

(I) UNIT PROFILE

Bongaigaon Refinery & Petrochemicals Limited was set up as a Government of India undertaking in February 1974. Government of India disinvested its entire shares holding (74.46%) in BRPL in favour of Indian Oil Corporation Limited (IOCL) w.e.f 29.3.2001. With sustained growth, BRPL has consolidated itself as a vibrant business organization in the entire country, and more particularly in the North-East.

BRPL is in the business of refining crude oil for production of petroleum fuels and other value added petrochemicals. The Refinery sector has a capacity to process 2.35 million tonnes of crude oil per annum. It produces various types of domestics, industrial and automotive fuels.

The Refinery was designed to process 1.0 million tonnes per annum of Assam Crude Oil. The processing capacity of the Refinery was augmented to 2.35 MMTPA by debottlenecking the Crude Distiller Unit-I in March 1987 and commissioning of new Crude Distillation Unit (CDU-II) in May 1995. The Refinery Complex consists of Crude Distillation Unit-I & II (CDU-I & II), Delayed Coking Unit-I & II (DCU-I & II) along with Naphtha Splitter and LPG Recovery unit. It has also a Coke Calcination Unit (CCU) for the production of Calcined Petroleum Coke (CPC).

The basic unit of Petrochemicals sector is a Xylene plant of 107,000 tonnes per annum naphtha processing capacity. The Para-Xylene produced in the Xylene plant is further processed in the DMT plant. The major part of DMT produced was consumed for production of various grades of Polyester Staple Fibre (PSF) in the PSF plant.

The three major projects which are under implementation in BRPL are '**Diesel Hydrotreatment (DHD) project**' – to meet the Euro-III/IV quality specification of Diesel fuel, '**MS Maximisation Project**' – to increase the production of high value Motor Spirit, '**MS Quality Improvement Project (MSQ)**' – to achieve the Euro-III quality specification of Motor spirit .

The project which is under consideration is the **INDMAX Project**. This project will help to eliminate the demand limited black oil products and helps in converting them to high value lighter products viz- LPG & MS.



(II) ENERGY CONSUMPTION:

BRPL is putting continuous efforts on Energy conservation through continuous monitoring and control of operational activities.

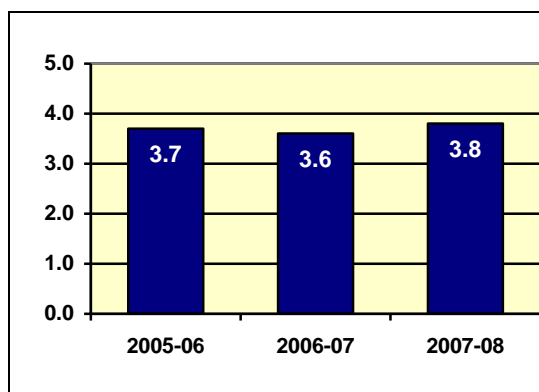
The fuel consumed in the entire complex is the combination of the liquid fuel oil and the fuel gas generated from the different units of the refinery sector.

The various energy parameters for the past three years are given below:

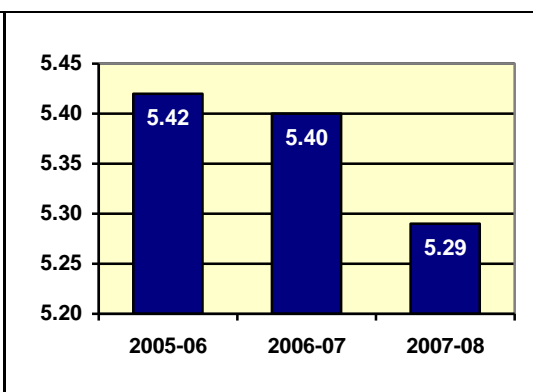
Sl. No.	Parameters	2005-06	2006-07	2007-08
(1)	Fuel & Hydrocarbon Loss:			
	Fuel,% on crude	5.18	5.17	5.09
	Hydrocarbon Loss,% on crude	0.24	0.23	0.20
	Fuel & Loss,% on crude	5.42	5.40	5.29
(2)	Sp. Energy Consumption (MBTU/BBL/NRGF)	92.1	91.1	90.4
(3)	Specific Power Consumption			
	Kwh/ MT of crude	33.80	33.34	32.73
(4)	Sp. Thermal Energy Consumption			
	Million Kcal/MT of crude	0.4213	0.4189	0.4147
(5)	% Capacity Utilisation	100.3	88.0	85.9

