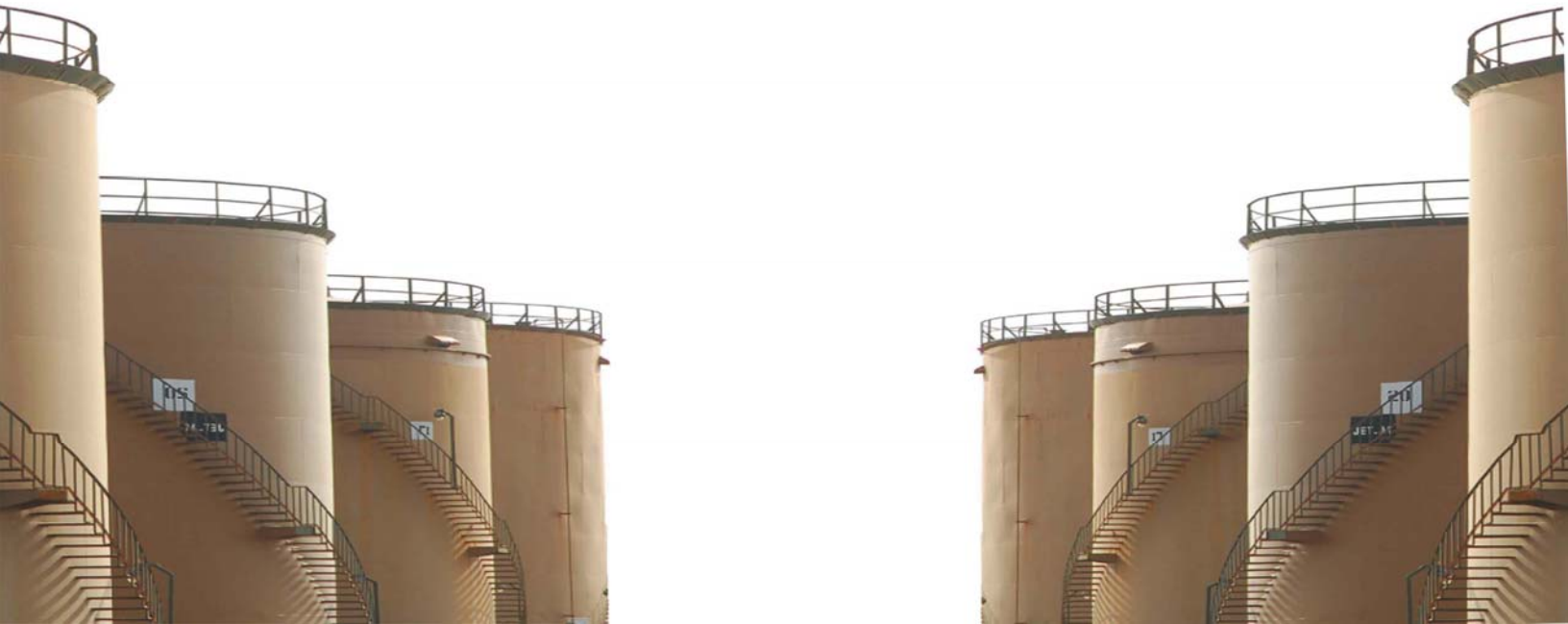
Sustainability Report 2007

PRL

PAKISTAN REFINERY LIMITED

Table of Contents

- Executive Summary ---------- 01
- Message From MD & CEO ----------02
- Organization Profile----------05
- Scope of Report----------23
- Process Assessment---------- 25
- Corporate Governance----------41
- Sustainability Related Polices---------- 51
- Management Systems & Procedures---------- 65
- Stake Holder's Engagement---------- 79
- Performance and Compliance---------- 87
- Targets and Objectives----------111
- Accreditation---------- 121
- Feedback Form----------124



Executive Summary

Sustainability Report 2007 outlines Pakistan Refinery Limited's (PRL) performance when viewed through the lens of HSEQ, Economic & Social Policies. PRL is a hydro-skimming refinery with a refining capacity of 50,000 barrels per day. Refining process details (specified in the report) form the basis of our Management System and other monitoring and reporting requirements. As part of this management system various Key Performance Indicators (KPI's) are set and monitored on an annual basis. These KPI's range from refinery emissions to effluents to economic and social performance. The projects that enable us to meet these metrics are also tracked as part of this effort.

An Environmental Process Review was performed during the year. This review evaluates numerous aspects of our refining process with regard to their environmental impact. The resulting recommendations, along with our Internal Compliance Audit, enabled us to make our operations even more environmental friendly during the current year and have also set the basis for items to focus on in 2008.

The Company's corporate governance model continues to guide all facets of our business. Commitment to our mission of 'remaining a leader in the oil refining business of Pakistan' was demonstrated by our robust financial performance during the first quarter ended September 30, 2007.

PRL is actively engaged with the local community, playing its role as a responsible corporate citizen. In 2007, the Company invested Rs.11.8 million in numerous meaningful community projects. With PRL's assistance a non-invasive cardiology lab is being established at Indus Hospital, Korangi. This hospital is one of the largest charitable entities in the area serving the medical needs of the local community. PRL also took the lead in helping families affected by torrential rains during the month of July 2007. Medical and food supplies were generously provided to communities living in slum area of Ibrahim Hyderi, worst hit by the rain.

For year 2007, by and large the company has either met or exceeded targets set by the Management System. A comparison with performance in 2006 is also presented; which demonstrates a trend of gradual improvement. Most noticeable is the decrease in emission of VOC's, resulting from design upgrades in various tanks. Many of objectives have been completed and the remaining ones are making satisfactory progress. The PRL Upgrade Project, mandated by environmental regulations is also on track. The Company will make a significant capital investment over the life of this project.

An important component of Management System is Contractor Management. This ensures that, not only PRL employees and assets are protected, but the people working for us in various capacities also remain safe. Significant emphasis was placed in educating and training contractors on HSE policies, so that they could perform their jobs in a safe and environment friendly manner. PRL is also well aware of its legal obligations and has a sound Crisis Management Plan to cater to all possible emergencies related to its activities in the area.

Message from MD & Chief Executive

At a global level, 2007 witnessed several high profile events related to environment. These events ranged from the first ever Nobel Peace Prize awarded for creating awareness on global warming to the UN's conference on Climate Change in Bali, Indonesia, with special emphasis on moving forward the Koyoto Protocol's agenda.

All these global events, either directly or indirectly, impact our business locally. New regulations and guidelines, direct national governmental regulations and policies; challenge us to further reduce our Ecological Footprint. I take immense pride in sharing that Pakistan Refinery Limited has played its part in addressing several global environmental concerns. Technological upgrades and design changes in the Refinery have significantly reduced VOC's emissions, in comparison to emissions in the corresponding period last year. Slight improvement in the energy index was also noted during the year.

Our strong commitment to HSE is further demonstrated by several HSE related awards received during the year. A safe and healthy working environment ensures that we are aligned with our vision "to be the refinery of first choice for all stakeholders". In early 2007, we also achieved 12.8 million man hours without Lost Time Injury; the highest since the start of man hour tracking in 1995 - a big milestone for the company. However, at the same time we are deeply saddened by an unfortunate incident, resulting in a contactor employee fatality. The company has learned from this incident and has significantly increased its focus on shaping behaviors by routine *Safety Talks* and in identifying & narrowing gaps between the required & actual performance.

The Company demonstrated strong financial performance during the current fiscal year. Earnings for the first quarter (ended September 30, 2007) were at Rs. 413 million (pre-tax profit), compared to a loss of Rs.586 million during the corresponding period last year. Share prices of the refining sector displayed an upward trend as well; this was attributed primarily to strong global refining margins.

Strong performance was also witnessed in other components of operational excellence.

The successful turnaround in August 2006 enabled us to see operational benefits in the following year as well. The effort resulted in enhancing several aspects of reliability, including the overall Mean Time Between Failure, which has shown an upward trend.

PRL is dedicating significant resources to the Upgrade Project, which will reduce sulphur content in High Speed Diesel to meet new environmental regulations. The project has an economic component as well; increasing refinery profitability by modifying the end-product mix.

Corporate Social Responsibility was at the forefront of our interaction with the local communities. Financial aid, equipment and supplies were generously provided to various hospitals, schools and charitable organizations. Donations were also made for road repair work. Torrential rains in the city during the month of July, added another dimension to challenges faced by the local community. The Company responded by helping numerous rain effected families in the city and outlying areas.

We continue to invest in training human resources on various HSE, Engineering and Operational aspects. We strongly believe that our employees are our greatest asset and investment in human capital will help us stay safe, develop new business strategies and optimize our existing assets.

Message from MD & Chief Executive – Cont…

Upholding the PRL reputation is paramount. We are judged by how we act. Our reputation will be upheld if we act with honesty and integrity in all dealings and we do what is right at all times within the legitimate role of business.

Pakistan Refinery Limited has as its core values honesty integrity and respect for people. The Company also firmly believes in the fundamental importance of the promotion of trust, openness, teamwork and professionalism, and takes pride in what it does. Our underlying corporate values determine our principles. These principles apply to all transactions, large or small, and describe the behavior expected of every employee in the Company in the conduct of its business. In turn, the application of these principles is underpinned by procedures within Pakistan Refinery Limited which are designed to ensure that its employees understand the principles and that they act in accordance with them. We recognize that it is vital that our behaviors match our intentions.

All the elements of this structure - values, principles and the accompanying procedures are necessary. We recognize that maintaining trust and confidence of all stakeholders i.e. shareholders, employees, suppliers, customers including people with whom we do business as well as the communities in which we work, is crucial to the company's continued growth and success.

We intend to further consolidate this trust by conducting ourselves according to the standards set out in our principles. These principles have served the Company well since many years. It is the responsibility of management to ensure that all employees are aware of these principles, and behave in accordance with the spirit as well as the letter of this statement.

I applaud all PRL employees for their commitment in 2007 and wish you a safe and healthy 2008.

Sincerely,

Z. Haleem

Organization Profile

- *Board of Directors*
- *PRL Management Team*
- *Company Profile*
- *Overall Operational Network*
- *Process Summary*
- *Occupational Health & Safety Management*

Chairman - Pakistan Refinery Limited

Mr. Farooq Rahmatullah

Mr. Rahmatullah is a law graduate from University of Peshawar. He joined Burmah Shell Oil and Distribution Company in 1968 and worked in different capacities i.e. Chemicals, Human Resources, Marketing, Supply, Distribution, Retail, etc.

Transferred to Shell International London in 1994, Mr. Rahmatullah was appointed as a Manager in the Business Strategy Division and was involved in various portfolios covering over 140 countries. On his return in 1998, Mr. Rahmatullah was appointed as Head of Operations of Shell Pakistan and was looking after Middle East and South Asia (MESA).

In 2001, Mr. Rahmatullah was appointed as Chairman of Shell Companies in Pakistan and Managing Director of Shell Pakistan Limited. He has been a founding member of PAPCO (Pak Arab Pipeline Company). He retired from Shell on 30th June, 2006. Mr. Rahmatullah has been Chairman of Pakistan Refinery Limited (PRL) since June, 2005. In addition to this, he is currently the Director General of Civil Aviation Authority of Pakistan. He is also the Chairman of LEADS Pakistan, founding member of Pakistan Human Development Fund, Director on the Board of Society for Sustainable Development, member of Resource Development Committee of Aga Khan University Hospital, member of National Commission of Government Reforms, member of Pakistan Stone Development Company, and member of Board of Trustees of Legends Trust formed by the Government of Sindh.

Board of Directors

Mr. Zaiviji Ismail Bin Abdullah

Mr. Ismail, an MBA from Cranfield UK, joined Shell Malaysia Trading in 1990 as Project Manager, Marketing Systems. He served in various positions in Marketing, Operations and Retail with Shell Malaysia Trading. He has also served as GM Retail Sales and Operations in Shell Oman from 1999 to 2002. He moved to Shell Pakistan Limited in 2003 as GM Retail Sales and Operations and is currently serving as Chairman of Shell Companies in Pakistan and Managing Director of Shell Pakistan Limited since September 2006.

Mr. Asif S. Sindhu

Mr. Sindhu is a fellow member of the Institute of Chartered Accountants, with over 20 years of diversified financial experience. Mr. Sindhu was associated with A. F. Ferguson & Co. Chartered Accountants (Price Waterhouse Coopers)Karachi, from 1986 to 1991 as an Audit supervisor. He then joined ANZ Grindlays Bank in 1992 where he held various senior positions in Pakistan, Dubai and Melbourne,Australia. From 1997 to 2001 he held the position of CFO with ANZ Grindlays Bank (Now Standard Chartered Bank). Mr. Sindhu joined Shell Pakistan Limited in 2001 as Planning Manager and later he was appointed as Chief Financial Officer for the $480 million SPL joint venture, Pak Arab Pipeline Company Limited. He returned to SPL as Country Controller in 2005 and is currently working as Finance Director (CFO). He is responsible for the overall Finance, Accounting, Treasury and Governance & Control Activities of the Company and also has financial oversight responsibility for the other Shell businesses in Pakistan. Mr. Sindhu is also a Director on the Board of Pak Arab Pipeline Company Limited.

Mr. Ijaz Ali Khan

Mr. Khan is an Engineer by qualification and has 37 years experience with International Oil Companies. He initially joined Burmah Shell Oil Company, Pakistan in 1967 but left after a few years to work for Aramco, Saudi Arabia. During his tenure in Aramco for over two decades, he worked in various professional and managerial capacities in Engineering, Planning and Operations. He returned in 1997 to re-join Shell in Pakistan. He is currently Director Operations in Shell Pakistan and is also a Director on the Board of Pak Arab Pipeline Company Limited.

Board of Directors

Mr. Jalees A. Siddiqi

Mr. Siddiqi has vast multifunctional experience. He is a broad based professional and as an Executive Director, Human Resource and Services was looking after the vital area of human resources along with services function. He assumed his responsibilities as Managing Director & CEO, Pakistan State Oil, on April 20, 2005. Mr. Siddiqi also has international working experience. Besides Pakistan he has worked in United States, Canada and has been a member of various task forces in the Asia-Pacific region. He has attended several senior management internal programs on leadership, human resource and management of change, including those of the London Business School, University of Michigan, Darden Business School, and University of Virginia, USA. Mr. Siddiqi is also on the board of Asia Petroleum Limited, Pak Arab Pipeline Company Limited, Pak Grease Manufacturing Company Limited, Petroleum Institute of Pakistan as well as Member, Business Role Focus Area Core Team of the World Business Council of Sustainable Development, Oil Companies Advisory Committee, Pakistan Society of Human Resource Management, Federation of Pakistan Chambers of Commerce & Industry Quality Awards Committee, Pakistan Advertisers Society and Board of Governors, Lahore University of Management Sciences. He is also on the Advisory Board for the Petroleum Engineering Wing of the NED University, Karachi.

Mr. Samad Dawood

Director of the Dawood Group, a business conglomerate, which has several textile units, that deal with the fertilizer, insurance, processing of cotton, woolen and polyester fibers, yarns and the production of a wide range of up-market fabrics and garments.

Mr. Nadeem Jafarey

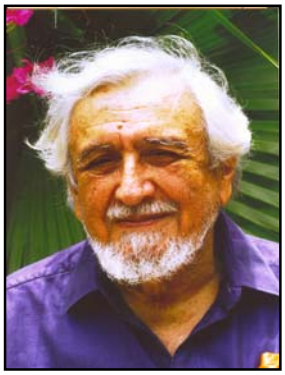
Mr. Jafarey is the Country Representative of Chevron Pakistan Ltd formerly known as Caltex Oil Pakistan Ltd. In addition, he is Director & General Manager Retail / C&I of the Company. He is also member of the Africa-Pakistan Marketing Leadership Team which comprises South Africa, East & West Africa, Middle East and Pakistan. He has 23 years of diversified work experience in the petroleum sector both in refining and marketing. Mr. Jafarey holds a Masters degree in Business Administration and a Bachelors degree in Mechanical Engineering. He is also Director on the Boards of Pak Arab Pipeline Company Ltd and Petroleum Institute of Pakistan. He is a member of the Pakistan Engineering Council and Institute of Engineers in Karachi. He has also served as a Chairman of the Oil Companies Advisory Committee in 2004 and on the executive committees of the American Business Council of Pakistan and the Overseas Investors Chamber of Commerce & Industry (OICCI).

Board of Directors

Mr. Shahid Anwar Khan

Mr. Khan is an engineer by profession and has done his MBA (Major in Finance) from U.S.A. in 1981. He is also a Diplomat Associate of Institute of Bankers, in Pakistan. He joined National Bank of Pakistan in 1983 as Assistant Vice President. He has worked in all disciplines of the bank and has vast experience of Credit/Project Financing. He has attended a number of local and international seminars/trainings sponsored by World Bank and Asian Development Bank. He is also an alumni of International Centre of Leadership in Finance (ICLIF) Malaysia. He is presently working as a SEVP/ Group Head, Credit Management Group, National Bank of Pakistan, Head Office Karachi. Besides serving on various Management Credit Committees of the Bank, he also represents NBP as Director in various companies.

Mr. Ardeshir Cowasjee



Mr. Cowasjee has been on the Board of Directors since1979. Besides being on the Board of Pakistan Refinery Limited, Mr. Cowasjee is a landlord, ship-owner, merchant, senior partner of the Cowasjee Family firms, Chairman of Crescent Star Insurance Co. Ltd., and a member of the Board of Directors of Shahtaj Sugar Mills Ltd.

Mr. G.A Sabri

Mr. Sabri is a Chemical Engineer by profession and has served in the Ministry of Petroleum and Natural Resources, Government of Pakistan in various capacities for almost 32 years including 27 years in the down stream sector. He has attended a number of international meetings and overseas courses. He has been on the Board of Directors of PERAC, Pakistan State Oil Co. Ltd., National Refinery Limited, PARCO, Attock Refinery Limited, Pak Iran Refinery Limited, Crescent Petroleum Limited, Marine Pollution Control Board, Pirkoh Gas Co. Ltd., Oil & Gas Development Co. Ltd, Pakistan Petroleum Limited, Mari Gas Co. Ltd, Hydrocarbon Development Institute of Pakistan and Alternate Energy Development Board. He has also been a member of various other Governmental Committees. Currently he is also on the Boards of PARCO and Total PARCO. In the academic sector he is a member of the Board of Studies in Chemical Engineering and Technology University of Punjab Lahore. He actively works in a couple of philanthropist organizations with Pakistan Kidney Institute, Islamabad in health sector and Tehzibul Akhlaq Trust, Lahore in the education sector.

PRL Management Team

Zafar Haleem

Mr. Haleem (MD & CEO- PRL) is a Chemical Engineer by profession and has over 35 years of diversified experience. He joined PRL in 1975 and later on moved to Middle East. In 1996 he rejoined PRL as Technical Services Manager and became Managing Director in 2003.

Khawaja M. Nauman

Mr. Nauman joined PRL in 1971 & over the years progressed in career and currently holding the position of General Manager Administration & Special Assignments. He is also heading office HSEQ committee .He is a law graduate.

Aftab Husain

Mr. Husain is a Chemical Engineer by profession and has done MPA. He has over 28 years of diversified Refinery experience which includes Plant Operation, Supply Chain, Commercial and Corporate Affairs. He is currently holding the position of General Manager Commercial & Corporate Affairs.

M. Akram Peracha

Mr. Peracha joined PRL in 1980 as Chemical Engineer and has broad experience of Refinery operations including Technical Services, HSEQ and Supply Chain. He is currently working as General Manager Operations & Supply. He is also heading Engineering and Operations HSEQ committee.

PRL Management Team – Cont...

Hafsa Shamsie

Ms. Shamsie is an MBA and has worked in ICI Pakistan Limited, Shell Pakistan Limited and is currently on secondment to PRL as CFO & Company Secretary. She has diversified experience in the Finance function including Treasury and Business Finance.

M. Naman Shah

Mr. Shah is a Chemical Engineer & has done his MBA. He has worked in various disciplines including Plant Operations, Technical Services, Human Resource & Administration. Currently he is holding the position of General Manager Technical & Projects and is leading the Refinery Upgrade Project. He is also Management Representative for the HSEQ Management System.

Dr. Junaid Farooqui

Dr. Farooqui, Diplomat American Board of Medicine is working as Chief Medical Officer. In addition to Managing Medical services for the company, he is also responsible for directing Corporate Social Responsibility effort.

Khalid Junejo

Mr. Junejo is a Human Resource professional with over twenty five years of diversified experience in Management & HR. His educational qualifications are M.B.B.S and MBA. He has recently joined PRL as Sr. Manager Human Resources.

Company Profile

Pakistan Refinery Limited (PRL) was built and commissioned in October 1962 at Karachi in alliance with major foreign oil companies like Burmah Oil California, Texas Oil Corporation, Shell Petroleum Corporation and Esso Standard Eastern Inc.

PRL is a hydro-skimming refinery with a capacity of 50,000 barrels per operating day. The process configuration constitutes desalting, crude distillation, hydrodesulphurization, platforming and LPG units. Though, designed to process Iranian Light, it has acquired the ability to process a variety of imported and indigenous crude oils to produce energy products namely-LPG, MS Unleaded 90 RON, Naphtha, Kerosene, HSD, JP-1, JP-8, MTT and Furnace Oil.

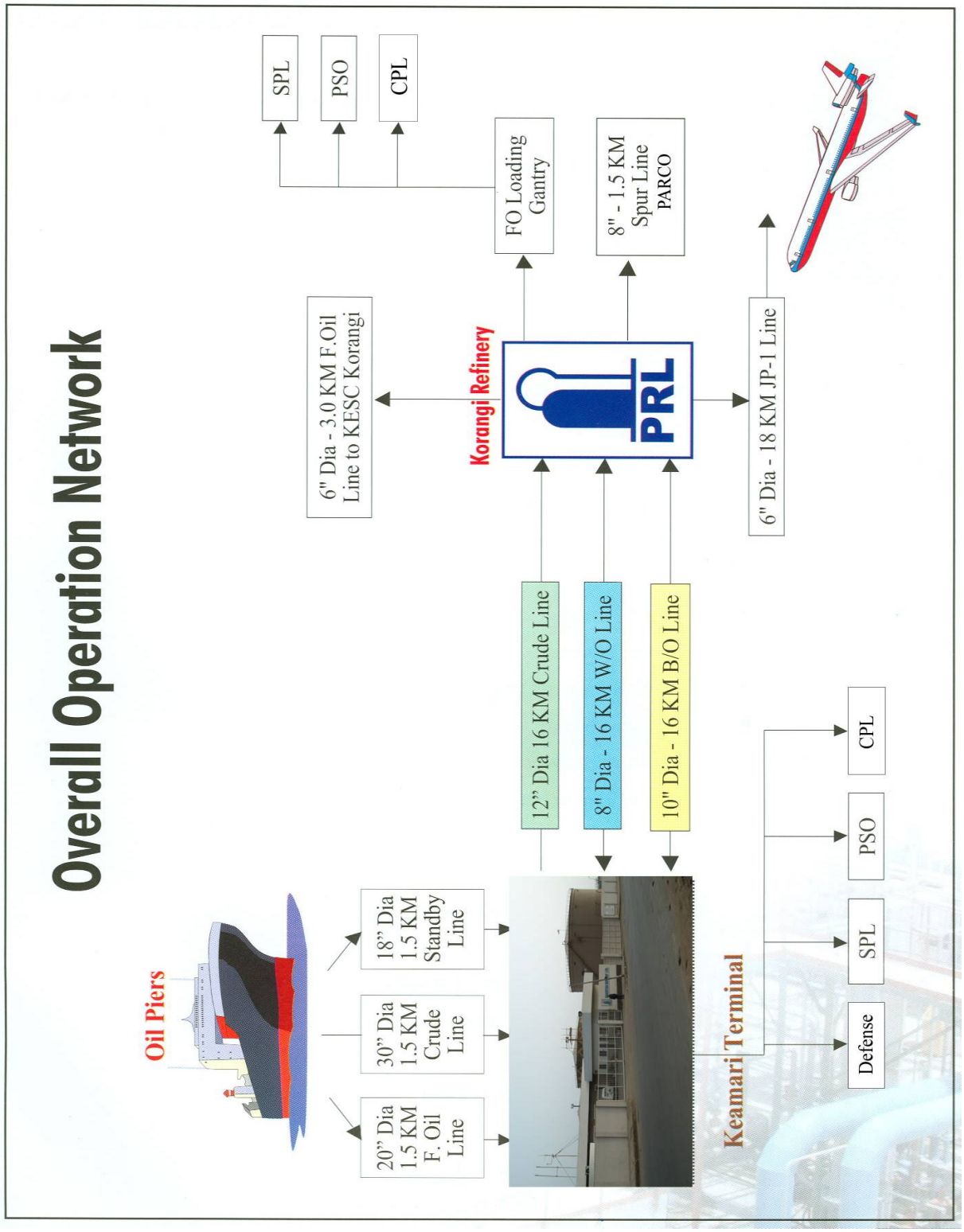
PRL, since inception has been the principal manufacturer and supplier of petroleum products to the domestic market and Pakistan defence forces. It continues to serve the energy needs of the country with professional excellence and high degree of commitment. PRL takes pride in the edge it enjoys over its competitors in respect of efficiency, lower operating cost, high quality human resources, reliability and introduction of newer generation technologies.

PRL has demonstrated its excellence as a first rate corporate citizen by serving community and demonstrating total commitment to the cause of Health, Safety and Environment. PRL is proud to be the leader in integrated HSEQ Management System, being the first in Pakistan's oil industry to achieve OHSAS 18001:1999 and ISO 14001:2004 certification.

No. of sites = 2 (Refinery and Oil Storage Terminal at Keamari)

No. of Employees = 275

Annual Turnover = Rs. 57.4 billion (July 06- June 07)


Overall Operation Network
Oil Piers
20" Dia 1.5 KM F. Oil Line
30" Dia 1.5 KM Crude Line
18" Dia 1.5 KM Standby Line
Keamari Terminal
12" Dia 16 KM Crude Line
8" Dia - 16 KM W/O Line
10" Dia - 16 KM B/O Line
Korangi Refinery
PRL
6" Dia - 3.0 KM F.Oil Line to KESC Korangi
FO Loading Gantry
8" - 1.5 KM Spur Line PARCO
6" Dia - 18 KM JP-1 Line
SPL
PSO
CPL
Defense
SPL
PSO
CPL

Process Summary

Units Installed

- Desalter Unit
- Crude Unit
- Catalytic Hydrodesulphuriser Unit
- Platformer Unit
- Effluent Water Treatment Plant
- LPG Recovery Unit
- Reverse Osmosis Unit
- Water Softening Unit
- Steam Generation Unit
- Electricity Generation Unit

Process Units

Desalter

Crude oil often contains impurities such as free water, inorganic salts, suspended solids and water-soluble trace metals. As a first step in the refining process, to reduce corrosion, plugging, fouling of equipment and to prevent poisoning of catalyst in processing units, these contaminants are removed by desalting. In desalting process, brine particles are coalesced with added wash water and consequently separated by gravity.

Crude Unit

The objective of the oil refining process is to separate the crude oil into number of fractions, each of which then contains a narrower range of hydrocarbons, which are more suitable for conversion into saleable products.

Hydro Unit

A wide range of product streams are obtained from the crude unit. In most cases, the properties of these streams either as final products or as feed stock for further processing, are adversely affected by components like Sulphur and Nitrogen. PRL employs one of the most modern methods of removal of Sulphur compounds known as Catalytic Hydrodesulphurization.

Plat former Unit

Naphtha is not suitable for use as motor gasoline because of its low octane number. It may, however, be reformed into a more useful product. Catalytic reforming is an important process to convert low-octane naphtha into high octane gasoline called platformate. The platformate so produced has a much higher octane number than either the naphtha feed or the hydrogenated gasoline fraction.

Process Units – Cont…

Effluent Water Treatment Unit

Effiuent Water Treatment plant is used for the treatment of process run-off and sewage water prior to discharge from Refinery premises. Some of the sources of the waste water are condensed steam, stripping steam condensate, spent caustic solution, cooling tower's blow down, RO plant and boiler blow down. Waste water typically contains oil and grease, dissolved materials, suspended solids, phenols, ammonia, sulphides, COD, BOD and other undesirable compounds. Methods of treatment are:

- Physical
- Chemical
- Biological

LPG Recovery Unit

The purpose of this unit is to extract the heavier C3/C4 components from the fuel gas through absorption in kerosene.

Process Units – Cont...

