Executive Summary

For

PROPOSED EXPANSION OF ISOLATED STORAGE FOR 45656 KL HSD; 9213 KL HSD(B5); 60615 KL MS; 70 KL SKO;

1695 KL ETHANOL; 470 KL BIODIESEL AND 14979 KL ATF

At

IOCL-AHMEDNAGAR DEPOT, VILLAGE AKOLNER, TALUKA AHMEDNAGAR, DISTRICT AHMEDNAGAR, MAHARASHTRA.

Land/Plot Area: 223400 m2 (55 acre)
Storage Capacity: 152959 KL for 25 tanks (total; after Expansion)

[ToR Letter No: 0000000013 Dated: 15.07.2017]
[Study Period: March 2017 to June 2017]
[Schedule 6 (b) Category–"B" as per EIA Notification 2006]

APPLICANT

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INTRODUCTION

Indian Oil Corporation Limited (IOCL) proposes for an installation of new storage tanks thereby expanding fuel storage capacity of High Speed Diesel (HSD), Motor Spirit (MS), Superior Kerosene Oil (SKO), Ethanol, Biodiesel and Aviation Turbine Fuel (ATF) at IOCL-Ahmednagar Depot, Village Akolner, District Ahmednagar, Maharashtra.

PROJECT DESCRIPTION

Proposed Project

The proposed project falls under Schedule Project activity Service Sector, "6 (b)-Isolated storage & handling of hazardous chemicals (as per threshold planning quantity indicated in column 3 of schedule 2 & 3 of MSIHC Rules 1989 amended 2000)" Category "B" as per EIA notification, 2006 and amended till date. Based on CPCB Final Document on Revised Classification of Industrial Sectors dated 29/02/2016, this expansion project falls under Red category.

Indian Oil Corporation Limited (IOCL) proposes an expansion of Isolated Storage for 45656 KL of HSD, 9213 KL of HSD (B5), 60615 KL of MS, 70 KL of SKO, 1695 KL of Ethanol, 470 KL of Biodiesel and 14979 KL of ATF at IOCL-Ahmednagar Depot, Village Akolner, District Ahmednagar, Maharashtra.

Currently, Ahmednagar depot has cumulative storage capacity of 20,261 KL for HSD, MS, SKO and Ethanol with 10 storage tanks. Proposed expansion will increase storage capacity of Ahmednagar depot by 1,32,698 KL i.e. total cumulative storage capacity will be 1,52,959 KL and total tanks will be increased to 25. The details of the proposed project are given in ***Table 1.***

Table 1: Project description

S. No.	Details	Description
General		
1	Nature	Petroleum Product Handling and Storage
2	Size	Existing storage capacity: 20261 KL Proposed expansion: 45656 KL HSD; 9213 KL HSD(B5); 60615 KL MS; 70 KL SKO; 1695 KL Ethanol; 470 KL Biodiesel and 14979 KL ATF Total capacity after expansion: 152959 KL
3	Location	Survey no. 337, 338/2, 339/, 340, 357, 358, 359, 360, IOCL-Ahmednagar Depot, Village Akolner, District-Ahmednagar, Maharashtra
4	Co-ordinates	18°59'28.54"N and 74°40'9.72"E (center of the site)
5	Total plot area	223400 m^2 (55 Acre)
6	Cost of the project	INR 287 Cr.
Utilities		
1	Power	1350 KW after proposed expansion sourced from MSEB. One DG set of 380 KVA is available in case of emergency use. 2 x 750 KVA DG sets are proposed for power backup for proposed expansion.

S. No.	Details	Description
2	Water	Source: Groundwater through Borewell / other agency Water requirement: 11 KLD Domestic Wastewater Generation: 1.84 KLD
3	HSD	~80 liters/Hour for proposed DG sets (only in emergency)
Fire Fighting Facilities		
1	Water Tanks	2 Nos. (capacity:1351 KL each)
2	Equipment's	Water cum Foam Monitors (35), Fire hydrants Points (45), Fire Engine (616 KL/hr each) (2), other facilities like electric sirens, hand operated sirens, sand scoops, High Volume Long Range (HVLR), Resuscitators, Fire Proximity suits, etc.

