INDIAN OIL CORPORATION LIMITED

Executive Summary For Existing Three Additional Above Ground Tanks For The Storage Capacity of 1 x 2,984 KL MS (Floating Roof Type Vertical Tank), 1 x 4,160 KL HSD (Cone Roof Type) & 1 x 50 KL Ethanol (Horizontal Above Ground) At IOCL Pune Terminal, Pune

Category: A {as per MoEF&CC notification dated 14/03/2017, [S.O. 804 (E)]}

[Schedule no. : 6(b) Isolated storage and handling of hazardous chemicals]

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IOCL Pune

EXECUTIVE SUMMARY

1. PROJECT DESCRIPTION

Indian Oil Corporation Limited (IOCL) is India's largest commercial enterprise, with a sales turnover of Rs. 3,99,601 crore (US$ 61 billion) and profits of Rs. 10,399 crore (US$ 1,589 million) for the year 2015-16. Indian Oil is ranked 161st among the world's largest corporate (and first among Indian enterprises) in the prestigious Fortune 'Global 500' listing for the year 2016.

IOCL had constructed 3 additional above ground tanks for the storage capacity of 1x2984KL MS (floating roof type vertical tank) 1x4,160 KL HSD (cone roof type) and 1x50 kL Ethanol (Horizontal above ground). Present facility i.e, before construction of these additional 3 above ground tank is being operating with storage capacity of 6x18563 KL HSD, 5x4068 KL MS and 1x200 KL Ethanol.

As per EIA Notification dated 14 Sep 2006 this projects falls under 6 (b) category i.e. for isolated storage & handling of hazardous chemicals. This is a Violation case ,hence as per the MoEF&CC notification dated 14th March, 2017 [S.O. 804(E)], IOCL Pune Terminal proposes to obtain environmental clearance from MoEF for already constructed new three tanks at Pune depot. Now, the said project would fall under Category "A".

- **Project Capacity**

Its existing capacity is of 22,804 KL. IOCL Pune proposes to install 1 Ethanol tank with storage capacity of 50 KL and 1 MS tank with capacity 2984 and 1 HSD tank with capacity 4160 KL in the existing Pune installation. After construction of additional tanks the total capacity is 29998 KL

- **Location**

The Indian Oil Corporation Limited – Pune Terminal is located at Post KadamWakVasti, LoniKalbhor, at Pune district & which is 18km away from Pune town, covering land area 1,07,192 sq.m . the project is located adjacent to Pune-Solapur highway. Loni railway station is loacated at the distance of 1.7 km. Pune airport is located at the distance of about 21 km.

- **Land Requirement**

The total land area available in Iocl Pune Plant is around 1,07,192 sq. m, The total land is under possession of IOCL.

- **Water Requirement and Source**

IOCL Pune

The existing capacity of 13 KLD water is sufficient to cater the water demand of the newly built tanks during the operationalphasewhich is sourced through Borewell.

- **Process Description**

The process will involve the Receipt of products through tank wagons and storage in above ground tanks. Blending of high performance petrol and diesel will be done. Later, dispatch/Filling of different products in tank lorries and distribution to retail outlets and various consumers of districts of Maharashtra.

→ Petroleum products are received through pipeline for productsi.e High Speed Diesel (HSD), Motor Spirit (MS), and Ethanol would be received through tanker trucks.

→ The received products are stored in dedicated storage tanks.

→ Dispatch will be done by Tanker Trucks to various retails outlets in neighboring districts of Pune.

Flow Chart for Process Description

- **Fire detection and Protection System**

The fire fighting facilities available at the Installation and is in accordance with OISD Standard - 117 on "Fire Protection Facilities for Petroleum Depots and Terminals. Medium expansion foam generators shall be provided to arrest vapour cloud formation from spilled volatile hydrocarbons. The Rim Seal fire detection and protection system are installed in all Class 'A' products in the terminal. Remote operated long range foam monitors (1000 GPM and above) to fight tank fires are provided which in variable flow. During all operations even after the general shift a dedicated fire fighting team should be present. All operating personnel in the Installation should be given safety and simulated fire fighting training based on simulated modules of live fires in tanks, pipeline manifold and pumps, etc., in reputed training institutes equipped with these facilities. Personnel from security services should be trained fully in fire fighting and rescue operations using Personal Protective Equipment.

- **Project Cost**

The cost for the expansion of the IOCL Pune installation is estimated as Rs. 3.93 Crores.

2. DESCRIPTION OF THE ENVIRONMENT

Primary baseline environmental monitoring studies were conducted for three month from March 2017 to May 2017 and details are as follows:

- **Air Environment**

  PM_{10}: The maximum and minimum concentrations for PM_{10} were recorded as85μg/m^3 and 58 μg/m^3 respectively. The maximum and the minimum concentration was recorded at Project Site. The average concentrations were ranged between 69 and 78μg/m^3.

  $PM_{2.5}$: The maximum and minimum concentrations for $PM_{2.5}$ were recorded as 35.6μg/m^3 and 25.1μg/m^3 respectively. The maximum and the minimum concentration was recorded at Project Site.The average values were observed to be in the range of 26 and 34.5μg/m^3.