Reverse Osmosis Unit

Reverse Osmosis is the preferred technique for the production of potable water from brackish or sea water. An optimal system comprising of pretreatment and reverse osmosis unit eventually produces the water, which meets industrial use requirements. The reverse osmosis plant consists of following unit operations:

- Filtration
- Disinfection
- Chemical treatment
- Reverse osmosis

Water Softening Unit

Raw water supplied by KDA contains many impurities. Use of this water in boilers for the generation of steam, can produce a hard scale in the inner surface of the boiler tubes. These hard scales reduce the heat transfer resulting in more fuel consumption to generate steam. Moreover, the boiler tubes might rupture due to overheating. Removal of these hardness producing salts is the aim of this unit.

Process Units – Cont…

Steam Generation Unit

The major source of motive power in the refinery is steam. Steam is generated with the help of boilers. There are three “water in tube” boilers capable of producing 45,000 lbs/hr of super heated steam at 20 kg/cm2 pressure each. The boiler assembly consists of steam drum on the top and the water/ mud drum at the bottom. These drums are connected together by tubes, some of which are extended to form the fire box envelope.

Electricity Generation Unit

Even through steam is utilized as the major source of motive power, the need for electricity remains for other equipments in the Refinery. PRL’s source of electricity is KESC. However, in case of power failure, PRL employs three electricity generation units to provide backup supply. This backup energy is generated through diesel generators.

Occupational Health & Safety Management

The Chief Medical Officer (CMO) heads the Company's Medical Services Department. The Refinery houses a dispensary which is equipped to provide a wide range of medical services. Round the clock heath care and first aid treatment is provided to employees & contractors workmen and recording of all occupational incidents & diseases is routinely performed. Typhoid & Cholera vaccination and anti Rabies & anti Venom medication is also available in PRL dispensary. As a proactive approach, comprehensive medical checkup of all staff is conducted at regular intervals.

The canteen hygiene condition, food quality & health of cook are examined on regular basis by the team comprising of CMO, Head of Industrial Relations and Manager Security and Administration.

Annual Health, Safety & Environment Profile

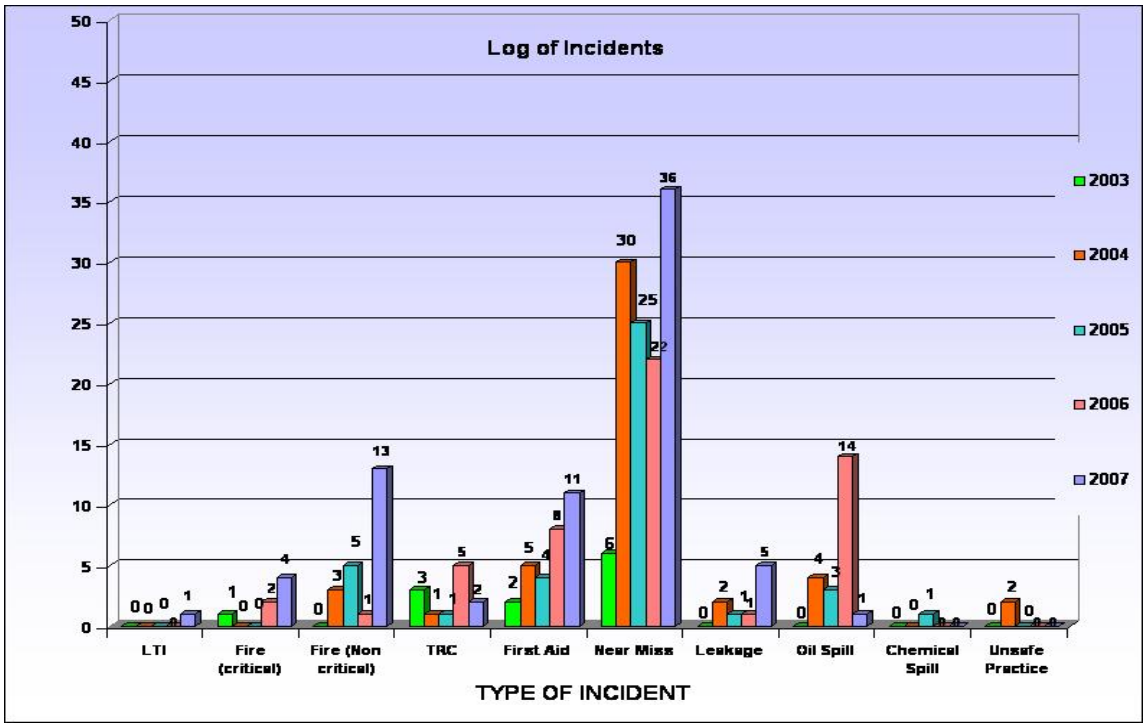
- PRL records all incidents, accidents & near misses to investigate their causes and takes necessary corrective action to minimize their recurrence. PRL believes that taking into consideration a near miss seriously, can result in reducing incidents in the future.

- Man-hours achieved without lost time injury (LTI) up to December 20, 2007 were 1.2 Million from last LTI. The milestone is1.5 Million Man-hours.

Parameters	Actual Value
Lost Time Injury	01
Million Man-hours (Cumulative)without LTI	1.2
Fatal Incidents	01
TRC	02
Critical Fire & Explosions	00
Near Miss	36
Process Safety Incidents	00
Environmental incidents	01

Log of Incidents / Accidents

All incidents including environmental ones are being reported as per PRL HSEQ Management System requirements. The data is based on the fiscal years.



The graph shows the trends of different type of incidents.

Scope of Report

Scope of Report

Sustainable Development efforts by PRL serve to build stakeholder confidence and foster long term relationship with them.

The scope of this report is to provide information about the Environmental Aspects / Impacts Analysis conducted as part of the overall HSEQ Management System, Financial performance and Corporate Social Responsibility, the observations and recommendations coming out of this analysis, serve as the basis for making continuous improvement in the Refinery's performance.

Environment section is updated for the period of January 2007 till December 2007 but the present values are compared with previous years to show the trends. Financial performance is for the fiscal year 2006-07, however composing of different ratio for the last five years is also shown.

Corporate Social Responsibility activities are only for the current year and 2006.

The facilities covered under this report are storage of crude oil for processing both at Korangi & Keamari Terminal, oil processing at the Refinery and supplies of finished products to oil marketing companies. The report is circulated with in Pakistan.

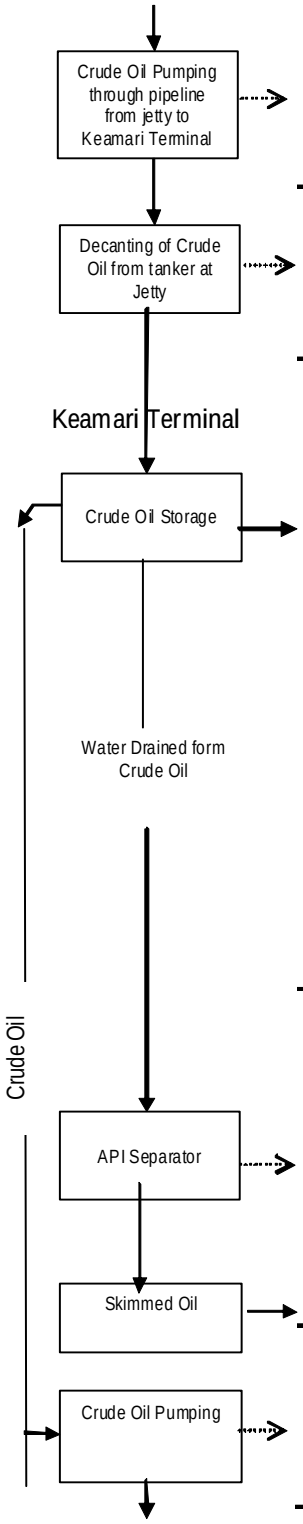
Process Assessment

- *Direct Environmental Aspects / Impacts*
  - *Oil Movement*
  - *Cross Country Pipelines*
  - *Refining*
  - *Equipments*
  - *Maintenance*
  - *Services*

- *Indirect Environmental Aspects / Impacts*
  - *Raw Materials*
  - *Products*

Direct Environmental Aspects / Impacts

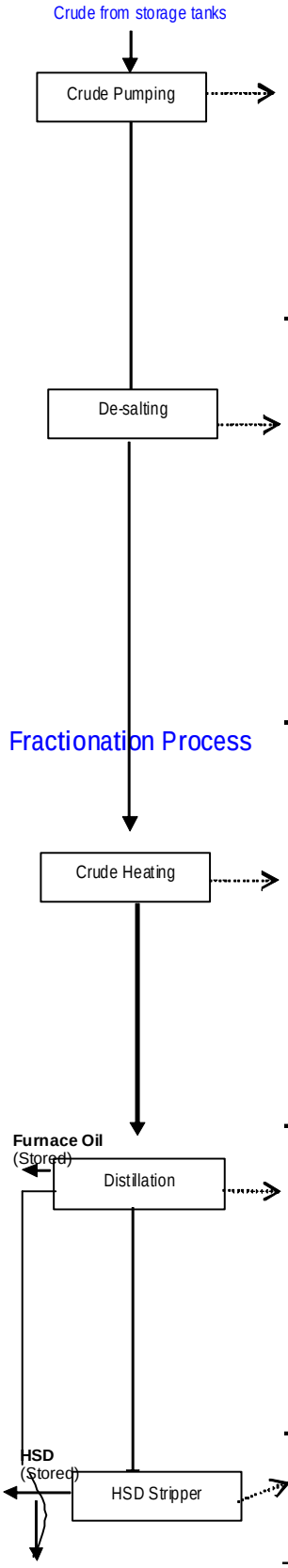
ASPECTS / IMPACTS



Aspects	Impact	Observation/ Recommendations
- Possible spillage - Release of VOCs - Possibility of fire - Maintenance activities	-Contamination of land -Contamination of sea water - Loss of property/ life - Air Pollution -Waste generation	Observations - Spill Cleanup and fire fighting is the responsibility of KPT. - Decanting activity at Jetty is performed by Oil Tanker. - Marine oil spill response center is being formed to combat Tier I and Tier 2 oil spills. The refineries, Oil marketing companies, KPT and Pakistan Navy will share the resources. -Refinery has prepared their own Spill Response Plan.
- Possible spillage form pipe line - Possible Leaks form glands - Possibility of fire - Residual Product at Ball Launcher - Maintenance activities	- Soil and ground water contamination - Air pollution - Loss of property/ life - Soil and ground water contamination - Waste generation	Observations - Any incidents (Fire/ Spillage) at the jetty is the responsibility of KPT. - PRL has its own fire tender, which if required can assist KPT in fire fighting. - Clean up activities are carried out by the KPT.
Solid Hazardous Waste - Tank Bottom Sludge removed during cleaning Air Emissions Release of VOCs Possible Spillage (Overflow/ Leakage/ Rupture) - Maintenance activities Possible Fire Effluent Water with traces of crude oil *Odor* *Use of radioactive material (Radiography)*	- Soil contamination - Degradation of air quality - Soil and ground water contamination -Waste generation - Loss of property - Degradation of air quality - Overloading of API Separator, consequently of oil slippage into the sea - Degradation of air quality - Health Impact	Observations -Sludge from crude tanks is dumped in the yard's concrete pits for natural biodegradation at remote location through land farming - Water drained from the tank is sent to the API Separator for further treatment. -Routine maintenance of tanks and bund walls is being carried out. - Periodic inspections are carried out. - Maintenance of Sluice gates is done. - Tank cooling system is regularly checked - Fire fighting drills are conducted regularly. Recommendations - Maintenance of existing alarm system at the tanks to be carried out as per plan.
Effluents - Water + Oil + other contaminants - Flushing water as a result of cleaning Solid Waste - Hay Baskets - Oil sludge as a result of cleaning - API Separator tank bottom sludge - Maintenance activities Effluents Water+ Oil+ other impurities Solid Waste Sludge	- Sea water Contamination -Waste generation - Sea water Contamination - Generation of waste	Observations -Crude tank is not drained for water at Keamari Terminal. - Environmental friendly disposal of Hay Baskets and sludge is in place.
- Possible spillage due to gland/ seal leakage or other failures. - Possibility of fire due to static electricity and other sources of ignition. - Maintenance activities Energy Use Electricity	-Land Contamination - Loss of property and life - Waste generation - Depletion of resource	Observations - Fire fighting facilities are available. - Routine maintenance of pumps is carried out. Recommendations - Proper drainage is required for crude spillage from the flanges.

Direct Environmental Aspects / Impacts

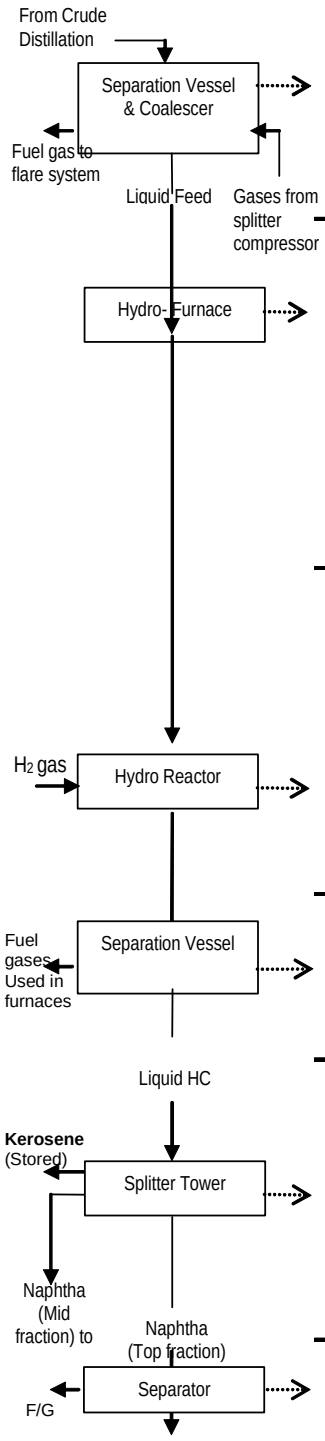
ASPECTS / IMPACTS



Aspects	Impact	Observation/ Recommendations
Effluent - Test Sample - *Oily water due to rain* Air Emissions - Release of VOCs - Possible leakage from gland/ seal leakage or other failures. Energy Use Electricity *Noise*	- Contamination of Water - Degradation of air quality - Waste generation	Observations - Effluents are drained to API Separator. - Steam Leakages from turbines. - Proper maintenance of pumps valves and seals in place. - Crisis Management Plan in place.
Effluent - Caustic + Amines Solution - Water Discharge - Crude Test Sample Use of Chemicals Sulphuric Acid De- emulsifier (DS-950) Caustic + mine Solution Solid Waste Sediments during cleaning *Solid Hazardous Waste* *Empty Chemical Drums*	- Contamination of water and soil - Possibility of chemical Spillage - Health & Safety Hazard - Waste Generation	Observations - Effluent water drained to API Separator - Cleaning frequency of desalter is 1-11/2 month. - Acid handling and storage instructions are available. - Environmental friendly disposal of waste.
Air Emissions Furnace flue gases Heat generation Energy Use Furnace Oil/ Refinery gases/ Natural gas Heat Generation Noise Effluent - Steam condensate from the traps. *Odor* *Maintenance*	- Air Pollution - Depletion of Natural Resource - Wastage of resource - Waste generation	Observations - 3 Furnaces gas/ oil fired. - Possibility of explosion due to backfire. - Steam is used for atomizing the fuel in the furnace. Recommendations - Steam condensate recovery options should be determined. - Furnaces safeguarding option to be explored.
Air Emissions VOCs form pressure relief valves *Noise* *Relief Valve Operation* Maintenance activities	- Degradation of air quality/ air pollution - Waste generation	Observations - Outlet of pressure relief valves of distillation towers is opened to the atmosphere. Recommendations - Options to be explored to put the outlet of the relief valves in a closed system. - Monitoring of relief valve pressures to be incorporated in the operating procedures.
Maintenance activities	- Waste generation	- Segregation and proper disposal is in place.

Direct Environmental Aspects / Impacts

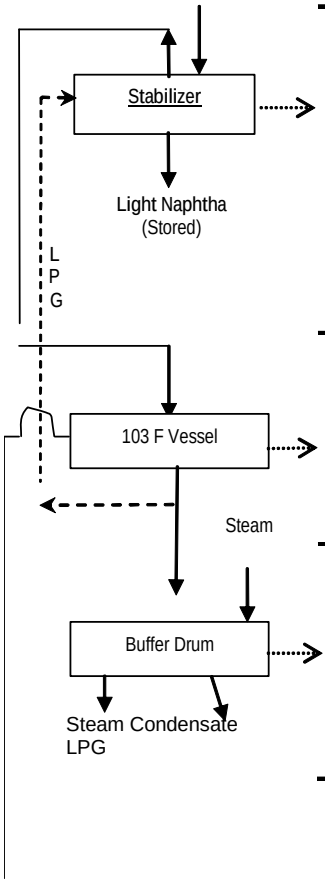
ASPECTS / IMPACTS



Aspects	Impact	Observation/ Recommendations
Effluent i. Water ii. Water from the Coalescer iii. Absorbed H_2S in water. Maintenance activities	- Contamination of Water - Degradation of air quality/ air pollution. - Waste generation	Observations - Absorbed H_2S in water. - H_2S not stripped off from the water. - H2S monitoring devices with operators Recommendations - Testing of H_2S above the drains to be carried out.
Air Emissions Furnace Flue Gases Noise Maintenance activities Heat Generation Energy Use - Natural Gas, R/G and oil	- Air Pollution - Noise Pollution - Waste generation - Rise in ambient temperate - Depletion of natural resource	Observations - The burners are of new model with 20% excess air and the noise level is also low. - Gases are released through stack at sufficient height
Solid waste - Spent Catalyst, which has completed its useful life. - Ash and particulate matters due burning of catalyst during regeneration/ off-loading of catalyst. Maintenance activities Air Emissions - Release of CO_2 during regeneration	- Waste Generation - Health hazard - Waste generation - Degradation of air quality	Observations - Catalyst used- Cobalt Molybdenum - Total quantity disposed is approx = 46 tons. - Catalyst dumped as per CFR 29. - Safety measure are incorporated for off-loading.
Emissions Fuel Gases Maintenance activities	- Degradation of air Quality - Waste generation	Observations - Use for burning in furnaces - Excess gas is flared out at sufficient height.
Air Emissions VOCs form pressure relief valves Maintenance activities	- Degradation of air quality/ air pollution - Waste generation	Observations - Outlet of pressure relief valves of distillation towers is opened to the atmosphere. - Monitoring of relief valve pressures incorporated in the operating procedures. Recommendations - Options to be explored to put the outlet of the relief valves in a closed system.
Air Emissions Fuel gases Maintenance activities	-Degradation of air quality/ air pollution - Waste generation	- Used for burning in furnaces

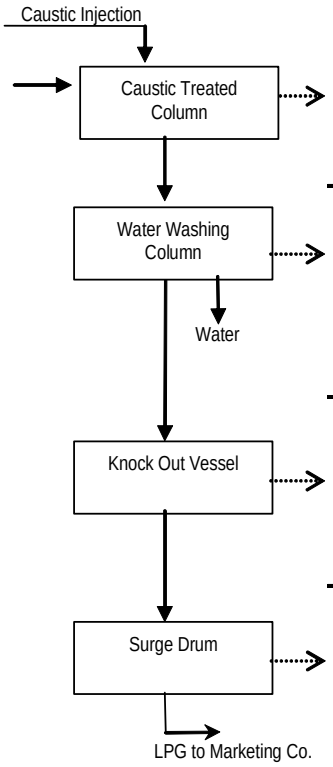
Direct Environmental Aspects / Impacts

ASPECTS / IMPACTS



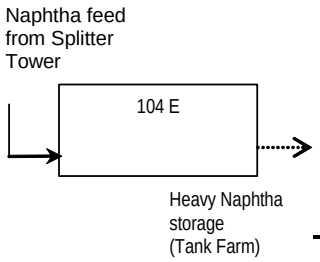
Aspects	Impact	Observation/ Recommendations
- Fuel gases Air Emissions VOCs form pressure relief valves Maintenance activities	- Degradation of air quality/ air pollution - Waste generation	Observations - Outlet of pressure relief valves of distillation towers is opened to the atmosphere. Recommendations - Options should be explored to put the outlet of the relief valves in a closed system. - Monitoring of relief valve pressures should be incorporated in the operating procedures. .
Effluent Waste Water	- Contamination of water	Observations - Wastewater is drained to API Separator. Recommendations - Explore possibility of installation of auto drainers.
Effluent Steam Condensate Release of LPG Maintenance activities	- Wastage of resource - Air degradation - Waste generation	Recommendations - Steam condensate recovery options to be determined.

Direct Environmental Aspects / Impacts



Effluent - Weak caustic - Na_2S Maintenance activities	- Contamination of water - Waste generation	Observations - Continuous discharge of weak caustic to API Separator. Recommendations - Explore possibility of caustic neutralization at source of discharge.
Effluent Water+ Caustic+ other impurities with Na_2S Maintenance activities Use of Natural Resource Water	- Contamination of water - Waste generation - Depletion of natural resource	Observations - Waste- water is discharged to the API Separator. - Treatment is done to meet NEQS.
Effluent Water+ Caustic+ other impurities with Na_2S Maintenance activities	- Contamination of water - Waste generation	Observations - Waste- water is discharged to the API Separator. - Treatment is done to meet NEQS.
Effluent Water+ Caustic+ other impurities with Na_2S Maintenance activities	- Contamination of water - Waste generation	Observations - Waste- water is discharged to the API Separator. - Treatment is done to meet NEQS.

ASPECTS / IMPACTS



Aspects	Impact	Observation/ Recommendations
Leakages Maintenance activities	- Air pollution / water contamination - Waste generation	- Routine maintenance

Direct Environmental Aspects / Impacts

ASPECTS / IMPACTS

	Aspects	Impact	Observation/ Recommendations
Petroleum Product Storage (Korangi & Keamari)	Solid Hazardous Waste - Tank Bottom sludge (due to tank cleaning) - Leaded Gasoline tank Bottom Sludge Air Emissions VOC - Possible oil spillage due to tank leakage/ rupture or over flow. - Possibility of fire - *Odor* *Maintenance Activities*	- Soil and ground water contamination - Air pollution - Soil and ground water contamination - Loss of property/ life/ uncontrolled emissions - Degradation of Air Quality - Waste generation	Observations - Possible land and ground water contamination -Routine maintenance of tanks and bund walls being done. - Soil and ground water testing being done on annual basis. - Tank cleaning procedures established, including management of oil sludge. - Crisis Management plan in place. Recommendations - Testing of VOC's to determine the level of emissions.
Petroleum Products pumping through Pipeline to • Keamari Terminal • Airport • PARCO • KESC Activities performed both at Korangi & Keamari	- Possible oil spillage due to the pipe rupture. - Possible leakage from the glands/ seals of the pumps. - Possibility of fire -Effluent due to the line cleaning activity *Maintenance Activities* - Use of Electricity *Air Emissions* - VOCs during ball launching - VOCs due to Spillage *Noise* *Odor*	- Possible soil and sea water contamination. - Loss of life / Property - Waste generation - Resource Depletion - Degradation of air quality	Observations - Existing pipelines right of way passes through residential area. - Emergency procedures include actions for prompt communication with the out side agencies, in case of spills from pipelines.
Furnace Oil Gantry (Korangi Refinery)	*Liquid Releases* - Possible oil spillage - Water due to area cleaning - Minor drippings of FO from loading arm -Oily Water (Rain) *Emissions to Air* - Emissions of VOCs. - Tank Lorry Exhaust - VOC emissions due to spillage Possibility of fire at Gantry - Possible Fire at pumps Noise Electricity Odor Maintenance Activities	- Soil and ground water contamination. - Degradation of air quality. - Loss of property and life/ uncontrolled emissions - Degradation of air quality. - Use of recourse - Degradation of air quality. - Waste generation	Observations - Any spilled oil goes to API Separator through the drains present at the filling site. - Spilled oil enhances load on the API Separator. - Procedure established for working at the gantry. - CMP in place.
LPG pumping to Marketing Co. (Korangi Refinery)	- Possible leakage of LPG -*Maintenance Activities* -Possibility of Fire *Electricity Usage*	- Air pollution - Waste generation - Loss of property and life/ uncontrolled emissions *Recourse depletion*	- CMP in place

Direct Environmental Aspects / Impacts

ASPECTS / IMPACTS

	Aspects	Impact	Observation/ Recommendations
Boiler	Air Emissions - Flue gases - Soot (Soot Blowing)	- Air Pollution	Observations - Total 3 oil/ gas fired boilers - Periodic and continuous blow down water goes to API Separator. - Emergency shut down system present. - Emissions testing is carried out.
	Effluents - Boiler Blow down	- Water Pollution - Causes increase in TDS level of discharging water.	
	Energy use - Natural Gas/ Furnace Oil as fuel	- Depletion of natural resource	
	Noise *Vibration* *Heat Generation*	*- Degradation of air quality.*	
	Fire *Explosion*	- Damage to asset/ Loss of life	
	Maintenance Activities	- Waste generation	
Cooling Tower	*Air Emissions* *Airborne water traces*	- Degradation of air quality	Observations - Cooling Towers qty=2 - Filter washing is done 3 times a day and water is drained in API separator. - Blow down water goes to the API Separator. - Cooling towers blow down water is collected in a tank, which can be used for fire fighting purposes.
	Effluents - Blow down water - Filter Washing	- Water pollution	
	Use of Chemicals - Bio Depressant - Corrosion Inhibitor	- Possibility of spillage causing land contamination	
	Solid Hazardous Waste - Empty chemical drums - Possible Chemical Spillage	- Degradation of Land/ Health Effect - Soil/ Land Contamination	
	Maintenance Activities	- Waste generation	
Water Softening	Effluents - Filter Washing - Water Discharge	- Water pollution	Observations - Water is drained to API Separator and ETP is in operation to cater pH variations. - Proper containment is built at chemical storage site.
	Use of Chemicals - Sulphuric Acid - Anti Scalars - Anti Oxidants	- Possibility of spillage causing land contamination,	
	Solid Hazardous Waste - Empty chemical drums	- Degradation of Land/ Health Effect	
	Maintenance Activities	- Waste generation	
R-O Plant	Effluents Back Wash Water (High TDS Content)	- Water Contamination	Observations - Back wash water is discharged in the open land near RO Plant. - Cartridge filters are disposed at waste yard. - Carbon is removed during annual maintenance.
	Solid Waste - Cartridge Filters - Carbon Powder - Maintenance	- Waste Generation	
	Use of Chemicals	- Possible spillage of chemicals	
	Solid Hazardous Waste - Empty chemical drums	- Degradation of Land/ Health Effect	

Direct Environmental Aspects / Impacts

Generator	Air Emissions - Generator exhaust emissions - VOCs from the diesel storage tank for the generator. Noise Effluents - Oil drained from the air cleaner. - Possibility of spillage of diesel from the diesel storage tank - Possible spillage of lube oil - Possibility of fire Fuel Used Diesel	- Degradation of air quality - Soil contamination - Waste generation due to maintenance activities	Observations - Total 3 standby generators - Fuel used - -- Diesel -Testing of exhaust emissions is carried out.
Laboratory	Solid Waste - Glass Breakage - Waste Paper - Plastic Materials - Empty Chemical Bottles Effluents - Residue and other products after testing, which contains oil and different chemical etc. - Residue after testing of the leaded product. Air Emissions - Emissions from octane testing engine. (Daily usage- 2- 2 ½ hrs) - VOCs Hazardous Substances - Release of Gases (Acetylene, Nitrogen, Hydrogen) - Explosive Chemicals - Possibility of spillage of chemicals - Possibility of fire/ explosion. Energy Use Electricity Noise Odor	- Waste Generation - Water Pollution - Degradation of air quality - Safety and health hazard. - Loss of life/ property - Loss of life/ property - Depletion of resource. - Degradation of Air quality - Degradation of Air quality	Observations - Glass breakage is disposed off through waste yard. - Drain outlet from the lab goes to the API Separator. Recommendations - Solid waste to be segregated and options for possible recycling of materials to be explored

Direct Environmental Aspects / Impacts

Turn Around

Shutdown Activities	Fire - Due to the nature of the process the possibility of fire is existent in all areas	- Loss of life/ property/ emissions	Observations - Adequate HSE staff is available in the area and also the area is properly gas freed before any hot job
	Air Emissions - VOCs from opened vessel - Purged Nitrogen - Fugitive Emissions	- Degradation of air quality	
	Liquid Releases - Effluent due to flushing - Oily Water - Flushing steam water	- Water Pollution	
	Solid waste - Metal scrapings from the equipment	- Degradation of Land	
	Use of Radioactive Material (Radiography)	- Health Impact	

Chemical Handling

	Aspects	Impact	Observation/ Recommendations
MMT Blending	Spills Emissions	- Land contamination - Air pollution	- Handling procedure is available
MMT Handling & Storage	Spills Emissions	- Land contamination - Air pollution	- Handling procedure is available
Amine/ Caustic Process	- Possible spillage from the tanker during transportation, handling and storage.	- Soil and ground water contamination. - Safety hazard. - Loss of life/ safety hazard.	Observations - Procedures in place for safe unloading. - Controls exercised on the supplier providing transportation services.

