



Main Tail Gas and Natural Gas injectors.

## **BORDEN CHEMICAL**

### **LOCATION**

Geismar, Louisiana

### **PROFILE**

Borden supplies a variety of specialty chemicals to numerous industries across the globe.

### **CHALLENGE**

Borden Chemical was searching for a way to utilize a byproduct of their industrial processes, low-BTU gas (85 BTU/cu.ft.), as a fuel source to reduce operating costs.

### **SOLUTION**

Cleaver-Brooks developed a state-of-the-art integrated boiler/burner system that utilizes low-BTU process gas available at only 1.7 psig.

### **RESULTS**

- Fuel costs are significantly reduced by firing low-BTU gas
- Custom-designed fuel train provides reliable operation with only 1.7 psig inlet pressure

# **Cleaver-Brooks Reduces Fuel Costs Significantly for Borden Chemical**

## **Cleaver-Brooks integrates innovative technology with the Nebraska watertube boiler and NATCOM burner.**

This client requested a packaged boiler / burner system that was able to burn a process byproduct (tail gas) with a relatively low heating value (85 BTU/cu.ft.). Compounding the challenges of burning this fuel was the fact that this gas was only available at 1.5 psig. NATCOM developed a burner for firing into a refractory lined chamber, using a center core tail gas stabilizer injector. A Class II natural gas ignitor was used as sustaining fuel to insure safe, stable operation when confronted with potential fluctuations in fuel BTU value and pressures. Main tail gas was injected via two separate zones to insure proper fuel/air mixing.

The burner was also provided with provisions for future natural gas firing to 100% capacity. Control strategy was fully metered, cross limited with O<sub>2</sub> trim and for natural gas and tail gas firing.

Today, Cleaver-Brooks' unique approach to this project continues to provide cost savings to the customer.





Center core stabilizer and Class II sustaining pilot.

<b>End User</b>	<b>Borden Chemical</b>
City:	Geismar
State/Province:	Louisiana
Boiler Make:	Energy Recovery International
Boiler Type:	Heat Recovery Steam Generator (HRSG)
Boiler Capacity:	32K PPH
Boiler Operating Pressure:	150 psig
Fuel(s):	Tail Gas or Natural Gas (future)
Capacity Achieved:	100%
Emissions:	Tail Gas = 30 ppm : Natural Gas = 30 ppm (Flue Gas Recirculation)
Project Jurisdiction:	Existing boiler requiring replacement, firing Tail Gas (plant by-product gas) with minimal sustaining fuel justifies capital investment for more efficient system.
Scope Supplied:	<ol style="list-style-type: none"> <li>1. Tail Gas and Natural Gas Burner with windbox</li> <li>2. New Tail Gas rack-mounted fuel trains</li> <li>3. New Fireye microprocessor-based Building Management System</li> <li>4. Engineering strategy and start-up support of customer-supplied DCS for CCS</li> </ol>

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