

Note on energy efficiency implementation of existing boiler at Dhampur

Introduction

The Dhampur Sugar Mills Ltd. has awarded a contract to DSCLES for performance evaluation of existing boilers and recommendation to improve the energy efficiency of Boilers. DSCL ES conducted boiler efficiency measurements on 1st to 15th March 2006. Indirect method ASME PTC 4.1 was used for the calculation and losses were identified by field measurements one reference report is enclosed.

Following steps were undertaken to improve efficiency of existing boiler

Oxygen Control: Due to heavy leakage through ducting and casing, there are very high oxygen contents in the flue gas. This is to be maintained within limit by attending the leakages & adopting routine maintenance practices.

Combustion Control: With the automation of combustion control, the fluctuation in exhaust temperature, furnace temperature and excess oxygen fluctuation will be maintained & controlled.

Exit Flue Gas Temperature: Exit flue gas temperature should be lowered to 150 Deg C by regular cleaning of APH as a standard maintenance practice or, if required, area of APH may be increased.

De-aerator Temperature Improvement: The deaerator outlet temperature of feed water should be maintained as 105 Deg C. This will improve the efficiency as well as life of the boiler.

Insulation: Insulation of the steam pipelines and deaerator to be repair/replace so that the heat loss from steam line and deaerator will be reduced. This will improve the turbine inlet temperature of steam and steam requirement in the deaerator.

After implementing the DSCL ES recommendation, DSCL ES ensured that the boiler steam raising ratio will improve from 1.75 to 2.1 and overall steam consumption will be reduced by 5 - 6%.