Direct Environmental Aspects / Impacts

ASPECTS / IMPACTS

Maintenance	Aspects	Impact	Observation/ Recommendations
Rotary & Mobile Work Shop	Solid Waste - Waste metal chips - Cotton waste rags - Unserviceable M/c parts - Packing Material - Empty drums. Effluents - Used oils/ lubricants - Emissions of the welding gases. *Possibility of Fire*	- Waste Generation - Degradation of air quality - Health hazard	Observations - Waste metal, rags are segregated in the designated drums and then transferred to the waste yard. - Waste oil is collected in the designated drum for disposal at API Separator.
Stationary Work Shop	Solid Waste - Waste metal chips - Cotton waste rags - Unserviceable M/c parts - Packing Material - Empty drums. *Liquid Releases* - Used oils/ lubricants *Air Emissions* *Welding Fumes* *Possibility of Fire*	- Waste Generation - Water Pollution - Air pollution/health hazard	Observations - Waste metal, rags are segregated in the designated drums and then transferred to the waste yard. - Waste oil is collected in the designated drum for disposal at API Separator.
Electrical Work Shop	Solid Waste - Cotton waste rags - Unserviceable M/c parts - Packing Material Effluents - Used oils/ lubricants *Energy Usage* *Electricity* *Possibility of Fire*	- Waste Generation - Water Pollution - Consumption of Resource	Observations - Solid waste is disposed off through waste yard. - Waste oil is collected in the designated drum for disposal at API Separator.
Instrumentation Work Shop	Solid Waste - Cotton waste rags - Unserviceable instruments - Packing Material *Liquid Releases* - Used oils/ lubricants *- Mercury collected from the instruments*	- Waste Generation - Water Pollution - Health Hazard	Observations - Mercury is collected from the instruments and is stored for disposal.
Civil Work Shop	Solid Waste - Wood Waste/ Saw Dust. - Empty paint containers - Packing Material Sand Blasting	- Waste Generation - Health Hazard/ air pollution	Observations - Waste dumped at waste yard for ultimate disposal. - Safety procedures are in place for sand blasting. Recommendations - Waste segregation must be done at civil workshop.

Direct Environmental Aspects / Impacts

ASPECTS / IMPACTS

	Aspects	Impact	Observation/ Recommendations
Projects and Construction Workshop	Solid Waste - Steel waste, pipe pieces. - Empty paint containers - Packing Material	Waste Generation	Observations - Waste dumped at waste yard.
	- Storage of Acetylene, Oxygen cylinders - Gas & Arc Welding - Emissions of gases during welding	- Degradation of air quality - Health hazard.	
	- Exhaust emissions from mobile generators.		
	Use of fuel for mobile generator, vehicles	- Consumption of Natural Resource	
	Noise during generator operation	- Degradation of air quality/ Health Impact	
Ware House	Solid Waste - Packaging Material - Empty cans, drums.	- Waste Generation	Observations - Solid waste is collected at the waste yard. - Empty drums are either collected by the supplier or reused. - Waste handling and disposal procedures are in place
	Electricity Usage	- Resource Consumption	
	Fire	- Loss of Property/ Air Pollution	
Lubricants/ *Gases*/ Chemical storage	Solid Waste - Packaging Material - Empty cans, drums.	- Waste Generation	Observations - Solid waste is collected at the waste yard. - Empty drums are either collected by the supplier or reused. - Containments are available to prevent impacts as a result of spillage.
	- Possibility of spillage of lubricants/ chemicals.	- Land contamination	
	- Possibility of fire. - *Explosion*	- Loss of property.	
	Air Emissions *- Release of gases* *- VOCs due to spillage*	- Air Pollution	
Nitrogen Storage	- Possible leaks resulting in cold burns to the workers	- Health Hazard - Air pollution	Observation - Handling and storage procedures are in place
H_2 Storage	- Possible leaks of H2	- Safety Hazard - Air pollution	Observation - Handling and storage procedures are in place -Crisis Management Plan in place
	- Possibility of fire		

Direct Environmental Aspects / Impacts

ASPECTS / IMPACTS

	Aspects	Impact	Observation/ Recommendations
Motor Vehicles	*Air Emissions* - Exhaust Emissions - Use of Fuel (Diesel, Petrol) - Spark generation from the Exhaust	- Air Pollution - Depletion of natural resource/ Air Pollution	- Emission testing is carried out on yearly basis - Engines are tuned as per recommendations - Maintenance is done on routine basis - Records of fuel consumption being maintained. - Spark Arrestors are installed on vehicles used in process area.
Canteen	Solid Waste - Food Waste/ Trash generated as a result of kitchen activities. Energy Use - Electricity - Natural gas Effluent - Waste water. Use of Ozone Depleting substance - Presence of ozone depleting refrigerant in the air-conditioning system. Use of water	- Waste generation - Depletion of resource - Water pollution - Global Warming - Consumption of resource	Observations - Disposal of waste by placing it in waste bags.
Offices ▪ Office Building ▪ Control Room ▪ Decanting Office ▪ Tank Farm Office ▪ Gate # 4 Office ▪ Gate # 1 Office ▪ Keamari Terminal Office	Solid Waste - Waste Paper - Printer, fax toners and cartridges Energy Use - Electricity Effluent - Waste Water Ozone Depletion - Presence of ozone depleting refrigerant in the air-conditioning system.	- Waste Generation - Depletion of resource - Water pollution - Global Warming	Recommendations - Waste segregation in the office to be promoted. - Cartridges/ toners to be disposed off in environmental friendly manner (either reuse or send for recycling). - Options for waste paper recycling to be considered by giving it to recycler. - Objective of reduction of electricity consumption to be considered.
Toilets, Canteen, Lab (PRL Korangi)	Liquid Waste - Sewage water	- Underground water contamination	*Observations* - Water is treated in effluent treatment plant.
Toilets (Keamari Terminal)	- Sewage water	- Underground water contamination	- Effluent Treatment Plant is in operation.

Indirect Environmental Aspects / Impacts

Aspect	Impact	Scale	Life Cycle Impact Data	Common Effect	Required Actions
INPUTS					
Crude Oil	Depletion of natural resources	Global	• Nitrogen Dioxide (NO_2) • Oxides of Sulphur (SO_x) • Methane (CH_4) • Volatile Organic Compounds (VOC) • Sludges	• Ozone depleting potential • Land and Air pollution • Global warming • Acid rain potential • Respiratory diseases	• Efficient operation of plant • Proper disposal procedures
Raw Water	Depletion of natural resources	Global	• Increased moisture rate	• Global warming • Scarcity of water	• Efficient utilization • Re-use of water
Electrical Consumption	Depletion of natural resources	Global	• Increase in ambient air temperature	• Global warming	• Efficient utilization of energy • Energy conservation

Indirect Environmental Aspects / Impacts

Aspect	Impact	Scale	Life Cycle Impact Data	Common Effect	Required Actions
PRODUCTS (Fuel Oil , Diesel, Kerosene, Gasoline , LPG)					
Flue gases from exhaust of vehicles, Thermal Power stations, Aero planes etc upon combustion of the products like furnace oil, kerosene, diesel and jet fuels.	Global warming	Global	• Carbon Dioxide(CO_2) • Nitrogen Dioxide (NO_2) • Methane (CH_4) • Chloro flouro carbon (CFCs)	Global Warming Potential Note: Global Warming potential can be 50, 100 or 500 year potentials	• Furnace burners to be changed with low excess air burners • The vehicles to be well tuned
Usage of chemicals in products to boost performance like TEL	Stratospheric ozone depletion Health hazards	Global	• Ethylene dichloride (EDC) • Lead oxides	• Ozone Depleting potential • Cancer and respiratory track diseases	• No more use of TEL in Pakistan • Environmental friendly chemicals to be used
Poisonous gases generation as a result of combustion	Acidification	Regional /Local	• Sulphur Dioxide (SOx) • Nitrogen Oxides (NOx) • Hydrochloric Acid (HCl) • Ammonia (NH_4)	Acidification potential	Low Sulfur fuels especially in HSD and Furnace Oil need to be produced
Leakages from Tanks and Fugitive emission	Photochemical smog	Local	Non-Methane Hydrocarbon (NMHC)	Photochemical oxidant creation potential	All the fixed roof crude and product tanks to be changed with floating roof and screens to minimize vapor escape
Accidental release of products from tanks	Aquatic toxicity Soil and ground contaminants Human health	Global/ Regional /Local	• Toxic chemicals with a reported lethal concentration to fish • Total releases to water and soil	Sea water and ground water contamination	• Regular monitoring • Containments to be provided
Hazardous waste	Aquatic toxicity Soil and ground contaminants Human health	Global/ Regional /Local	Quantity disposed off in a landfill	Health Hazards	Methods being explored to get rid of hazardous waste in Environmental friendly manner

Corporate Governance

- *Vision & Mission*
- *Corporate Governance Fundamental Principles*
- *PRL Organogram*
- *Project Organogram*
- *PRL Project Structure*
  - *Roles & Responsibilities*
- *Project Management - Organization*
- *PRL Board Management Committees*
  - *Human Resources Committee*
  - *Strategic Project Committee*
  - *Audit Committee*
- *Other Committees*
  - *Purchase Committee*
  - *Executive Committee*
  - *ITS Steering Committee*
  - *Policies & Procedures Review Advisory Committee*
  - *Recruitment & Selection Committee*

VISION

To be the Refinery of first choice for all stakeholders.

MISSION

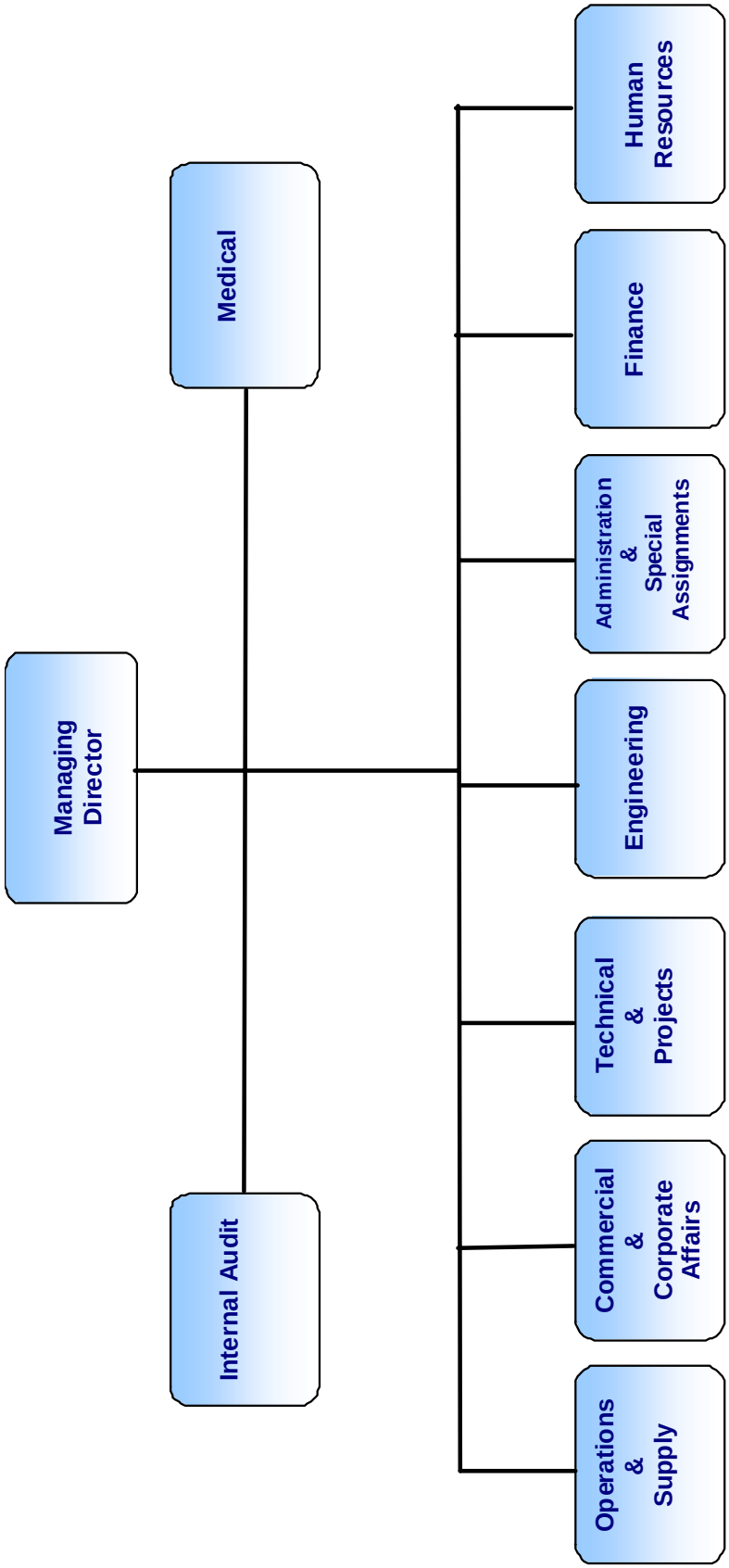
PRL is committed to remaining a leader in the oil refining business of Pakistan by providing value added products that are environmentally friendly, and by protecting the interest of all stakeholders in a competitive market through sustainable development and quality human resources.

Corporate Governance Fundamental Principles

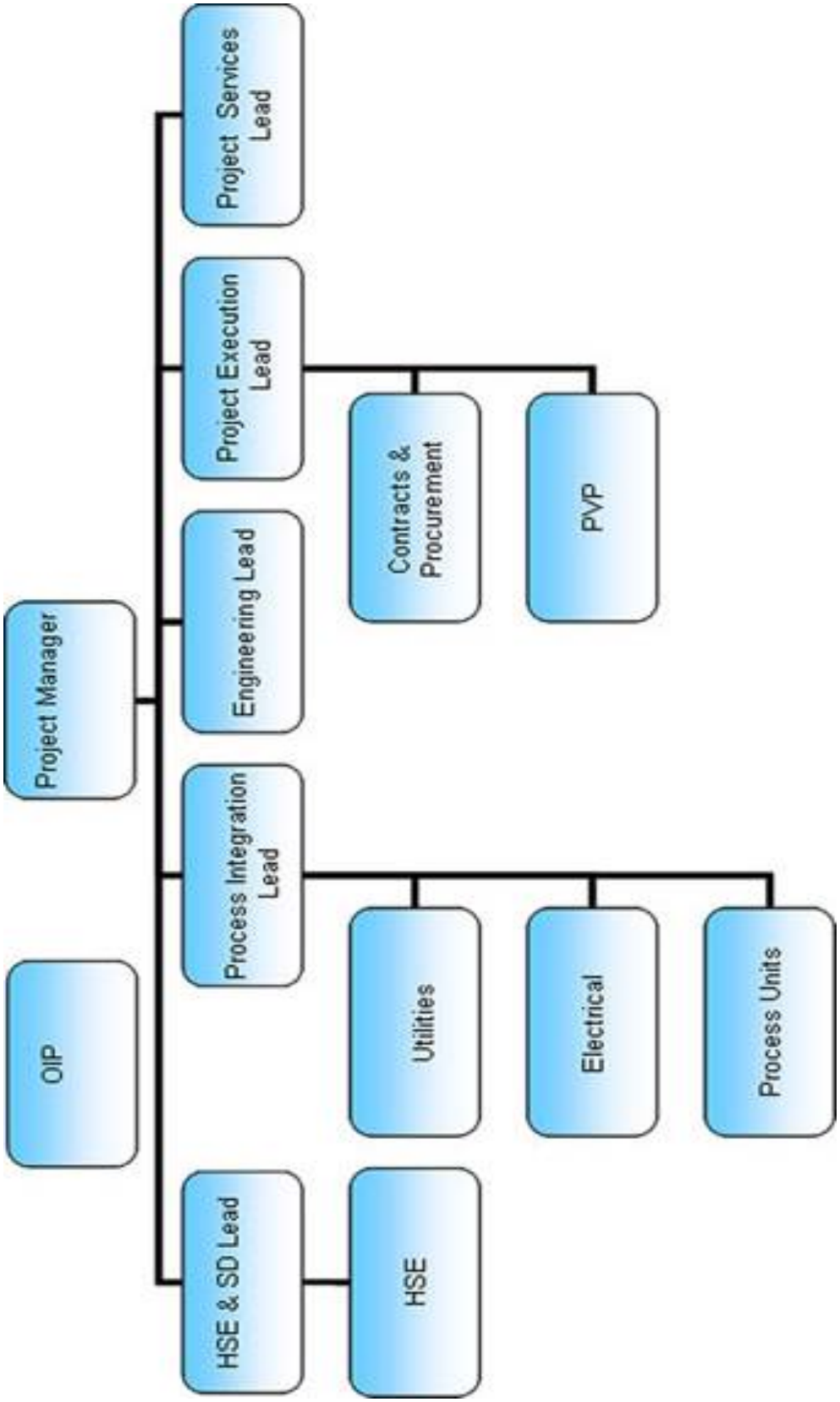
PRL believes and practices the following fundamental principles of Corporate Governance.

- Vision / Mission statement and overall corporate strategy.
- Approve and sign statements of Ethics and Business practices and ensure its communication to all employees.
- Formulation/approval of significant policies.
- Define materiality levels.
- Approve major decisions and exercise powers specified (law and code).
- Establish sound internal control systems and issue statement on internal control.
- Define the role and responsibilities of the Chairman of the Board and Chief Executive Officer.
- Issue statements in the annual report on:
    - True and fair view of the financial statement.
    - Books of account.
    - Accounting policies and IASs.
    - Policy on Health, Safety and Environment.
    - Going concern etc.
- Statement of compliance with the code of corporate governance in Annual Report.
- Ensure review of compliance statement from statutory auditors.

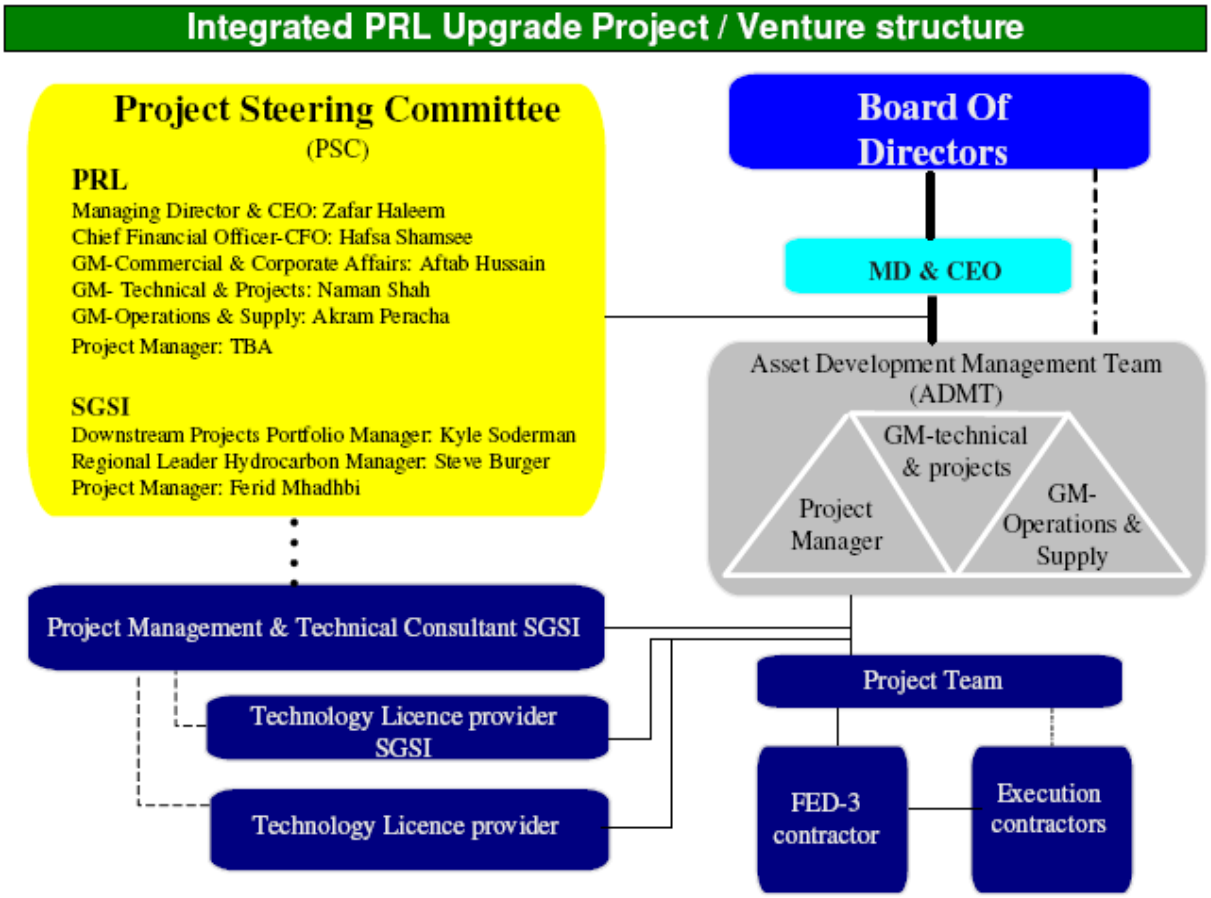
PRL Organogram



Project Organogram



PRL Project Structure



PRL upgrade project organisation/venture structure (high level)

PRL Project Structure – Roles & Responsibilities

Board of Directors (BOD)

- Final decision making
- Suggestions
- Allocation of additional resources

Project Steering Committee (PSC)

- Facilitates / support the ADMT by ensuring adequate involvement by the various stakeholders.
- Advisory / approval capacity to ADMT regarding major decisions /problem at venture level / scopes changes.
- Assist with resolution of resourcing issues.

Asset Development Management Team (ADMT)

- GM-Technical & Projects:
  - Leads the ADMT
  - Responsible for the communication to the PSC.
  - Responsible for ensuring the project is executed in line with business needs.
  - Responsible for performance of the business case.
  - Responsible for doing the right project.
- Project Manager:
  - Leads the project team
  - Responsible for development and implementation of new assets.
  - Responsible for doing the project right.
- GM-Operations & Supply Manager:
  - Leads the operations team
  - Responsible for the generation of the Operations Implementation Plan (OIP).

The PRL upgrade project will be managed and guided by the Asset development Management Team (ADMT)/ Project Steering Committee (PSC).

PRL Board Management Committees

Human Resources Committee

The HR Committee comprises of four members, including the chairman, from the non-executive Directors of the Board. During the period the Committee held four meetings on a required/directed basis. The HR Committee has been delegated the role of assisting the Board of Directors in ensuring that the Company is able to attract and retain a professional, motivated and competent workforce. To this end, the Committee evaluates and recommends salary structures, variable pay, key-position recruitments, succession plans etc. to the Board of Directors for their review and approval.

Strategic Project Committee

The Strategic Project Committee comprises two members, including the chairman, from the non-executive Directors of the Board. The Committee held two meetings during the year on a required/directed basis. The Strategic Project Committee is responsible for evaluating potential project feasibilities, ranging from up gradation/enhancement to diversification projects, and recommending projects that ensure attractive return and growth prospects to the Board of Directors for their review and approval.

Audit Committee

The Audit Committee comprises three members, including the Chairman, from the non-executive Directors of the Board all of whom have sufficient financial management expertise. The Chief Internal Auditor is the Secretary of the Committee.

The Committee held four meetings during the year and held separate meetings with the Chief Financial Officer, Chief Internal Auditor and External Auditors as required under the Code of Corporate Governance. The Committee assists the Board of Directors in ensuring adequate safeguard of Company assets, effectiveness and adequacy of the Company's system of internal control and compliance with operational, financial and risk management policies of the Company. The Committee supervises the Company's financial reporting process including review of interim and annual accounts prior to Board of Directors' approval and subsequent publication with focus on areas of material impact and compliance with applicable accounting standards, listing regulations and best practices as per the Code of Corporate Governance. The Committee is responsible for review of External Auditors' communications including management letters and discussion on major findings from interim and final audits and any matter that the External Auditors may wish to highlight. Additionally, the Committee has the permit to review and investigate any matter or issue as may be assigned by the Board of Directors.

Other Committees

Purchase Committee

- Chief Financial Officer, GM (Administration & Special Assignments), Sr. Manager Commercial & Planning.

Executive Committee

- Chief Financial Officer, GM (Administration & Special Assignments), GM (Engineering), GM (Operations & Supply).

ITS Steering Committee

- Chief Financial Officer, GM (Technical & Projects).

Policies & Procedures Review Advisory Committee

- Chief Financial Officer, Sr. Manager Human Resources, GM (Commercial & Corporate affairs), GM (Technical & Projects).

Recruitment & Selection Committee

- Sr. Manager Human Resources, GM (Commercial & Corporate affairs), GM (Operations & Supply) and Concerned department head

Sustainability Related Policies

- *Summary of Significant Accounting Policies*
- *HSEQ Policy*
- *HIV / AIDS Policy*
- *Security Policy*
- *Ethics Policies*
  - *Conflict of Interest*
  - *Gifts*
  - *Harassment*
  - *Political Affiliation*
  - *Drug & Alcohol*
- *Special Recognition Award Policy*
- *Corporate Social Responsibility*
  - *Global Principles*
  - *Health*
  - *Education*
  - *Improving Surrounding Element*
- *Economic Performance – Financial Ratios*

Summary of Significant Accounting Policies

The significant accounting policies adopted in the preparation of financial statements are set out below:

Basis of Preparation

These financial statements are prepared in accordance with approved accounting standards as applicable in Pakistan and the requirements of the Companies ordinance, 1984. Approved accounting standards comprise of such International Accounting Standards as have been notified under the provisions of the Companies Ordinance, 1984. Wherever, the requirements of the Companies Ordinance, 1984 or directives issued by the Securities and Exchange Commission of Pakistan differ with the requirements of these standards, the requirements of the Companies Ordinance, 1984 or the requirements of the said directives have been followed.

Overall Valuation Policy

These financial statements are prepared under the historical cost convention except what is stated in respective policy notes.

Fixed Assets

Fixed assets are stated at cost less accumulated depreciation/ amortization except capital work-in- progress, which is stated at cost.

Current & Deferred Taxation

Charge for current taxation is based on the higher of taxable income at the applicable rates of taxation or half percent of turnover as defined in the Income Tax Ordinance, 2001.

Deferred tax is provided in full, using the liability method, on temporary differences arising between the tax base of assets and liabilities and their carrying amounts in the financial statements.

Stores, Spares & Chemicals

These are valued at cost, determined using weighted average method, less provision for obsolescence. Items in transit are valued at cost comprising invoice value plus other charges incurred thereon.

Summary of Significant Accounting Policies

Stock-in-trade

Stocks of crude oil are valued at cost determined on “first-in first-out” (FIFO) method and net realisable value except crude oil in transit which is valued at cost. Finished products are valued at lower of cost and net realisable value.

