

Write up of projects completed in 2006-07

1. Heat recovery from RFO stream in Coker-A by steam generation @3 MT/Hr

The Residual Fuel Oil (RFO) stream from the Quench Column of Coker-A (K6) was directly routed to the existing Box Cooler @ 260 MT/Day at a temperature of around 420°C - 400°C. In the Box Cooler RFO stream was cooled by direct evaporation of raw water and finally RFO stream was sent to storage tank at around 90°C. This results in huge quantity of heat loss. The heat content in the RFO stream was remained unutilised.

To recover this unutilized heat a process scheme was developed and implemented to generate MP steam @ 3 MT/Hr (approx) by passing the hot RFO stream through a thermo-syphon type heat exchanger. The residual heat of RFO stream is utilised in a BFW heating exchanger at Coker-A. This new exchanger has been hooked up and integrated with the present available MP steam drum of Coker-A.

Investment : Rs. 106 Lakhs

Savings: 1700 SRFT/Yr which is equivalent to Rs 170 lakhs/Yr.

2. Preheat temperature improvement in DHDT by cleaning of heat exchanger

In DHDT, the fired heater duty had increased as Differential temperature across Fired heater has increased to 58°C against design of 40°C. Limitation was faced in controlling Coil Outlet Temperature and Fuel gas pressure. Increased load on furnace indicates the fouling of the exchanger in the preheat train.

Heat Transfer coefficient and fouling factor of each and every heat exchanger was calculated using Pro-II simulation. These figures were compared with design figure and Performance Guarantee Test Run figures. Abnormally high fouling was noticed in the Diesel feed vs effluent heat exchanger E-3A/B/C/D (Breach Lock). The heat exchanger was cleaned in April'06 shut down. After cleaning, the feed preheat across heat exchanger increased by 15-18°C and across fired heater it reduced by 15-18 °C , resulting into stable and steady operation of fired heater.

Investment : Rs. 25 Lakhs

Savings: 2200 SRFT/Yr which is equivalent to Rs 495 lakhs/Yr.

3. On line Insulation of 5 nos. of RCo / LSHS tanks



Energy conservation is one of the major thrust areas for reduction of overall fuel & loss, improving energy performance with respect to MBN and profitability of Barauni Refinery. Steam is used in these tanks for maintaining tank temperature to avoid congealing of viscous fluid like LSHS, Coker feed and preparation of slop tanks before feeding to units for reprocessing. The tanks were un-insulated earlier.

On line insulation of five nos. of tanks have been completed in the year 2006-07.

Investment : Rs. 76 Lakhs

Savings: 1000 SRFT/Yr which is equivalent to Rs 150 lakhs/Yr.

