



Boilers 1 & 2 with Autoflame and Pressure Jet Burners.

ETOSHA FISHING

CUTS FUEL BILL BY

35%

and Standardises on

AUTOFLAME®

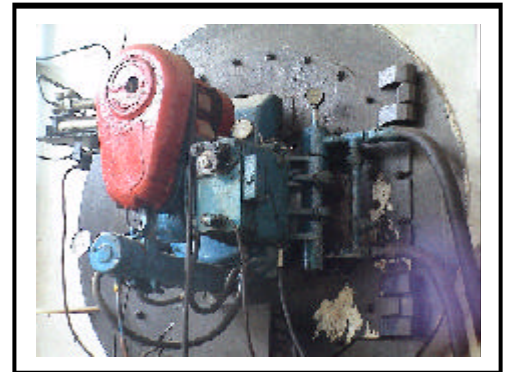
throughout their plant.

Mr Philip Conraadie, Managing Director of Etosha Fishing, Walvis Bay turned to Mark Renecke of **Rentech** with a strict brief to reduce Etosha's fuel bill, improve the plants efficiency and eliminate the persistant water level problems.

As the newly appointed **Autoflame** Technology Centre, **Rentech** could offer the perfect solution.

Of paramount importance to any combustion plant is the ability to provide precise, repeatable combustion. The existing Rotary cup burners used a single actuator to drive the primary air, secondary air and fuel regulating valve through a series of cams and linkages. The lost motion, hysteresis and slack inherent in any mechanical system resulted in varying combustion and poor setpoint control -

'the result being fuel wastage.'



Specification

AUTOFLAME

Combustion Management Systems

- Mk6 Evolution Burner Management System
- Air damper servomotor
- Autoflame 'V' slot oil valve and servomotor
- Sliding Combustion head and servomotor
- Variable speed drive control of combustion air fan
- Self adaptive UV amplification for flame safeguard
- Exhaust Gas Analysis trim, O₂, CO₂, CO & ΔT
- Modulating Boiler water level feedwater controls
- Data Transfer Interface and Data acquisition.



Boiler No.4 Burner and Control Panel

For Further Information, please contact:

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RENTECH

The **Autoflame Combustion Management System** uses a microprocessor to store paired values of fuel and air positions, and direct drive actuators to achieve an infinitely repeatable positioning accuracy of 0.1° angular.

The result is a massive fuel saving.

Being microprocessor based the Mk6 Evolution System incorporates a series of further enhancements; second setpoint control, optimum (choke) ignition position, intelligent boiler sequencing, fuel flow metering and boasts a total of 9 patents.

New to Namibia is Variable Speed Drive control of the combustion air fan, Exhaust Gas Analysis Trim and **Autoflame** fully modulating boiler feed water control.

Huge 22 kW fans supply combustion air to the burners. The fans are sized to provide sufficient air at high fire for safe, complete combustion. In reality a burner spends 80% of its life at less than 40% firing rate. At lower firing rates, the fan is pushing air against closed dampers, and in doing so consuming unnecessary electrical current. A variable speed drive allows the rpm of the fan motor to be reduced as the burners firing rate decreases. Electrical savings of 60 and 75% can be achieved. Additional benefits are reduced wear and tear on the motor, reduced electrical loading on the plant on start-up and a huge reduction in noise levels at low fire.

The existing boiler water level controls consisted of magnetic float switches set to switch the feed water pump on and off at pre-determined levels. This causes the boiler water level to fluctuate dramatically, affecting the plants ability to produce steam. Each time the feed water pump switches on; cold water is pumped into the boiler causing thermal shock. To compensate for the cool water, the burner must now ramp up to high fire, increasing the thermal loading on the boiler and forever chasing its tale as the cycle repeats itself. The **Autoflame** system uses two separate capacitance probes to continually monitor the boiler water level to within 3 mm, and by means of a modulating feed water valve, introduces just enough water to make up for the steam requirement of the process. The intelligence of the microprocessor also monitors the wave signature of the boiler, recognises foaming at peak steam draw, monitors water temperature in, steam temperate and pressure out, and by means of calculation using the heat input of the burner also displays steam production. The result is a higher quality of constant steam as the process requires it.

The **Autoflame** Exhaust Gas Analyser uses three individual sensors to sample the O₂, CO and CO contents of the exhaust gases. It continually monitors these gases with reference to the commissioned values and makes minute corrections to the air damper position to return combustion to optimum levels and thereby overcoming the everyday variations in atmospheric conditions and fuel quality.

Finally the **Autoflame** Data Transfer Interface collects up to 200 items of information from each boiler system and presents it locally on the operators PC, via the network to the Managing Director and remotely over the telephone line to **Rentech's** head office. Plant performance is monitored and trended to optimise maintenance, alarm conditions are logged with description, time and date stamp, plus reset time.



Mk6 Evolution Module



Variable Speed Drive



22kW Motor and Fan



Water Level Probes



Exhaust Gas Analyser



Data Transfer Interface