



EXECUTIVE SUMMARY

1 Introduction

M/s Bharat Petroleum Corporation Limited (BPCL) is an Indian state-controlled oil and gas company headquartered in Mumbai, Maharashtra. BPCL has been ranked 225th in the Fortune Global 500 rankings of the world's biggest corporations for the year 2012. BPCL, with an equity base of Rs. 723.08 Crore, 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.

BPCL Sewree terminal is a limited capacity POL Installation in Mumbai, Maharashtra, catering to Mumbai, Thane, Raigad and Pune of Maharashtra and Hazira of Gujarat. Sewree terminal is spread over three locations viz. Benzene Installation, Khau Creek Installation and 'A' (Black Oil) Installations. The total numbers of tanks to be installed are 3, and the maximum total capacity will be 1, 96,501.84 m³.

As per the Ministry of Petroleum & Natural Gas (MoPNG) notification (Gazette Notification G.S.R. 4(E), dated 02.01.2013) oil marketing companies (OMCs) shall sell ethanol-blended petrol which has up to 10 percent ethanol and as per the Bureau of Indian Standard (BIS) specification, 5 per cent ethanol blending has to be achieved across the country as a whole. In order to make contribution and abiding by the policy, BPCL proposes expansion of its Sewree Terminal. The terminal operation shall be continued keeping in mind the existing land use. Further, the expansion of terminal doesn't have any long-term negative impacts on the natural and socio-economic environment.

MPCB has granted consent to operate to existing unit vide letter no. BO/MPCB/RO (HQ)/MU-4750-13/CR/CC-466 dated 16.01.2014

1.2 Project Description

Bharat Petroleum Corporation Limited owns total plot area of 30.35 ha, out of which 1, 52,775 m² is built-up area and 3, 03,514m² for parking. The total numbers of tanks to be installed are 3, at Khau Creek Installations and Benzene Installation. The maximum total capacity will be 1, 96,501.84 m³. Petroleum products like MS, HSD, SKO, FO etc. are received through pipelines from Mumbai refinery. For ethanol & bio-diesel shall be received through tank Lorries. New Unloading Bays is proposed for the same. M/s BPCL have installed 33 Nos. of tanks out of which 26 tanks are being used to store the Petroleum products, however to store Biodiesel and Ethanol 3 Nos. of new tanks are proposed. Details of product class wise tankage at Sewree Terminal are given in **Table 1.1**.

Table 1.1: Tankage Details at BPCL Sewree Terminal

Sr. no.	Location	Class	Storage Capacity	Total Capacity
1	Benzene	Class A	11903	29477.14
		Class B	14159.14	
		Excluded petro.	3415	
2	Khau creek	Class A	50290	128039.40
		Class B	58353.66	
		Class C	15980.70	
		Excluded petro.	3415	
3	Black Oil	Class A		38985.3
		Class B		
		Class C	38985.3	
<u>Grand Capacity</u>				<u>196501.84</u>

1.3 Technology and Process Description

There is no manufacturing process involved in the terminal. The process involved can be divided into:

- Receipt of finished petroleum products through pipelines from Mumbai refinery and tank Lorries.
- Storage of petroleum products in storage tanks fabricated as per international standards.
- Blending of Ethanol and Biodiesel into MS and HSD respectively, in accordance to newly proposed blending skid.
- Dispatch of petroleum products through Tank Lorries.

The entire operation of RECEIPT, STORAGE, BLENDING AND DISPATCH of petroleum products is carried out in a closed system thereby eliminating risk of spillage of products and to achieve enhanced safety

1.3.1 TLF Sheds

There will be twelve (12) nos. of TLF sheds. The loading facilities will be bottom loading for MS and HSD, Ethanol and Biodiesel.

1.3.2 Water Supply:

Requirement for the Project will be 10 m³ for construction phase and 31 m³ for Operational phase from two (2) proposed bore wells.

1.3.3 Product Pump House:

Proposed project will have 1 TLF Pump House: 35 X 10 m at Khau Creek Installation and 1 TLF Pump House: 15 x 20 m at Benzene Installation. The details of the proposed pumps are as shown in **Table 1.2**.