Provisions

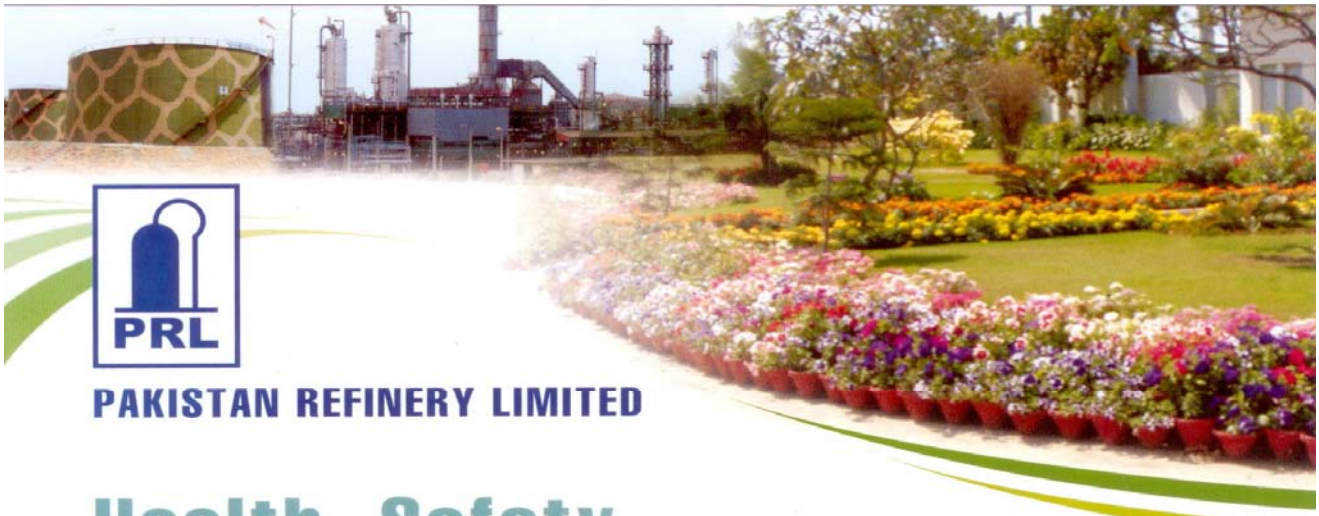
Provisions are recognized when the Company has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be requires to settle the obligation; and a reliable estimate of the amount can be made.

Revenue Recognition

(a) Local sales are recorded on the basis of products pumped in oil marketing company’s tanks.
(b) Export sales are recorded on the basis of products shipped to customers.
(c) The prices of refinery products are notified by the Oil & Gas Regulatory Authority (OGRA) which is primarily based on import parity pricing formula.
(d) Dividends are recognized when the right of receipt is established.

Income on bank deposits is recognized on accrual basis.

HSEQ Policy



PAKISTAN REFINERY LIMITED

Health, Safety Environment & Quality Policy

PRL is committed to the protection of environment and to ensure health and safety of its employees, customers, contractors and communities where it operates and practice quality in all its business activities so as to exceed customer expectations.

PRL is also committed to comply with the applicable laws and requirements and work with the government and other stakeholders in their development and implementation. PRL shall continually improve the effectiveness of health, safety, environment and quality management system by achieving its commitments through:

Health

PRL seeks to conduct its activities in such a way as to avoid harm to the health of its employees and others, and to promote the health of its employees as appropriate.

Safety

PRL work on the principle that all hazards can be prevented through effective leadership and actively promoting a high standard of safety.

Environment

PRL prevents pollution through progressive reduction of emission, effluents and disposal of waste materials that are known to have a negative impact on the environment.

Quality

PRL focuses on customer satisfaction by operating efficiently and developing a culture, which promotes innovation, error prevention and teamwork.

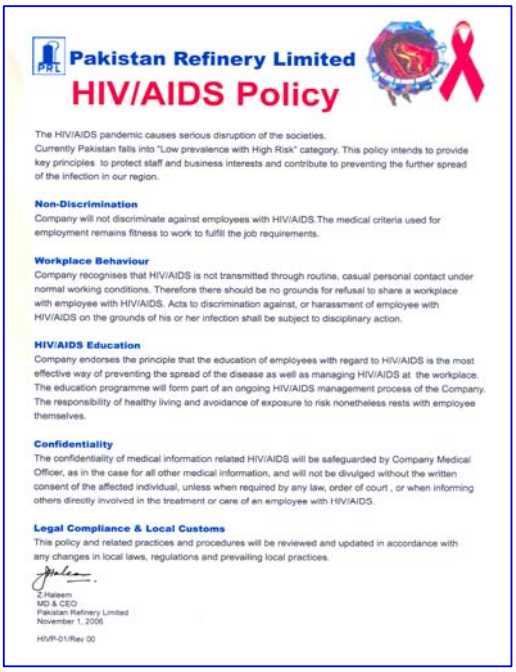
PRL conducts periodic audits and risk assessment of its activities, processes and products for setting and reviewing its objectives and targets to provide assurance to improve HSEQ system and loss control. PRL encourages its contractors working on its behalf or on its premises to also apply health, safety, environment and quality standards.

Z. Haleem
MD & CEO
September 25, 2006

HSEQ-01 / Rev 04

HIV / AIDS Policy

PRL has introduced a HIV /AIDS policy in its organization to protect staff and business interest and contribute to prevent spread of HIV/AIDS.



Pakistan Refinery Limited

HIV/AIDS Policy

The HIV/AIDS pandemic causes serious disruption of the societies.
Currently Pakistan falls into "Low prevalence with High Risk" category. This policy intends to provide key principles to protect staff and business interests and contribute to preventing the further spread of the infection in our region.

Non-Discrimination
Company will not discriminate against employees with HIV/AIDS.The medical criteria used for employment remains fitness to work to fulfill the job requirements.

Workplace Behaviour
Company recognises that HIV/AIDS is not transmitted through routine, casual personal contact under normal working conditions. Therefore there should be no grounds for refusal to share a workplace with employee with HIV/AIDS. Acts to discrimination against, or harassment of employee with HIV/AIDS on the grounds of his or her infection shall be subject to disciplinary action.

HIV/AIDS Education
Company endorses the principle that the education of employees with regard to HIV/AIDS is the most effective way of preventing the spread of the disease as well as managing HIV/AIDS at the workplace. The education programme will form part of an ongoing HIV/AIDS management process of the Company. The responsibility of healthy living and avoidance of exposure to risk nonetheless rests with employee themselves.

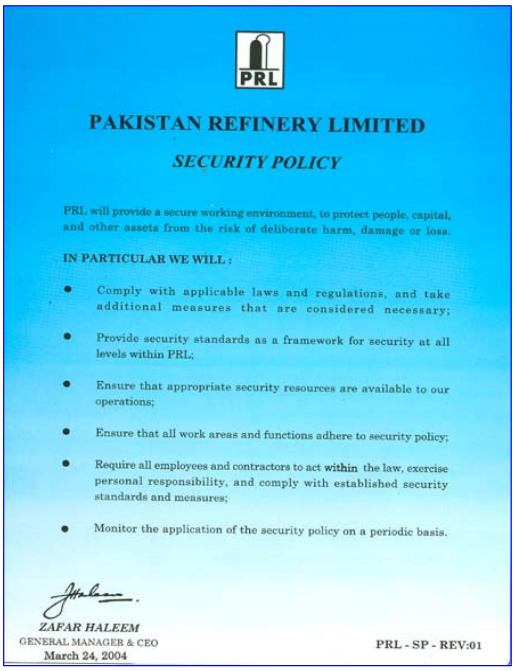
Confidentiality
The confidentiality of medical information related HIV/AIDS will be safeguarded by Company Medical Officer, as in the case for all other medical information, and will not be divulged without the written consent of the affected individual, unless when required by any law, order of court , or when informing others directly involved in the treatment or care of an employee with HIV/AIDS.

Legal Compliance & Local Customs
This policy and related practices and procedures will be reviewed and updated in accordance with any changes in local laws, regulations and prevailing local practices.

Z.Haleem
MD & CEO
Pakistan Refinery Limited
November 1, 2006

HV/P-01/Rev 00

Security Policy



PAKISTAN REFINERY LIMITED

SECURITY POLICY

PRL will provide a secure working environment, to protect people, capital, and other assets from the risk of deliberate harm, damage or loss.

IN PARTICULAR WE WILL :

- Comply with applicable laws and regulations, and take additional measures that are considered necessary;
- Provide security standards as a framework for security at all levels within PRL;
- Ensure that appropriate security resources are available to our operations;
- Ensure that all work areas and functions adhere to security policy;
- Require all employees and contractors to act within the law, exercise personal responsibility, and comply with established security standards and measures;
- Monitor the application of the security policy on a periodic basis.

ZAFAR HALEEM
GENERAL MANAGER & CEO
March 24, 2004

PRL - SP - REV:01

Ethics Policies

Conflict of Interest

It is PRL policy that employees and others acting on PRL's behalf must be free from conflicts of interest that could adversely influence their judgment, objectivity or loyalty to the company in conducting company's business activities and assignments. The company recognizes that employees may take part in legitimate financial, business and other activities outside their PRL jobs, but any potential conflict of interest raised by those activities must be disclosed promptly to management.

Gifts

The term "business gifts" in this policy includes business entertainment, as well as gift items. The giving of business gifts is a customary way to strengthen business relationships and, with some restrictions, is a lawful business practice. It is PRL policy that company employees may give and receive appropriate, lawful business gifts in connection with their PRL work, provided that all such gifts are nominal in value and not given or received with the intent or prospect of influencing the recipient's business decision-making.

Harassment

PRL is committed towards maintaining a working environment free from harassment of all kinds, which includes sexual, racial, age, religious, ethnic, disability, national origin, color and any other form of forbidden harassment of any Company employee or applicant for employment. As per policy of the company no individual be subjected to any unwelcome conduct that is or should be known to be offensive because of his or her gender, appearance, religious beliefs, color, place of origin, mental or physical disabilities, family status, or other protected category. Such harassment in any form or manner is strictly prohibited.

Political affiliation:

No employee may make any political contribution of any kind in the name of, or by utilizing Company funds, assets, services or facilities. All employees are free to make personal political contributions or engage in personal political activities so long as such contributions or activities do not infringe upon the employee's duties for the Company, are not inconsistent with this Policy, and the employee does not trade upon the name of the Company.

Drug and Alcohol:

The possession, use or distribution of illicit drugs or non-prescribed controlled substances, the misuse of intoxicants or use of alcohol and prescribed drugs by any person on PRL premises or worksite is prohibited.All personnel shall conform at all times to the Drug and Alcohol policy applying at PRL or worksite. Any person in violation of this policy shall be removed immediately from the worksite and may be subject to disciplinary action, up to and including dismissal.

Ethics Policies – Cont…

PRL also reserves the right to request its personnel to provide body fluid samples to a qualified person for the purpose of testing for alcohol and drugs, where there is reason to suspect these substances may affect the person or after the person has been involved in a serious safety incident. Failure to comply with such a request shall result in the person being removed from the premises and may be grounds for disciplinary action, up to and including dismissal.

PRL recognizes alcohol or drug dependency as a treatable condition. Employees who suspect they have an alcohol or drug dependency are encouraged to seek professional advice and treatment. Affected employees should advise the Company of the existence of an alcohol or drug dependency before it results in job performance problems. No employee will be dismissed due to advising the Company of such a dependency and of involvement in a rehabilitation effort while they are fulfilling their normal job requirements.

SRA Policy

PRL has developed and implemented special recognition programs to acknowledge employees' contributions to the overall objectives of the refinery.

Recognition Program covered by this Policy are not intended to replace the provisions of the Service Recognition Policy or the Compensation Policy, but may be used to supplement them.

Corporate Social Responsibility

Corporations have a clear responsibility to ensure that their operations and business practices are not detrimental to society. Over the past few years, there has been an increasing pressure to take this responsibility very seriously. One measure of successful globalization is a world in which corporate social responsibility (CSR) becomes a force for sound business practices, democratic reforms and healthy communities. The global framework for successful CSR continues to be constructed. Within this framework it is the responsibility of corporations to take the lead and make CSR a corporate commitment.

The Refinery considers corporate social citizenship as a prime responsibility and is committed to ensure that materials and products produced are both environment friendly and technically sound. For the Refinery CSR means "doing the right thing". In developing meaningful CSR practices, the Company goes beyond the gut-check definition and analyzes how its actions impact a wide variety of stakeholder groups. Important stakeholders include shareholders, employees, suppliers, the environment, community members, customers and partners. The company at all times acts in a socially responsible manner and makes efforts to minimize any negative impact its business practices may have on any stakeholder group.

PRL, through its CSR strategy, demonstrates good faith, social legitimacy and commitment that goes beyond the financial bottom line. To this end, since 2005, the Refinery has voluntarily committed to the U.N. Global Compact Principles.

PRL is dedicated to giving back to its community in many ways. It believes in doing work that has meaning and that makes a difference in the lives of people and the community at large.

Focused efforts during this year were made in the areas of health and education. The Company supported local charity-run hospitals by giving donations for equipment purchase and facility renovations. Further, during the year, contributions included donations to, and, even individual employee participation, in HIV/AIDS Programs.

In the area of education the Company took on the task of renovating two government-run primary schools where major structural renovations were carried out along with providing basic educational amenities like uniforms and stationary.

Additionally, assistance was provided to various responsible institutions and Non-Governmental Organizations (NGO's) which work on humanitarian grounds and provide free services like eye checkup, surgery and run AIDS awareness programs.

Health Sector

In the year 2006-07, we had focused on health & education in the vicinity of Pakistan Refinery Limited.

We worked on three major projects. Rs. 4.2 million were spent to establish the non-invasive cardiology lab, consisting of equipment for Echocardiography, E.T.T (Exercise Tolerance Test) Holter Monitors, ECG machine at Indus Hospital; the biggest charity hospital in the area of Korangi (situated approximately a kilometer away from the Refinery). It is a 700 bedded hospital equipped with all types of facilities required for the community.

In the same frame we gave Rs. 300,000/- to Pakistan Eye Bank Society, to develop a separate Dental Unit in a hospital & Rs. 300,000/- to LRBT, to help needy patients by providing Intraocular lenses & purchase of equipment for eye checkup.

Refinery has very good corporate relations with Agha Khan University Hospital. In the year 2007, we gave Rs. 1 million to AKUH Charity Funds which were utilized for poor & needy patients.

HIV/Aids policy has been implemented in many local industries, we also worked for its awareness and control by giving donation of Rs. 200,000/- to NGO's like Marie Stopes Society which is working on HIV/AIDS control and awareness program all over Pakistan and is also working in area of population control by providing services for family health planning.

Education

PRL has been working to improve the facilities & level of education in Government schools for last 2 to 3 years. Last year we focused on 2 different government schools for their reconstruction, renovation and also provided books, uniforms and shoes for their students. We spent Rs. 1.1 million in Government Boys/Girls Primary/Secondary School near Bhittai Colony where more than 600 students are studying in two different shifts.

We spent Rs. 1.02 million for construction of two new class rooms and provided school furniture, uniforms & necessary supplies to Govt. Boys/ Girls Primary, Secondary School, near Ibrahim Hyderi, where more than 300 students are studying in two shifts.

Donation for Special Children

We also concentrated towards schools & institutes which provided dedicated services to children with special needs. Rs 5000/= were donated to Blind Centre Association of Physically Handicapped & Hassan Academy for Special Education for various programs.

Numerous other donations were made to charitable organization working for the benefit of society. Rs. 100,000 was donated to Hamza Foundation, Islamic Education Welfare & Pak Red Crescent. Rs 200,000/= to Patients Aid Society, Civil Hospital to provide essential supplies to needy patients.

Help for Cyclone Affectees

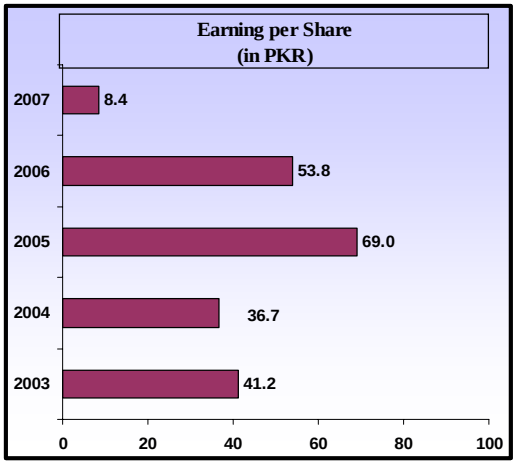
In July 2007 a severe cyclon hit the coastal area of Karachi near Ibrahim Hyderi & Baluchistan. Thousands of people were rendered shelter less and were living under open skies along with their families, without any food & medical supplies. The most meaningful donation at that time was provision of food supplies. Food items worth Rs One Millions were distributed directly by CSR committee to the 800 families in the effected area of Ibrahim hyderi.

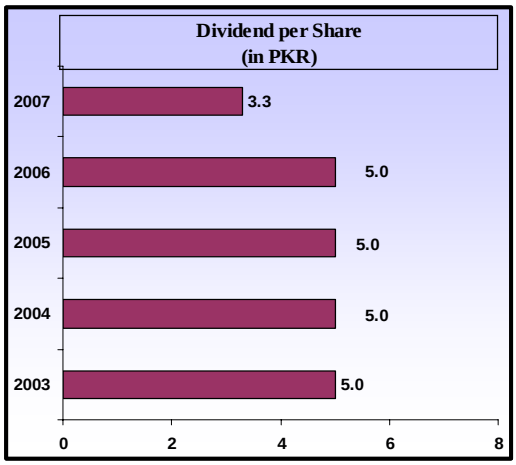
Improving Surrounding Element

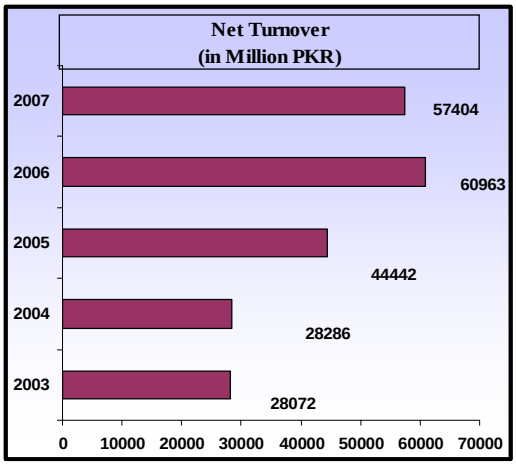
In Korangi creek area, there is only a single road which connects Korangi Crossing with CBM, PAF Korangi Creek Base, PARCO and PRL. This road was more than 70% damaged. To improve the quality of road serving the section between Korangi Crossing & CBM, we spent Rs. 850,000 on repairs; providing safety & comfort to the employees & general public using the road.

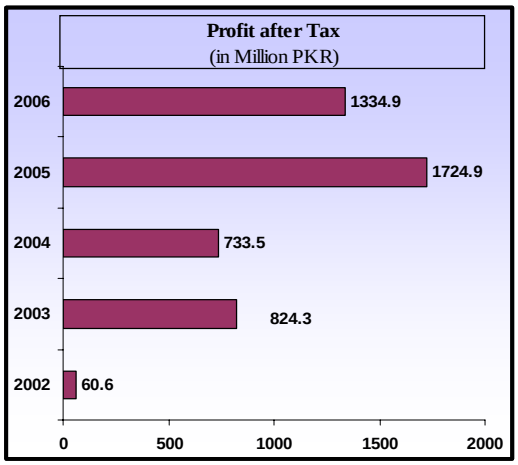
A section of Korangi Creek Road from Korangi Crossing to CBM being repaired by Pakistan Refinery Limited as part of their Corporate Social Responsibility.

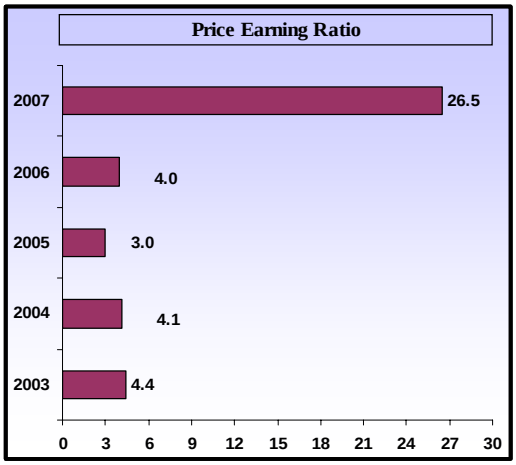
Economic Performance - Financial Ratios (Fiscal Years)

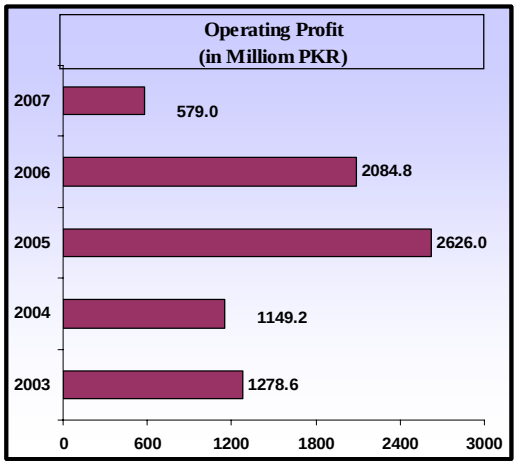




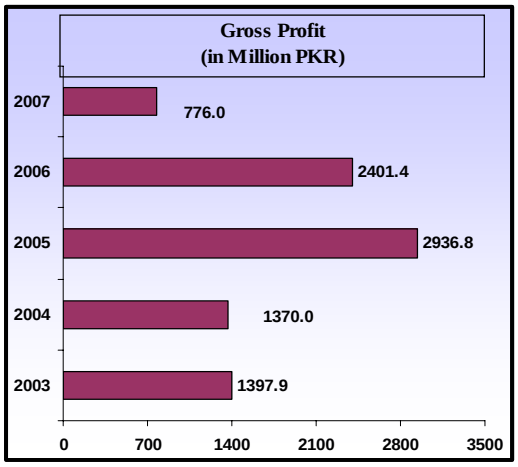


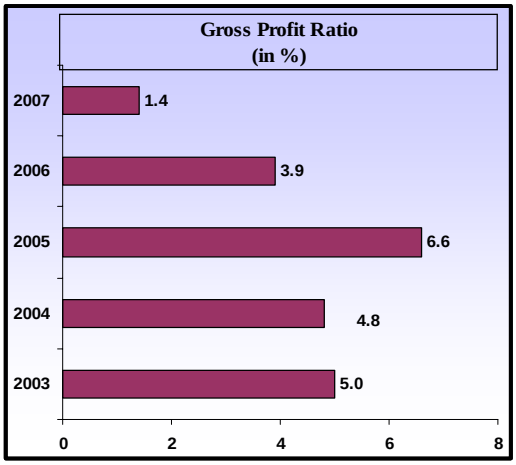


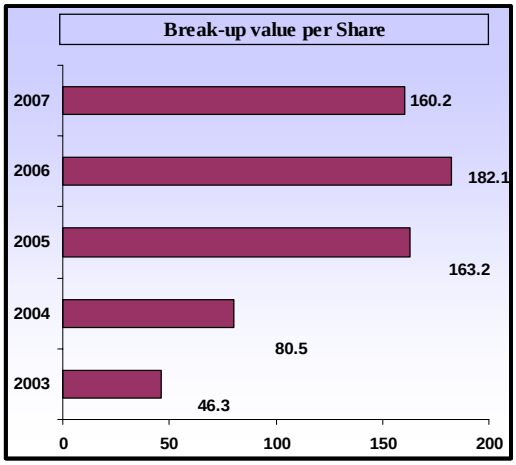


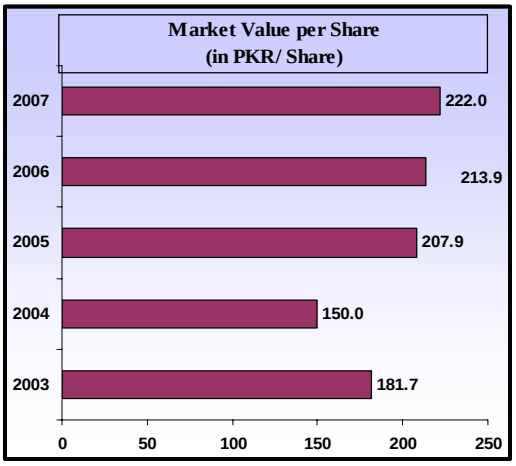


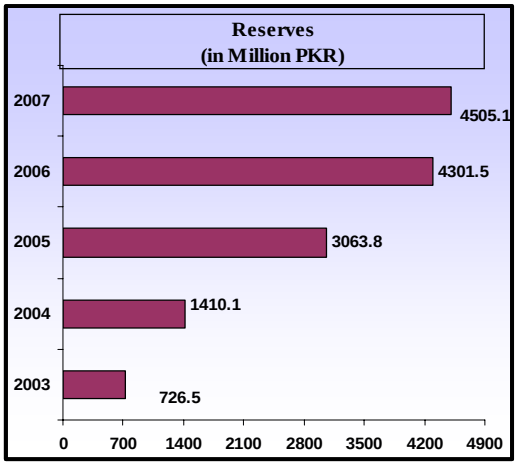
Economic Performance - Financial Ratios (Fiscal Years)

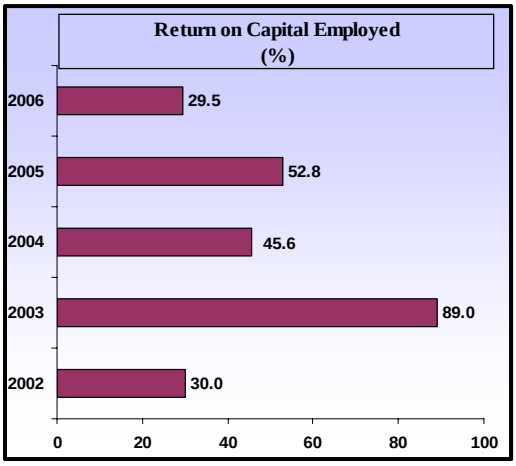








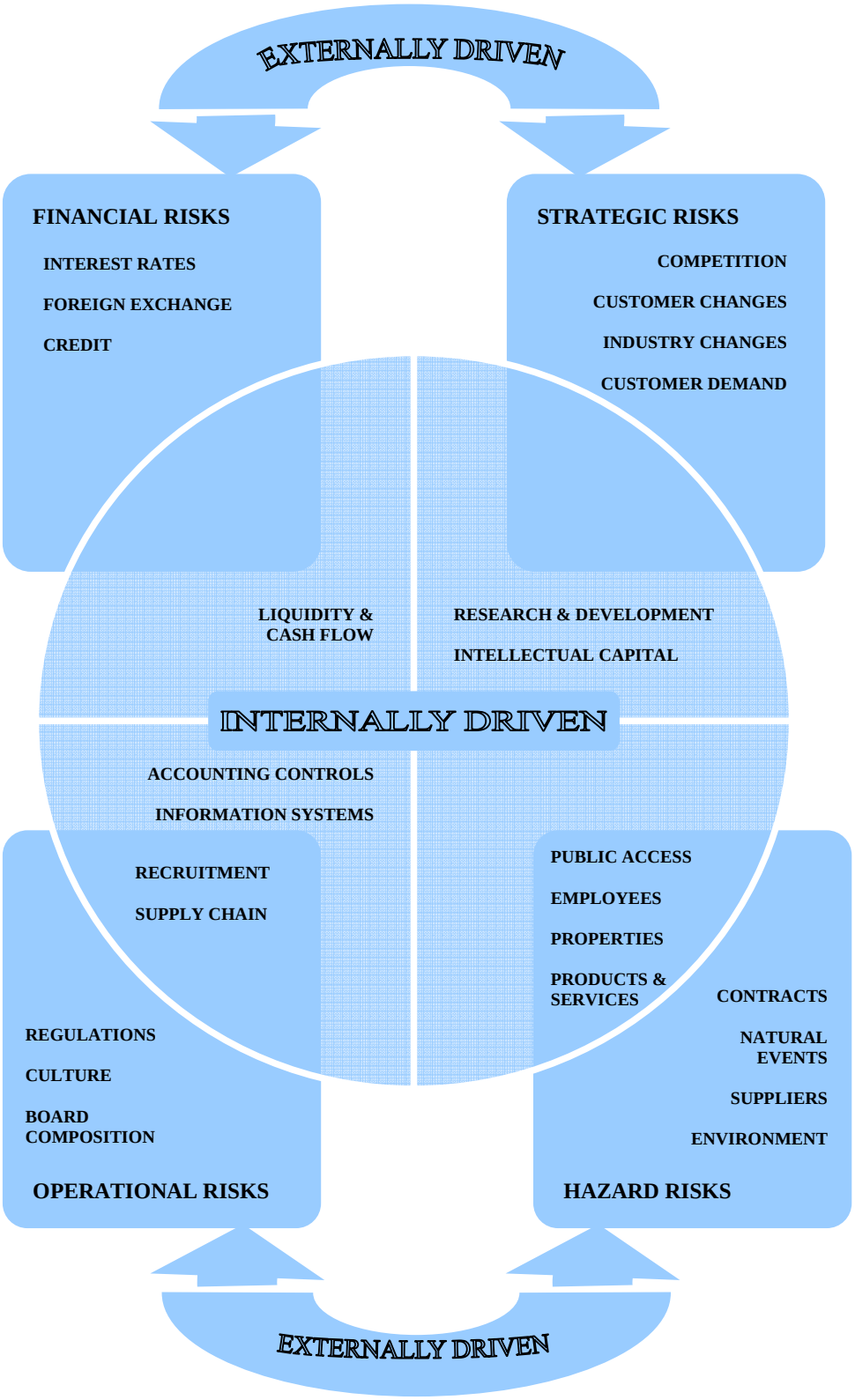




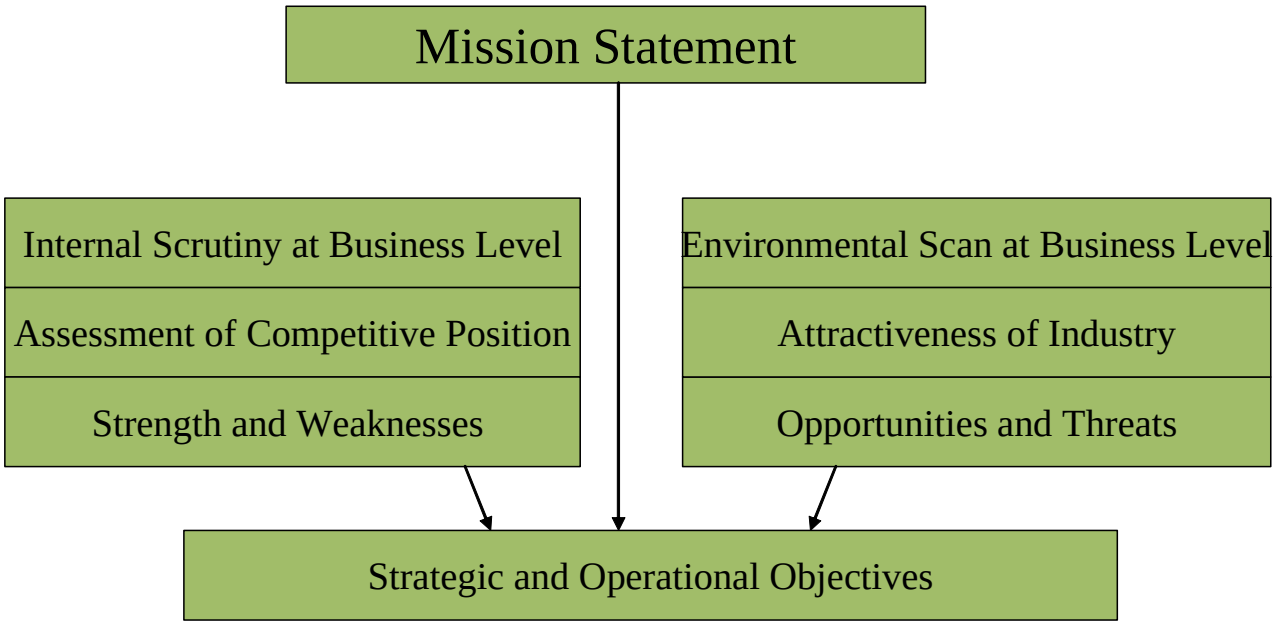
Management Systems & Procedures

- *Risk Management*
  - *Risk Management Framework*
  - *Business Understanding*
  - *Business Objectives*
  - *Risk Response*
  - *SWOT Analysis*
  - *Implementation*
- *HSEQ Management System*
- *Main HSEQ Committee*
  - *Operations HSEQ Committee*
  - *Office HSEQ Committee*
  - *Engineering HSEQ Committee*
  - *Emergency / Crisis Management*
  - *Assurance / Authenticity*
  - *Demonstration of Commitment*
  - *Awards*

Risk Management Framework



Objectives Formulation



Business Objectives

The objectives will be better understood if they are SMART

- Specific
- Measurable
- Aligned
- Realistic/Resourced
- Timely

Risk Definitions

- Risk – Product of likelihood and impact.
- Gross Risk – Risk without any operational controls.
- Net Risk - Risk after applying operational controls.
- Risk Assessment – Level of the risk
- Risk Response – Risk reduction strategy
- Major, Significant and Moderate Risk – Size of the risk

Risks Identification

- Health, Safety, Environment and Quality (HSEQ)
- Natural Events
- Country
- Stakeholders
- Financial
- Operations
- People / Management
- Information Technology
- Technical
- Competitors
- Political

Risk Response

- Minimize likelihood
- Mitigate the impact of the risk.
- Maximize the likelihood or the impact.
- The level of response decisions are dependent on the following factors:
- The level and relevant importance of the objective.
- The nature of the risk upside or downside.
- The risk appetite i.e. level of acceptable risk.
- The cost of applying risk response.

