

Barauni-Kanpur Pipeline-Indian Oil Corporation Limited- Pipelines

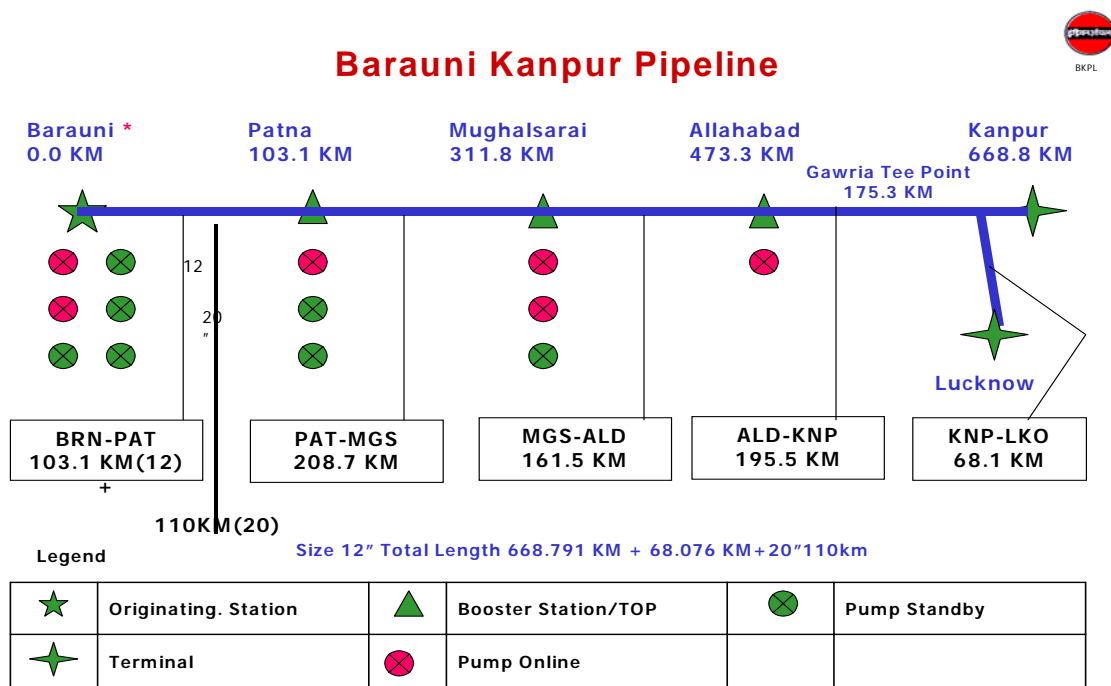
1) Unit Profile

Barauni – Kanpur Pipeline (BKPL) is a cross-country product pipeline originating from Barauni in Bihar and terminating at Kanpur/Lucknow in Uttar Pradesh (UP). Part of the Eastern Region of Indian Oil Pipeline Division, it is operated and maintained by IOCL. The annual turn over of the unit for yr 2003-04 was Rs 9218.71lakhs.

To meet the petroleum products demand of Bihar and Central & Eastern UP, petroleum products from Barauni Oil Refinery are transported through this **737 KM** long pipeline which traverses through the states of Bihar and UP. It transports High Speed Diesel (HSD), Superior Kerosene Oil (SKO), Motor Spirit (MS), Straight Run Naphtha (SRN), Mixed Run Naphtha (MRN), Mineral Turpentine Oil (MTO) Light Diesel Oil (LDO) and ultra low sulphur MS/HSD.

With originating Pump Station at Barauni ; intermediate boosting station cum Tap-off-Points (TOP) at Patna, Mughalsarai & Allahabad; and two terminal stations at Kanpur and Lucknow the transportation capacity of BKPL is presently 3.5MMTPA upto Patna and 1.8MMTPA onwards. The products from Refinery are delivered to the Marketing Division at the TOPs who in turn further transport through Road and Rail to consumption centres.

