

**INDIAN OIL CORPORATION LIMITED
(ASSAM OIL DIVISION)**

DIGBOI REFINERY

A BRIEF NOTE ON ' ENERGY CONSERVATION SCHEMES ' IMPLEMENRED IN 2006-07

1) REPLACEMENT OF EXISTING GLASS WOOL INSULATION OF MAIN SM HEADER WITH CALCIUM SILICATE INSULATION :

Most of the steam lines in the Refinery are insulated with Glass Wool insulation . As a part of Energy Conservation measures , the Glass Wool Insulation of main SM Header ex HRSGs was replaced with more efficient Calcium Silicate Insulation (Total length – 1.5 KM.) . This has resulted in saving of around 2.5 MT/HR of steam (1080 SRFT / year) equivalent to financial saving of around Rs.44.8 Lakhs / year against an investment of Rs. 61.5 Lakhs with a pay back period of 1.4 years . This scheme was completed in November , 2006 .

2) INSULATION OF STEAM CONDENSATE DRAIN LINES WITH SHALIKOTE COATING :

Most of the steam condensate drain lines (½ ” size) in the Refinery were bare lines and did not have any insulation and as such a huge heat loss took place from these bare lines . All these drain lines in header were insulated with Shalikote coating and this has resulted in saving of about 1.0 MT/HR of steam (490 SRFT / year) equivalent to financial saving of Rs. 20.4 Lakhs / year against an investment of Rs. 10.2 Lakhs with a pay back period of 0.50 year . This scheme was completed in February , 2007 .

3) INSTALLATION OF AUTO SAMPLER IN DIGBOI HWC CRUDE LINE FOR LOWERING ACCOUNTING LOSS :

There are two Crude pumping lines for pumping of High Wax Content Crude to Digboi Refinery by M/s Oil India Limited . While one Auto sampler was already available in Duliajan HWC Crude line , the same was not available in Digboi HWC Crude line . As a result , the water content in the Digboi HWC Crude could not be done in effective way and there was a loss in crude receipt due to inaccurate measurement of water content in the crude . The installation and commissioning of the above Auto sampler has resulted in saving of about 80 MT of crude / year (80 SRFT / year) against accounting loss which is equivalent to financial saving of Rs. 16.8 Lakhs / year against an investment of Rs. 20.5 Lakhs with a pay back period of 1.2 years . This scheme was completed in October , 2006 .

4) PHASE – II MODIFICATION IN WAX SOLVENT DEOILING UNIT (SDU) :

In order to improve the performance of SDU , Phase – II modification was carried out as per recommendation of the Process Licensor . The modification mainly consists of modification in the Wax Slurry Transfer pumps / pipings etc. which finally resulted in the reduction in

steaming of Filters and ultimately resulted in saving of around 2.0 MT/HR of steam (980 SRFT / year) , equivalent to financial saving of Rs. 40.7 Lakhs / year. This modification was completed and commissioned in April , 2006 .

5) INSTALLATION OF CBD AT PRODUCT PUMP HOUSE :

In order to pick up maximum drainage oil , generated mainly from tank draining operation , a Closed Blow Down (CBD) System was installed in the Product Pump House area . This has resulted in saving of about 100 SRFT / year which is equivalent to financial saving of Rs. 18.8 Lakhs / year against an investment of Rs. 14.8 Lakhs with a pay back period of 0.8 year . This scheme was commissioned in November , 2006 .

6) DISCONTINUATION OF OPERATION OF OLD COOLING TOWER AFTER PROVIDING ALTERNATIVE PROCESS WATER SUPPLY TO WAX MOULDING SHED :

Earlier partly the cooling water / process water requirement at Wax Moulding Shed was met from the Old Cooling Tower . After the discontinuation of operation of Wax Sweating Stoves Unit where water requirement was also met from Old Cooling Tower , the Old Cooling Tower was supplying water to Wax Moulding Shed only . As a measure of ENCON , the operation of Old Cooling Tower was discontinued by providing alternative water supply to Wax Moulding Shed Unit . This has resulted in saving in power consumption to the tune of 70 KW/ HR (255 SRFT / year) which is equivalent to a financial saving of Rs. 10.5 Lakhs / year against an investment of Rs. 1.0 Lakh . This scheme was completed in June , 2006 .

7) LAYING OFF ONE DEDICATED 3 ” AIR LINE FROM AIR SUPPLYING UNIT TO DCU TO AVOID RUNNING OF ONE ADDITIONAL AIR COMPRESSOR DURING COKE CUTTING OPERATION AT DCU :

Earlier at DCU (Delayed Coking Unit) , one additional Air Compressor was needed to be operated for about five hours a day during Coke cutting operation . With the installation and commissioning of one 3 ” dedicated line from Air Supply Station , the running of the additional Compressor could be discontinued which has resulted in saving of 45 KW/HR of power saving (155 SRFT / year) which is equivalent to a financial saving of Rs. 6.4 Lakhs / year against an investment of Rs.0.50 Lakh . This scheme was completed in April , 2006 .

8) MODIFICATION IN THE PRESSURE CONTROL PHILOSOPHY SCHEME , FROM SPLIT RANGE CONTROL TO TANDEM CONTROL , OF THREE CONTROL VALVES AT NSU :

The pressure control philosophy of three control valves at Naphtha Splitter Unit under Catalytic Reforming Unit was modified for better control from Split Range Control To Tandem Control . This has saved about 100 SRFT /year hydrocarbon gas which was otherwise going to flare . This has resulted in financial saving of Rs. 4.1 Lakhs / year without any investment .This scheme was completed in October , 2006 .

9) REDUCTION IN SM HEADER PRESSURE FROM 11.5 KG/CM2 TO 11.0 KG/CM2 :

The header pressure of SM steam was reduced from 11.5 Kg/cm² to 11.0 Kg/cm² without any problem to the processing units .This has resulted in saving of 0.2 MT/HR of steam which is equivalent to financial benefit of Rs. 4.1 Lakhs / year without any investment . This scheme was implemented in May , 2006 .

10) REDUCTION IN SL PRESSURE FROM 3.5 KG/CM2 TO 2.5 KG/CM2 :

The pressure in the SL header was reduced from 3.5 Kg/cm² to 2.5 Kg/cm² with a minor modification in the steam line at Diesel / Kero Hydrotreater .This has saved about 2.5 MT/HR of steam (1080 SRFT / year) which is equivalent to a financial benefit of Rs. 44.8 Lakhs/year against an investment of Rs. 0.20 Lakh only . This scheme was completed in June , 2006 .

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