

EXECUTIVE SUMMARY

FOR

**AUGMENTATION OF REFRIGERATED LPG (PROPANE / BUTANE)
IMPORT FACILITY WITH PROVISION OF ADDITIONAL STORAGE OF
2 X 10000 MT AND ASSOCIATED FACILITIES AT BPCL URAN LPG
PLANT**

SUBMITTED TO



M/s BHART PETROLIUM CORPORATION LIMITED

PREPARED BY



Environmental Consultancy & Laboratory

M/s. ULTRA-TECH

ENVIRONMENTAL LABORATORY AND CONSULTANCY

(Gazzeted By MoEF)

**Unit No. 206, 224, 225 Jai Commercial Complex, Eastern Express Highway,
Opp Cadbury Factory, Khopat, Thane (West) – 400 061**

Tel: 022 2534 2776, Fax: 022 25429650, Email: sales@ultratech.in

Website: www.ultratech.in

EXECUTIVE SUMMARY

Introduction

Bharat Petroleum Corporation Limited (BPCL) is an Indian state-controlled oil and gas company headquartered in Mumbai, Maharashtra. BPCL has been ranked 360th in the Fortune Global 500 rankings of the world's biggest corporations for the year 2017. BPCL with an equity base of Rs. 723.08 Crores is a leading player in the Petroleum Sector in the country. BPCL currently has Refineries at Mumbai and Kochi with a capacity of 12 Million Metric Tonnes per Annum (MMTPA) and 9.5 MMTPA respectively for refining crude oil. BPC's subsidiary at Numaligarh has a capacity of 3 MMTPA.

M/s. Bharat Petroleum Corporation Limited (A Govt. of India Enterprise), working under the aegis of Ministry of Petroleum is having an establishment for Receipt, Storage, Filling and Dispatch of Liquefied Petroleum Gas (LPG) at Uran LPG Plant. LPG Plant is under operation at Navghar Industrial estate behind MSEB Gas Turbine Unit, P.B.NO.8, Bokadvira, Uran, Dist. – Raigad, - Maharashtra. The plant started commercial operation in the year 1990. After that various augmentations have been carried out in plant to meet market requirements. In year 2012, BPCL started importing LPG with commissioning of 2 X 8000 MT refrigerated/cryogenic storage tanks and 12 km 12” twin pipeline from liquid cargo jetty at JNPT to BPCL Uran LPG plant. Later on import facilities were augmented to handle Propane and Butane in year 2013. Now, BPCL intends to enhance storage and handling capacity of import facilities to cater to growing demand of LPG across India.

Project Description

The project proposal is ~~limited to~~ augmentation of import facilities by providing additional 12” twin pipelines on existing twin pipelines in second tier and addition of 2 X 12000 MT refrigerated/cryogenic storage tanks, propane-butane blending system and associated refrigeration facilities. Cylinder filling capacity will be increased by adding one no. of 72 station electronic carousal replacing one of the 24 station carousal (out of 3 existing 24 station carousal).

Technology and Activity (Process) Description

There is no manufacturing process involved in the LPG Plant. The operations can be divided into:

- Receipt of LPG: through cross country pipelines from ONGC-Uran and BPCL Mumbai Refinery. Additionally, imported LPG/Propane/Butane is received through cross country pipeline from Jetty to Uran LPG Plant.
- Storage of LPG: In refrigerated/ cryogenic tanks as per PESO standards, Horton spheres and mounded bullets.
- Filling of LPG: In cylinder by carousel in domestic/ commercial/ industrial cylinders.

- Dispatch: Cylinder bottling sent via Bulk tank Lorries, Tank Wagons and cross country pipeline

The entire operation of **RECEIPT, STORAGE, FILLING AND DISPATCH of LPG** is carried out in a closed system thereby eliminating risk of leakage of products and to achieve enhanced safety. There is no chance of mixing LPG with atmosphere outside during normal operations.

The current storage capacity along with proposed expansion in storage is depicted in Table 1.

Table 1: Storage Capacity

SN	Product	Existing (MT)	Proposed (MT)	Total (MT)
1	LPG/Propane/Butane (refrigerated/ cryogenic)	2 x 8000	--	16,000
	Horton Sphere	8 x 1350	--	10,800
	Mounded Bullets	3 x 900	--	2,700
		2 x 600	--	1,200
2	LPG/Propane/Butane (refrigerated/ cryogenic)	--	2 x 12000	24,000
Total				54,700

Power Requirement

Total Power requirement of the proposed expansion will be 7 MVA which will be sourced from the state Power Company. The HSD shall be required for the DG sets running as back-up power source

Water Supply

Water requirement is approx. 100 KL per day during construction and 157 KL per day during regular operations. The water shall be sourced from CIDCO/MIDC.

