

# RETROFIT & REPLACE EXISTING BOILERS TO MEET LOW NOX EMIS- SIONS REQUIREMENTS

## BOILER DIVISION CASE STUDY

### Hilmar Cheese Company

Hilmar, California

Boiler Retrofit & Replacement

### CUSTOMER APPLICATION AND KEY CHALLENGES

The Hilmar Cheese Company site in California annually produces more cheese from one site than any other manufacturer in the world. The production facility converts over 20,000,000 lbs per day of high-quality milk into a variety of cheese products. They specialize in the production of cheddar and natural American cheeses utilized by private label and national brand companies, producing more than 1.9 million pounds of cheese each day.

The plant was required to lower their NOx emissions to comply with the San Joaquin Valley District regulations. In addition, the customer wanted to use this opportunity to also increase their existing steam capacity.



A variety of fresh products from the Hilmar Cheese Company

### THE R.F. MACDONALD CO. ANALYSIS & SOLUTION

Upon review, R.F. MacDonald Co. determined that three of the existing 600HP boilers could achieve low emissions with retrofit packages. The packages included (3) new Cleaver-Brooks low emission burners and (3) new C-B Hawk ICS (PLC based) control systems.

Increased steam capacity would be achieved with the addition of an additional 1200hp boiler. The Hilmar Cheese Engineering team designed a new boiler room at a new location on the facility site. R.F. MacDonald provided a new Cleaver Brooks CBL1200 boiler with a 9 PPM Low NOx burner, a new Cleaver-Brooks deaerator and an exhaust stack economizer and other boiler room accessories. Provisions were also made for a future 1200hp.



Three existing boilers were retrofitted to meet lower NOx standards

BOILERS

PUMPS

SYSTEMS

SERVICE

PARTS

#### CORPORATE

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Final installation at the Hilmar Cheese plant

#### PROJECT RESULTS

Emission levels were easily met with the new low emissions burners on the existing (3) 600hp boiler. Increase in steam capacity was met when the new steam plant with the new 1200hp CBL, was connected to the existing steam loop.

**At the completion of this project the customer was operating with one more boiler providing an additional 41,400pph of steam capacity at near 85% efficiency, and achieving a drop in NOx emissions from 30PPM to 9 PPM at both steam plants.**



Final installation of the new boiler