EXECUTIVE SUMMARY

for

Draft Environmental Impact Assessment Report

Of

Proposed Capacity Expansion
Of BPCL Manmad Installation
at
Panewadi, Manmad, Maharashtra.

Prepared for-

Bharat Petroleum Corporation Limited (HPCL)

Prepared by-

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EXECUTIVE SUMMARY

1. PROJECT DESCRIPTION

BPCL Manmad installation is one of the major marketing installations of Bharat Petroleum Corporation Limited. It is receiving product from Bharat Petroleum Corporation Limited via dedicated pipe line. The products received are Motor Sprit (MS), High Speed Diesel (HSD) and SKO. The products received are stored in the storage tanks and dispatched to various Retail Outlets & Industrial Customers of 12 districts of Maharashtra through tank trucks.

- **Project Capacity**

Its existing capacity is of 3,37,005.2 KL. BPCL proposes to install 1 Ethanol tank with storage capacity of 858 KL and 2 numbers (3415KL capacity each) of Biodiesel storage tanks in the existing Manmad installation. After Expansion the capacity will increase to 3,44,693.2 KL.

- **Location**

BPCL Manmad Installation which is located at Panewadi, at Nashik District and which is 7 km away from Manmad Town of Maharashtra State, covering land area of 226 Acres. The project site is located adjacent to SH-7 and SH-10. Manmad Railway Station is located at the distance of about 5 km. Ozar Airport is located at the distance of about 68 km.

- **Land Requirement**

The total land area available in Manmad Installation is around 226 acres. The total land is under possession of BPCL.

- **Water Requirement and Source**

Total water requirement for the Manmad installation is 15 KLD, which is sourced through Borewell.

- **Process Description**

→ Petroleum products are received through common pipeline for all products i.e High Speed Diesel (HSD), Motor Spirit (MS), Superior Kerosene Oil (SKO), and Ethanol from BPCL Mumbai Refinery through Cross Country Pipeline.

→ The received products are stored in Aboveground & Underground Tanks.

→ Empty tank Trucks which report to the Manmad installation are sent to tank Truck filling bays. They are filled through loading arms fitted in the bays. Products come to the loading arm from the products tank through pump provided in pump house. The quantity filled in the tank lorry is measured by flow meters fitted in the bay. After Checking the right quantity the lorry is sent to retail outlets & industrial customers of 12 districts of Maharashtra.

- **Product Pipeline Systems**

1. Pipelines from BPCL Mumbai Refinery to the Tank Farm: There is a common pipeline for all products.

2. Pipelines from pump house to the TLF Gantry: There are dedicated pipelines for individual products. Tank wise dedicated pipelines have been provided.

- **Manmad installation Facility**

Description of Product Tanks:

1. Above ground cone roof tanks – These are cylindrical vertical tanks with conical fixed roof, made of steel plates & rest on compacted sand foundation, used for storage SLOP which is Class A Products.
2. Above ground floating roof tanks – These are cylindrical vertical tanks with floating roofs, which go up & come down with increase and decrease of the products inside the tank thus leaving no space for product vapour to form. The tanks rest on compacted sand foundation. These tanks are used for storage HSD, MS, SKO which are Class A & B product.
3. Underground Tanks: These tanks are cylindrical, made of steel plates and are kept on underground trenches in horizontal positions. These tanks are used for storage of small quantity of Ethanol product.
4. Technical Specifications of Storage Tanks: Design and construction of storage tanks will be according to Indian regulations IS 803 and / or API 650.

5. The floating roof and fixed roof tanks will be designed for atmospheric pressure. Design of the Manmad installation is in accordance with Indian standards OISD 118 and as contained in Petroleum Rules and approved by The Chief Controller of Explosives.

- **Fire detection and Protection System**

The fire protection and detection system are in accordance with OISD 117. Portable fire extinguishers of 4.5-75 kg are installed on pump stations, tank farms and buildings, the size depending on the object concerned. Electrical rooms are protected by Carbon dioxide (CO_2) fire extinguishers. Fixed fire fighting monitors are located at the pump station and truck loading gantries. Sufficient hydrants are installed in the Manmad installation, with the hydrants spaced at a maximum distance of 30m.

- **Project Cost**

The cost for the expansion of the BPCL Manmad installation is estimated as Rs. 15.85 Crores.

