HONIRON
FIRED EQUIPMENT

CASE STUDY:
HONIRON AIDS SUGAR CANE FACTORY IN EMERGENCY REPAIR AND MODERNIZATION IMPROVEMENTS

AT A GLANCE:

CUSTOMER: **WESTFIELD SUGAR**
INDUSTRY: **SUGAR CANE**
LOCATION: **LOUISIANA**

BUSINESS CHALLENGE

- Catastrophic Failure Prior to Production Season
- Loss of Sugar Production
- Loss of Profit

HONIRON FIRED EQUIPMENT SOLUTION:

- Perform Emergency Repair
- Boiler Rebuild
- Modernize Boiler Equipment
- Increase Boiler Capacity
- Reduce Maintenance & Operating Costs
- Eliminate Unscheduled Outages
- Increase Safety
- Increase profitability

SUGAR INDUSTRY & PROCESSING

Generating an estimated $2 billion in value for cane growers and raw sugar producers, the sugar industry is vital to Louisiana's economy.

Westfield Sugar produces raw sugar and final molasses in Paincourtville, Louisiana. This year marked Westfield Sugars' 139th annual harvest. During the harvest season, the company's processing operation runs 24 hours a day, seven days a week. With over 29,000 acres of cane, Westfield Sugar processes 1.1 million tons of sugarcane annually–resulting in 260 million pounds of raw sugar.

During the sugar cane harvest, the cane is passed through a shredder, which reduces it to a fibrous mass. The shredded cane then passes through a series of crushing mills to extract as much sugar juice as possible. The sugarcane fiber that remains after cane has been crushed is called bagasse. Bagasse is used as fuel for the boiler plant, which provides steam to power the entire factory.

Westfield - Before

Westfield - After

INITIAL SITUATION

Unscheduled boiler outages can be a major problem in sugar mills, resulting in loss of production and lower revenue. Westfield Sugars uses steam boilers for sugar processing. The steam is required for the generation of power in sugar processing as it is used by prime movers to drive critical equipment.

In early October 2018, one week prior to the start of the sugar harvest, Westfield Sugar performed a routine pressure test on their boiler(s). A catastrophic failure was discovered on one of the main boilers, with heavy damage to both the front wall and roof tubes. After further investigation, it was determined a low water condition caused the failure.

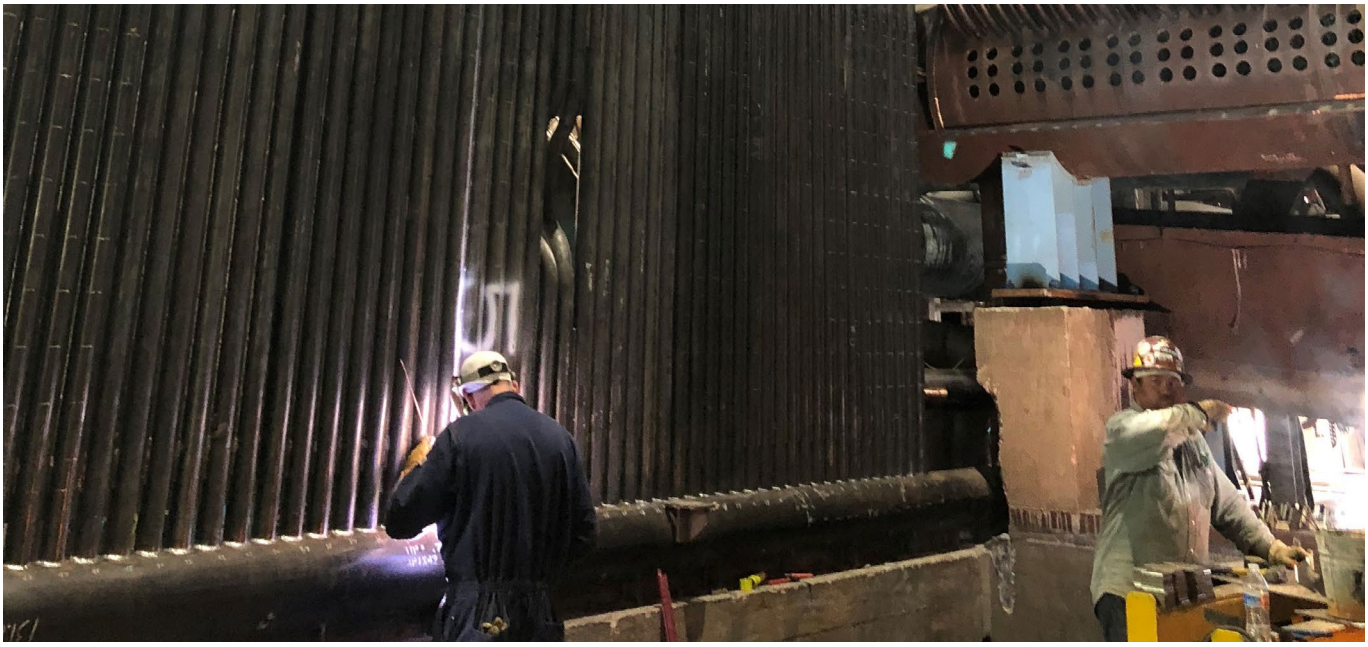
In an effort to minimize production shortfalls, Westfield Sugar began to explore different options that would allow them to be ready for the sugar season.

