



## ABUL KHAIR STEEL PRODUCTS LIMITED

### Leak Repair and Insulation Improvement of Steam Distribution System

#### SUMMARY OF THE OPTION

Abul Khair Steel Products Ltd (AKSP) is a newly established large metal finishing plant in Bangladesh, that produces a range of steel products, such as cold rolled (CR) coils, galvanized steel (GS) sheets and corrugated galvanized iron (CGI) sheets.

The Team observed that pipe fittings and parts of the steam pipelines were not insulated. The company partially repaired leaks and insulated 1500 m of pipelines. Costs were US\$ 1,667, annual savings US\$ 6,000 and the payback period was 3.5 months. Natural gas savings were 63,360 NM<sup>3</sup> per year, resulting in 137 CO<sub>2</sub> emission reductions. If the option would be implemented fully then savings could amount to US\$ 66,666 per year.

#### KEY WORDS

Iron & Steel, Bangladesh, Steam distribution and utilization, leaks

#### OBSERVATIONS

The following was observed during the walk-through of the plant:

- There was no insulation of steam pipe fittings and in some cases, insulation material on steam pipes were absent
- Several steam leaks were detected throughout the plant
- The surface temperature of pipe fitting and steam pipes without insulation is 180°C, which indicates a lot of energy is lost

#### OPTIONS

The Team proposed to repair leaks and insulate pipelines and pipe fittings to prevent heat loss. At time of writing, the company had partially implemented this option by:

- Insulating about 1500 m pipelines of 15 cm to 100 cm in diameter
- Repairing several steam leaks

After implementation of this option, the surface temperature of the insulated pipelines decreased from 180°C to 70°C.

#### RESULTS

The results based on the partial implementation of this option are as follows:

##### Financial benefits

- Investment: US\$ 1,667 (Tk 100,000), excluding insulation materials because the plant still had these in stock



- Annual operating cost: US\$ 167 (Tk 10,000)
- Annual cost savings: US\$ 6,000 (=  $8 \text{ NM}^3/\text{hr} \times 24 \text{ hr/day} \times 330 \text{ day/yr} = 63360 \text{ NM}^3 \times \text{BDT } 5.68/\text{NM}^3 = \text{Tk } 360,000$ )
- Payback period: 3.5 months

#### **Environmental benefits**

- Annual natural gas savings:  $63,360 \text{ NM}^3 = 23.18 \text{ K Therm}$
- Annual GHG emission reduction: 137 tons  $\text{CO}_2$  ( $23.18 \text{ K.Therm} \times 5.919 \text{ TCO}_2/\text{K.Therm}$  taken from UNEP GHG calculator: [www.unep.org/energy/tools](http://www.unep.org/energy/tools))

As mentioned earlier, this option is partially implemented and full implementation of this option, may yield following benefits to the plant:

- Investment: US\$ 10,000 (Tk 0.6 million)
- Annual savings: US\$ 66,666 (Tk 4 million)
- Payback period: 1.5 months
- GHG emission reduction: 1,545 tCO<sub>2</sub>

The company reported that it will continue with the further implementation of this option.

### **FOR MORE INFORMATION**

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