Table 2: Water Consumption

SN	Description	Water Consumption in m ³			Source
		Existing	Proposed	Total	
1	Domestic (Drinking & Sanitary)	20	5	25	Fresh Water
	Industrial				
	Cooling	150	150	300	Fresh Water

SN	Description	Water Consumption in m ³			Source
		Existing	Proposed	Total	
	Cylinder washing	5	-	5	Fresh Water
	Water Bath	5	-	5	Fresh Water
	Other				
	Gardening	20	2	22	Recycle water from water Bath and cooling activities
	Total	200	157	357	

Fire Fighting Facilities

- Medium velocity water sprinkler system is available in product pump house, Tank Lorry filling Shed, Tank Wagon filling gantry, Horton Spheres, CR shed, Empty shed, Filling Shed and Filled Shed as per prevailing safety guidelines issued by OISD-144.
- Fire fighting system comprising of MVWS System / Fire hydrant ring on proposed LPG Refrigerated/ cryogenic tanks shall be provided as per prevailing safety guidelines issued by OISD-150.
- Provision of Fire hydrant piping network with intermittent deluge valves covering full licensed area is available in line with OISD144 and shall be provided for proposed augmentation as per OISD 150.
- The Fire Water tanks have been provided as shown in **Table 2** and Schedule of Fire Pumps have been provided in **Table 3**.

Table 2: Details of Fire tanks

SN	Product	Capacity (KL)	Total (KL)
1	Fire Water Tank (<i>Existing</i>)	2 x 6600	13200
2	Fire Water Tank (Proposed)	1 x 6600	6600
	Total		19800

Table 3: Schedule of Fire Pumps

SN	Description	Capacity	Head m WC	No's of Pumps	
				Operating	Standby
1	Main Pumps Diesel Engine Driven	1100 KL/hr	105	3	3
2	Jockey Pumps Electrical Driven	50 KL/hr	110	1	1

Instrumentation and Automation

Instrumentation and Automation will be provided for the proposed refrigerated/cryogenic storage tanks:

- Tank Farm Management System: This shall comprise of automation of receipt of products.
- Distributed Control System: The facility shall be provided with DCS based automation system for remote monitoring of process parameters and controlling operation of compressors, pumps, valves etc with necessary logic and interlocks for safe operation of the facility.
- Servo gauges: Reading from the servo gauges shall be available locally as well as from remote in control room. Interlock Shutdown System shall be provided per the provision of OISD 144.
- Earthing system shall be provided for proposed refrigerated/ cryogenic tanks and shall be interconnected at the existing Plant Earthing Grid.
- Gas monitoring system: Existing GMS system shall be extended to proposed refrigerated/ cryogenic tanks also in line with OISD 144.
- Access Control System: The system shall permit only authorized personnel to enter Plant
- Control Room with equipment: Control room shall be equipped with CCTV Camera with storage data facility for 15 days, GMS system, TFMS, Interlock Shut down System to control emergency.

Manpower

The plant currently employs manpower of 200 nos. personnel's during operation phase. No additional manpower shall be required for the proposed expansion. Local manpower of approximately 350 labourers will be preferred during construction phase.

Description of Environment

The area around the proposed LPG Bottling Plant has been surveyed for physical features and existing environmental scenario. The field survey and baseline monitoring has been done from the period of **March 2017 to May 2017**

Air Environment:

The ambient air quality is determined at 30 locations. The PM₁₀ varied from 58 to 222 µg/m³, PM_{2.5} varied from 24 to 55 µg/m³, SO₂ varied from 10 to 26 µg/m³, NO_x varied from 11 to 43µg/m³. Other parameters like VOCs, Heavy metals, Benzene etc. were found Below Detectable Limit (BDL). All values are within prescribed NAAQS 2009.

Noise Environment:

Noise can be defined as an unwanted sound. A total of 30 locations were identified for ambient noise monitoring in the study area. The daytime varied from 52.3 dB (A) Leq to 72.9 dB (A) Leq

and night time noise varied of 44 dB (A) Leq to 62.4 dB (A) Leq. Both daytime noise and night time noise was within the limit.

Water Environment:

In order to establish the baseline water quality, 7 ground water and 4 surface water samples were collected and analyzed in the study area. The analysis result for ground water samples were within drinking water limit as per IS 10500: 2012. Details of analysis result are given in the EIA report.