Risk Response Strategies

Take

- Fully accept
- Tolerance levels
- Establish and monitor key risk indicators
- Build in contingencies
- Develop recovery plan
- Investigate and take follow up action

Transfer

- Insure
- Contract out

Terminate

- Cease activity
- Redesign business processes, systems, and tools.

Treat

- **Organization –** Understandable structure ,Unambiguous Authorities Acceptance of responsibility and accountability, agreed MS
- **People and Relationship –** Morale and motivation, commitment, teamwork and interaction, incentive / reward scheme, informative sharing.
- **Direction-** General Business principles, Mission and Vision, Policies, Performance targets, Strategies, objectives and goals, Budgets, Laws and regulations and critical success factors.

Operational

- Design and engineering of physical system, alarms and warning systems
- Physical barriers , Information protection , Access control
- Segregation of duties, Procedures and work instructions, back up arrangements, job hand over, business continuity plans.

Monitoring

- Challenge sessions
- Performance measurement / milestone reviews
- Observations / Surveys / bench marking
- Incident investigation and reporting , Result analysis
- Compliance verification

Implementation

Who, What, When, Where, Why and How questions relating to the frame work have been answered.

For making the frame work sustainable following is done.

Owned and understood by Management

- Support both by behaviors and actions
- Regular management review

Integrated

- Frame work to be built in to roles , activities and to the process of businesses.

Communicated

- Awareness / Training Sessions
- Building concepts and inviting contributions

Checking

- Self Assessment
- Assisted Self Assessment
- Internal Audit
- Third Part Audit
- An opinion from independent reviewer regarding the effectiveness of risk base control frame work.
- Recommendations for actions to strengthen and improve frame work.
- A report which substantiate and communicates the opinion and recommendations.

SWOT Analysis

Strength

- Experienced staff
- No un-planned s/down; 10 million man hours w/o LTI
- Assets
- Strategically located with Integrated pipeline network
- 100 Acres of land
- Systems
- ISO and OHSAS certified
- LP model, Hysys, RCM, DCS and APC
- SAP
- Low cost operator

Weakness

- Type & Design
- Low crude distillation capacity
- Furnace oil production 42 % of the total throughput
- no conversion process for FO
- Can not process heavy/sour crude
- Future product specs can not be met with current hardware
- Weak hydro skimming margins
- Commercial viability of PRL will be

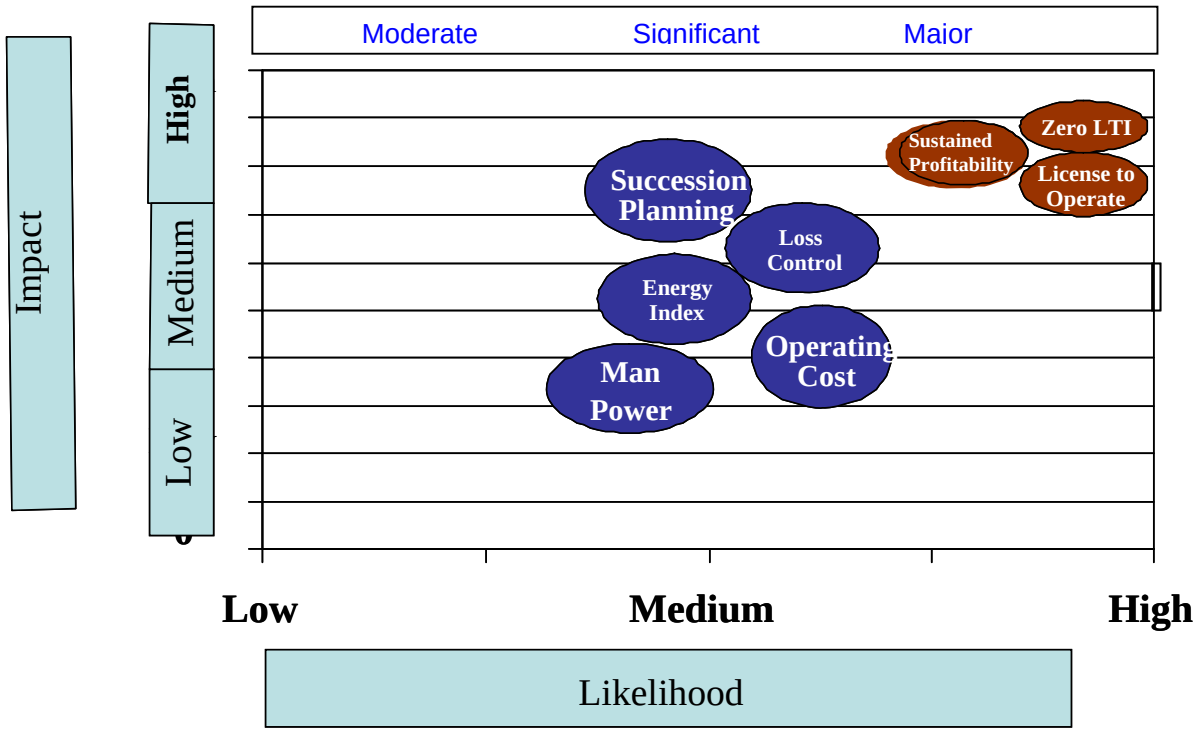
Opportunity

- Hardware up-gradation
- Conversion of fuel oil into lighter ends
- Processing of heavy/sour crude
- Financing
- soft loans, available easily for production of environmentally friendly fuels

Threat

- Going concern at stake
- Product specs
- Current hardware is not suitable
- Government
- Revision of Tariff Protection Formula
- Reclaim special reserves
- Capped dividend pay out ratio
- Competition
- Existing refinery up-gradation
- Up-coming refinery projects
- Alternate Fuels

Risk Assessment

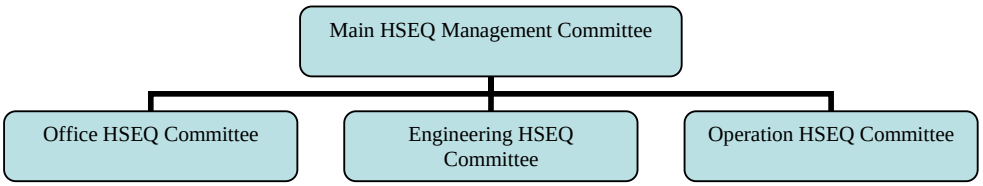


HSEQ Management System

Pakistan Refinery Limited has an integrated Health, Safety, Environment and Quality Management System, based on ISO-9001:2000, ISO-14001: 2004 and OHSAS-18001:1999. Effective planning by the team enables us to manage HSEQ matters professionally and sets the basis for continual improvement.

HSEQ-MS Committees

In order to ensure effective functioning of HSEQ Management System, PRL has following committees:



The Management HSEQ Committee meets at least bi-annually, under the chairmanship of Managing Director-CEO and evaluates Health, Safety, Environment and Quality management system based on the following inputs and takes appropriate decisions for implementation and improvement in the system:

- Adequacy of HSEQ Policy
- Progress on HSEQ Objectives and Targets
- Results of Internal Audit
- Status of Corrective and Preventive Actions
- Complaints / Communication from interested parties
- Customer Feedback
- Process performance and product conformity
- Monitoring / Measurement results
- Accident / incident, near miss, operational upsets, etc.
- Inputs from HSEQ Sub-Committees
- Resources needed

The members of the main HSEQ committees are:

- MD & CEO
- GM Administration & Special Assignment
- GM Commercial & Corporate Affairs
- GM Operation & Supply
- GM Technical & Project
- Chief Financial Officer
- Chief Medical Officer
- Sr. Manager Human Resource

HSEQ Management System – Cont…

The sub-committee meets at least quarterly to discuss and resolve any issues related to health, safety, environment and quality.

Different levels of checks and audits ensure effective implementation of HSEQ Management System.

Emergency / Crisis Management

PRL has established an emergency response organization which clearly states the responsibilities during any accident or any emergency situation at the Refinery or Keamari terminal that develops as a result of PRL's activities. Mock drills are executed periodically to check the effectiveness of these plans & create awareness among the staff, having defined role under different scenarios.

Pakistan Refinery Limited has a documented Crisis Management Plan, which is applicable to emergency / crisis situation arising from PRL's direct / indirect activity. The document is based on the following fundamental principles: -

- Minimizing harm to people
- Minimizing environmental impacts
- Protecting the reputation of Refinery
- Minimizing liabilities
- Minimum damage to the property

The purpose of the document is to:

- Define responsibilities and provide guidance for appropriate response to emergency/ crisis situation.
- Ensure that principles of prevention, preparation, mitigation and restoration are met.
- Ensure that concerned / PRL Staff receives prompt and accurate information about the emergency / crisis situation in order to expedite response, control and decision-making.

Assurance / Authenticity

PRL's Routine Surveillance Visit by BUREAU VERITAS against ISO 9001:2000 which is Quality Management System, ISO 14001:2004 (Environmental Management System) and OHSAS 18001 (Occupational Health & Safety Assessment Series) certification was conducted during the month of November, 2007.

No (minor / major) Non- Conformity (NCR's) was identified.

BUREAU VERITAS

BUREAU VERITAS CERTIFICATION

Our Ref. PAK/BV-CERT/1097-3/AZ

December 18th, 2007

PAKISTAN REFINERY LIMITED
KARACHI - PAKISTAN

Attn.: Mr. M. Naman Shah – General Manager (Technical & Project)

Sub: Second Routine Surveillance Visit to ISO 9001: 2000, ISO 14001:2004 & OHSAS 18001:1999 Standard

Bureau Veritas Certification confirms that Routine Surveillance Visit of your Organisation's Integrated Management System against the requirement of subject standards was performed on 6th & 7th December 2007 against the scope of:

"Refining, Storage and Distribution of Crude Oil and Petroleum Products in the Refinery at Korangi Creek and Keamari Terminal"

During the Visit no (minor/major) Non-Conformity (NCR's) was identified. **Congratulations!**

This in turn will ensure continuation of your **Registration (Certification)** with Bureau Veritas Certification till the Re Certification Visit. Please be informed that Bureau Veritas Certification will keep you posted for the due visit well in advance.

We would like to take this opportunity and congratulate you for this achievement.

Sincerely,

MUHAMMAD SHAHAB SAQIB
TECHNICAL MANAGER

AZEEMUL HAQ USMANI
ASSISSTANT MANAGER (OPERATIONS)

Bureau Veritas Pakistan (Pvt.) Ltd.

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Demonstration of Commitment

BUREAU VERITAS
Certification

Certification
Awarded to

PAKISTAN REFINERY LIMITED
REFINERY: P.O. BOX # 4612, KORANGI CREEK ROAD
TERMINAL: PORT AREA OIL STORAGE TERMINAL, KEAMARI
PAKISTAN

Bureau Veritas certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standard detailed below

STANDARD
ISO 14001:2004

SCOPE OF SUPPLY

REFINING, STORAGE AND DISTRIBUTION OF CRUDE OIL AND PETROLEUM PRODUCTS IN THE REFINERY AT KORANGI CREEK AND KEAMARI TERMINAL

Original approval date: 15TH NOVEMBER 2002
Subject to the continued satisfactory operation of the organisation's Management System, this Certificate is valid until: 14TH NOVEMBER 2008
To check this certificate validity please call: +92 21 111 786 013
Further clarifications regarding the scope of this certificate and the applicability of the Management System requirements may be obtained by consulting the organisation

Certificate Number: 179281/B Date: 15th November 2006 Muhammad Shahab SAQIB

BUREAU VERITAS
Certification

Certification
Awarded to

PAKISTAN REFINERY LIMITED
REFINERY: P.O. BOX # 4612, KORANGI CREEK ROAD
TERMINAL: PORT AREA OIL STORAGE TERMINAL, KEAMARI
PAKISTAN

Bureau Veritas certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standard detailed below

STANDARD
ISO 9001:2000

SCOPE OF SUPPLY

REFINING, STORAGE AND DISTRIBUTION OF CRUDE OIL AND PETROLEUM PRODUCTS IN THE REFINERY AT KORANGI CREEK AND KEAMARI TERMINAL

Original approval date: 15TH NOVEMBER 2002
Subject to the continued satisfactory operation of the organisation's Management System, this Certificate is valid until: 14TH NOVEMBER 2008
To check this certificate validity please call: +92 21 111 786 013
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Certificate Number: 179281/C Date: 15th November 2006 Muhammad Shahab SAQIB

BUREAU VERITAS
Certification

Certification
Awarded to

PAKISTAN REFINERY LIMITED
REFINERY: P.O. BOX # 4612, KORANGI CREEK ROAD
TERMINAL: PORT AREA OIL STORAGE TERMINAL, KEAMARI
PAKISTAN

Bureau Veritas certify that the Management System of the above organisation has been audited and found to be in accordance with the requirements of the management system standard detailed below

STANDARD
OHSAS 18001:1999

SCOPE OF SUPPLY

REFINING, STORAGE AND DISTRIBUTION OF CRUDE OIL AND PETROLEUM PRODUCTS IN THE REFINERY AT KORANGI CREEK AND KEAMARI TERMINAL

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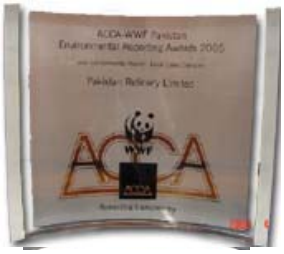
Certificate Number: 179281/C Date: 15th November 2006 Muhammad Shahab SAQIB

Awards

PRL received following Awards in recognition of its HSEQ commitments during the fiscal year 2006-2007.

ACCA-WWF Best Environmental Reporting Award

A milestone, by getting consecutive third time ACCA-WWF Best Environment Reporting Award in the local listed category. It shows our top management's commitment towards the improvement of environment on continual and sustainable basis.



Annual Environment Excellence Award

This is the second consecutive year that PRL has won Annual Environment Excellence Award organized by National Forum for Environment and Health, supported by Ministry of Environment, UNEP and FPCCI

Occupational Health and Safety (OHS) award

PRL received Occupational Health and Safety (OHS) award for best practices from Employers Federation of Pakistan (EFP) in collaboration with ILO. This is second occasion on which PRL received this award.

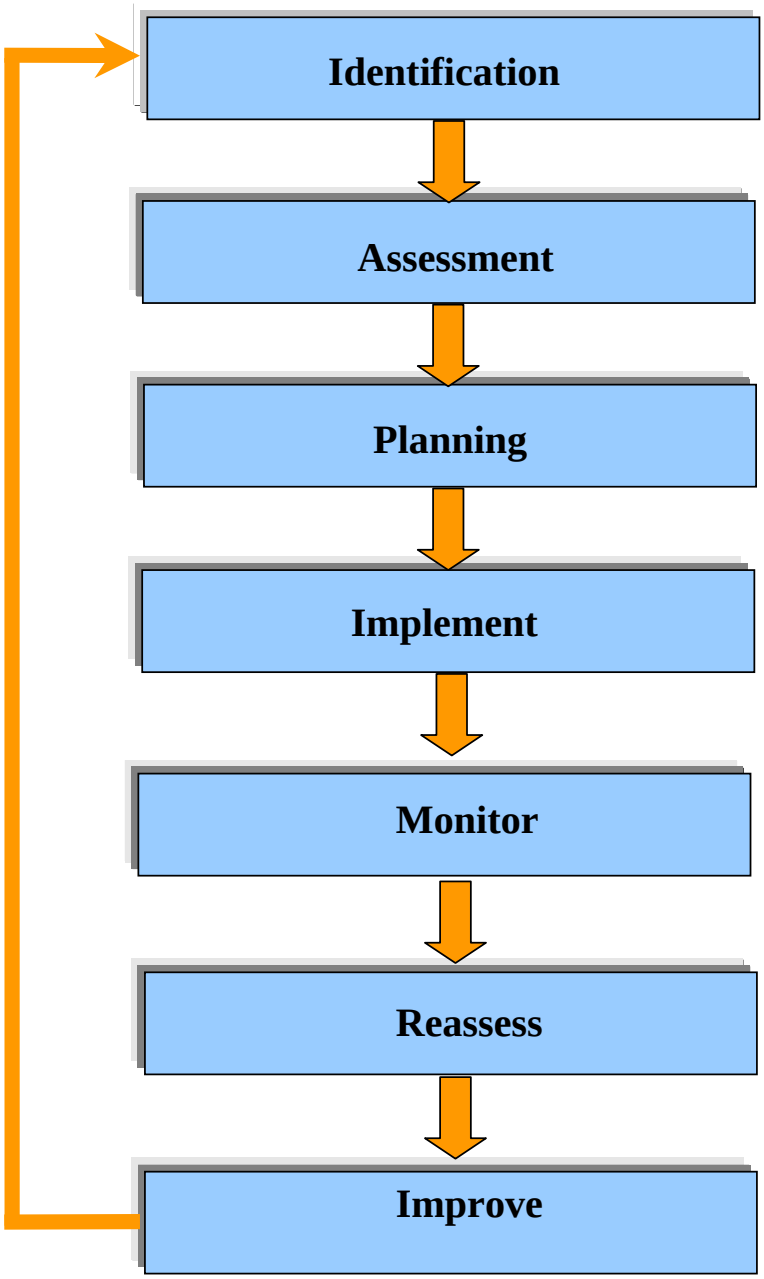
Excellence in Environment Award

PRL received Excellence in Environment Award from HELP International

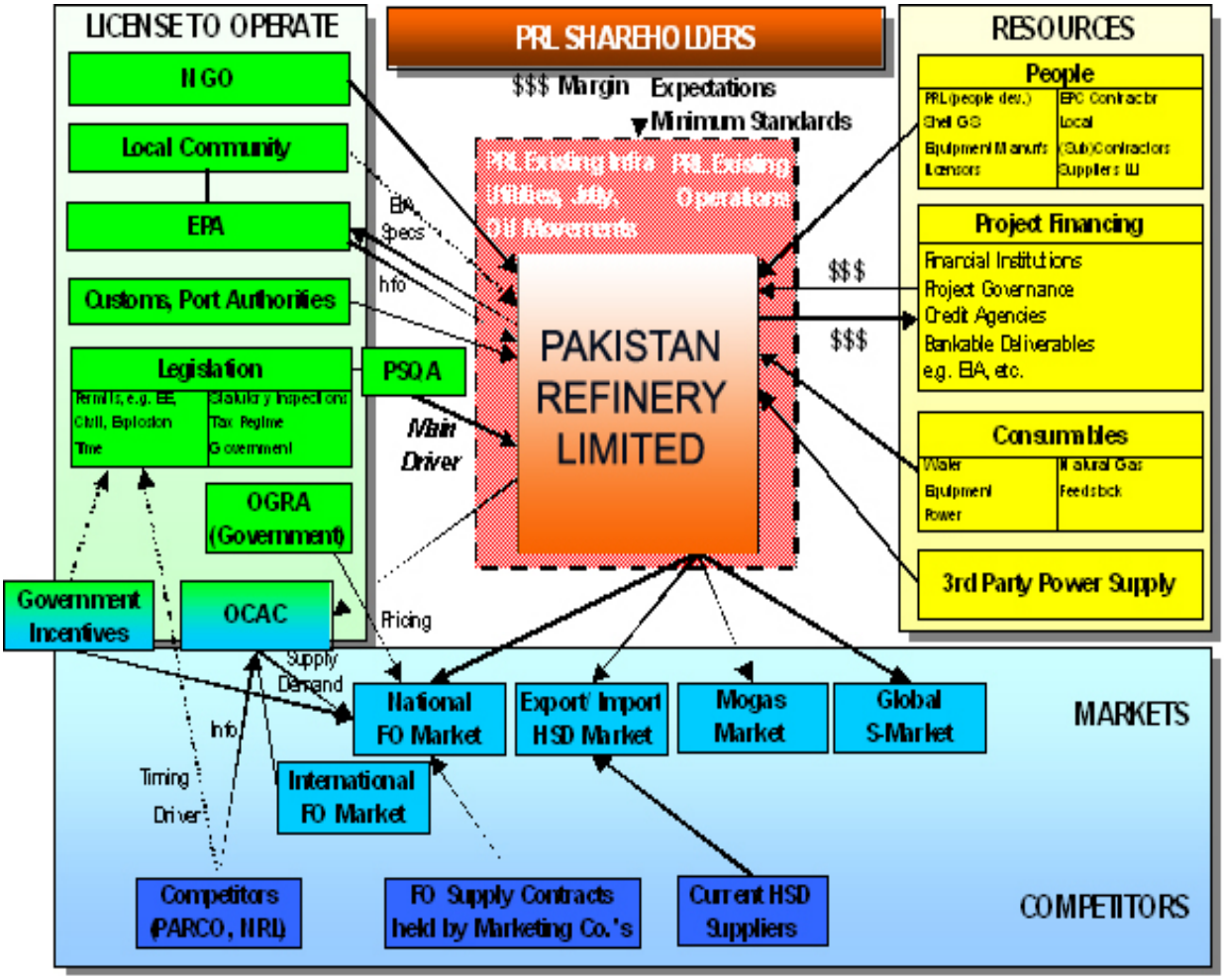
Stake Holder's Engagement

- *Stake holder's Engagement Methodology*
- *Stake holder's Identification*
- *Stake holder's Assessment*
- *Stake holder's Engagement*

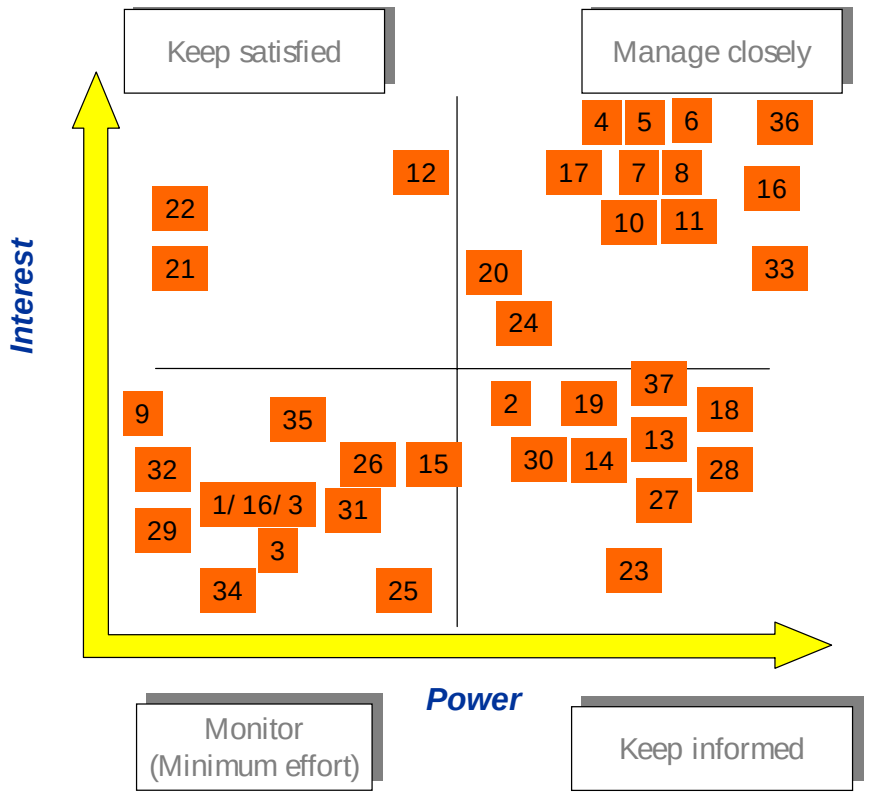
Stake Holder's Engagement Methodology



Stake Holder's Identification



Stake Holder's Assessment



Stake Holder's Assessment

	Stakeholder	Quadrant
1	ARL	"Monitor"
2	Parco	"Keep informed"
3	Bosicor (refinery)	"Monitor"
4	Shell (shareholder)	"Manage closely"
5	Chevron-Texaco	"Manage closely"
6	PSO	"Manage closely"
7	Direct Financial Institution (shareholder)	"Manage closely"
8	Private shareholders	"Manage closely"
9	Oil Companies Advisory Committee (OCAC)	"Monitor"
10	Oil and Gas Regulatory Agency (OGRA)	"Manage closely"
11	Ministry of Petroleum and Natural Resources (MP & NR)	"Manage closely"
12	Pakistan Standard Quality Authority	"Keep satisfied"
13	Power supplier company (KESC)	"Keep informed"
14	Natural gas supplier (SGSC)	"Keep informed"
15	Non Governmental Organisations (NGOs)	"Monitor"
16	Shell Global Solutions	"Manage closely"
17	PRL employees	"Manage closely"
18	Environmental Protection Agency	"Keep informed"
19	Ministry of Industry and Production (MOI&P)	"Keep informed"
20	Financial institutions (for project financing)	"Manage closely"
21	Local community	"Keep satisfied"
22	Local contractors	"Keep satisfied"
23	International EPC contractor	"Keep informed"
24	Pipeline operator (includes shareholders in PRL) of product distribution	"Manage closely"
25	Ministry of Port and Shipping (port authorities)	"Monitor"
26	Customers of refinery products (Fuel Oil, HSD, Mogas)	"Monitor"
27	Water supplier (KW & SB)	"Keep informed"
28	Local government	"Keep informed"
29	Current suppliers of HSD to Pakistan	"Monitor"
30	Equipment manufacturers (including suppliers of LLI)	"Keep informed"
31	Third party Licensors for new units	"Monitor"
32	Ministry of Labour	"Monitor"
33	Federal Board of Revenue (tax and import authority)	"Manage closely"
34	Collective Bargaining Agency (CBA): equivalent to trade union	"Monitor"
35	Local, national, international media	"Monitor"
36	Project Steering Committee	"Manage closely"
37	Securities and Exchange Commission/Stock Exchange	"Keep informed"

Stake Holder's Engagement

Bi- Annual Communication Meeting

It is the forum at which higher management and the employees interact with each other. Managing Director deliberates the picture of Company profit & loss and listens to the employee problems and gives follow up on the previously received suggestions or complaints.