Table 1.2: Schedule of Pumps

A) Benzene Installation

Pump No	Product	Capacity (m ³ /Hr)	Head(m)	Operation	Types of Pumps	Working + Standby	Remarks
1	MS	200	45	Loading	Centrifugal	Working	Flame Proof Configuration to IS: 2149
2	MS	150	35	Loading	Centrifugal	Standby	
3	HSD	200	45	Loading	Centrifugal	Working	
4	HSD	200	45	Loading	Centrifugal	Standby	
5	SKO	165	35	Loading	Centrifugal	Working	
6	SKO	120	45	Loading	Centrifugal	Standby	
7	SPEED	200	20	Loading	Centrifugal	Working	
8	OBARD	50	35	Loading	Centrifugal	Working	
9	Ethanol	100	20	Loading	Centrifugal	Working	
10	Ethanol	100	20	Un- loading	Centrifugal	Working	
11	Water	50	110	Jockey	Centrifugal	Working	
12	Water	50	110	Jockey	Centrifugal	Standby	
13	Water	682	105	Fire- Fighting	Centrifugal	Working	
14	Water	682	105	Fire- Fighting	Centrifugal	Working	
14	Water	682	105	Fire- Fighting	Centrifugal	Standby	Diesel Engine Driven

B) Khau Creek Installation

Pump No	Product	Capacity (m ³ /Hr)	Head(m)	Operation	Types of Pumps	Working + Standby	Remarks
1	MS	160	45	Loading	Centrifugal	Working	Flame Proof Configuration to IS: 2149
2	MS	160	45	Loading	Centrifugal	Standby	
3	MS	120	45	Loading	Centrifugal	Standby	
4	MS	300	45	Loading	Centrifugal	Working	
5	MS	250	30	PLT	Centrifugal	Working	
8	HSD	200	45	Loading	Centrifugal	Working	
9	HSD	200	45	Loading	Centrifugal	Standby	
11	HSD	165	35	Loading	Centrifugal	Working	
12	HF-HSD	200	45	Loading	Centrifugal	Working	
14	Ethanol	120	30	Un- Loading	Centrifugal	Working	

Pump No	Product	Capacity (m ³ /Hr)	Head(m)	Operation	Types of Pumps	Working + Standby	Remarks
15	Ethanol	100	55	Loading	Centrifugal	Working	Flame Proof Configuration to IS: 2149
16	Water	80	110	Jockey	Centrifugal-Jockey	Working	
17	Water	80	110	Jockey	Centrifugal-Jockey	Standby	
21	Water	796	105	Fire Fighting	Centrifugal-Main	Working	Diesel Engine Driven
22	Water	796	105	Fire Fighting	Centrifugal-Main	Working	
23	Water	796	105	Fire Fighting	Centrifugal-Main	Working	
24	Water	796	105	Fire Fighting	Centrifugal-Main	Standby	
25	Water	796	105	Fire Fighting	Centrifugal-Main	Standby	

1.3.4 Fire Fighting Facilities

Following Fire Fighting Facilities will be provided.

- Water Sprinkler system on proposed MS and HSD as per prevailing safety guidelines issued by OISD
- Foam fighting system on proposed Diesel (HSD) and Petrol (MS) tanks as per prevailing safety guidelines issued by OISD
- Provision of Fire hydrant piping network for the new product tank farms.

The Fire Water tanks have been provided as shown in **Table 1.3**. Additionally, Fire Water Shed has been provided of 35x14m.

Table 1.3: Details of Fire Tanks

Benzene Installation			
Tank No.	Total Tankage m ³	Diameter(m)	Height(m)
Water Tank 41	1870	12.6	16
Water Tank 42	1870	12.6	16
Water Tank	2462	14.03	16
Khau Creek Installation			
New Water Tank	5024	20	16.5
New Water Tank	5024	20	16.5

1.3.5 Dyke Wall Facility

Dyke wall shall be provided surrounding the POL tanks (above ground type). The Capacity of each tank and Total maximum Capacity is highlighted below in **Table 1.4**.

Table 1.4: Dyke Wall Details

Sr. No.	Location	Dyke Wall Containing Tanks	Max. Capacity Tank, m ³	Overall Dimension
1	Khau Creek	22, 25	15,888	>110%
2	Khau Creek	36, 37, 38	10,000	>110%
3	Khau Creek	32, 33, 34, 35	20,000	>110%
4	Benzene	16, 18, 19, 39, 40, 43	10,000	>110%

Dyke wall surrounding the above ground product tanks can accommodate spilled oil which is more than the maximum capacity of the product tank in case of leakage. Dykes are provided with adequate wall height as per OISD norms.

1.3.6 Instrumentation and Automation

Automation / Instrumentation system will be as per latest Terminal Automation System (TAS) philosophy, which includes the following, as applicable:

