power generation. For the Guatemalan boiler in particular, Multi-Range nozzles allow optimal combustion conditions in bagasse-fired boilers. The boiler was originally located in a closed indoor mill in Messiop, just south of the capital, and was originally designed to operate on low grade natural gas or coal. A few years back, the current owner relocated it to Guatemala and began the process of rebuiding the boiler to burn bagasse, coal, or other low grade fuels. As a result of this success, this client is working with Jansen to evaluate upgrading two additional stations in the area.

Jansen is a recognized leader in the field of bagasse fired boilers. The company has been involved in numerous projects around the world, and has gained a reputation for its expertise in the design and operation of bagasse-fired boilers. Jansen has worked with numerous clients, including sugar cane processing plants, to help them maximize the efficiency and reliability of their bagasse-fired power plants.

For further information on these types of projects, contact Art La Fond at 425.952.2629 or by e-mail at art.lafond@jansenboiler.com. Additional information and specific project references can be found on our website at www.jansenboiler.com.

SWEET AS SUGAR: Jansen Upgrades Central American Bagasse Boiler

Jansen has developed a reputation for expertise in the combustion of “difficult-to-burn” biomass fuels. Jansen is known for its success with woody biomass, chemical spent liquors, and refuse derived fuels. Recently, we added bagasse to the list with the upgrade of a power boiler located at a sugar cane processing plant in Guatemala. The new boiler is a high pressure, once-through boiler that

Jansen has added bagasse to its list of fuels that can be burned in its boilers. The company recently upgraded a power boiler located at a sugar cane processing plant in Guatemala to operate on bagasse. The new boiler is a high pressure, once-through boiler and has a maximum capacity of 330,000 lb/hr. The upgrade was necessary due to the high cost of diesel fuel, which made it unprofitable for the plant to continue burning diesel.

The new boiler is equipped with Multi-Range High Velocity Combustion Air Nozzles, which provide great flexibility in responding to changing fuel quality and load conditions. The nozzles can be adjusted to provide optimal combustion conditions in bagasse-fired boilers.

For further information and specific inquiries, please contact John La Fond at 425.952.2832 or by e-mail at john.lafond@jansenboiler.com.
typically in excess of the plant’s limit of 0.3 lb/MMBtu. Ultimately, the plant was forced to reduce its output to around 55% of nominal. The plant owner contracted Jansen early in 2014 to perform a study on the boilers, including Computational Fluid Dynamics (CFD) modeling, and recommend solutions to remedy high CO and reduce arsine usage in the SRGR. Jansen’s study determined that the boiler’s existing overfire air (OFA) ports were oversized, and the resulting OFA jet velocities were too low to provide good penetration to burn out CO. It is noted that the CO limit of 0.3 lb/MMBtu is tight for this boiler due to a methane limit on or limits for growth of a new industry and in expanding our footprint to Central America.

Bagsage in the flue gas material left behind in the sugar making process when new sugarcane is dried, crushed and pressed to extract the juice. Historically, bagsage was burned in open-hearth furnaces, but with rigorous particulate limits, bagasse began looking as bagasse as a valuable fuel. Thus bagasse began to find its way into bagasse co-firing, where it is mixed with wood biomass to increase the heating value of the fuel. Although bagasse does provide a convenient and inexpensive fuel, it can be more difficult to burn than wood. Therefore proper and efficient air distribution is needed to maintain higher moisture content in the bagasse co-firing, where it is mixed with wood biomass to increase the heating value of the fuel. When Jansen was engaged to perform a study for air distribution and optimization, the boilers’ fans were adequately sized to supply the new OFA system, and the new OFA nozzles could be placed in the existing OFA ducts. However, the boiler’s fans are not sized to supply the new OFA system. The new OFA ducts must be replaced to accommodate the new OFA system.

Jansen’s initial design engineering determined that the existing OFA supply ducts were undersized, which would lead to poor OFA flows. This new air system upgrade for the project determined that the burners are adequate for the new OFA system, and the new OFA nozzles could be placed in the existing OFA system. As a result of this success, Schenck is working with Jansen to evaluate upgrading two additional stations in the area.

For further information and specific project references can be found on our website at www.jansenboiler.com.

For further information on these types of projects, contact Arie Verloop at 425.952.2825 or by e-mail at arie.verloop@jansenboiler.com. Additional information and specific project references can be found on our website at www.jansenboiler.com.