The pipe line unit follows in operation and maintenance the stringent norms for quality management and environment management systems conforming to ISO 9001:2000 and ISO 14001:1996 and is accredited to both systems. The certifications are valid for ISO 9001 till 2007 and for ISO 14001 ,till 2006.



* Presently both engine driven(3) & motor driven (3) pumps in operation

2) Energy Consumption:

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The major areas for energy management/conservation are

a) Pipeline Operation

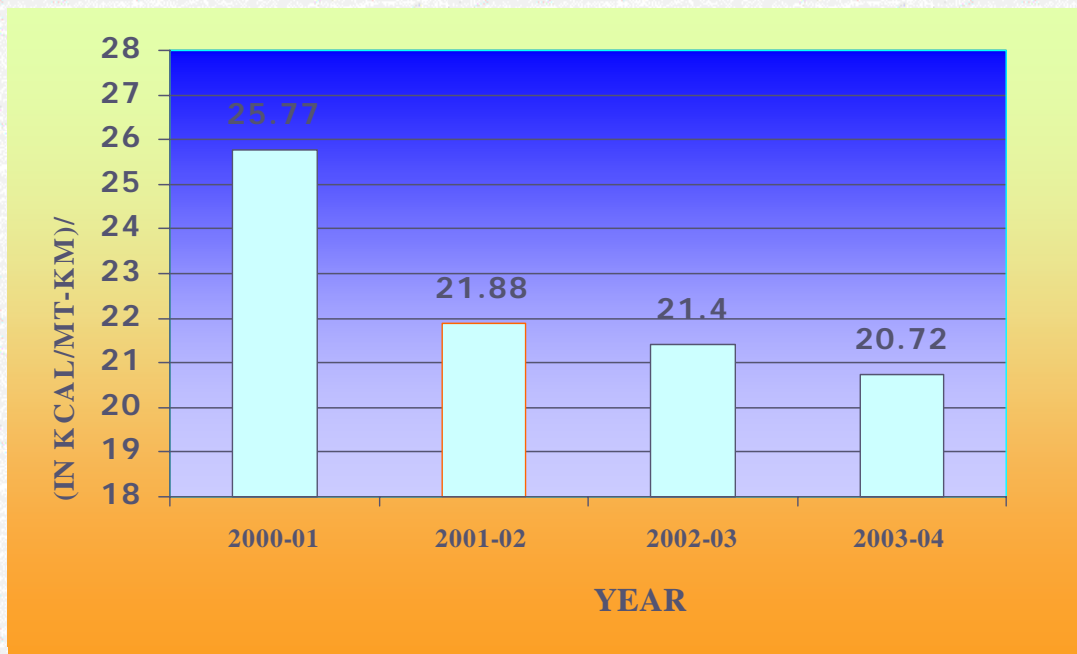
Mainline pumping units at Patna, Mughalsarai and Allahbad are diesel engine driven. At Barauni, motor driven pumping units as well as engine driven pumping units are provided. Electrical and fuel energy in pipeline transportation make for about 17 % of unit's operating cost. Mainline pumping units are accountable for about 80% of total energy consumed. There may be increase in line resistance due to deposition of debris and sludge formation leading to internal corrosion. To mitigate this problem, pigging of line section wise is carried out quarterly and corrosion inhibitor is injected in the line. It improves the line resistance.

The product pumping and delivery planning is done to optimise the pumping unit combinations at different stations.

Presently an energy factor KCAL/MT-KM is being used to monitor the energy consumption in product transportation. The targets are fixed by our head office at NOIDA based on the past performance and prevailing values for other units.

There has been continuous improvement in energy consumption.

ENERGY CONSUMPTION



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b)Maintenance of station equipments: The maintenance is carried out as per maintenance manual by in-house teams. The specific fuel consumption of mainline engines is monitored to check the fuel efficiency.

c)Cathodic protection of mainline against corrosion: The protection from corrosion of a cross country pipeline is critical to the operation of system. The mainline is protected against external corrosion by coating and impressed current through a well-designed CP system. All along the pipeline .TR units are installed at suitable intervals. The current consumption of CP units is mainly dependent upon the condition of coating along with various other factors.

