

RETROFIT EXISTING BOILERS TO MEET LOW NOX EMISSIONS REQUIREMENTS

BOILER DIVISION CASE STUDY

The Wine Group, Franzia

Sanger, California

Boiler Retrofit

CUSTOMER APPLICATION AND KEY CHALLENGES

Approximately 20,000 tons of fresh grapes are processed annually to produce white and red grape concentrate. One Trane Murray 31,000 PPH Industrial Watertube boiler supplies steam to the juice concentrate plant and process heaters. The boiler was originally retrofitted in 1999 with a Power Flame low-NOx burner designed to operate at less than 30 ppm. In 2003, the Air Pollution Control District began workshops with the intent to further limit NOx emissions. With this new rule pending, The Wine Group approached R.F. MacDonald Co. requesting a solution that would allow the boiler to operate below the new limits of 9 ppm NOx.



The Franzia wine box produced and packaged by The Wine Group

THE R.F. MACDONALD CO ANALYSIS & SOLUTION

The project required the supply and installation of a burner retrofit package designed to operate at less than 9 ppm NOx. The solution proposed included replacing the existing Power Flame Low NOx burner with a Cleaver Brooks/Profire Ultra-Low NOx burner and parallel positioning control system. In addition to the new burner, a stack O2 trim system with variable speed blower motor control was installed to ensure emission compliance, minimize excess air loss, and reduce electrical consumption during low load operation.



Installing the new Ultra Low-NOx burner and controls

BOILERS

PUMPS

SYSTEMS

SERVICE

PARTS

CORPORATE

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Modesto, CA 95358
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RENO

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ROHNERT PARK

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Rohnert Park, CA 94928
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SAN DIEGO

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Poway, CA 92064
858.538.5877

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Final stages of testing and operation

PROJECT RESULTS

The new burner and control system was installed and commissioned prior to the 2005 grape harvest. Start-up services, load testing, source testing, and operator training was performed by R.F. MacDonald Co factory authorized technicians.

Replacing the existing Power Flame Low NOx burner with a Cleaver Brooks/Profire Ultra-Low NOx burner enabled The Wine Group to reduce their NOx emissions from 30 ppm to an average of 8 ppm, well below the new Air Pollution Control District requirements.

The unit was successfully compliance tested with NOx emissions that were measured at an average of 8 ppm with the CO emissions measured at less than 10 ppm. The O2 trim system provides optimum efficiency 24 hours/day regardless of ambient temperature fluctuations, resulting in a 1% fuel savings annually. This system

has improved the overall operation and operates well within the mandated emissions requirements.



Burner control system with RFM O2 trim and variable speed drive