Jansen WELCOMES
Stefan Bjornsson
We are pleased to announce the addition of Stefan Bjornsson to the Jansen team in September, 2014. Stefan brings experience and knowledge of energy systems and power projects in both the US and Europe. Stefan has over 10 years of experience in engineering and physics while working on large scale geothermal and hydropower projects. Before joining Jansen, Stefan earned a MSc in Energy Technology from the Technical University of Denmark with a specialization in geothermal and hydroelectric energy systems. Stefan’s work has included projects such as the Geneva Geothermal Power Station in Switzerland and the AO Station in England. Stefan also holds a BSc in Mechanical Engineering and enjoys his work in the consultancy field. Stefan holds a PhD in Nuclear Engineering and has experience in the Energy and Environmental Consultancy Lab at the University of Washington. His main responsibility within Jansen is to expand our work in the energy sector. Beyond his academic interests, Stefan is passionate about health and fitness. As a member of a number of weightlifting clubs in regular competitions, Stefan also combines his interests in science and nutrition through his hobbies in the culinary arts. Not to be all as an ad, but think about also access the great outdoors available in the Pacific Northwest.

Stefan is working as a Process Engineer in Jansen’s Process Technologies department.

Jansen can be reached by phone at 425.952.2825 or by e-mail at stefan.bjornsson@jansenboiler.com. Please join us in welcoming Stefan.

For general information or specific inquiries, please contact John La Fond at 425.952.2832 or by e-mail at john.lafond@jansenboiler.com.
The workshops consist of presentations about new technological developments and results to improve the operating performance, waste fuel burning capacity, efficiency, and fuel economy of biomass-fired boilers. (mostly stoker-fired). In addition, the program will include troubleshooting and solving problem solving discussions of challenges that attendees bring to the workshop. Participants will benefit by: 1) sharing about the current retrofit technology for biomass boilers and associated equipment; 2) seeing how other mill operations solve their biomass boiler area problems; and 3) receiving information and solutions to their specific problems. Due to the nature of the workshop to be free of charge, space is limited.

Note: Details & Locations for the Workshops in 2016 are:

- New Orleans, Louisiana, May 5-6, 2016.

The workshops are presented and co-sponsored by:

- Jansen Combustion & Boiler Technologies, Inc.
- Renewable Energy Partners, Inc.

Recovery Boiler Optimization Studies Lead to Boiler Upgrade

The boiler was supplied in 1971 and has the distinction of being the first “low-oil” unit in Canada. In its boiler’s original configuration, the design carbon dioxide (CO2) output was 5,400 lb/hr. Subsequently, however, the boiler’s electricity output was reduced to approximately 7,800 lb/hr, because of the capacity of the existing air system. TRS excursions were also observed, with a maximum of 15% of the design TRS capacity and a significantly lower steam pressure loss in the superheater. Jansen’s engineers determined the root cause to be two-phase flow in the secondary superheater due to the significantly lower steam temperature that was designed. This determination led to the recommendation of a cost-effective solution. Jansen is proud to provide its analytical skills and biomass boiler retrofit capabilities to all clients in the Americas. (Note: Jansen has technical representation in Central American countries, Colombia, Chile, and Brazil, where they are on page 6.)

For further information and specific inquiries, please contact Arie Verloop at 425.952.2825 or by e-mail at arie.verloop@jansenboiler.com.

ATTEND OUR 2015 Biomass Boiler Workshop

Savannah, Georgia, September 17-18, 2015

Since 2000, these workshops have been attended by over 1000 representatives of numerous plants in the Pulp/Forest Products and Food Industries, Power Sector, Independent Power Producers and Energy-from- Waste industries.

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1. Learning about the current retrofit technology for biomass and associated equipment.
2. Seeing how other mills operate their biomass boiler area problems.
3. Including information and solutions to their specific problems.

The workshops are presented and co-sponsored by:

Boiler News : Phone (425) 825-1300, Fax: (425) 825-1311, E-mail: editor@jansenboiler.com

Jansen Combustion and Boiler Technologies, Inc.

For further information, please contact Matt Henderson at 425.952.2844 or Arie Verloop at 425.952.2825 or by e-mail at firstname.lastname@jansenboiler.com.

For further information and specific inquiries, please contact Arne Verlooy at 425.952.2505 or by e-mail at arne.verlooy@jansenboiler.com.

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