Address to Local Communities

MD & CEO addressing the local community in Ibrahim Hyderi on Health, Safety & Environmental issues.


Stake Holder's Engagement

Contractor's Engagement

Contractors along with their employees are invited on Special days to discuss Health, Safety, Environment & Quality issues. Their feed back is taken for incorporation into the system. The programs run for the whole day.

Environmental Reporting

Refinery emissions and effluents priority parameters are reported to Pakistan Environment Protection Agency (PEPA) and Sindh EPA on monthly basis.

Annual Environmental Reports

Annual Environmental reports are available to all the stake holders through PRL Website at the link below.

http://www.prl.com.pk/env_rep.html

Board of Directors Meetings

Board of Directors meeting is held on quarterly basis to asses the performance of PRL against defined parameters.

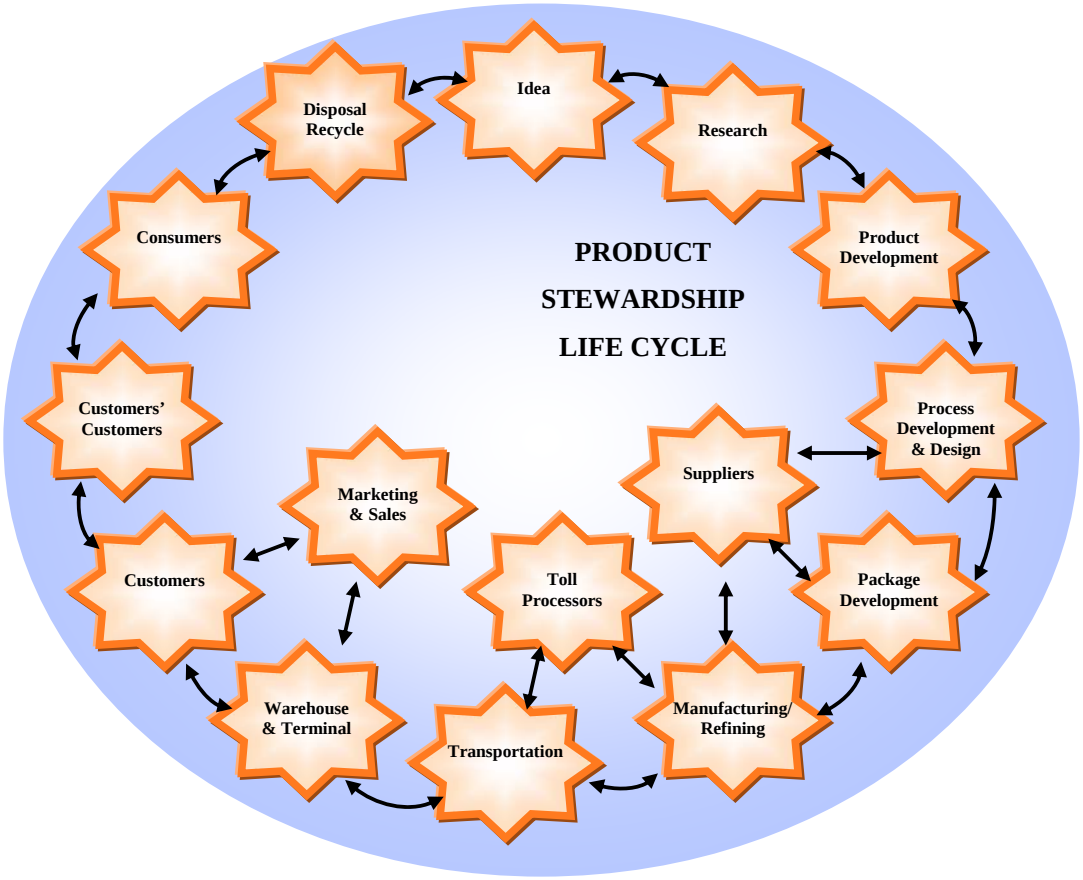
Product Review Meetings

All the Oil marketing companies and refineries meet once in a month to have a look on supply and demand position of petroleum products in the country.

Performance & Compliance

- *Product Stewardship Life Cycle*
- *Key Performance Indicators*
- *Absolute HSEQ Performance at a Glance*
- *Normalized HSEQ Performance at a Glance*
- *KPI's Benchmarking within Sector*
- *Emissions*
- *Ambient Air Quality*
- *Effluent Discharge*
- *Soil & Underground Water Monitoring*
- *Illumination & Noise Survey*
- *Water Consumption*
- *Waste Management*
- *Plant Operation*
- *Transport – Fleet Description & Fuel Consumption*
- *Internal Compliance Record*
- *HSE Requirements for Suppliers & Contractors / Complaints*
- *Financial Data - HSEQ*

Product Stewardship Life Cycle



Stewardship of our products is our goal. Process through which our products are produced is certified against the system requirements of ISO 9001:2000, ISO 14001:2004 and OHSAS 18001:1999. We are focusing on the following areas:

Product Stewardship Culture

So as to embrace, strengthen and ensure continuing product stewardship, we are committed to merge its values, policies and procedures with our company culture.

Understanding & Managing Potential Product Risks

The process of continuous identification, characterization and evaluation of potential risks associated with our products throughout their life cycle is used to manage as well as continuously improve health, safety, environment and quality system.

Marshalling Process

In order to maintain product stewardship and our competitive edge in health, safety, environment and quality system, we continuously communicate with our employees, contractors, suppliers, and customers about product stewardship practices.

Key Performance Indicators

Key Performance Indicators (KPIs) are developed keeping in view the environmental aspects/ impacts analysis and hazard identification / risk assessment of all activities, processes and products of PRL. Effective management of these KPIs help protect the environment and minimize damage to the health and safety of employees, as well as the surrounding community. Following KPIs are monitored on an annual basis:

Emissions to Air

- Green House Gases
- Acid Rain Gases
- Ozone Depleting Substances
- Volatile Organic Compounds

Discharges to Water

- Organic Pollutants

Waste to Land

- Hazardous and Non-Hazardous Waste (Landfill, Incinerated)

Resources Used

- Raw Water use
- Fuel Consumed
- Crude Oil

Occupational Health & Safety

- Lost Time Injury frequency
- Total Recordable Case frequency
- Total Reportable Occupational Illness frequency

Approach & Methods

The performance data is determined by using the most accurate methodology, which is available and practicable. All values are the actual tested figures whose test results are available. However, gaseous load is calculated by using Tier-1 approach of Shell's "Group HSE performance monitoring and reporting" guidelines. This approach uses standard emission factors (for refineries of similar types) in combination with the actual values.

Absolute HSEQ Performance at a Glance

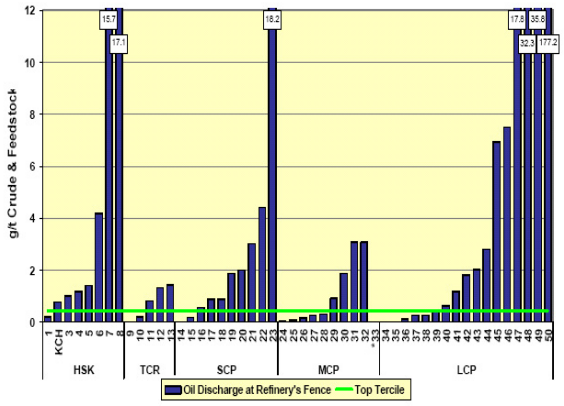
MEASURE ITEM	Values 2006	Values 2007	Units
Environmental Investment/expenditures	199.5	60	Million PKR
Nitrous Oxide (N2O)	0.5	0.24	Tonnes
Methane (CH4)	22	6.24	Tonnes
Carbon Dioxide	152	127	Kilo Tonnes
Chloro Flouro carbon (CFCs)	0.55	0.225	Tonnes
Oxides of Sulphur (SOx)	1050	1078	Tonnes
Oxides of Nitrogen (NOx)	95	71	Tonnes
Volatile Organic Compound (VOCs)	340	202	Tonnes
Refinery- oil discharge to surface water	1.2	1.29	Tonnes
Spills>100 Kgs	1	1	Number
Energy Consumed (Electrical)	18.7	18.0	Million Units
Energy Consumed (Ref. Fuel+Ref. Gas+ Sui Gas)	56.1	44.43	Kilo Tonnes
Raw water Consumed	110	127	Million Gallons
Refinery Throughput-Crude + Feedstock	2177	1978	Kilo Tonnes
Manufacturing Loss	12.8	16.5	Kilo Tonnes
Hazardous Waste (wet weight)	286	0	Tonnes
Non-Hazardous Waste (wet weight)	7.6	6.6	Tonnes
Exposure Hours-Company	0.9	0.98	Million hours
Exposure Hours-Contractor	1.3	1.47	Million hours
Potential Incidnets Reported	53	73	Number
Lost Time Injury-Company	0	0	Number
Lost Time Injury-Contractor	0	1	Number
Total Recordable Cases-Company	4	0	Number
Total Recordable Cases-Contractor	1	3	Number
Total Reportable Occupational Illness	0	0	Number

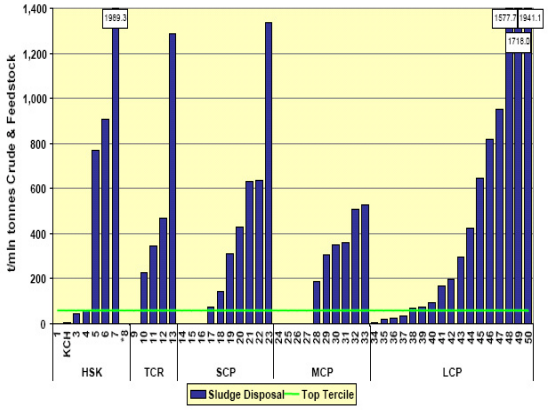
Normalized HSEQ Performance at a Glance

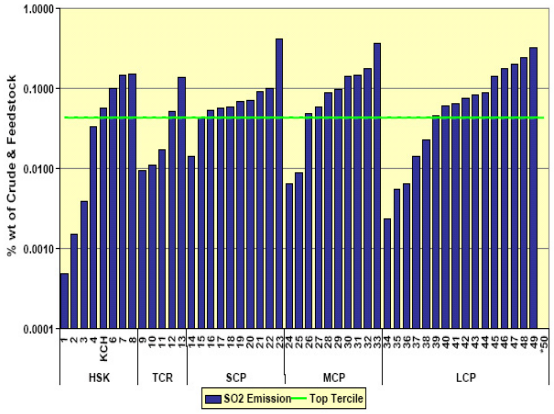
MEASURE ITEM	Target value	Actual		Units
		2006	2007	
Nitrous Oxide (N2O)	---	$0.025x10^{-3}$	$0.02x10^{-3}$	wt% of throughput
Methane (CH4)	0.001	0.001	0.0003	wt% of throughput
Carbon Dioxide	0.141	0.069	0.064	Tonnes /ton of throughput
Chloro Flouro Carbon (CFCs)	---	$0.020x10^{-3}$	$0.011x10^{-3}$	wt% of throughput
Oxides of Sulphur (SOx)	0.043	0.048	0.054	wt% of throughput
Oxide of Nitrogen (NOx)	0.014	0.0043	0.0035	wt% of throughput
Volatile Organic Compound (VOCs)	0.018	0.015	0.010	wt% of throughput
Refinery- oil discharge to surface water	0.442	0.5	0.652	Grams /Ton of throughput
Spills>100 Kgs	0.2	0.06	0.06	Number/Normalized Shift Position
Actual Energy Index (Electrical+ Fuel)	158	157	152	---
Raw water Consumed	---	0.30	0.35	Million Gallons/Day
Manufacturing Loss	0.58	0.58	0.83	wt% of throughput
Potential Incidents Reported	0.25	0.18	0.24	Potential Incidents/Number of Employees
Lost Time Injury Frequency-Company+ Contractor	0	0	0.41	LTI/Million Man-hours
Total Recordable Case Frequency-Company+Contractor	1.5	2.4	1.22	TRC/Million Man-hours
Total Reportable Occupational Illness Frequency-Company+Contractor	0	0	0	TROI/Million Man-hours

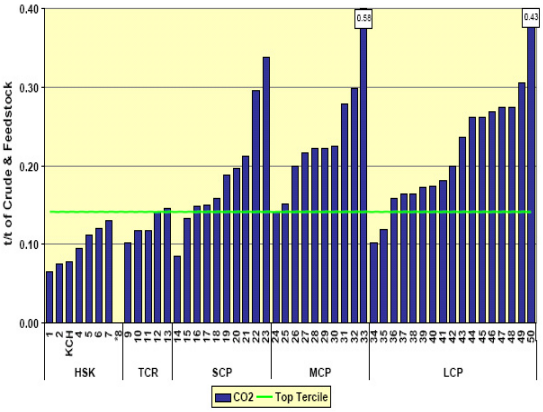
KPIs' Benchmarking within Sector

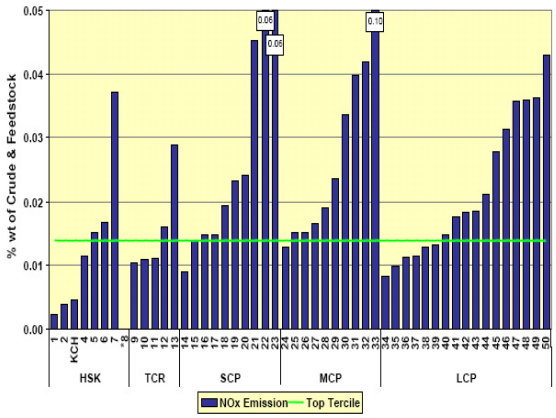
Shell Global Solution International carried out bench marking of Pakistan Refinery Limited against the top refineries of the world, with the aim to quantitatively assess our standing. KCH in the graphs represents Pakistan Refinery Limited, Karachi. Top Tercile is the average values for the group of best performers and selected as the target values for PRL.

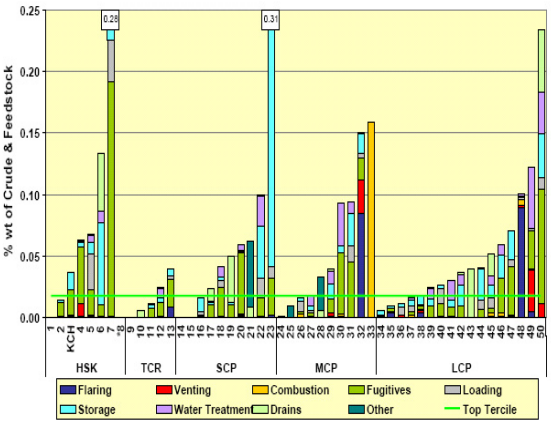






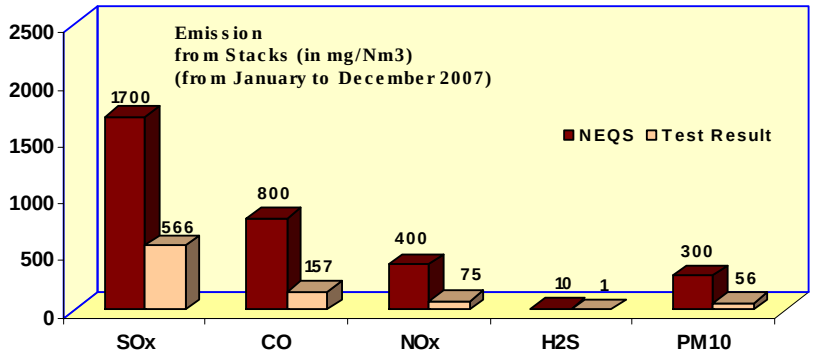






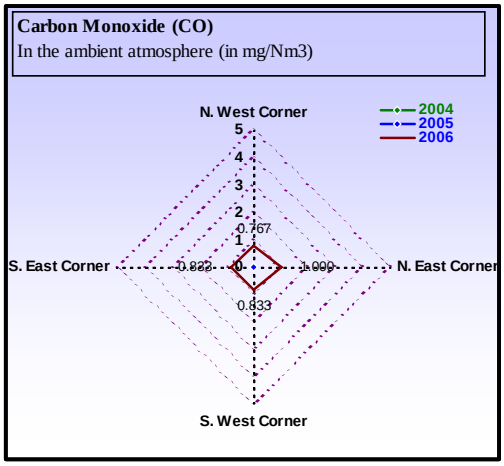
Emissions

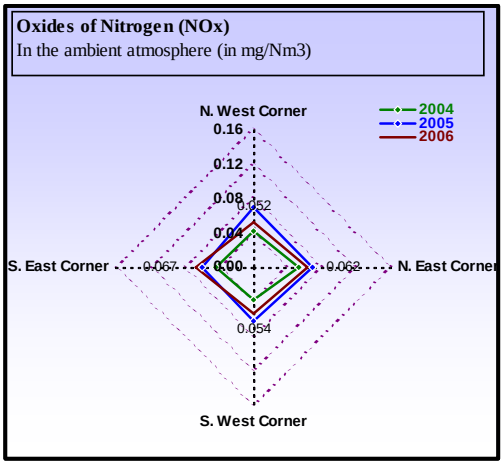
PRL conducts monthly testing of all its emissions from Stacks of Boilers & Furnaces. Emissions from stacks vs. NEQS limits are given below:

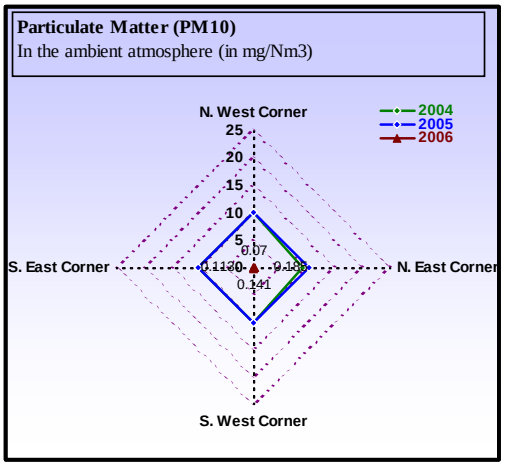


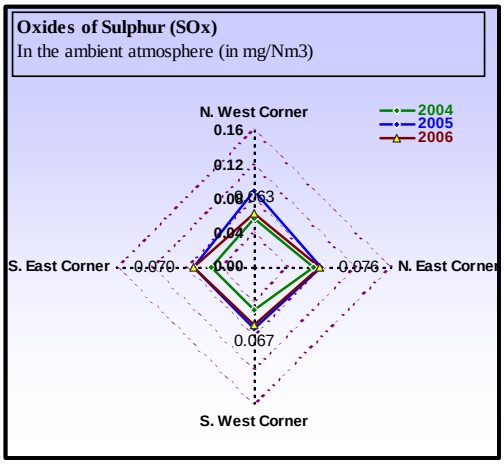
Emissions for the Year 2007						
		Sox	CO	NOx	H2S	PM10
January	Boilers	415	43	83	0.10	48
	Furnaces Stack	572	98	82	0.10	81
February	Boilers	409	60	77	0.00	61
	Furnaces Stack	512	101	61	0.00	89
March	Boilers	451	17	50	0.00	57
	Furnaces Stack	450	395	83	1.00	71
April	Boilers	595	30	108	0.00	49
	Furnaces Stack	728	215	140	0.00	68
May	Boilers	532	19	43	0.00	58
	Furnaces Stack	310	118	59	1.00	80
June	Boilers	577	18	70	0.00	70
	Furnaces Stack	430	132	54	0.00	51
July	Boilers	702	9	97	0.00	45
	Furnaces Stack	230	110	45	0.00	70
August	Boilers	617	20	67	0.00	43
	Furnaces Stack	560	320	64	1.00	45
September	Boilers	554	11	50	7.00	7
	Furnaces Stack	940	540	80	2.00	8
October	Boilers	422	10	48	1.00	52
	Furnaces Stack	790	520	80	1.00	85
November	Boilers	625	9	85	1.00	47
	Furnaces Stack	890	650	83	3.00	47
December	Boilers	525	127	81	2.00	50
	Furnaces Stack	740	205	110	0.10	65

Ambient Air Quality





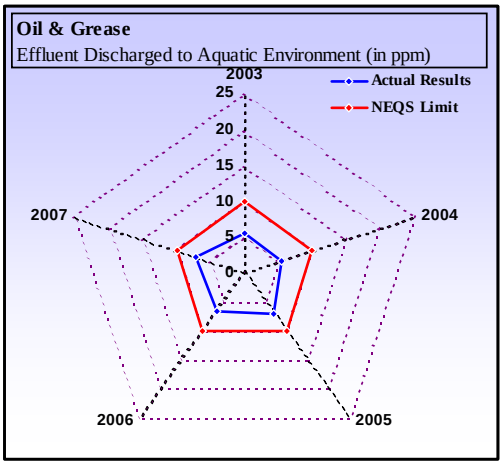


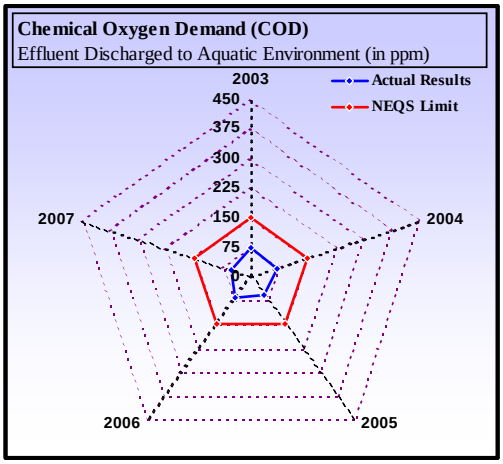


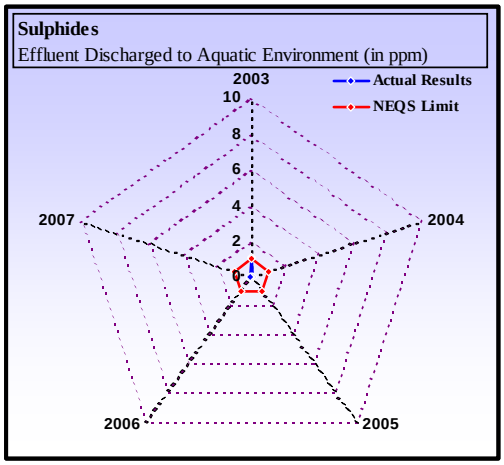
- Testing of ambient air for above pollutants in underway for the year 2007.

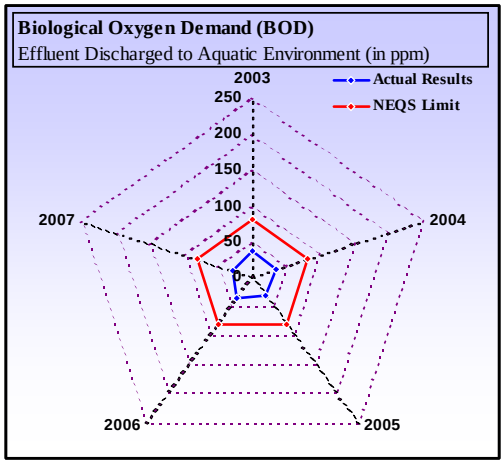
Effluent Discharge

The entire Refinery effluent including sewage water is treated in the state of the art PRL's wastewater treatment plant (Activated Sludge Process) before final discharge to the sea. It is ensured that the water leaving the wastewater treatment plant is free of pollutants and complies with NEQS limits to protect marine water habitat life and maintain the natural ecosystem. The report of effluent discharge is sent to Pakistan Environmental Production Agency & Sindh EPA on monthly basis under the Self Monitoring & Reporting Program. The aggregate annual level of oils, grease, phenols; BOD & COD along with other parameters in refinery effluent are as shown in the graph.

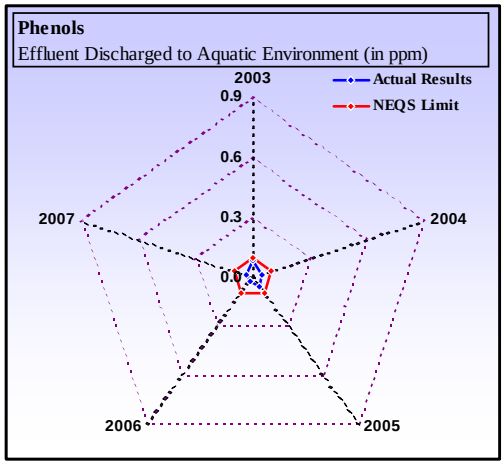


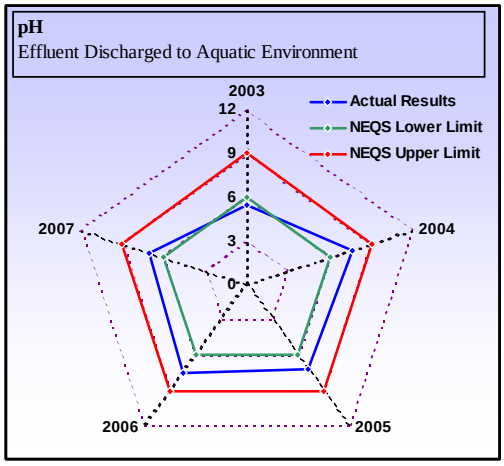


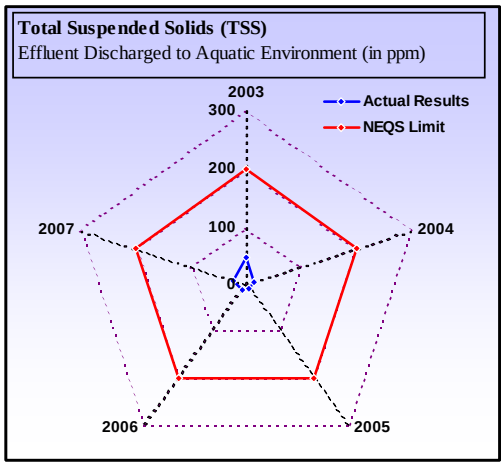


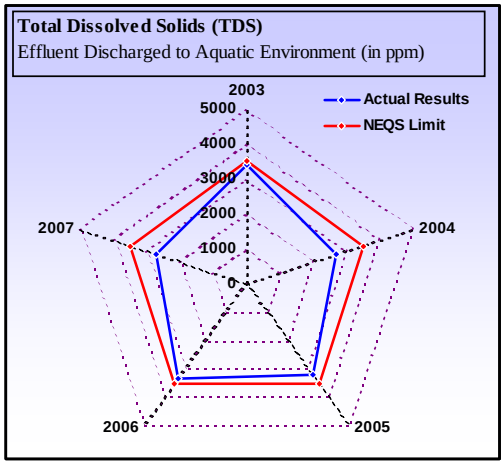


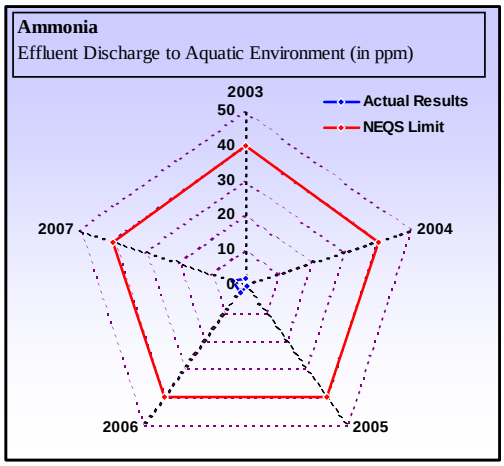
Effluent Discharge – Cont...