Graphics in the areas of energy & loss is given below:

Energy Cost as % of manufacturing cost

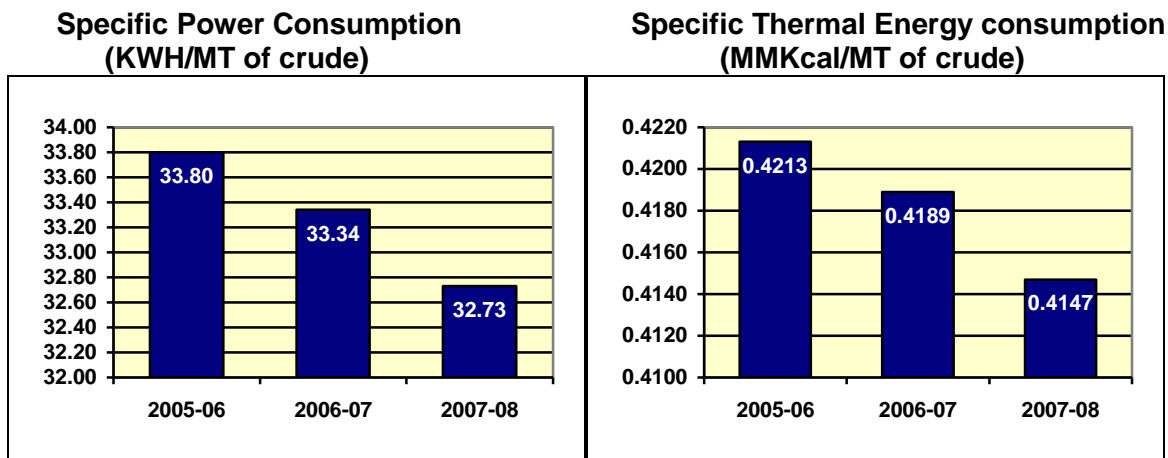
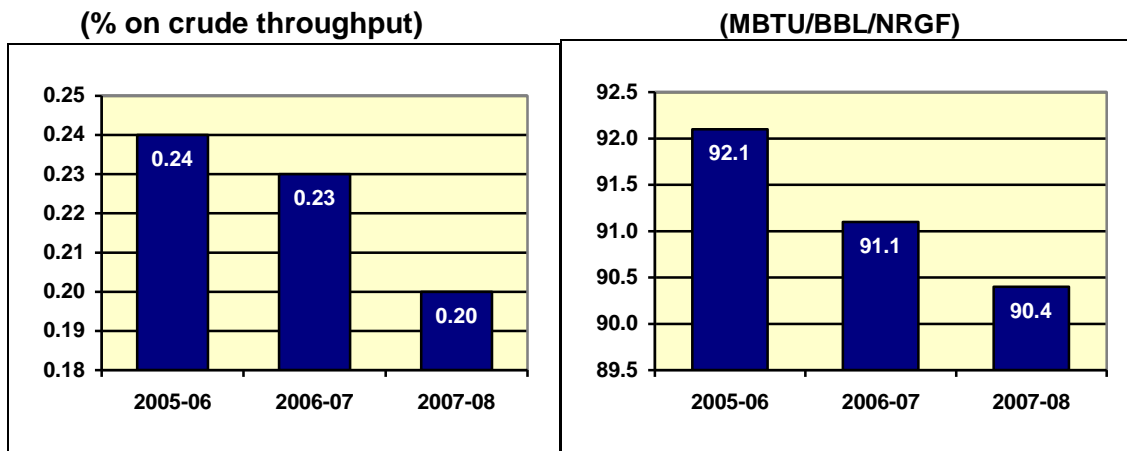