2. DESCRIPTION OF THE ENVIRONMENT

Primary baseline environmental monitoring studies were conducted for three month from March 2016 to May 2016 and details are as follows:

- **Air Environment**

To establish the baseline status of the ambient air quality in the study area, the air quality was monitored at Seven (7) locations. The maximum and minimum values of Ambient Air Quality monitoring are given in the following table:

Code	Location	$PM_{2.5}$, µg/m^3				PM_{10}, µg/m^3				SO_2, µg/m^3				NO_X, µg/m^3			
		Min	Max	Avg	98 Per	Min	Max	Avg	98 Per	Min	Max	Avg	98 Per	Min	Max	Avg	98 Per
AAQ1	Project site	24.6	31.6	27.93	31.5	30.6	66.1	55.55	65.64	7.1	9.5	8.54	9.45	17.1	24.5	20.66	24.31
AAQ2	Dodtane budrak	20.9	25.7	23	25.4	47.6	60.2	52.4	60	5.1	9.6	7.2	9.4	10.6	16.2	13.8	16.2
AAQ3	Ekwai	17.9	23.6	20.6	23.3	40.6	49.8	45.1	49.4	BDL (<5)	6.3	BDL (<5)	BDL (<5)	8.8	14.1	11.5	13.9
AAQ4	Nagapur	22.8	30.6	26.7	30.4	50.6	69.3	60.3	68.8	6.2	9.2	7.6	8.9	16.2	22.8	18.7	22.2
AAQ5	Besgoan	16.9	24.1	20.6	23.8	38.4	49.6	43.7	48.9	BDL (<5)	6.4	BDL (<5)	BDL (<5)	10.6	14.1	12.3	14.1
AAQ6	Manmad	22.5	31.1	27.0	30.9	51.7	67.1	59.5	66.5	7.1	10.1	8.4	9.8	15.5	23.6	19.4	23.0
AAQ7	Hlswak BK	14.7	21.4	17.1	20.9	34.2	45.1	38.6	44.6	BDL(<5)				8.5	13.6	10.7	13.4
CPCB / MoEF Standards																	
Industrial /Residential / Rural and Other Area		**60**				**100**				**80**				**80**			

Code	Location	Benzene as C6H6, µg/m^3	TVOC, µg/m^3			
			Min	Max	Avg	98 Per
AAQ1	Project site	BDL(<0.1)	56	125	96.30	124.54
AAQ2	Dodtane budrak	BDL(<0.1)	BDL(<1)			
AAQ3	Ekwai	BDL(<0.1)	BDL(<1)			
AAQ4	Nagapur	BDL(<0.1)	BDL(<1)			
AAQ5	Besgoan	BDL(<0.1)	BDL(<1)			
AAQ6	Manmad	BDL(<0.1)	BDL(<1)			
AAQ7	Hlswak BK	BDL(<0.1)	BDL(<1)			
CPCB / MoEF Standards		**5**	**Not specified**			

Results of the monitored data indicate that the ambient air quality of the region in general is in conformity with respect to the norms of National Ambient Air Quality standards (NAAQS) of CPCB, with present level of activities.

- **Noise Environment**

  The noise monitoring has been conducted at seven (7) locations in the study area. Noise levels during day time were found to be in the range 45.5 to 57.3 dB(A). Noise levels observed to fall in the range 38.2 to 49.1 dB(A) during the night time.

- **Water Environment**

  Six (7) groundwater samples and two (2) surface water samples within the study area were considered for assessment. The analysis of ground water results indicate that the average pH ranges in between 6.58-8.2, TDS ranges from 102mg/l – 396 mg/l, total hardness ranges from 54mg/l - 225mg/l, iron content ranges from BDL – 0.11mg/l, nitrate content ranges from 4mg/l – 19mg/l was observed. The analysis of surface water results indicate that the average pH ranges in between 7.84 – 8.02, TDS is 70-82 mg/l, total hardness is 48-60 mg/l, DO is 6.9-7.2 mg/l.

- **Soil Environment**

  Six (7) locations within the study area were selected for soil sampling. The soil results were compared with soil standards. It has been observed that the pH of the soil was ranging from 6.94 to 8.25 indicating the soils are basic in nature. Conductivity of the soil ranges from 0.044 to 0.221 mS/cm. Since the EC value is less than 2000 µS/cm, the soil is said to be Non saline in nature. Texture of the soil sample is predominantly loam. Soil organic content varied from 0.67 to 1.84% which indicates the very low level of organic matter. The available nitrogen content ranges between18 to 93 mg/kg in the locality and the value of phosphorus content varies between 51.4 to 160 mg/kg. This indicates that the soil have very high quantities of Nitrogen and Phosphorus. The potassium content varies from 136 to 235 mg/kg which indicates that the soils have high quantities of potassium.