  SO_2: The maximum and minimum SO_2 concentrations were recorded as 11.4μg/m^3 and 6.5μg/m^3. The average values were observed to be in the range of 8.5 and 12.4 μg/m^3.

  NO_x: The maximum and minimum NO_x concentrations were recorded as 17.9μg/m^3 and 12.4μg/m^3. The average values were observed to be in the range of 11.5 and 18.5μg/m^3.

- **Noise Environment**

  The noise monitoring has been conducted at eight (8) locations in the study area. Noise levels during day time were found to be in the range 51.5 to 51.9 dB(A). Noise levels observed to fall in the range 47.9 to 49.1 dB(A) during the night time.

- **Water Environment**

  Six (6) groundwater samples and two (2) surface water samples within the study area were considered for assessment. The analysis of ground water and surface results indicate that the average pH ranges in between 6.5-8.5, TDS ranges from 340mg/l – 732 mg/l, total hardness ranges from 122mg/l – 356 mg/l, iron content ranges from BDL – 0.54mg/l, nitrate content ranges from 1.2mg/l – 36.0 mg/l was observed.

- **Soil Environment**

Eight (8) 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 6.20 to 7.47 indicating the soils ideal for plant growth . Conductivity of the soil ranges from 0.012 to 0.154 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 0.0.44 to 0.81 % which indicates the very low level of organic matter. The available nitrogen content ranges between 261 to 410 mg/kg in the locality and the value of phosphorus content varies between 42 to 69.4 mg/kg. This indicates that the soil have very high quantities of Nitrogen and Phosphorus. The potassium content varies from 132 to 272 mg/kg which indicates that the soils have moderate 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 study area is 37,2367
  - The Sex Ratio (Female per 1000 Male) is 934.
  - Overall literacy rate, according to 2011 Census is 45.92%. The male literacy rate is 54.08% while female literacy rate is 76.51%.
  - The percentage of main workers is 36.33 % of total population and the Percentage of marginal workers is 2.89%. The percentage of non-workers is 60.77%.

3. ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

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

Ambient Air Environment

The main source of air pollution due to operation of the Depot is particulate emission and combustion gases emitted due to vehicular movement. It can be mentioned here that no new emergency DG set is proposed for the expansion. Thus emission from the stacks of emergency DG sets is not applicable for the proposed expansion project.

In addition to that, some hydrocarbon emission will also take place as fugitive emission from leakages of gland, seals, etc.

Water Environment

Assessment of impact of the project on water environment is as follows:

- Water requirement for operating the Depot is very low, which is met through borewells. As water requirement is negligible and additional water requirement due for project is nil, no adverse impact on water environment is anticipated.
- As no industrial waste water will be discharged from the Depot, any impact on the surface water is ruled out.
- As no solid waste is generated / disposed off, adverse impact on the quality of the water bodies due to carry over of toxic substances is ruled out.
- Sewage will be treated with oil water separator (OWS) system afterward it is disposed off in Soak Pits and septic tank, where bacterial action will reduce the BOD content. Thus, no impact on the quality of ground water is envisaged.

  It is, therefore, concluded that the proposed receipt mode and storage of POL products will not have any adverse impact on water environment.

Ambient Noise Environment

The only source of noise within the Pune installation is during D.G set / Pumps operation. DG sets are placed within acoustic enclosures. Vacant spaces within the Pune 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 IOCL. 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 disposed thru bioremediation process at location.

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 Pune 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 Pune 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 BENEFITS OF PROJECT

The expansion project is expected to bring significant socio-economic and environmental benefits both at local and national level. Establishment of projects of this category will improve availability of the physical infrastructures like drainage, communication and transportation facilities, etc. Implementation of the project will indirectly boost up the social infrastructure of the surrounding, like local education, medical and communication of the whole surrounding area. The project will provide indirect employment to unskilled, semiskilled and skilled categories.

Besides above, indirect benefits are also expected to be accrued to the region by way of reduction of delivery distance by tankers which in turn will reduce trucks on the road reducing the vehicular load on the public roads. This will result in reduced air pollution and reduced probability of accidents on the roads due to less movement of tank trucks.

Moreover, 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 ENVIRONMENTAL MANAGEMENT PLAN

- **Air Environment Management**

  Adequate green belt is 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 41,477 sq.m land. Considering, projected development, 33% of the total area will be under green belt.

7. Ecological impacts

Ecological impacts from this type of project will be insignificant.

Primary and secondary impacts from the proposed project on the biological environment have been identified and the significance of ecological impact have been evaluated based on:

- Habitat Quality
- Species affected
- Size/abundance of habits/organisms affected
- Duration of Impacts
- Magnitude of environmental changes

The project study area does not involves any reserve forests and wildlife area. The project will not have adverse impacts on the existing flora and fauna. Hence there will not be any insignificant impact whatsoever on biodiversity.

During operation phase of the depot facilities, no impact is anticipated on the topography; therefore, no mitigation measure is required.