Fuel & Hydrocarbon Loss,% on crude



Hydrocarbon Loss

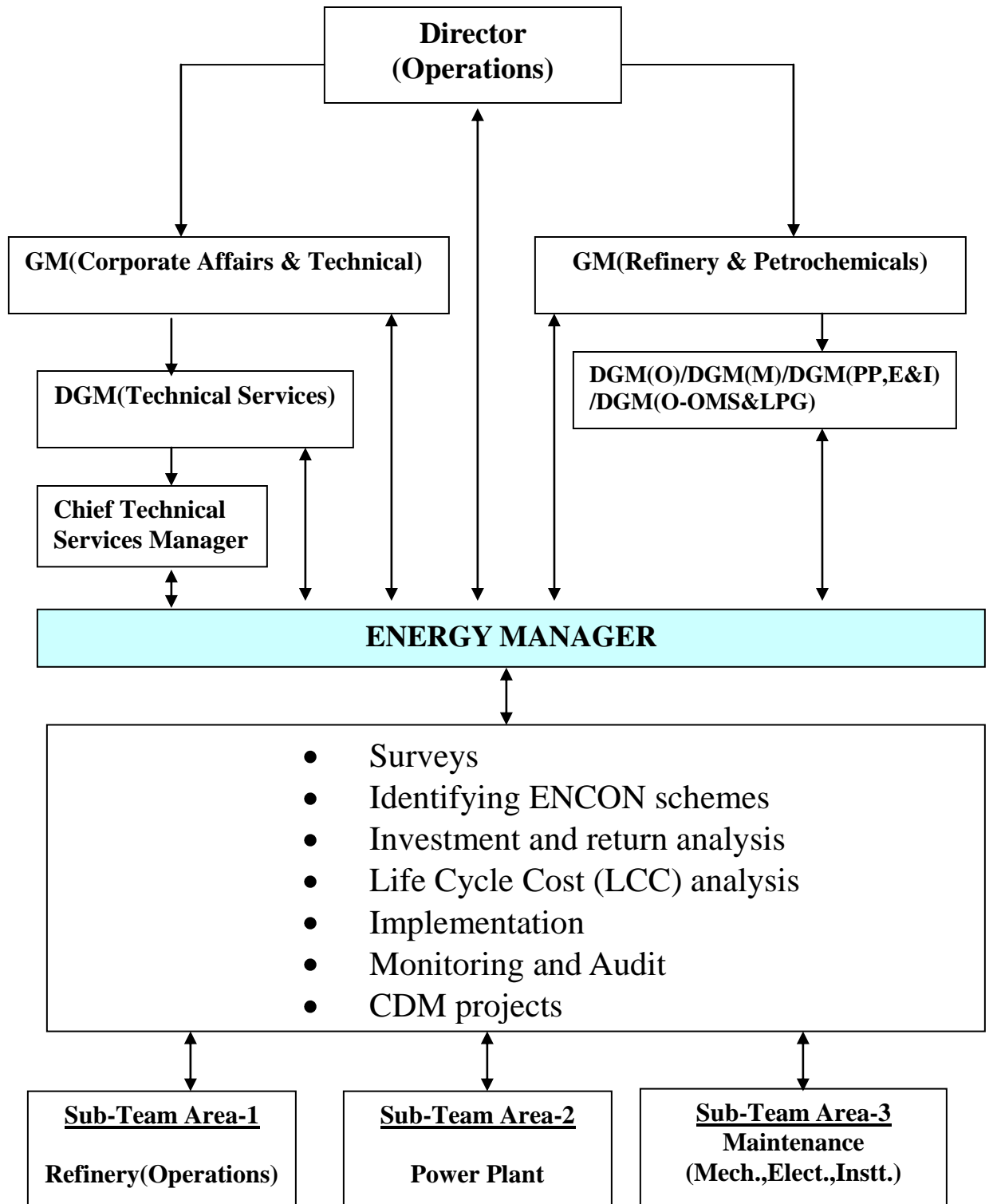
Specific Energy Consumption



(III) ENERGY CONSERVATION COMMITMENT, POLICY AND ORGANISATIONAL SET UP:

BRPL continued its efforts on energy Conservation through continuous monitoring and control of operational activities and implementing new energy conservation schemes. The fuel & loss, Hydrocarbon loss, Specific energy consumption in terms of MBTU/BBL/NRGF, Specific Power Consumption and Specific Thermal Energy Consumption during the year 2007-08 was the lowest ever against the previous years inspite of lower capacity utilisation.