Existing and Proposed Tanks Details

- HSD : 4 tanks × 2071 KL each
- MS : 1 tank × 586 KL and 1 tank × 1109 KL
- SKO : 2 tanks × 3071 KL each
- Ethanol : 2 tanks × 70 KL each

Presently there are total 10 tanks with cumulative storage capacity of 20261 KL. After proposed expansion, total cumulative capacity will be 152959 KL and total tanks will be 25 as mentioned below:

- HSD : 3 tanks × 19290 KL each and 1 tank × 70 KL
- HSD (B5) : 3 tanks × 3071 KL each and 1 tank × 70 KL
- MS : 4 tanks × 15560 KL each
- SKO : 2 tanks × 3071 KL each and 1 tank × 70 KL
- Ethanol : 2 tanks × 70 KL each and 1 tank × 1109 KL and 1 tank × 586 KL
- Biodiesel : 2 tanks × 200 KL each and 1 tank × 70 KL
- ATF : 2 tanks × 5954 KL each and 1 tank × 70 KL

Process Description

Operation Philosophy, at present, can broadly divided into 3 parts viz.

- Receipt of Material
- Storage of Material
- Dispatch of Material

The Depot receives products from railway wagons largely from Koyali Refinery, Vadodara, Gujarat and Ethanol through road tankers. The distribution of these products to local customers and dealers is done through road tankers.

There are six bays in TLF which are used for dispatch of HSD, MS and SKO. Currently, the Depot has a total of 12 Nos. pumps.

Present activities at Depot

- Tank Lorry Loading - MS, HSD
- Tank Lorry Unloading : Ethanol

- Rail wagon loading**:** Nil
- Rail wagon unloading: MS, HSD, SKO
- Inter tank transfer
- Tank Water Draining Operation
- Sampling of Product from Tank after every receipt
- Emptying out of Tank at fixed interval for Maintenance/ Cleaning for Quality Control adherence
- Opening of Strainers for Cleaning of Strainer's Filters at fixed interval.
- Maintenance and Repair of various Equipments Viz. Pumps, Motors, Fire Engines, Air Compressors etc.

Infrastructure

The infrastructure includes Tank Farm areas, Dyke areas, Fire Fighting facilities, Weighbridges, TLF Bay, Rail tracks, Sheds, Administrative building, Canteen, Parking area Security cabin, utility area etc.

Proposed Additional Facilities

In addition to the above existing facilities, following facilities will be added as part of expansion:

- Additional storage tanks as mentioned earlier
- ATF (Aviation Turbine Fuel) is proposed for handling i.e. receipt, storage and delivery.
- 2 x 8 Bay at TLF area will be proposed for future expansion

Air Emissions & Control

- It is being storage facility, process stack is not applicable.
- Flue gas stack includes DG Sets and Fire Water Engines stacks. The flue gases will be predicted having pollutants like PM_{10}, SO_2, NO_X.
- DG sets and fire water engines will be installed with stacks of adequate height, which will be operated during power failure and during emergency only.

Noise

Noise generation sources are DG sets and vehicular movement for transportation of product.

Domestic Wastewater treatment & disposal

- The wastewater will be generated from the domestic uses only and disposed off into Soak pit.

Hazardous & Other Solid Waste

- Hazardous Waste: Used Oil, Tank Cleaning Sludge and Diesel Filters will be generated. Used Oil will be reused in valve lubrications and Tank Cleaning Sludge will be disposed through bio remediation process and Diesel Filters will be given to recyclers/scrap vendors.
- Solid Waste: paper waste, electrical cables will be handed over to scrap dealers.
- Small amount of e-waste and scrap will be handed over to authorized recyclers.

DECRIPTION OF THE ENVIRONMENT

Study Period, Area & Monitoring/Sampling Locations

The baseline environmental study has been conducted for the study area of 10 Km radial distance from site for the period March to May – 2017.

