



UNITED PULP AND PAPER COMPANY, Inc

Improvement of insulation of the boiler shell/wall

SUMMARY OF THE OPTION

United Pulp and Paper Company, Inc (UPPC) is the Philippine's leading manufacturer of high quality industrial grade paper, including corrugated medium paper and liner board that are used in carton packaging products.

An assessment of the boiler showed black spots on the burner wall, high surface temperatures and damaged insulation. It was recommended to repair the damaged boiler insulation using 5-inch rockwool to cover an area of about 60 m². An investment cost of US\$ 5,872 will yield an annual savings 17,197 L bunker fuel or US\$ 3,839, which gives a payback period of 1.5 years. Greenhouse gas emission reductions would be 52 tons of CO₂ per year. However, the option will not be implemented because existing boiler will be replaced.

KEY WORDS

Pulp and Paper, Philippines, Boilers and Thermic Fluid Heaters, Insulation

OBSERVATIONS

The company's water-tube boiler has the following specifications:

- 3,540 BHP capacity, maximum design pressure of 97 bar
- Steam produced by the boiler is used mainly for drying paper sheets and for power generation
- Bunker fuel consumption is approx 180,000 liters per day of operation

During the assessment, the following was observed:

- Black spots on the burner wall of the boiler
- Temperatures measured at the burner wall were higher than surface temperatures on the other sides of the boiler. The maximum-recorded temperature at that side of the boiler was 127°C
- The insulation materials were damaged, especially at the burner side, probably causing the black spots

This resulted in heat loss and therefore reduced boiler efficiency.

OPTIONS

It was recommended to repair the damaged boiler insulation, particularly in the burner wall side. A 5-inch rockwool blanket can be used as insulation material to cover an area of about 60 m². This would lead to a reduction of the temperature of the boiler wall to 55°C, and lead to fuel reductions and an improved boiler efficiency.

However, the option will not be implemented because existing boiler will be replaced.

RESULTS



Financial benefits (expected)

- Investments: US\$ 5,672 (Php 317,625)
- Annual operating costs: not given
- Annual cost savings: US\$ 3,839 (Php 214,963, at 12.50 Php/l fuel oil)
- Payback period: 1.5 years

Environmental benefits (expected)

- Annual fuel oil savings: 17,197 liters
- Annual GHG emission reductions: 52 tons CO₂

FOR MORE INFORMATION

GERIAP National Focal Point for the Philippines

Dr. Alice B. Herrera
Officer-in-Charge, Fuels and Energy Division
Industrial Technology Development Institute
Gen. Santos Ave., Bicutan, Taguig City, Metro Manila Philippines 1631
Tel: +632 837 2071 ext 2190
Tel fax: +632 837 2071 ext 2204
E-mail: aherrera@dost.gov.ph, abherrera@pacific.net.ph

GERIAP Company in the Philippines

Mr. Luis Rolando G. Fadrigio
EVP
United Pulp and Paper Corporation, Inc.
Km. 48, Bo. Iba Este, Calumpit, Bulacan, Philippines
Tel: (63-44) 791-0949
Fax: (63-44) 202-4306
E-mail: lrfadrigio@ohinma.com.ph

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