MAXIMUM EFFICIENCY YIELDS HIGH ENERGY SAVINGS FROM CONDENSING BOILERS

BOILER CASE STUDY

Biopharmaceutical Company

Northern California

Hybrid Boiler System

CUSTOMER APPLICATION AND KEY CHALLENGES

A large Northern California biopharmaceutical company operates a research campus with Cleaver-Brooks Flextube Boilers in many of their buildings. The boilers were only six years old when the Bay Area Air Quality Management District began including smaller boilers in regulated emission control standards. As a result, the boilers were required to meet the new NOx and CO emission levels, as well as flue stack temperature criteria.

After evaluating a number of retrograde options for the existing boilers, including a heat recovery unit on the exhaust flues and changing the existing mechanical linkage system to an electronic emissions system, all of the options proved too costly. It was decided to replace the boilers with new equipment to meet the current requirements.

Research and development are a large portion of the drug development process

THE R.F. MACDONALD CO. ANALYSIS & SOLUTION

When a large biopharmaceutical company decided to replace their existing Flextube boilers with those that met the BAAQMD emission regulations, they chose R.F. MacDonald Co. to supply, install and support the boiler project. R.F. MacDonald Co. installed nine Cleaver-Brooks ClearFire condensing boilers in four different research buildings. It was determined that one of the Flextube boilers would be left in each of the buildings to serve as an available backup, especially due to the young age of the boilers and their qualification for emission exemptions if only used at 10 percent of their annual capacity.

Integrated sets of Cleaver-Brooks ClearFire boilers were installed in each research building

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An integrated control system accounts for an array of operating factors to automatically control the firing of boilers in a complete system

R.F. MacDonald Co. implemented and installed a control system to monitor the hot water supply, outdoor temperature, and return temperature. Based on these variables, the control system automatically fires the boilers as a complete system. Technology in the control system determines the highest attainable efficiency level to save energy in boiler operation.

Following the installation of nine Cleaver-Brooks ClearFire boilers by R.F. MacDonald Co., emission regulations were easily met and energy savings reached over $90,000 per year

PROJECT RESULTS

R.F. MacDonald Co. performed on a compressed schedule in order to qualify the use of the Flextube backup boilers before the BAAQMD emission requirements deadline.

The ClearFire condensing boilers attained required emission standards while simultaneously conserving energy. Financial analysis shows energy savings of more than $90,000 per year from boiler operations alone, and PG&E incentives will double the first year savings. The Company was so impressed with the results of the project that they are planning to install similar systems in their other campus buildings as well.