Total eight ambient air samples, fourteen groundwater samples and four soil samples were collected. Noise monitoring was carried out at eight different locations.

Surface water samples were not collected since water bodies falling in study area were dried up during study period.

Land Use and Land Cover

Land use of study area is classified as Agricultural Land (29.48%), Fallow Land (38.76%), Barren Land (20.83%), Open Scrub (7.82%), Dry River with Channel and Water bodies (1.32%) & habitation (1.70%).

Meteorology

Micrometeorological data were collected by using the weather station as per CPCB guideline which was installed near project site.

The lowest temperature record was 19.3 °C in March and highest was recorded 43.8 °C in moth of May 2017.

Hourly data for humidity were collected and humidity was found in the range of 13 % to 85%.

The first & second predominant wind direction is wind blowing from NW & SE and third predominant wind direction is wind blowing from NE. The annual mean wind speed is 5.0 KMPH while highest wind speed noted in month of July with 7.6 KMPH.

Ambient Air Quality

The ambient air quality monitoring results show:

- The maximum concentration of PM_{10} is found within the standard at all locations and the values are in the range of 62.6 to 90.1 µg/m^3.
- The maximum concentration of $PM_{2.5}$ is found in the range of 35.2-50.6 µg/m^3 and the concentration values are found within the standard. The concentration of $PM_{2.5}$ is higher at Sarola Kasar village than the other 7 monitoring stations.
- Maximum concentration for SO_2 is observed in the range of 9.6-15.2 µg/m^3.
- CO & HC concentration values in ambient air are found within the standard.

Noise Level

Maximum noise level was recorded 74.4 dB during day time at (N1 i.e. Project Site) while the equivalent noise level was 68.4 dB (A) which is well within the limit for Industrial zone. Equivalent noise level taken from all the villages and roads also meet with the norms for residential area as per the Noise criteria given by the MoEF & CC, 2009.

Soil Quality

Based on soil analysis data it is concluded that soils are normal from salinity view point, but sodic as Exchangeable Sodium Percentage (ESP) is >15% at the project site. The soils are low in nitrogen, phosphorus and potassium. The levels of total Fe, Cu, Cr, B and Zn are within the limits. However, for successful greenbelt development liberal quantity of organic manure (50 tons/ha) and double the quantity of recommended doses of N, P and K fertilizers should be applied. The soil at the project site requires amelioration. Apply acid forming amendments like Sulphur/Iron pyrite for removal of excess sodium from the exchange complex with provision of adequate drainage. The soil should be periodically monitored for Electrical Conductivity (EC), pH and ESP.

Groundwater Quality

Groundwater Sampling was carried out at 14 locations. All the results are below permissible limits as per IS:10500 standards for drinking water. However, at GW 7 (Aragon), TDS, Total Hardness, Total Alkalinity and chloride have been observed well above desirable limits.

Ecology and Biodiversity

The vegetation in the study area consists of species like Dhawada, Ain, Dhupali, Bahawa, Apta, Amla, Sagwan, Hirda, Vedibabul, Jambhul, karanj, Moho, Nimb, Khair, Maharuk, Shemi, Dhaman etc. are present.

Among the shrubs the following Amboni, Chillar, Tantani, Henkal, Karvand, Tarwad, Palsvel etc. are found

The Faunal species like Indian Grey Mongoose, Squirrel, Rat, Mouse, Blue Bull are present in study area.

Avifauna found in study area are Common Myna, Indian Treepie, Blue Rock Pigeon (, Spotted dove, Small Green Bee Eater and Red vented Bulbul etc. The birds observed during the survey are sparrow, common crow, bulbul, jungle babbler, asian koel, greater caucal, ashy prinia, Indian robin, Indian roller, common kresel, shikra, black winged kite, Golden-back woodpecker, brown rockchat, rock pigeon, yellow footed green pigeon, munia, pied bushchat *etc*.