There are 42 CP units and the current consumption is monitored .The values are indicative of coating conditions as well. Hence continuous plan and work for coat revisioning is done which in turn results in power saving also.

3)Energy conservation commitment, policy and organisational setup:

The vision of company is to become a major, diversified, transnational, integrated energy company, with national leadership and **a strong environment conscience**, playing a national role in oil security &public distribution”

The Quality Policy and Environment Policy emphasizes the optimization of resources and conservation of energy and environment.

To create awareness for energy conservation, Oil conservation fortnight in January is celebrated in which employees and their family members participate. With the help of Posters, Slogans and Quiz competitions an awareness of energy saving modes is created among the employees.

The energy intensive areas have been identified and various steps are being taken by unit for energy management and conservation on regular basis
Following areas are continuously monitored for energy consumption.

- 1- Pipeline throughput and energy performance as Kcal/KM-MT.
- 2- The specific fuel consumption of mainline engines.
- 3- The maintenance of station equipments in terms of equipment index (fixed at 100%)
- 4- The electricity consumption in mainline CP/RCP units.

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The Safety and performance audits and Energy audits are carried out annually. Stations plan reduction in electricity consumption by replacing the old light fittings by energy efficient fittings.

4) Energy conservation achievements:

The efforts in energy management and conservation have paid as given below;

- 1- The replacement of earlier old engines at Patna and Allahabad and installation of motor driven units at Barauni have resulted in a saving of Rs 105 Lakhs 2001-03. The energy saving achieved in pumping/throughput for 2003-04 is Rs 28 Lakhs.
- 2- Solar panels installed at CP stations mostly have not been able to function due to repeated thefts. Yet with limited availability it has improved the power supply availability to CP units.

5)Energy conservation plans and targets: Based on the internal assessments through audits and analysis, following actions have been planned for 2004-05 i.e. this year.

- 1- To plan pumping and delivery schedule along with combination of station pumping units so as to achieve the pipeline throughput energy performance target of 21.3 Kcal/KM-MT.
- 2- To replace the old mainline pumping units (engine driven) (3 nos.) at Mughalsarai by new fuel efficient units. Expected cost Rs.15.19 crores. Completion by year 2006.
- 3- The specific fuel consumption of MP-3 at Patna is higher. The study and required maintenance is planned this year. Expected cost Rs 1.5 Lakhs. Expected saving Rs 2 lakhs per annum.
- 4- Solar panels to be re-installed to substitute and reduce the electricity consumption in mainline CP/RCP units the expected cost is around Rs.10 Lakhs. Expected saving Rs 5 lakhs per annum
- 5- To install measuring devices at Barauni P/S for individual monitoring of power consumption of HT motors the expected cost is around Rs.1.5 Lakhs.
- 6- To install energy meters for lighting loads separately at all BKPL stations the expected cost is Rs.3 lakhs.

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- 7- To install fuel meters for mainline engines the expected cost is Rs.1.2 Lakhs.

6)Environment and safety:

Control and safety devices are provided to protect the pipeline against excessive pressure during normal operation. The mainline is protected against the internal corrosion by injecting corrosion inhibitor .Coating and impressed current via cathodic protection system prevent external corrosion of mainline.

Close observances of safety rules and regulation by all employees results in avoiding accidents.

In line with the environment management plan of ISO 14001, various steps are regularly taken for environment protection like tree plantation, construction of sludge pits etc.

For awareness towards Fire and Safety, Safety Committee meetings are held every month at all the installations of BKPL. Fire and safety week is celebrated to create right attitude towards safety. Fire fighting/first aid trainings are given to all employees.

To prepare the employees, to cope up with the fire accidents/exigencies in stations and mainline, regular on site and off site drills are conducted.

A detailed disaster management plan for all the stations of unit and specific contingency is kept at stations and is followed by all concerned.