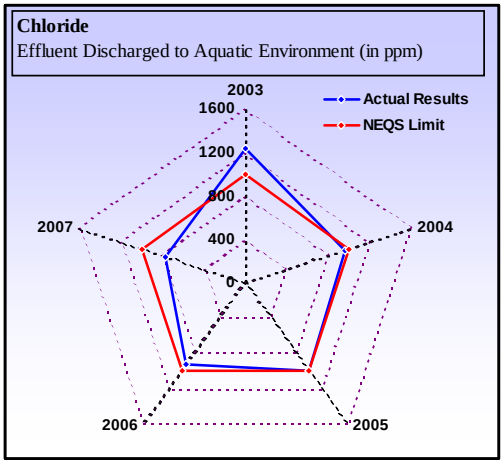




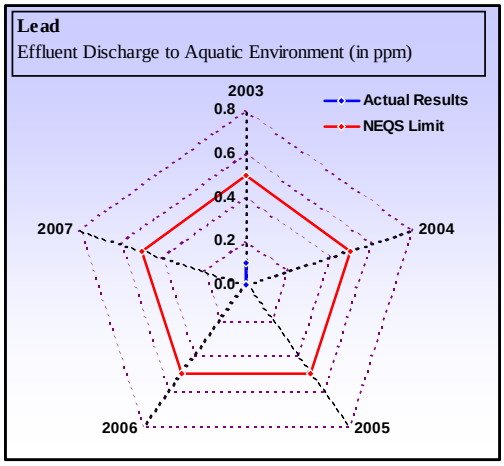


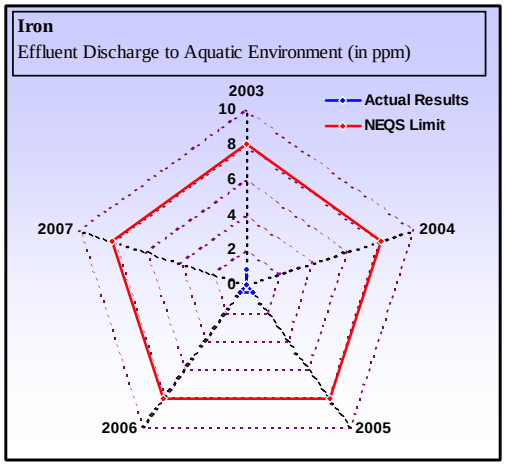


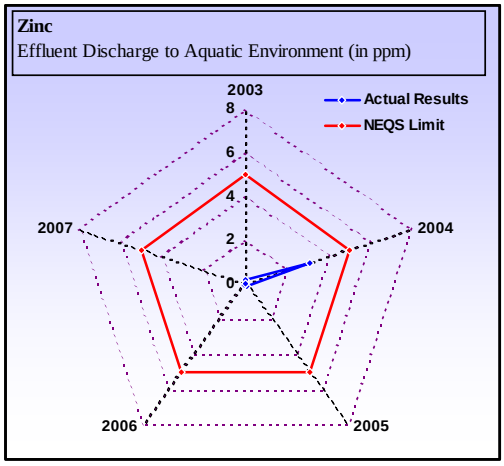


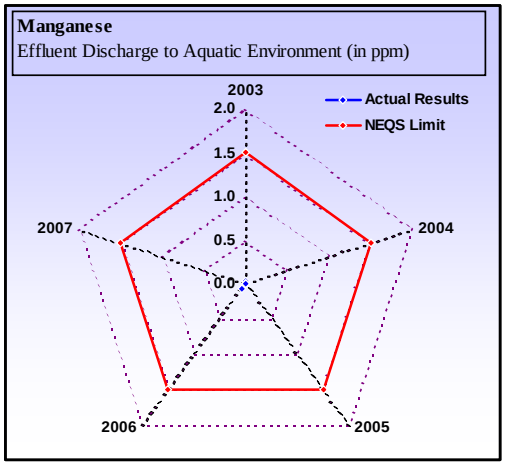


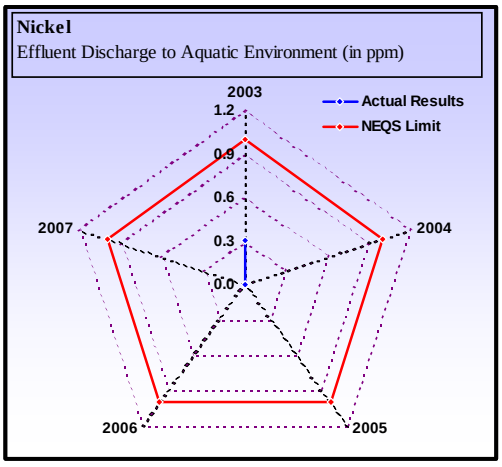
Effluent Discharge – Cont...

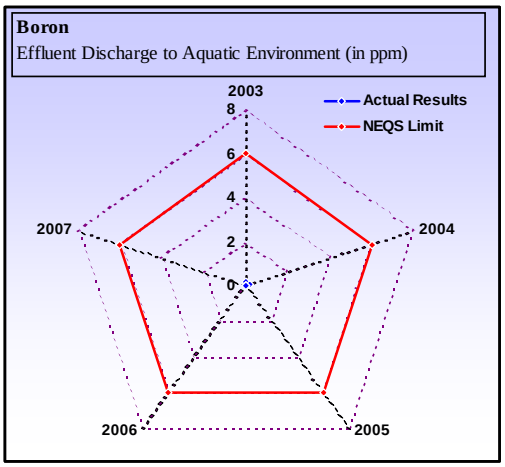








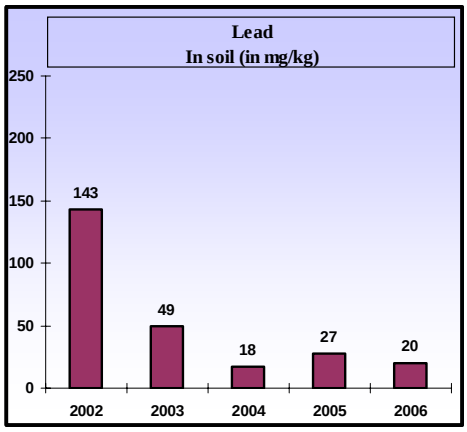


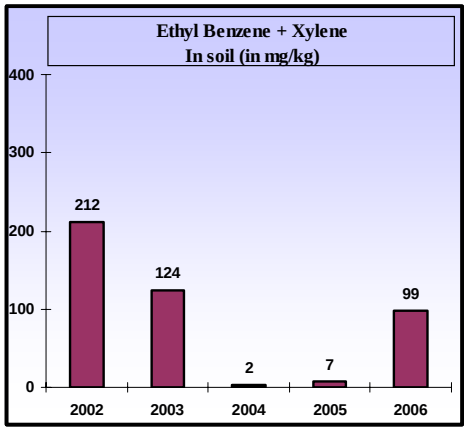


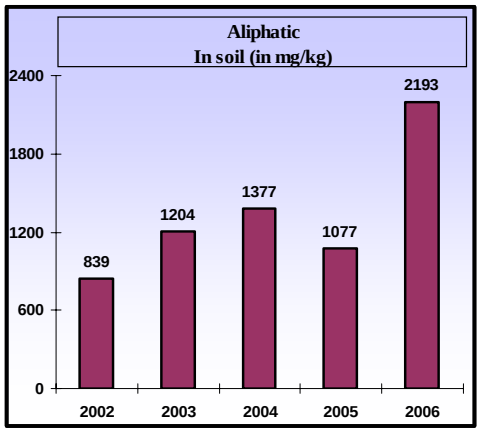
Soil Monitoring

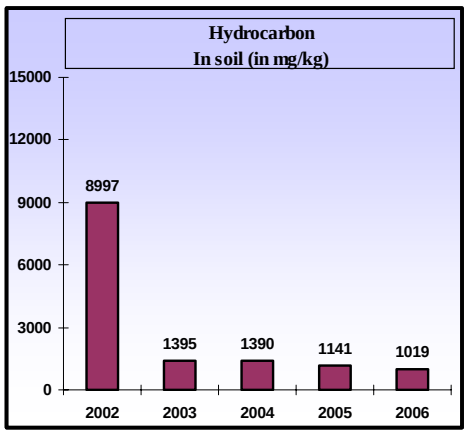
At PRL we ensure that leakages of hydrocarbons if any, are effectively controlled in order to minimize oil losses, degradation of soil and under ground water. The following steps have been taken in the recent years to reduce soil and water contamination:-

- Crude and products tanks sludge collection concrete pits.
- Routine inspection / monitoring of tank farm area.
- Repair and maintenance of Oily drainage system.
- Preventive maintenance is conducted and ensured.
- All leakages are reported and corrective and preventive actions are taken promptly.



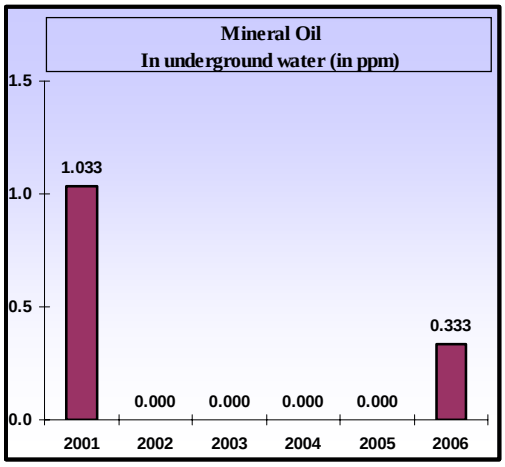


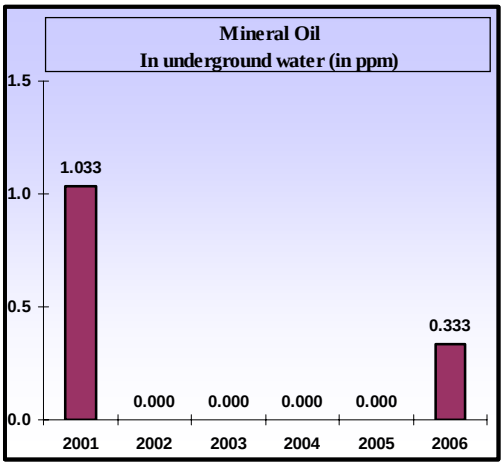


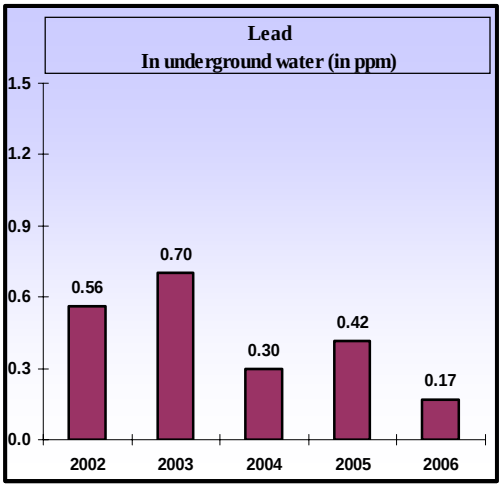


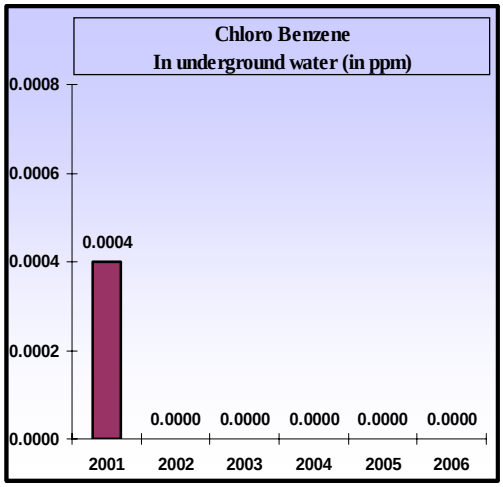
- Testing of the Soil and Underground water for the above parameters is underway for the year 2007.

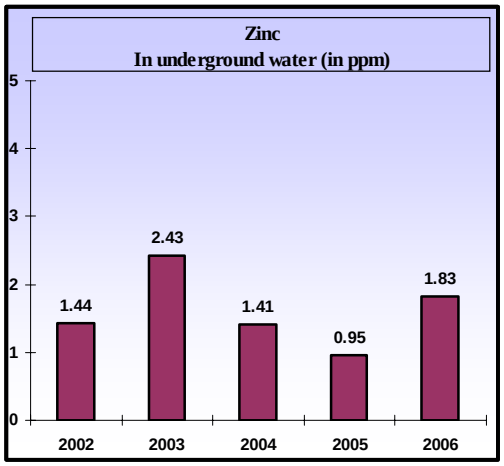
Underground Water Monitoring

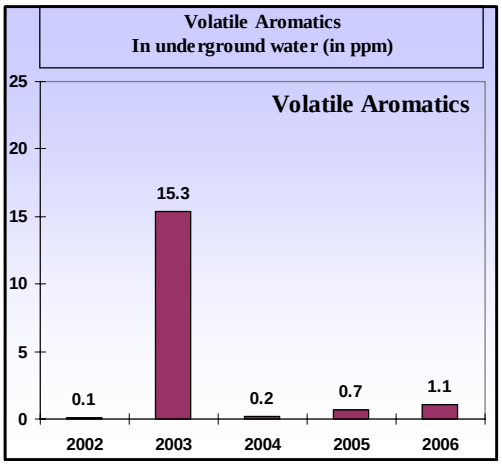




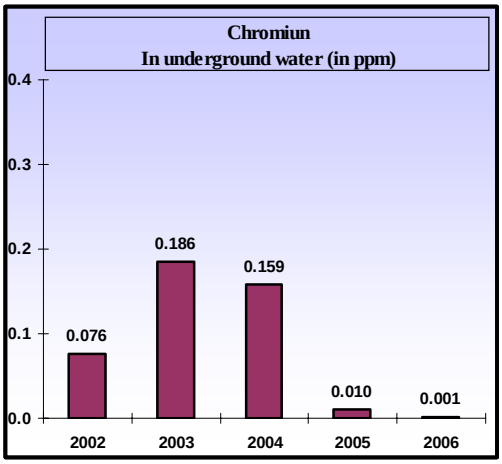


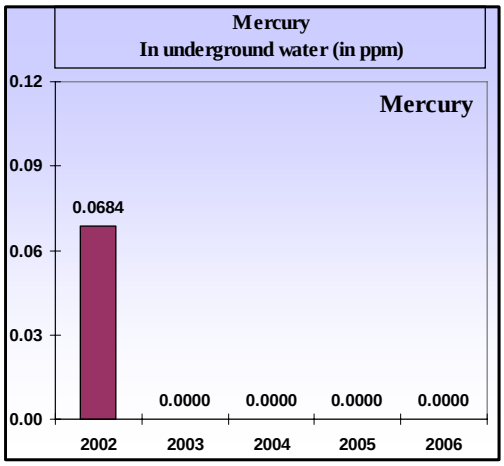


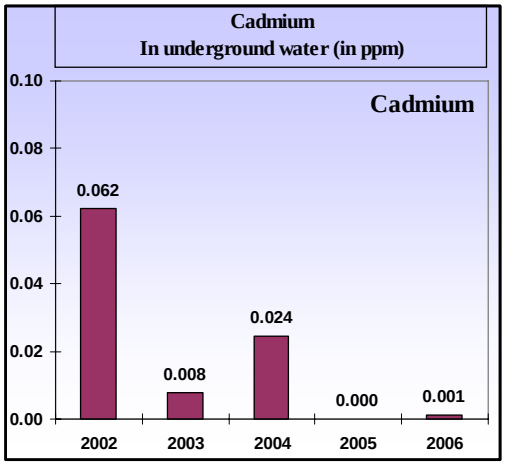


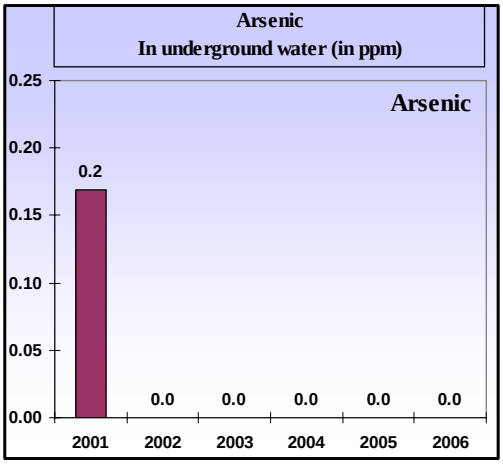


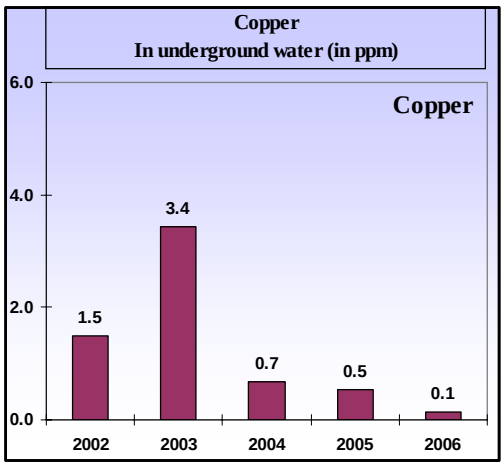
Underground Water Monitoring – Cont...

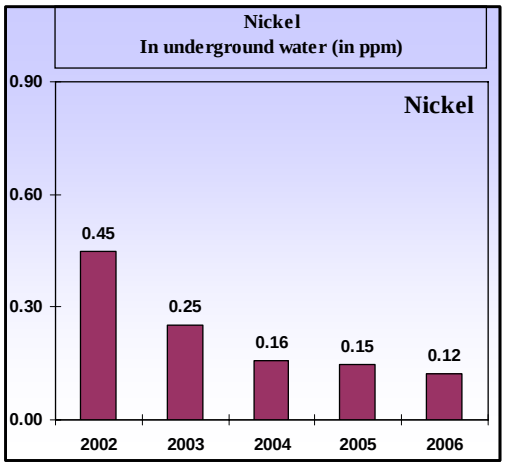








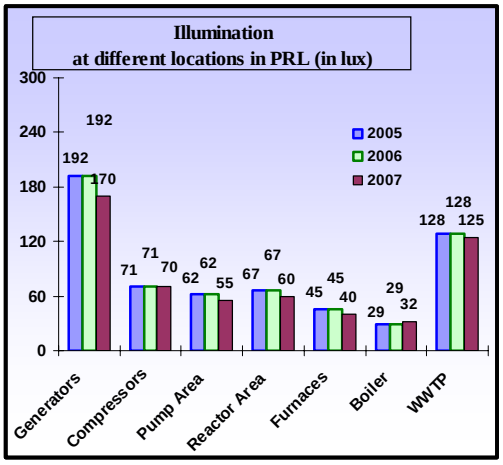




Testing of Underground Water is underway for the year 2007

Illumination & Noise Survey

Illumination Monitoring

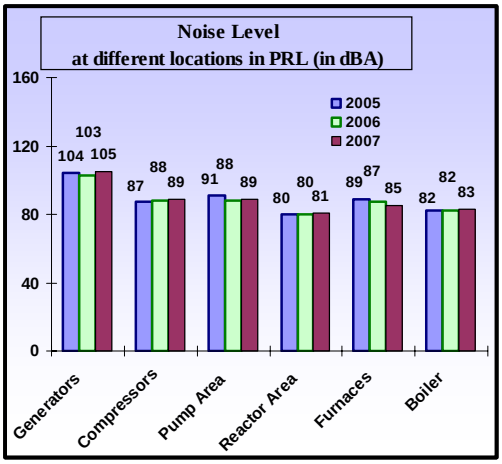


Annual illumination survey is carried out in order to check and improve visibility in the operational areas like Generator houses, pump area, Furnace, Boilers and WWTP.

Noise Monitoring

Noise is one of the major health hazard. At PRL we are monitoring the noise level at plant, tank farm area and the power generation units. Necessary measures are taken to protect our employees and contract workers from the adverse effect (e.g. hearing impairment) of high noise level.

The areas that have noise level higher that 85 db(A) are marked (sign board) as high noise area. Employees are instructed to wear ear protection while working in close proximity.



Water Consumption

Raw Water

Water is an essential utility to run any industrial unit and to meet the Refinery's operational requirements raw water is being supplied by Karachi Water & Sewerage Board. The annual water requirement of PRL is about 110 million US gallons. Water is stored in a concrete tank having capacity of 2.8 million US gallons.

Ground Water

The requirement of water is managed by three tube wells. This water is used as fire water after storing in a designated tank for this purpose and for plant floor washing. The well water is also treated in the Reverse Osmosis Plant to produce low TDS permeate and is used as boiler feed water and cooling

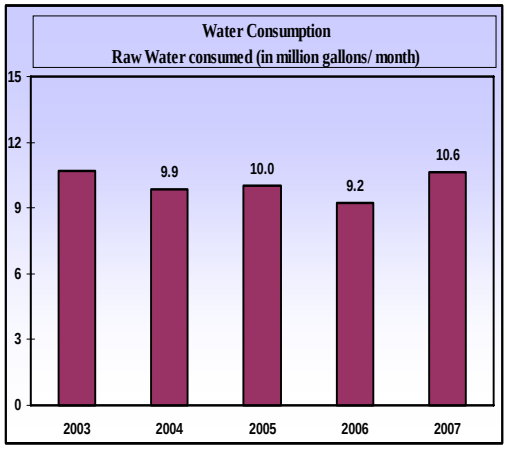
Drinking water

To provide safe drinking water to employees and contractor's labor, a three stage purification system is installed at each drinking water cooler placed at the Refinery and Keamari Terminal. The purification system is composed of suspended particle filter, activated carbon for odor removal and ultra violet rays for killing bacteria. An additional cooler is installed for those who want to take safe drinking water for their domestic needs.

The Filter elements are replaced as per a defined schedule. Water samples are tested at reputable laboratories to ensure that it meets quality standards.

Recycling / Reuse Water

There are two induced draft cooling towers for heat draining from process equipments such as trim cooler and condensers etc. The total water circulation capacity of these towers is around 45,000 MTD.



Waste Management

Hazardous/Non Hazardous waste is collected in an organized manner before being sent to its final disposal/destination (determined on the basis of the type of material). All materials are initially segregated at source of generation and shifted to cells specified for different categories of material (steel structure, damage instrument /equipment, aluminum, wood, glass, piping, electrical fixtures & cables) setup in scrap yard situated within the Refinery premises.

Reusable Scrap

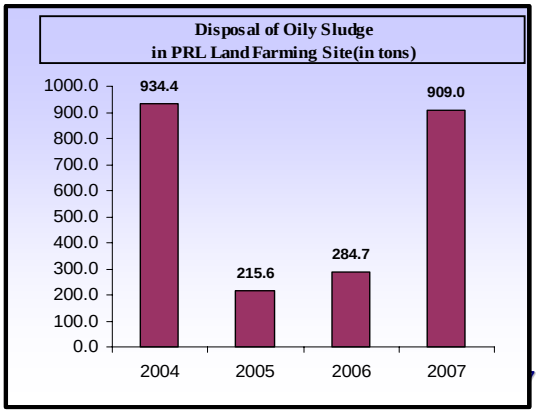
Most of the scrap material is reclaimed for reuse in other non- critical application & small-scale work.

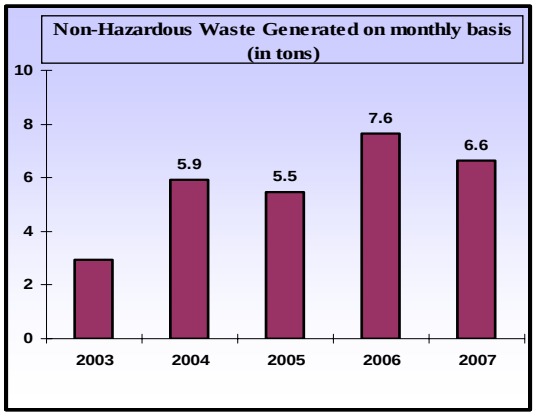
Recyclable Waste

Material that cannot be re-used, or is completely damaged or deteriorated is sold to recycling vendors e.g. (steel structure, damage instrument / equipment, aluminum, wood, glass, piping, electrical fixtures & cables).

Trash

Trash is collected at bins specially developed for this purpose & is disposed to common point developed by a local authority.





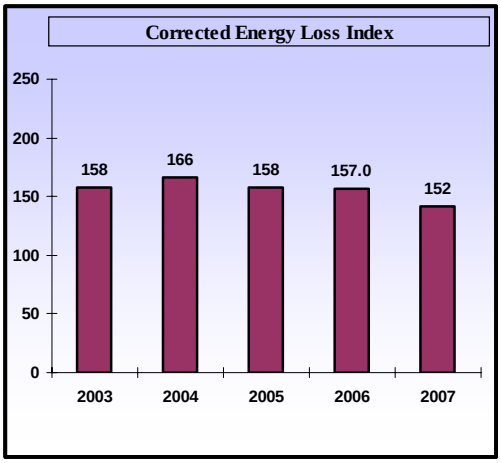
Clinical Waste

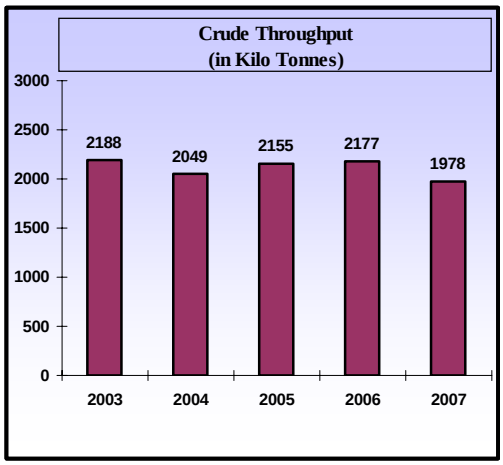
The clinical waste generated dispensary is collected in a separate bin maintained exclusively for this purpose. The waste collected from this bin is weighed & sent for incineration. The total quantity sent for incineration this year was 25 Kg.

Oily Sludge

Oil sludge from tanks is recovered into cemented sludge pits constructed outside the crude tanks to avoid soil contamination. The recovered sludge is shifted to a prepared site for land farming. The biodegradation of sludge takes place after several weeks of time in an environment friendly manner. Studies are under way to improve the sludge circulation in the tank through improved agitator/mixer to eliminate/reduce the oil sludge quantity.

The total sludge quantity recovered this year from tanks for land farming is approximately 909 tons.


Corrected Energy Loss Index
250
200
150
100
50
0
158
166
158
157.0
152
2003
2004
2005
2006
2007


Crude Throughput
(in Kilo Tonnes)
3000
2500
2000
1500
1000
500
0
2188
2049
2155
2177
1978
2003
2004
2005
2006
2007

Company Maintained Transport

Pakistan Refinery Limited doesn't have any transport fleet however few vehicles are maintained to run the operations smoothly.

Number of Company maintained Vehicles = 30

Vehicles provided to Employees = 30

Gasoline Consumption = 100,000 liters / year

Diesel Consumption = 10,000 liters/ year

Vehicle Emission Test Results of year 2007 (Range)			
Including Vehicles Operated for Company Business, Mobile air compressors, Mobile welding plant & CFR	**Smoke (Ringleman / Equivalent scale)**	**CO (ppm)**	**Noise (dBA)**
	00 - 01	85 -710	65 - 84

Internal Compliance Record

Different levels of checks and audits have been introduced for the proper functioning and continual improvement of the system

Sub Committees Meeting

HSEQ sub committee's meetings are held regularly to discuss and effectively resolve HSEQ related issues.

Walkthrough Inspection

As a proactive approach, a cross-functional team is formed to conduct HSEQ walk through inspections in all the areas of Refinery and Keamari Terminal. Observations are circulated to concerned section for effective actions.