- **Ecological Environment**

  There are no endemic and endangered species of flora within the study region. There is no wild life sanctuary, national park or bird sanctuary with in the 15 km radius of the project site.

- **Socio-Economic Environment**

Study of socio-economic profile around the proposed project site has been carried out based on "Census of India 2011. The EIA Study for the proposed project, the study area has been considered to be an area covered within a radius of 10 km around the site beyond which appreciable positive impact due to the project is envisaged.

The salient features of socioeconomic profile of the Study Area are as follows:

- The population in the district is 27,386.
- The Sex Ratio (Female per 1000 Male) is 927.
- Overall literacy rate, according to 2011 Census is 68.27%. The male literacy rate is 74.79% while female literacy rate is 61.25%.
- The percentage of main workers is 50.41% of total population and the Percentage of marginal workers is 4.46%. The percentage of non-workers is 45.13%.

3. ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

- **Impact During Construction Phase**

Appropriate environmental mitigative measures will be ensured during construction phase to eliminate/minimize detrimental impacts during this phase. These measures include dust suppression by arranging mobile water sprinklers; providing accommodations to the construction workers in the nearby villages by contractor, etc.,

→ The total land including the land required for expansion is under possession of BPCL. Hence the question of compensatory afforestation does not exist.

→ For the present project, there is no R & R issues involved since the Project is an expansion project for which the entire land is under possession of BPCL.

→ Around 50-100 construction workers will be required during construction phase. They will be provided accommodations in the nearby village by contractors with temporary infrastructures like site offices, site stores for construction materials and equipments, rest room etc.

- **Impact During Operation Phase**

Ambient Air Environment

The only point sources of emissions are D.G sets & Fire Engines. They have been fitted with stacks of adequate height to disperse the pollutants. Fugitive: No emissions are generated during the operations.

Water Environment

OWS network is provided in the Manmad installation to collect the oily water from tank farm area, tank wagon siding, Pump shed and manifold & TT gantry. The waste water from OWS after removal of oil & after testing is used for greenbelt development at the facility. The collected slop oil shall be disposed off to third party for off-site recovery or recycling. Sewage from toilets is disposed off in Soak Pits.

Ambient Noise Environment

The only source of noise within the Manmad installation is during D.G set / Pumps operation. DG sets are placed within acoustic enclosures. Vacant spaces within the Manmad installation have been earmarked for greenbelt to contain the spread of noise emissions.

Land Environment

Total land including the land required for expansion is under possession of BPCL. Hence, the land environment will not undergo any major irreversible and irretrievable change.

Solid waste Management

Tank bottom sludge will be generated while cleaning of oil storage tanks. Cleaning of oil storage tanks will be done once in five years as per practice of Oil Industry. Total tank bottom sludge thus generated will be handed over to CHWTSDF, Pune.

Other hazardous wastes like spent batteries, waste oil, empty drums of oil/chemicals, fluorescent tubing etc. will be disposed off in accordance with approved safe procedures.

All biodegradable waste (food and kitchen waste) at the Manmad installation is collected and disposed off as per well established practice.

4. ENVIRONMENTAL MONITORING PROGRAMME

S.No	Potential Impact	Action to be followed	Parameters for monitoring	Frequency of Monitoring
1	Air Emission	Emissions from DG sets & fire engines	Gasses emissions (SPM, SO_2, NO_X, CO)	As per CPCB/ MPCB requirement
		AAQ within the project premises and nearby habitation is to be monitored All vehicles to be PUC certified.	(PM_{10}, $PM_{2.5}$, SO_2 & NO_X, VOC, Methane, Non Methane, HC) Vehicle logs to be maintained	As per CPCB/ MPCB requirement
		Meteorological data	Wind speed, direction, temperature, relative humidity & rainfall	Continuous monitoring using automatic weather station
2	Noise	Noise generated from operation of, DG sets, Pumps to be monitored	Spot noise level recording	Periodic during operation phase
3	Water Quality			
	Waste water Discharge	Waste water Discharge Waste water from canteen drains etc.	Selected parameters like PH, TSS, TDS, COD, BOD, OIL & Grease etc.	As recommended by MPCB
	Surface & ground water	Surface & ground water in the vicinity of the plant	As per IS : 10500 : 1991	As recommended by MPCB
4	Solid waste / Hazardous waste	`Check compliance to HWM rules.	Quality & quantity monitoring	Periodically
5.	Ground water quality and water levels	Monitoring ground water quality, around Manmad installation site and levels	Comprehensive monitoring as per IS 10500 Groundwater level BGL	Periodically
6.	Flora & Fauna	Vegetation, greenbelt / green cover development	No. of plants. Species	Once a year