- Depot Automation System, Tank farm management system including Radar Gauges, Multi-Point Temperature Sensors, Pressure Transmitters, Overspill detection and audio, visual alarm system etc.
- Tank Truck loading system including, Mass Flow meters, Batch Controller, DCV etc.
- Ethanol Blending and MFA dosing systems.
- Other field equipment such as online density and temperature sensors, Field Automation and Integration of Sub system ROSOV's, MOV's, DBBV's, Electrical sub systems, product delivery pumps, fire fighting systems.
- Tank Truck Entry system, bay queue display etc.
- Control Room equipment such as LRC, OIC's, Servers, PLC's, UPS etc. and necessary TAS software.
- Position sensors for tank dyke valves etc.
- Safety Shutdown System covering Automated Overfill Prevention System, ESD system.
- Meters proving and Calibration facilities.
- ROSOV's, MOV's, DBBV's master station, Push Button Stations etc.
- Necessary cabling, control panel, earthing etc.
- Air Compressor/Air Dryer/Air receiver and piping for pneumatic systems.
- Access control, zoning and multi zoning systems, security features like DFMD's HHMD's etc.
- CCTV system to cover total depot facilities including perimeter wall.
- Hydrocarbon detectors and flow sensors etc. near all potential leak sources of class 'A' petroleum product,
- Other automation systems and its interface of SAP system with TAS, and to ensure that engineering and design addresses the need for standardization.
- Any other requirement as specified in OISD 117, OISD 118 and OISD 244.

1.3.7 Manpower

Total Manpower Requirement of the project will be 150 (50 direct and 100 indirect to include contract labour and security personnel).

1.4 Description of Environment

The area around the proposed Terminal has been surveyed for physical features and existing environmental scenario. The field survey has been done during Summer Season of year 2016 (March 2016- May 2016).

The meteorological condition of the project site during the study period is presented in report. During study period the pre-dominant wind direction ranges from the region West to North West. The temperature varied from 15.6⁰C to 26.8⁰C, whereas, the relative humidity varied from 67% to 86%. The monthly mean wind speed was recorded 6.13 m/s.

The ambient air quality is determined at 11 locations. The PM₁₀ varied from 69 to 92 µg/m³, PM_{2.5} varied from 31 to 54 µg/m³, SO₂ varied from 20 to 45 µg/m³, NO_x varied from 25 to 59 µg/m³. All values within prescribed NAAQS 2009.

The noise data compiled on noise levels of the study area varied from 64.3 to 68.2 dB (A) in day time and from 56.2 to 61.7 dB (A) in the night time.

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 and evaluate the possible impacts on biological environment. It has been assessed that the impact on local flora and fauna will be negligible due to the proposed project.

The socio-economic conditions are presented in the report. The impact on socio-economic environment as some direct or indirect employment will be generated during the construction and operation phases

1.5 Anticipated Environment Impacts and Environment Management Plan

The potential impacts of the Isolated Storage Terminal have been limited to the project site. There will be insignificant impact on either air or water qualities, as no processes are planned. Impact on soil quality is induced / short term in nature, and can be avoided by applying good construction practices to reduce the impact, if any, on soils to a great extent. Adequate measures need to be worked out for minimizing the loss of soils, by way of storage of topsoil and then again laying it back after the completion of the construction of terminal.

Impacts on ambient air would mainly be due to dust emissions and movement of vehicles. However these impacts would be short-term in nature. Impacts on ambient air during operational phase would be due to emissions from DG set stacks and vehicles which will be very negligible and would be nullified by provision acoustic enclosure.

The detailed environmental management plan has been presented in the main report. BPCL will ensure that all the statutory norms, emissions norms for air, water, and noise shall be maintained during the construction and operation phases and in line with the proposed EMP.

1.6 Environmental Monitoring Programme

It is imperative that the BPCL should set up regular monitoring locations to assess the environmental health in the post period. A post study monitoring programme is important as it provides useful information on the following aspects.

- 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.

1.7 Project Cost and Implementation Schedule

BPCL will complete installation of proposed tanks within 15 months. The cost breakup of project is given in Table 1.5 below.

Table 1.5: Project Cost Breakup

S.N	Components	Rs (in Crores)
1	Basic Engineering	0.72
2	Civil facilities	6.13
3	Mechanical	4.19
4	Electrical	0.95
5	Instrumentation	2.15
6	Fire Fighting	2.87
7	Environmental Protection	1
Total		18.01

1.8 Project Benefits

- Bharat Petroleum Corporation Limited (Public Sector Enterprise under MoPNG) is taking the initiative for augmenting the storage capacity to maintain a reserve of minimum stock cover of 15 days of biofuels and is upgrading the blending facility to ensure min. 10% blend in petrol and diesel to comply the notification of MoPNG and National biofuel policy.
- The project will ensure that a minimum level of biofuels become readily available in the market to meet the demand at any given time.
- Along with it, the project will cater to the usual supply of MS, HSD, SKO will also be ensured which is vital for economic growth as well as for improving the quality of life.
- The project shall provide employment potential under unskilled, semi-skilled and skilled categories. The employment potential shall increase with the start of construction



activities, reach a peak during construction phase and then reduce with completion of construction activities. During operation phase also there will be employment opportunities, mainly in service sector, although its magnitude will be much less.

The direct employment opportunities with BPCL are extremely limited and the opportunities exist mainly with the contractors and sub-contractors. These agencies will be persuaded to provide the jobs to local persons on a preferential basis wherever feasible.