WESTFIELD SUGARS PARTNERS WITH HONIRON FIRED EQUIPMENT

With the harvest season only days away, an emergency repair was mandatory. The effects of boiler downtime, outages, slowdowns, and inefficient operations have a direct impact not only on sugar recovery, but also on the bottom line profits of the factory.

Westfield awarded Honiron Fired Equipment, a boiler services company, the repair contract. With a dedicated emergency team and experienced engineers available 24/7, Honiron Fired Equipment assessed the damage, mobilized repair crews, provided procurement support, and worked around the clock to repair the damage. The work was successfully completed on time for the factory to start up.

While the immediate need was an emergency repair, Honiron determined a better long-term solution would be needed after the sugar harvest season ended.



BOILER MODERNIZATION + ENGINEERING DESIGN = EXPANDED CAPACITY

At the end of the harvest season, Honiron and Westfield examined multiple options to improve operations, including a complete boiler rebuild to increase capacity by 15% to 25%.

Honiron's knowledge in bio-mass boilers was key to ensuring the proposed design solution would meet Westfield's requirements and emission regulations. To ensure an optimal fit-for-purpose solution, Honiron engineers performed careful analysis of capacity and requirements onsite including:

- Computation Flow Analysis Calculations
- Detailed Heat Transfer & Fluid Dynamics Calculations
- Circulation, Combustion & Emissions Calculations

Honiron proposed a design solution that would increase the boiler's capacity within its footprint and height restrictions, while reducing maintenance and operating costs. To further increase performance and efficiency, Honiron made the additional recommendations:

- Modernize Over Fire Air
- Modify Under Grate Air
- Update Bagasse Fuel Distribution on the Grate
- Update Airflow Baffling to Correct Short-Circuiting & Improve Heat Distribution

COMMISSIONING & START UP

The project commenced in early March with engineering and design, and demolition of the existing boiler. Honiron hit an unexpected roadblock during the steam drum relocation phase when it was discovered that the prior low water condition had caused severe drum damage, which would likely lead to operational issues in the future. To stay on schedule, Honiron devised a workaround plan to have new drums manufactured and delivered on time to complete the steam drum relocation phase.

The rebuild project was completed on time before the start of the production season. Following start up, the remaining scope of work was completed, including tuning the boiler to comply with all applicable EPA regulatory requirements.

DESIGN SOLUTION SHOWS MEASURABLE RESULTS

The biomass boiler rebuild is successfully operating and exceeding design capacity. Westfield Sugar required a 15% - 25% increase in capacity. Honiron delivered a 44% improvement, increasing the boiler operating capacity from 90,000 PPH to 130,000 PPH. In addition to superior performance, the upgraded system also offers lower lifecycle costs.

Honiron's fit-for-purpose design solutions and system upgrades have resulted in increased performance and reliability, as well as lower operating costs. With a strong sugar crop forecast underway, the increased capacity will significantly improve Westfield Sugar's profitably. Westfield Sugar was highly pleased with Honiron Fired Equipment and the follow-up services provided.

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Honiron Fired Equipment is a leading provider of boiler maintenance and repair services for industrial plants. From repair and refurbishment to rebuild and emergency call-out services, our technical professionals are experts in the boiler and fired equipment industry, backed by decades of on-site experience. Our service area covers the Gulf Coast including Alabama, Arkansas, Florida, Louisiana, Mississippi, and Texas.

For more information, contact us at **sales@honiron.com**

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