Energy Conservation Team structure:



The monthly energy & loss performance is being reviewed in the Functional Review Meeting (FRM) being chaired by MD and attended by functional Directors, GM, DGMs and HODs. Presentation is made on the energy & hydrocarbon loss performance and status of ENCON projects.

Energy Management Cell of BRPL has a dedicated Certified Energy Manager who is responsible for the energy management activities of company.

BRPL has adopted its Energy Management Policy on 27.04.2004. (The copy of the same is enclosed).

ENERGY MANAGEMENT POLICY

Bongaigaon Refinery & Petrochemicals Ltd. is committed to utilize various forms of energy in a cost effective and efficient manner in order to conserve energy resources for a cleaner environment.

To achieve the above goals, we will:

- Adopt cleaner, energy efficient and cost effective technologies.
- Carry out periodic internal & external energy audits to identify areas for improvement.
- Set norms for energy consumption and continuously compare with the best in the world and endeavour to reduce the gap.
- Monitor and control energy consumption through effective information system and periodic reviews as well as to take suitable measures in order to ensure continual improvement.
- Promote energy conservation awareness amongst our employees.

(IV) ENERGY CONSERVATION ACHIEVEMENTS:

Various energy conservation measures have been adopted in the plants/processing complex to make the operations more efficient. The details of energy saving is enclosed against Sl. No (16) Energy conservation measures taken during the year 2007-08 is given below:

Surveys:

1. Furnace/ Boiler efficiency survey was conducted on weekly/monthly basis.
2. Preheat train survey of refinery units was conducted on daily basis. Actions were taken to improve the preheat temperature.
3. Furnace efficiency related parameters were monitored on daily basis and accordingly corrective actions were taken to improve the furnace efficiency.
4. Cooling Tower Survey was conducted on monthly basis and corrective actions were taken to improve the cooling tower performance.
5. Quarterly System Audit of Steam & Condensate Recovery System was conducted by the in-house team to identify the improvement in the area of steam consumption & recovery of condensate.
6. Quarterly System Audit of crude receipt operation covering tank gauging, sampling, auto sampling operation, testing and accounting procedure was conducted by the in-house team to identify the improvement in the hydrocarbon loss.
7. Quarterly System Audit of product operation covering tank gauging, sampling, testing, water draining and accounting system was conducted by the in-house team to identify the improvement in the hydrocarbon loss.
8. Oil & Gas Conservation survey in the areas of Furnace/Boiler efficiency and Furnace/Boiler Insulation effectiveness survey, organized by Centre for High Technology (CHT), was conducted by external members during 21-25th January, 2008.
9. Under the Leak Detection and Repair programme (LDAR), Quarterly Fugitive Emission Survey was carried out.

Operational measures:

1. One STG, One 5.0 MW DG set & Two Boilers were in operation for 68 days instead of operation of 2 STG & 3 Boilers on account of lower power & steam demand leading to the fuel savings of 1151 tonnes per annum equivalent to Rs. 219.80 lakh per annum.
2. Optimisation & reduction of stripping steam to LGO & HGO strippers of DCU-I was done without affecting the flash point & other qualities of the product. Steam flow reduced from 150 kg/hr to 50 Kg/hr, leading to the steam savings of 200 Kg/hr for both the strippers .The equivalent fuel savings is 125 MT per annum equivalent to Rs. 23.89 lakh per annum.
3. Out of 4 nos. of Fin-fan air cooler fan (14-E-005) of Fractionator overhead column (14-C-002), 1 Fin-Fan cooler fan has been stopped in both DCU-I & DCU-II during the month of November to February due to lower ambient temperature. This has led to the fuel savings of 34 MT per annum equivalent to Rs. 6.45 lakh per year.
4. Out of 3 nos. of Fin-fan air cooler fan (14-E-017) of Coker Naphtha product (bottom of 14-C-006), 1 Fin-Fan cooler fan has been stopped in both DCU-I & DCU-II during the month of November to February due to lower ambient temperature. This has led to the fuel savings of 17 MT per annum equivalent to Rs. 3.23 lakh per year.
5. Running of one no. of FD fan instead of two nos. in CDU-II furnace leading to the fuel savings of 81 MT per annum equivalent to Rs. 15.43 lakh per annum.
6. Insulation of 260 Nos of steam condensate drain line was done in the refinery(REP) offsites area leading to the fuel savings of 53 MT per annum equivalent to Rs. 10.07 lakh per year.

