

# JOHNSTON WASTE HEAT BOILERS: TESTIMONY TO A SUCCESS

In today's world of energy conservation, "throw away" is not an option. Johnston Waste Heat Recovery Boilers keep your energy working for you to save money and reduce environmental impact. The article reprinted below gives testimony to the success of one Johnston Waste Heat installation.

## **FOCUS** ON FACILITIES

### Wasteheat boilers save hospital \$3,000 a day

Butterworth Hospital uses steam for sterilization, heating, and hot water as well as for driving a steam absorption refrigeration unit. Until recently, this major Michigan hospital complex purchased steam output from a municipal incineration plant at a cost totaling over 51 million annually. For management, the question was not whether to find an alternative source of steam. The question was how to convert efficiently and economically.

The new Butterworth Hospital system features two Johnston RY-2 two-pass wasteheat recovery boilers reclaiming valuable energy from a solar gas-fired turbine electric generator. Operating around-the-clock, the boilers supplement the overall steam system consisting of two, 800-hp packaged firetube boilers.

"Up until the new cogen system came on line, Butterworth was purchasing nearly 50% of the steam from the municipal incineration plant," said Jim Karas, Butterworth's cogen plant supervisor. "We estimate our savings at \$3,000 per day, every day."

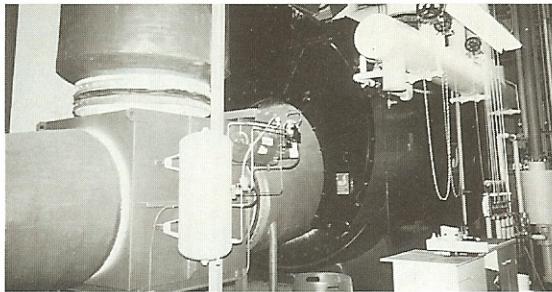
The wasteheat recovery boilers are designed to generate steam or hot water from turbines, incinerators, and industrial furnaces with

exhaust temperatures between 600°F and 2400°F. Also, they are factory-packaged to reduce field installation time and costs.

The cogeneration plant produces steam at the same pressure and tie-in as the municipi-

limits of the cogeneration systems.

"We had the two firetube boilers on line during a recent turbine washdown and they performed admirably at 30% to 50% firing rates," added Karas. "They're more than



pal source, minimizing retrofitting costs. The system operates as 115 psig during heating months and 130 psig during the cooling months (when the chilled water is needed for air conditioning).

Turbine output is 1,390°F., a level Karas believes does not allow the wasteheat boilers to operate at optimum efficiency. "If it was hotter," he explains, "we would expect more from the wasteheat boilers." The two existing boilers will get an opportunity to prove their efficiency when construction is completed on two adjacent buildings whose combined heating requirements push the design

capable of delivering the additional steam."

Karas has installed automatic reset timers on both firetube boilers that will reset the boiler after ten minutes of power loss, providing all safety requirements are met. This added feature eliminates the need for a 24 hour crew.

According to Doug Brandon WBDC, the engineering firm responsible for specifying and installing the cogeneration systems. "Our experience has shown that Johnston offers an overall high level of quality, performance and safety."

Circle 430 for more information.

# ***Butterworth Hospital Cogeneration Facility***

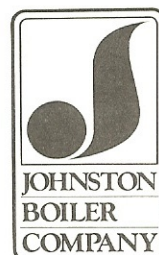
## ***Grand Rapids, Michigan***

### ***Project Design Components***

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- 4000 kW Solar Gas Turbine generator.
  - Reverse osmosis Nox control system.
  - 20,000 PPH steam output **JOHNSTON** waste heat boiler (142,000 PPH) waste gases at 956 degrees F.
  - Single flap type diverter valve.
  - 12000 Ton 2 - Stage Trane absorption chiller.
  - Two 800 HP **JOHNSTON** natural gas / no. 2 oil fired high pressure steam boilers.
  - 2400 ton Marley cooling tower with ozone.
  - Computer controlled switchgear.
  - 75 HP natural gas compressor.
  - 300 ft. utility tunnel to hospital.
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This project is just another example that Johnston Waste Heat Boilers are saving customers thousands of dollars - daily. Johnston makes waste heat boilers in one, two, and three pass configurations with design pressures up to 350 psig. Auxiliary firing options are also available. Contact your local Johnston representative on how a Johnston Waste Heat Recovery Boiler can apply to your project and ultimately, **SAVE YOU MONEY.**



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