Management Team Field Tours

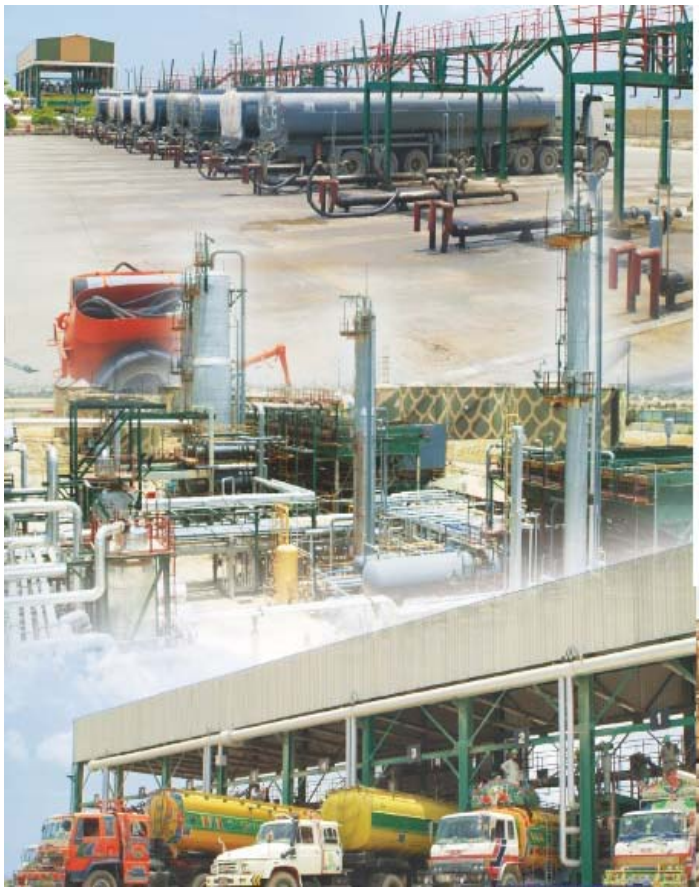
Members of management team conduct cross functional field visits and deliver safety talk to the employees on different topics and issues. Observations on HSEQ are also raised for immediate corrective action.

Internal Audits

Each process comprising the HSEQ Management System is audited at least once every year. The non conformities reported are dealt with effectively and corrective / preventive actions are taken accordingly.

This year's internal audit was carried out in July 2007, some non conformities were raised by the internal auditors, which were dealt with and closed after taking corrective and preventive actions.

Customers Feed Back



Customer feedbacks on our services and products are received annually on our "Customer Satisfaction Form". Analysis of this feedback helps to make improvement in our products and to evaluate customer satisfaction.
Their feedback is analyzed by Management Representative (MR) and is presented to Top Management for review .The analysis/results become inputs for improvement initiatives.

The rating received this year from our customers is as under:

Chevron Pakistan Ltd ----------Good

Foundation Gas ----------Excellent

Pakistan State oil – ----------Good

Shell Pakistan Ltd----------Good

Complaints

- Total number of Customer Complaints received = Two
- One from SPL/PSO for low F.P of HSD and second one from Chevron LPG regarding copper corrosion during the month of March 2007.

HSE Requirements for Suppliers & Contractors / Complaints

Suppliers

All Suppliers are required to provide the Material Safety Data Sheet (MSDS) as mandatory requirement of material purchase system for compliance by the users. The supplier of the materials provides all information related to HSE hazards / risks associated with the materials as follows:

- Compliance of HSE procedure for performing the activity
- Handling/Packing/Identification requirement
- Equipment of transporting carrier
- Information about product composition
- Usage of protective gears
- Competence/Training requirements
- Handling and disposal of waste etc.

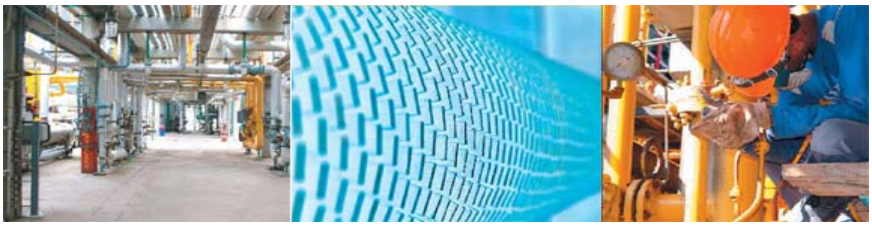
Contractors

Contractors are required to carry out their job without violating the prescribed HSEQ Management system requirements. It is also ensured through routine checks by the company representative during the entire phase of job that all necessary measures are undertaken by the contractors which are necessary for performing the job in a safe & environment friendly manner.

Performance Monitoring of supplier/ contractor relative to environment component.

The criteria of contractors/ suppliers performance monitoring & re-evaluation include the review of their performance in at least the following areas to assess the ability of contractors/suppliers according to the integrated HSEQ management.

- Product quality
- Delivery reliability
- Warranty/Guarantee
- Technical Strength
- HSE Compliance



HSE Requirements for Suppliers & Contractors / Complaints

Contractors / Suppliers Performance Monitoring & Re-Evaluation

The purpose of performance re-evaluation is to confirm the ability and reliability of contractors/suppliers to perform the work according to the prescribed procedures & HSEQ requirements of the job on continuous basis. The following areas are considered for this purpose:-

1. Product quality
2. Delivery reliability
3. Warranty/Guarantee
4. Technical Strength
5. HSE Compliance

Asset integrity (HSE & Compliance)		
S#	Description	Amount Rs. (Million)
1	Process Safety Review (PSR)	3.00
2	Study on energy conservation	3.90
3	PPEs for safety material	1.30
4	Fire Fighting material	4.10
5	New floating screen for Tank(Tank#56 - plant change 502)	10.00
1	New-sub surface foam injection system crude tanks(03 Nos)	11.5
2	Replacement- firewater and tank farm lines(Korangi & Keamari)	5,5
3	Replacement-foam and fire water lines on tanks 35,37& 57	3.5
4	Replacement-concrete poles, lights at Korangi & Keamari	3.0
5	New-Industrial Vacuum Cleaner (Platformer Reactor Cleaning)	3.0
6	Repair works- Flooring at tank 31 yard outside(along road 4&3)	2.70
7	Re-routing of KWSB main water supply pipelines	2.0
8	New-Foam monitors (14 Nos.)	1.5
9	New- Motor transport ladder	1.2
10	Replacement-Fire Extinguishers	0.9
11	New-Bund Pourers	0.5
12	New- Central Monitors (03 Nos.)	0.4
13	New - Explosion proof refrigerator & deep freezer	0.4
14	New-Walk through gate(Keamari terminal)	0.35
15	New-intrinsically safe digital camera	0.3
16	New - Gas detector	0.25
17	New - medical beds(04 Nos.)	0.2
18	Bomb Suppression Blanket	0.12
19	New-fire Extinguisher	0.1
20	New-suction machine with each bed(03 Nos.)	0.075
21	New- Minor OT	0.075
22	GI bin covered boxes for warehouse#1	0.06
23	New-Fiber glass sheet for walk-through gate	0.05
24	New-Oxygen supply system(centralized)	0.05
	Total	**60.00**

Targets & Objectives

- *Objectives for year 2006 -07*
- *Objectives for year 2007- 08*
- *Progress - PRL Upgrade Project*
- *Progress – Energy Conservation*
- *Training & Development*

Objectives for the year 2006 -07

Every year PRL establishes Objectives and targets to improve performance in the area of Health, Safety, Environment, Quality and in the Social Sector. Following are the objectives for the year 2006-07 and 2007-08.

S. No	Brief Description	Status
1	Rerouting of Fire water and foam lines at KPT trench	In progress
2	Construction of walkway at Keamari Terminal	Achieved
3	New hydrocarbon analyzer for PONA testing	Achieved
4	Installation of Air Eliminator and relief valves at JP-1 network	Achieved
5	Extension of Fire water network at west side of Tk-32	In progress
6	Renewal of products pipelines at Keamari	In progress
7	Weather Monitoring station	Achieved
8	New Commercial water cooler with filter for safe water supply to workers	Achieved

Objectives for the year 2007 -08

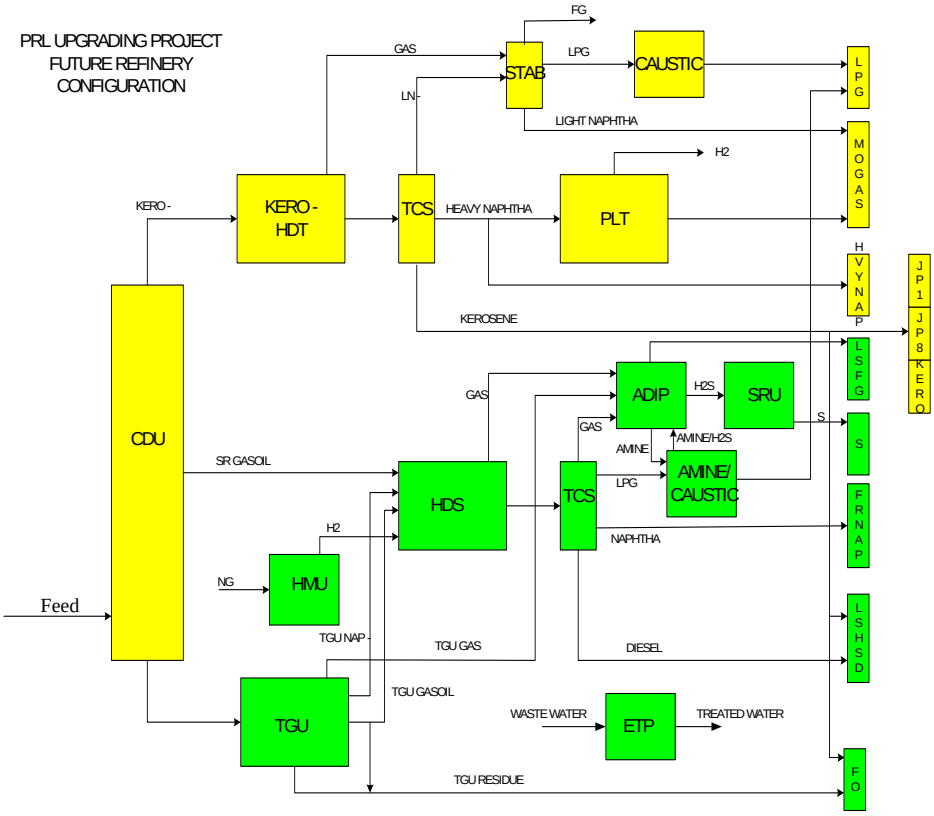
S. No	Brief Description	Status
1	Minimize chances of damage to the property in case of fire in the vicinity by replacing the portions of fire water lines of dia 12” x 200 rft and dia 08” x 300 rft at Korangi terminal	In progress
2	To reduce the hydrocarbon losses of existing mechanical seals of 117-J, 4801-JB, 1304-J with improved design in order to increase reliability	In progress
3	To ensure the integrity of containment capacity of tank yards in case of leakage from tanks by repair of tank 6 & 57 bund wall	In progress
4	Installation of Sub surface foam injection system at Tank-4, tank-5 & Tank-36 to minimized the damage to the property , health and environment by enhancing the fire fighting capability in case of fire on crude tanks	In progress
5	Installation of Floating screen at tank-56 to minimized the product loss and VOC emission from storage tank.	In Progress
6	Instillation of DCS system on Hydrotreater and Platforming unit to improve the Plant Process Safety , Energy conservation and Product Quality	In Progress
7	Installation of Fire/Flame detector around Crude pump pit in order to minimize the damage to health, safety and environment	In Progress

Progress – PRL Upgrade Project

Background

Pakistan Refinery Limited (PRL) is a hydro skimming refinery with Shell, PSO, Chevron, Insurance and Financial Institutions as major share holders.

The facilities include topping refinery plus catalytic reforming and hydro treating unit with utilities, off site and tank age. The nameplate capacity is 47100 bbls/ day and the feedstock for producing the petroleum is a diet of imported and indigenous crude oil.



Yellow – Existing Green – New

In July 2006, during the company's annual Business Strategy Workshop the business requirements, profitability, products specifications and demand / supply was taken into consideration through environmental scan and internal scrutiny.

The workshop was attended by PRL's management team (MTM) along with the senior managers.

Progress – PRL Upgrade Project

Project Objective

PRL intends to meet the forthcoming sulphur specification of High Speed Diesel (HSD) by upgrading its facilities and to improve its profitability through addition of new technologies in the existing refinery configuration. The new facilities are being added to meet the following main objectives:

- Enable PRL to make diesel product to comply with future fuels specification and meet upcoming Diesel Sulphur specifications in High Speed Diesel of 500-ppmwt% Sulphur.
- To improve refinery margin by installing conversion capacity by Maximizing middle distillate production, High Speed Diesel.
- Minimize Fuel Oil production.

The objectives of the new investments should address the following:

- Improve margin by conversion of Long Residue into High Speed Diesel (HSD).
- Compliance with new upcoming HSD sulphur specification of 500ppm by 2012
- Comply with environmental regulations
- A new **hydrogen-manufacturing unit (HMU)** to meet the hydrogen demand of the new HDS.
- A new **Sour Water Unit (SWS)** to process sour water produced by the new units.
- A new **Amine Treating Unit (ADIP)** to remove sulphur from the sulphur bearing streams produced at the new HDS Unit and new LP Amine treating column.
- **Sulphur Removal (SRU)** to produce solid sulphur from the H2S separated at the ADIP unit.
- **Effluent Treatment Plant (ETP)**.
- **LPG Sweetening Unit**.
- Steam Raising Plant to meet the additional steam needs of the new units.

- Electricity Generation to provide a secure power supply to the refinery to meet the future electricity demands.
- Process control and safeguarding investment to support the new configuration.

The new (gasoil) HydroDeSulphurisation (HDS) unit produces gasoil which meets the 500 ppmw S HSD specification with a reduced T90 boiling point. The HDS unit will process a mix of straight-run (SR) and thermally cracked gasoils.

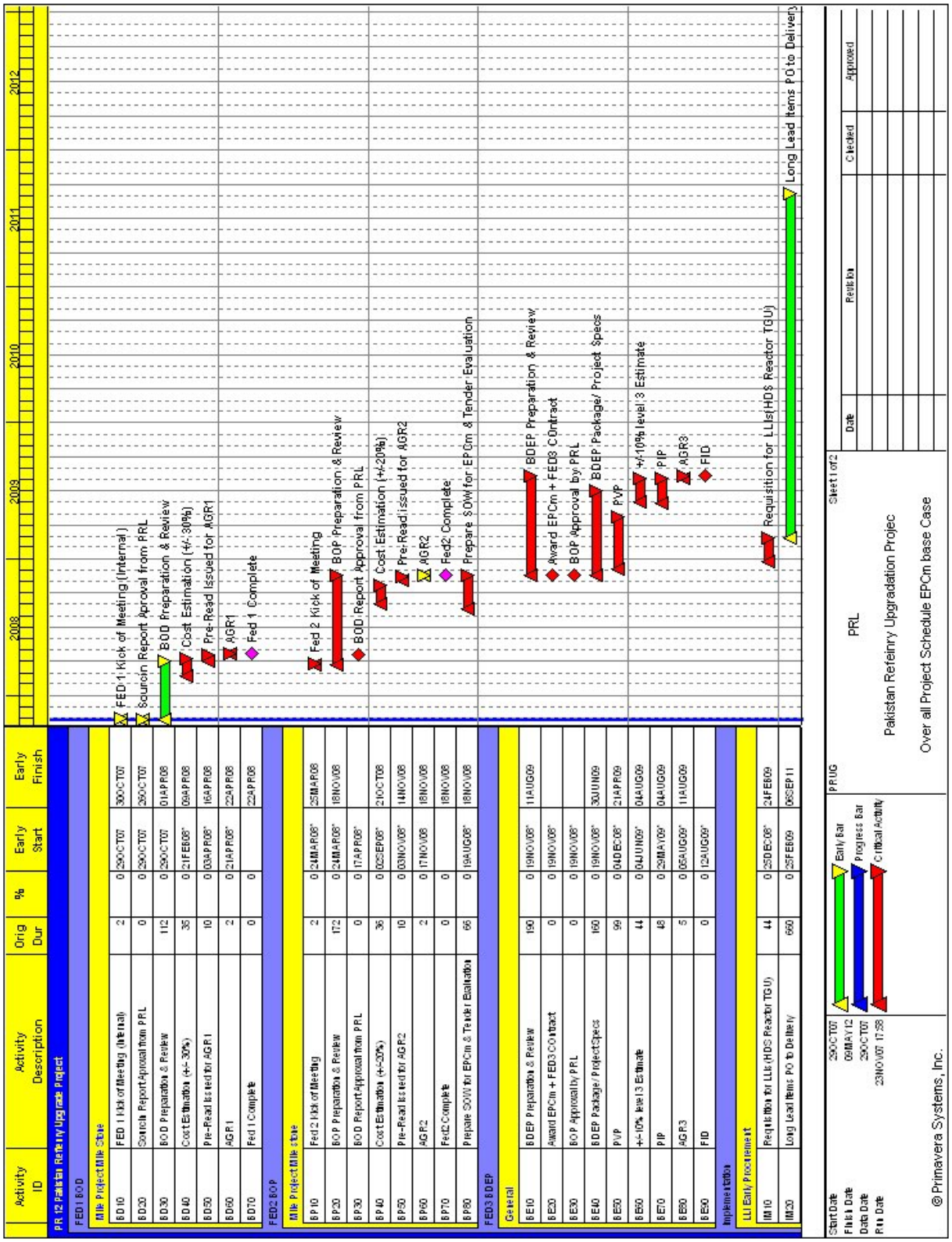
Progress - PRL Upgrade Project

Design Capacities

The design capacities of the new and revamped process units shall be:

Unit	mtd	Feeds
TGU	3400	SR LR from CDU
HDS	3000	SR Gasoil from CDU, Naphtha and Gasoil from new TGU
ADIP Unit	550	Sour Gas from new HDS and TGU
SRU	55	H2S from new ADIP unit
Sulphur Plant	50	Sulphur from new SRU
HMU	20 (2)	Natural Gas Supplied from grid
Amine Wash/Caustic	70	LPG from HDS work-up section
Sour Water Unit	300	Sour Water From new TGU and new HDS
Effluent Treatment	500	Waste Water

Progress – Project Schedule



HSSE / SD

The PRL Upgrade Project will be designed in accordance with Health, Safety, Security, Environment and Sustainable Development policies in line with the existing policies of PRL.

The PRL Upgrade Project will use Hazard and Effects Management Process and will undertake full suite of studies to identify hazards, predict their consequences and manage risks in a systematic way through out the design phases.

Recommendations from HEMP studies will be fed back into the design as a apart of the process to demonstrate that all risks to people, asset, reputation and the environment will be reduced in compliance with the principle of As Low As Reasonably Possible (ALARP) and will be managed through continual improvement.

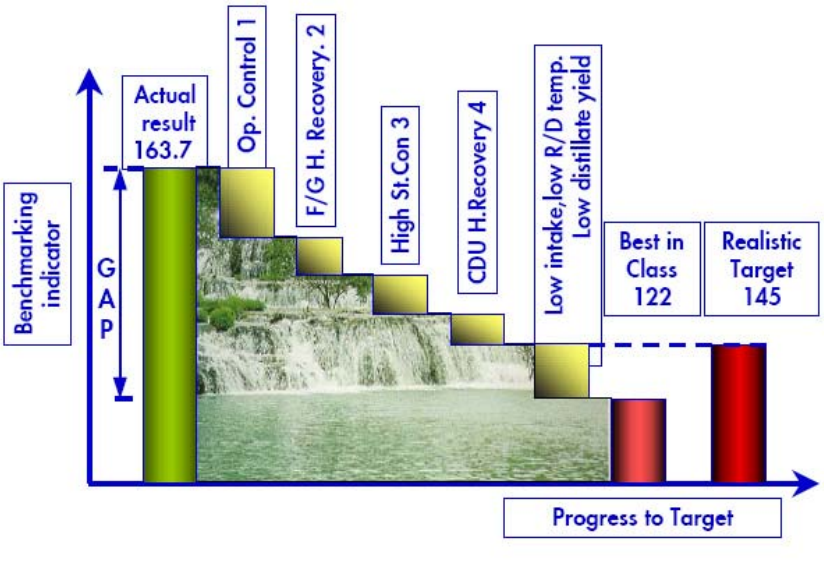
The execution (Construction) contractor will be required to continue the HEMP studies and demonstration of ALARP. A construction HSSE/SD management Plan will be developed by the contractor and will cover the activities and resource commitments required to deliver the Project HSSE/SD objectives.

Progress – Energy Conservation

The objective is to reduce energy consumption to close the gap between PRL and best in class refineries. Total energy consumption of PRL for the year 2002 was 80,000 tons of standard refinery fuel. This energy consumption is a sum of energy used as fuel, electricity and steam in a ratio of 76%, 8% and 16%, respectively. Corrected energy index which is a ratio of actual versus theoretical SRF requirement was 163.7 whereas; CE index for best in class refinery was 122 in year 2002. The target is to reduce CE index from 163.7 to 145 by year 2008.

The target upto 2007 has been achieved by the implementation of the following:-

- Installation of Convection Module at one of the Crude Furnaces
- Installation of Convection Module at Platformer & Hydro Furnaces.
- Modified shell and tube Heat Exchanger at Crude Furnaces preheat train.
- Enhanced Condensate Recovery
- Replacement of Furnaces Burners with low excess air.



It is worthwhile to note that one Corrected Energy Index in number is equivalent to USD 100,000.

Training & Development

PRL has a process of training to ensure that the employees in all functions and levels are able to perform their tasks in an efficient and competent manner.

Appropriate training Programmes have been established for all employees including senior management, line management, non-management employees and new recruits. This also covers training related to quality and HSE.

A documented procedure has been established for training, awareness and competence of employees. The procedure defines mechanism for:

- Establishment of competency criteria of personnel, based on appropriate education, training, skills and experience.
- Identification of training needs, so as to ensure that each individual is competent to perform his/her role.
- Planning and providing appropriate training.
- Evaluation of training effectiveness.
- Maintaining training records.

During 2007 PRL won **"People As Key Resource Award"** by Employees Federation of Pakistan.

Trainings during the year 2007	
Topics	**No. of Employees**
Technical Trainings	**375**
HSEQ Trainings	**170**
Management Development Courses	**41**
Total	**586**
*Expenditure on Training & Development is Rs. 10 Million	

Accreditation (Third Party Assessor's Statement)

Certification Objectives and Scope

Bureau Veritas Certification was appointed as independent assessor to carry out the third party assessment of Health, Safety, Environmental and Quality Management System of Pakistan Refinery Limited in accordance with requirements of international Standards ISO 14001: 2004, OHSAS 18001: 1999 and ISO 9001: 2000 during the month of December 2007. The main objective of this assessment was to evaluate PRL's commitment towards the establishment and adherence of the said standards as they are committed to manage its operational activities and resources to protect environment, safety and health of employees, customers, contractors, stakeholders and community at large, and also to verify the compliance of various regulatory and statutory requirements such as National Environment Quality Standards (NEQS) 2000, and the others to which PRL subscribes.

The assessment carried out in the year 2002 resulted in the Certification of Pakistan Refinery Limited towards ISO 14001: 1996 and OHSAS 18001: 1999 valid for a period of three years and after the continuous contract with PRL the re-certification audit towards ISO 14001: 2004 and OHSAS 18001: 1999 along with certification audit towards ISO 9001: 2000 valid for another three years had performed in the year 2005 followed by the subsequent surveillance audit to verify the compliance against the requirements of the above mentioned standards.

The scope that was covered during the assessment included refining, storage and distribution of crude oil and petroleum products in the Refinery at the Korangi Creek and Keamari Terminal.

Continuous Monitoring

As per the certification policy and IAF (International Accreditation Forum) Guidelines, it is obligatory for organizations to undergo continuous monitoring by the certification body to ensure compliance to requirements on an on0going basis. Bureau Veritas Certification has been performing regular surveillance audits every year and found the implementation of the requirements in full effect. Also major improvements were observed in the areas of health, safety and environment, providing evidence to the core theme of the standards, which require organization to continually improve its HSEQ Management System once it subscribes to certification.

Verification Method

The assessment scheme is based on review of environmental aspects identified by PRL, which have significant impact on environment, all health and safety hazards having associated significant risks and interaction of the processes are reviewed. Representative samples are selected from activities of PRL and audited for compliance against requirements of ISO 14001: 2004, OHSAS 18001: 1999 and ISO 9001: 2000.

A detailed site tour of Refinery and Storage Areas in Korangi and Keamari is also performed in every visit to ensure that operational controls are effectively established and implemented. Crisis Management / Emergency Preparedness and response plans are also tested to ensure that organization is well equipped to respond to any untoward incident. The continuous monitoring of PRL's HSEQ system has provided confidence to Bureau Veritas Certification that the system is effectively and efficiently functioning in compliance to recognized regulatory and statutory requirements as well as requirements of ISO 14001: 2001 and OHSAS 18001: 1999 and ISO 9001: 2000.

Accreditation (Third Party Assessor's Statement)

Responsibilities of Executive Management and Verifier

As per PRL's HSEQ Management Manual, the ultimate responsibility of ensuring the adequacy of the HSEQ Management system lies with the Chief Executive Officer and Managing Director who is responsible for continuous observance to stated and implied requirements of health, safety, environment and quality at all times.

Bureau Veritas Certification has not been involved in the development or consultation of PRL's HSEQ Management System at any point in time and has maintained the independence and credibility during the entire certification process.

Opinion

Transparency and Completeness

The management system in response to requirements of ISO 14001: 2004, OHSAS 18001: 1999 and ISO 9001: 2000 intends to cover significant environmental impacts and health and safety risks and quality issues. The management programs cover minute details to meet the objectives and targets established by the organization in order to continually improve it HSEQ performance. The objectives and targets are regularly assessed and management programs are reviewed and audited by Bureau Veritas Certification to ensure progress towards meeting HSEQ commitments.

Sustainability Report 2007 clearly reports objectives, programs, and measures taken by PRL to ensure its continued commitment and it is Bureau Veritas Certification's opinion that the text and data have been presented in a fair and balanced manner.

The stakeholders are regularly informed through effective communication procedures about the Health, Safety, Environmental and Quality performance and key issues which require their attention. We look forward to stakeholders' opinions on the issues covered in this written report and the process for this being presented in a transparent manner.

Accuracy

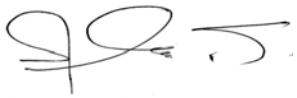
The Health, Safety, Environment and Quality performance reporting system is effective, generating data which when aggregated at a corporate level is generally accurate and reliable. The system is well incorporated in the business processes, with a high level of commitment noted during the assessment process.

Accreditation (Third Party Assessor's Statement)

Health, Safety, Environment and Quality Strategy

Noted progress has been accomplished in implementing the PRL's HSEQ strategy which resulted in commissioning of effluent treatment plant, effective solid hazardous waste management, continuous monitoring of soil and underground water contamination, elimination of low density asbestos, installation of CFC free air–conditioner, replacement of glands with mechanical seals on pumps, review of shipping standards, products conformity and procurement of oil spill equipment, resulting in compliance towards the requirements of ISO 14001: 2004, OHSAS 18001: 1999 & ISO 9001: 2000 and strong adherence to PRL's own commitment of being an environmental friendly, employee health and safety and products conformity conscious organization. PRL also has taken initiative for expansion to produce environmental friendly fuel.

As a proactive measure towards meeting the future challenges and maintaining company's image and credibility, Bureau Veritas Certification proposes PRL to publish their individual / separate report on Corporate Social Responsible (CSR) and Cleaner Development Mechanism (CDM), where they already initiated during the years.



M.S. Saqib
Certification Manager
Bureau Veritas Certification – Pakistan

Feedback Form

All stakeholders are encouraged to fill in this questionnaire. This evaluation data will assist in further improvement of this report.

For each statement, please indicate your response in the columns with the respective letters given below and add your comments/suggestions where appropriate.

SA = Strongly Agree; **A** = Agree; **N** = Neutral; **D** = Disagree; **SD** = Strongly Disagree

Sr. no		SA	A	N	D	SD
1	This report is produced at the right time					
2	The initiatives taken towards supporting environmental conservation were highlighted					
3	The content of the report gives sufficient information of Pakistan Refinery Limited sustainability efforts					
4	The report reflected Pakistan Refinery's belief in Corporate Social Responsibility					
5	The quality of articles was relevant and up to the mark					
6	The report was visually attractive					
7	The overall standard of the report was good					

Comments/ suggestions

_____
_____
_____
_____
_____

Thank you for sparing your precious time to give your response. Your feedback will play a significant role in improving the standard of this report.

Please forward this form to:

M. Naman Shah
General Manager Tech & Project
Pakistan Refinery Limited
P.O. Box # 4612
Korangi Creek
Karachi
naman.shah@prl.com.pk
92-21-5091771 ext 267

Your Name:_____
Your Designation: _____
Department: _____
Organization's Name: _____