(ii) The following energy conservation schemes were commissioned during the year 2007-08:

1. Revamp of Delayer Coking Unit-I furnace was carried out during Apr-May,07. The following ENCON schemes were implemented to improve the overall DCU-I furnace efficiency:
 - (a) Addition of two additional rows (16 Nos. of tubes) in the reaction section of convection zone.
 - (b) Replacement of existing 48 nos. of burner with low excess air burner.
 - (c) Replacement of refractory lining with Ceramic Fibre (CF) module in the radiation zone (all walls and arch).
 - (d) Replacement of peep hole doors (48 Nos) with self closing sight glass with vacuum formed CF block & pyrex glass in radiation zone.
 - (e) Repair of existing 16 Nos. of sootblowers from air driven motor to electrical driven motor with PLC control.

The estimated fuel savings on account of all the above ENCON measures in DCU-I furnace is 2127 tonnes per annum equivalent to Rs. 406.38 lakh per annum.

2. Re-insulation of RCO tank (802) was completed in Feb,08. The estimated fuel saving is 267 tonnes per annum equivalent to Rs. 50.92 lakhs per year.
3. Replacement of all the existing 6 nos of sootblowers in CDU-I furnace with new sootblowers having PLC control was completed in Jun,07. The estimated fuel saving is 77 tonnes per annum equivalent to Rs. 12.49 lakhs per year.
4. Replacement of refractory lining of radiant and arch area with Ceramic Fibre (CF) module in the Reformer furnaces (22-F002 & 22-F-003) was done in Dec-Jan,08. The estimated fuel saving is 112 tonnes per annum equivalent to Rs. 21.46 lakhs per year.

5. Re-insulation of heat exchangers/vessels/process lines with improved quality of insulation material (Perlite) was done in the refinery units CDU-I, CDU-II, DCU-I and DCU-II during 2007-08. The estimated fuel saving is 274 tonnes per annum equivalent to Rs. 52.29 lakhs per year.

ENERGY CONSERVATION AWARDS:

Sl.No.	Year	Awards
(1)	1990-91	1 st prize from MOP&NG for achieving the "Best Improvement in Energy Conservation" amongst refineries.
(2)	1993	"National Energy Conservation Award, 1993" - First prize in the Petrochemicals Sector, Instituted by the Ministry of Power.
(3)	1993	1 st prize from MOP&NG for achieving "Minimum Steam Leaks" amongst refineries.
(4)	1993-94	Jawaharlal Nehru Memorial National Award, Instituted by the International Greenland Society, Hyderabad, for the "Excellent Performance in the Energy Conservation".
(5)	1996	1 st prize from MOP&NG for "best performance in Furnace/Boilers efficiency" amongst refineries.
(6)	2001-02	2 nd prize from MOP&NG for "Best Improvement in Energy Conservation" amongst refineries.
(7)	2002	1 st position declared by CHT, MOP&NG for "best performance in Furnace/Boilers efficiency" amongst refineries.
(8)	2003	Oil Conservation Award by PCRA during OCF, 2003 for "Exemplary work in Energy Conservation under the Large Project Category".
(9)	2004	2 nd prize from MOP&NG in the area of "Furnace/Boiler efficiency" amongst refineries of country.
(10)	2004-05	1 st prize from MOP&NG for "Best performance in Specific Energy Consumption" under Group-II category of refineries having NRGF less than or equal to 4.0.
(11)	2005	3 rd Prize from MOP&NG for achieving "Minimum Steam Leaks" amongst all 17 refineries of country.
(12)	2007	1 st Prize from MOP&NG for achieving the "Minimum Steam Leaks" amongst 17 refineries of country. The award was presented on 20.09.07 by Hon'ble Minister of Petroleum & Natural Gas.
(13)	2008	2 nd Prize from MoP&NG in the area of "Furnace/Boiler Insulation Effectiveness" amongst 18 refineries of country based on the Oil & Gas Conservation Survey-2008 conducted by Centre for High Technology (CHT). The award was presented on 24.07.08 by Secretary, P&NG.

