COEN

Clean combustion. Powerful results.

CASE HISTORY

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COEN RETROFITS BURNER WITH SUPERIOR RESULTS

SITUATION

A major Paper Mill experienced an explosion in their package boiler that damaged their existing burner and necessitated its replacement. The Mill contacted COEN to replace the burner and use as much of the original undamaged equipment as possible. The mill also desired improved performance to eliminate flame impingement on the boiler tubes, provide increased operating turndown, and greater stability of the oil flame.

Industry:	Paper Mill
Boiler:	Volcano "D" Type
Capacity:	75,000 PPH
New COEN Burner:	"Dual Air Zone" Burner
Fuels:	#6 Oil
Emission Limits:	325 ppm

COEN's New "Dual Air Zone" Burner at Paper Mill

SOLUTION

To reduce cost, COEN reused the existing windbox, fan, inlet-vane damper, and fuel piping. To improve air distribution, COEN employed CFD Modeling to design new windbox baffles.

The old existing burner lacked a refractory throat and register air adjustments. COEN supplied an adjustable louver "Dual Air Zone" burner with a shaped refractory "Fyr Form" throat to improve the oil flame shape and stability at all firing rates on this tight packaged boiler design. A fully adjustable atomizing steam valve was added to improve turndown.

RESULTS

The CFD modeling and new baffle design produced excellent airflow distribution. The "Fyr Form" throat with adjustable air louvers shaped the flame perfectly within the boiler dimensions. At startup, the burner achieved over a 13 to 1 turndown with no stability problems.

Particulate measurement showed an extremely low 21 mg/MJ (0.045 lb/MBtu), nearly half of our prediction. NOx measured 234 PPM maximum, which is way under the regulation limit of 325 ppm for heavy fuel oil.