7.	Soil quality	Checking & maintenance of good soil quantity around	Physico-chemical parameters and metals	Once a year
8.	Health	Employees and migrant labours health check up	All relevant parameters including HIV	Regular Checkups as per Factories act.

5.0 BENEFITS OF PROJECT

The proposed expansion project in Maharashtra will improve supply position of the petroleum products which is vital for economic growth as well as improving the quality of life. The improved petroleum supply will have strong logistic support for delivering the products to customers without interruption. Thus, the proposed project has ushered in the social and economic up-liftmen of the persons living in the vicinity of the Project i.e. of society at large.

6.0 ENVIRONMENTAL MANAGEMENT PLAN

- **Air Environment Management**

Adequate green belt has been developed to mitigate pollution arising due to movement of vehicles. Regular monitoring of DG – Stack and Ambient air quality will be carried out.

- **Water Environment Management**

Sewage generated will be disposed through septic tanks & soak pits.

- **Noise Environment Management**

All noise generating equipment's like DG-Sets etc., will be provided with acoustic enclosure to help in attenuating the noise levels thereby the ambient noise levels will be maintained below the CPCB limits of 75 dB(A) for industrial areas.

- **Solid & Hazardous Waste Management**

Municipal Solid waste generated onsite will be disposed through local village body. Tank bottom sludge out of tank cleaning (Once in 5 years) will be disposed off through PCB approved vendors. Damaged drums and scraps will be sold to local scrap dealers. Spent oil generated will be disposed through PCB Authorized recyclers.

GREENBELT DEVELOPMENT

Greenery has been developed on 74.58 acre land. Considering, projected development, 33% of the total area will be under green belt.

HEALTH, SAFETY AND ENVIRONMENTAL POLICY OF BPCL

HEALTH, SAFETY, SECURITY & ENVIRONMENT

Together, we have the highest concern and commitment for protecting the Health and Safety of all employees, contractors, customers and the communities in which we operate and for conservation of the environment. We will comply with all Statutory Regulations and may even go beyond these for the benefit of our environment.

We consider Health, Safety and Environmental aspects as an integral part of our business planning and operation processes.

Bharat Petroleum

POLICY

Based on these guiding principles, we shall:

- Demonstrate our commitment by:
  Providing and maintaining safe facilities and working conditions

  Recognising that all employees have responsibility for their own safety and actions which could affect the safety of others

  Adoption of appropriate technologies to minimize the impact of our activities on the Environment
- Establish clear objectives and targets to:
  Improve continuously for prevention of accidents & occupational illnesses and minimising any impact of our activities on the environment

  Promote learning through training and sharing of experiences and best practices; including with contractors, customers and the public, wherever required.

  Inculcate values and attitudes conducive to achieve excellence in Health, Safety and Environmental performance.
- Provide means to achieve our mission by:
  Assigning clear roles and responsibilities at all levels and periodically reviewing and recognizing contribution to HSE objectives.
- Allocating adequate resources:
  Fostering a spirit of participation by all employees in Health, Safety and Environmental conservation efforts.

  Creating appropriate forums for deliberations on Health, Safety and Environmental issues.
- Monitor performance by:
  Periodically auditing work processes, systems & practices and promptly correcting deficiencies.

  Incorporating HSE performance as a parameter for assessing the overall performance of Employees, Business Units, Contractors and Business Associates.

OUR DEFINITION FOR LTA, INCIDENT & ACCIDENT

INCIDENT: An 'incident' is definec as a happening (including natural calamities) on ground involving company personnel or static facilities or equipment under their control that could have

led or leads to the following:

Supply of an incorrect or off-specificaton grade of product

- Facility outage like un-serviceability of facility due to any reasons (including natural calamities)
- The damage to an aircraft / equipment including refueling equipment
- Delay in refueling
- Fatalities / Injury
- Property loss including oil spillage
- Any incident / action / attitude resulting into customer annoyance / complaint / dislike