(V) ENERGY CONSERVATION PLANS AND TARGETS:

BRPL is committed for improvement in the energy conservation areas. The various ENCON projects under implementation is given below:

Sl. No.	Energy Conservation measures under implementation/planned	Expected completion year
(1)	Reuse of steam condensate from LPG reboilers in both Delayed Coking Unit (DCU-I & II) for steam generation instead of sending to DM water tank of CPP.	2008-09 (implemented)
(2)	Addition of two additional rows in the convection bank of DCU-II furnace	2008-09 (implemented)
(3)	Ceramic fiber (CF) module (end walls of radiation wall & radiant arch in DCU-II furnace)	2008-09 (implemented)
(4)	Replacement of existing burners of one Boiler with low Nox burners.	2008-09
(5)	Installation of variable speed drive in FD fan of Boiler # 2&3.	2008-09
(6)	Reinsulation of 1 nos of RCO tanks (Phase-II)	2008-09

(7)	Steam condensate recovery from steam tracers in Refinery units, Captive Power Plant, Offsites, Tank farm areas etc.	2008-09
(8)	Replacement of Process steam line insulation with better insulation material (Phase-II)	2008-09
(9)	Additional Unit Oil Separator (UOS) to recover oil from the tankage areas	2008-09
(10)	Auto decantation valve Phase-III	2008-09
(11)	Flare Gas Recovery System (FGRS)	2008-09

Total investment on the above scheme is Rs. 18.19 crore. All the projects are in the advance stage of implementation.

Target

Sl. No.	Year	Fuel & Loss, (% on Crude)
(1)	2007-08 (base year)	5.29
(2)	2007-08	5.24
(3)	2008-09	5.19

(VI) ENVIRONMENT & SAFETY:

ENVIRONMENT:

BRPL gives highest priority for environmental protection and conservation and is committed for continual improvement in its environmental performance. BRPL has a well-established Environmental Management System (EMS). It is an ISO-14001, 2004 certified Company for its Environment Management System.

Constant monitoring of environmental parameters of plant effluent, emission at work and habitation area is being done to ensure that ambient air emission and quality of treated effluent is well within the limits specified by the statutory bodies. BRPL has not received any complaints relating to environmental issues either from the public or from any statutory agencies.

The waste generated from the complex is disposed in accordance with the Hazardous Waste (Management & Handling) Rules-1989 as amended.

BRPL reuses treated effluent after tertiary treatment for cooling tower makeup and as fire fighting water inside the complex as well as project construction site water. Sewage of township is also treated along with plant effluent in the effluent treatment plants.

BRPL has achieved a rare distinction of near zero discharge status through its efficient effluent management. 95% of the effluent water generated in the complex is reused in the plants and rest 5% is used for gardening purpose. Due to reuse of treated effluent, BRPL could significantly reduce the ground water consumption for the complex of the Company, achieving virtually zero discharge in the non-monsoon period.

BRPL is carrying out fugitive emission survey for detection of hydrocarbon leaks in the plant area and takes corrective action for rectification, if any leakage is detected, in accordance with proposed CPCB guidelines under the Leak Detection and Repair programme (LDAR). To ensure work area quality and health of equipments, quarterly noise surveys are being conducted in the plant areas. BRPL has also developed 'Rain water Harvesting'. For maintaining transparency among masses, 'LED Displays' for indicating 'Treated Effluent Quality', 'Stack emission data for all the furnace stack' and 'ambient air quality data' have been installed at the main gate of the plant complex.

About 40% of the complex is under green cover. The Ecological Park inside the plant area serves as an excellent habitat for a variety of plants, birds and aquatic lives.