Soil Quality:

Soil samples were collected from 15 locations in the study area and analyzed for physico-chemical characteristics. Soil quality was found to be normal. Details of analysis result are given in the EIA report.

Land Use/Land Cover of the Study Area:

Land use pattern of the study area covering 10 km radius includes seven classes such as Water body, Agricultural Land, Mangroves, Rocky land, Paddy Field, Vegetation, Open Scrub, Built-up Land and Open Waste Land.

Biological Environment:

The ecological study of the area has been conducted within 10 km radius of the project site in order to understand the existing status of flora and fauna to generate baseline information.

Flora: 33 species of Trees, 9 species of Shrubs, 7 species of Herbs, 7 species of Bamboos and Grasses, 1 species of Climbers and 1 Species of Mangroves were identified.

Fauna: 2 species of mammals, 2 species of Reptiles, 23 species of Butterflies, 2 species of Dragonflies and Damselflies were identified.

Avifauna: 21 species were identified within the Study Area.

Socio-economic Environment:

Analysis of the demographical statistics, based on Primary Census Abstract, 2001 & field survey reveals that the study area has a total population of 2,61,873 in the study area. Schedule Caste (SC) constitutes 4% while Schedule Tribe (ST) also 4% of total population in study area. An average 77.4% of population is literate while 22.6% of the population is reported to be illiterate. Villages in the study area have fairly good infrastructure facilities.

Anticipated Environment Impacts and Environment Management Plan

Land/Soil Environment Impact Mitigation

During construction phase the top soil will be stored carefully and will be used again after construction/installation phase is over so as to restore the fertility of project site. During operation phase, as the complete system is closed loop, no leakage is envisaged and hence negligible impact on the topography during operation phase.

Air Impact Mitigation

The emission anticipated during construction period will include fugitive dust due to excavation of soil, levelling of soil, use of DG sets, movement of heavy construction equipment/vehicles, site clearing and other activities. Also water sprinkling shall be carried out to suppress fugitive = dust during earthworks and along unpaved sections of access roads. During operational phase the proposed facility shall be equipped with leak detection systems as per OISD 144. The air environment has minimal impact due to truck movement for receipt and dispatch.

Noise Impact Mitigation

Noise is generated from operation of pumps, blowers and DG sets and during vehicular movement. The mitigation measures have been implemented like acoustic enclosures for DG Sets as per CPCB guidelines, provision of ear plugs for labour in high noise area, green belts and landscaping have been developed which act as noise buffer.

Water Impact Mitigation

Avoid unwanted wastage of water and use of tanker water for construction activity. Wastewater generated will be continued to be recycled/ reused during operation of the LPG Plant and rain water harvesting shall be further promoted. Additionally, the rainwater from the landscape area will be continued to recharge the ground water sources through recharge pit.

Ecology and Biodiversity Impact Mitigation

The proponent plans to strengthen and maintain the extensive green belt encompassing minimum 33% of plot area. The probability and consequences of significant ecological impacts occurring as a result of the operation of the facility are considered to be almost negligible. Municipal solid waste will be continued to be disposed through local bodies and spent lube oil from D.G. set will be sold to MPCB Authorized recyclers. Hence no impact on flora and fauna is envisaged. Moreover there are no reserve forest and protected areas within 10 km radius. There will be no effluent discharge in the water body. Thus there is no impact on the aquatic biota present in vicinity of proposed project.

Socio-Economic Environment Impact Mitigation

The construction of the proposed project is expected to provide temporary indirect employment to a good number of skilled and unskilled workers. The project will contribute to the socio-economic development of the area at the local level in turn reducing migration for employment. Hence the proposed project will have positive impact on the socio-economic environment.

Environmental Monitoring Programme

It is imperative that the BPCL shall continue to monitor environmental health, post clearance.

- It helps to verify the predictions on environmental impacts presented in this study.
- It helps to indicate warnings of the development of any alarming environmental situations, and thus, provides opportunities for adopting appropriate control measures in advance.

Project Benefits

To cater the domestic as well as non-domestic LPG demand of markets of Mumbai, Navi Mumbai, entire state of Maharashtra, central, southern and northern parts of country.

Proposed Schedule and Approval for Implementation

The proposed project will be implemented in two parts: i.) Pipeline & b) Terminal Facilities. The time schedule for the mechanical completion of the project is envisaged to be 30 months from the date of obtaining all approvals/ NOC's for the project.