ENVIRONMENT AWARDS:

SI.No	Year	Awards
(1)	2002-03	BRPL received Rajiv Gandhi Jathiya Paryavaran Gold Award, 2002-03 for Excellence in Indian Industries for “best Pollution Control Implementation”.
(2)	2003-04	BRPL received Greentech Environment Excellence Award (Gold Award) for the year 2003-04 in Petroleum Refinery sector for “outstanding achievement in Environment Management”.
(3)	2004-05	BRPL received Greentech Environment Excellence Award (Gold award) for the year 2004-05 in Petroleum Refinery sector for “outstanding achievement in Environment Management”.
(4)	2007	BRPL received the “Greentech Environment Excellence Gold Award -2007” for its outstanding achievement in Environment Management in Petroleum Refinery Sector on 29 th August, 2007.
(5)	2008	BRPL received the “Greentech Environment Excellence Gold Award -2008” for its outstanding achievement in Environment Management in Petroleum Refinery Sector on 05.09.2008

SAFETY:

BRPL is concerned and committed for the safety of its employees, equipment and materials. Safety activities are aimed at achieving credible safety performance at work by individual employees as well as contract laborers. BRPL did not have any **Lost Time Accident (LTA) since 24.02.2002 and achieved continuous 2,228 days (24.5 million man-hours) without any lost time accident as on 31.03.2008**, which is the longest LTA free period ever achieved by BRPL.

To eliminate accidents of all kinds, a new system and criteria for identification of near-miss incidents have been introduced and preventive actions initiated to prevent their occurrence.

To enhance the safety awareness among the employees, training and educational programmes were regularly conducted. Safety training was given to substantial numbers of contract workers, contract supervisors, and drivers. Safety Training certificates were issued to them and these were linked with the Gate entry passes. This is in addition to the training imparted to the employees of the Company.

SAFETY AWARDS:

SI.No	Year	Awards
(1)	2002-03	BRPL received the “Oil Industry Safety Award”, 2002-03 -Third best overall Safety performance award amongst Refineries by Ministry of Petroleum & Natural Gas.
(2)	2004	National Safety Award for “Longest Accident Free Period” for the year 2004. The award was instituted by Ministry for Labour & Employment. The award was presented on 07.09.05.
(3)	2004-05	BRPL received the Greentech Safety Silver Award for the year 2004-05.
(3)	2005	National Safety Award-2005 for outstanding performance in Industrial Safety during the Award year 2005 in achieving “Lowest Average frequency Rate” by Ministry for Labour & Employment.
(4)	2005	National Safety Award-2005 for outstanding performance in Industrial Safety as runner-up during the Award year 2005 in achieving “Accident Free Year” by Ministry for Labour & Employment.
(5)	2006	BRPL received the “National Safety Awards” – Winner under scheme-I for “ Lowest Average Frequency Rate” from Ministry of Labour and Employment, Govt. of India. The award was presented on 24.09.07 by Hon’ble Minister for Labour & Employment.
(6)	2006	BRPL received the “ National Safety Awards” – Runners up under scheme-II for “ Accident free year-2005” from Ministry of Labour and Employment, Govt. of India. The award was presented on 24.09.07 by Hon’ble Minister for Labour & Employment.
(7)	2006	BRPL has been awarded the “Prashansa Patra” for its safety performance during the year 2006 by the “National Safety Council”. The award was given on 07.12.2007.

(8)	2008	BRPL received the Greentech Safety Gold Award-2008 for outstanding performance in safety.
(9)	2007	BRPL received the National Safety Award on 17.09.08 as Winner under scheme no.1 and runner-up under scheme no.II for the performance year 2006 from the Ministry of Labour & Employment.

ISO CERTIFIED MANAGEMENT SYSTEM:

BRPL is effectively maintaining the integrated Safety, Health and Environmental Management System conforming to the international standards ISO 14001:2004 & OHSAS 18001:1999 apart from continuing the international Quality Management System Standard ISO 9001:2000. All the three certificates have been awarded by M/s DNV and the system compliance is being verified by them periodically.

TPM IMPLEMENTATION:

BRPL has implemented Total Productive Maintenance (TPM) in its plants. TPM is also under implementation in office areas. . After implementation of TPM, appearance of the plants 7 office premises and performance of equipments & units as a whole has improved to a large extent.

(21) Whether any dispute pertaining to statutory requirements of safety and pollution control is pending with any Government agency. If yes give details.

Ans. There is no dispute pertaining to statutory requirements of safety and pollution control is pending with any Government agency.