Reptiles found in study area are Common Garden Lizard, Roux's fores Lizard, Fan-throated Lizard, Indian Chameleon, Indian Cobra, Russell Viper, Rat Snake etc.

Natural vegetation of study area is in degraded condition and wild mammal's density is also very low. There is no threatened or endangered species in study region.

Socio Economy

The summary of the social survey, as per 2011 census, for the study area is provided as below:

- Total population of the study area was 63,608, out of which male population was 33,033(51.93%) and female population was 30,575(48.07%)
- Total number of households was 13,561 with average occupancy of 4.69 persons per household and overall population density was 179 persons/Km^2.

- Sex ratio (number of females per 1000 males) of total population was 926. Among SC, ST and child population, sex ratio were 920, 1002 and 860 respectively.

Literacy

- In the study area, overall literate population was 45,526(71.57%) and illiterate population was 18,082 (28.43%)
- Out of total literates, male literates were 25,778(56.62%) and female literates were 19,748(43.38%)

The literacy rate were very low in the study area. Female illiterate were mostly found in study area.

Occupational Pattern

- Total worker population in the study area was 32,451(51.02%).
- Main workers were 30,823 (48.46%) i.e. cultivators, agricultural workers, household industry workers and other workers and marginal workers were 1,628 (2.56%).Total non-working population was 31,157 (48.98%).

ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Air Environment

Air quality dispersion modeling (using "AERMOD view" software) was carried out by considering stack as point source.

The predicted highest values of incremental increase for pollutants PM_{10}, SO_2, NO_X are 0.6, 2.67 & 5.7 $\mu g/m^3$ at project site respectively. While at rest of monitoring stations, PM_{10}, SO_2,NOx concentration values are found in the range of 0.01-0.17, 0.02-0.75, 0.02-0.92$\mu g/m^3$ respectively. The highest resultant concentration values of PM_{10}, SO_2, NO_X are 90.07, 15.95, 31.35 $\mu g/m^3$ at Jadhavwadi village as compare to the resultant concentration values of PM_{10}, SO_2, NO_X are 80.6, 14.77, 31 $\mu g/m^3$ respectively at project site and rest of monitoring stations. All values are well within the prescribed NAAQ standards, 2009.

Noise Environment

Due to the proposed activities the noise will be generated from Vehicular movement and heavy fabrication work during construction phase. Noise will also be generated due to running of DG sets, only during power failure, and vehicular movement for dispatch of material during operation phase which will be very negligible.

Control measures will be provided. These include passive and active controls such as noise barriers (hollow blocks) or acoustic enclosure. Where this is not possible, control measures in the form of use of suitable PPE (ear muffs or ear plugs) will be provided.

Water Environment

Surface Water: there will be no impact on Surface Water environment. The proposed unit does not involve any process and hence generation of industrial effluent is nil. Only domestic wastewater will be generated and will be disposed off into soak pits / septic tanks.

Ground Water: Impact on groundwater environment is envisaged due to project activities like groundwater withdrawal and due leakage or spillage of petroleum products. Mitigation measures suggested are:

- The tank farm area, pump house, loading/unloading areas of plant will be paved, therefore the likelihood of contaminants entering groundwater and harming the same is improbable (i.e. unlikely).
- Separate drains for storm water and will be connected to Oil Water Separator to remove Oil/Grease from storm water if any.
- Rainwater Harvesting and Groundwater Recharge.
- Flow meters will be provided for raw water consumption

Land Environment

Land clearance will be done leading to removal of top soil which will be used for greenbelt management. The debris generated from the excavation and paving of site during construction phase will be used for filling low lying area, while the scraps generated during heavy fabrication will be given to scrap vendors.

Hazardous Waste Generation

Used Oil and Diesel Filters will be generated as the hazardous waste. Used Oil will be reused for lubrication of valves, Tank Cleaning Sludge will be sent for Bio Remediation process and Diesel filters will be sent to authorized recyclers.

Ecological Environment

Removal of common site specific floral species from project site will not have significant or permanent impact on the habitat structure of associated faunal diversity.

Green Belt Development

The site has greenbelt area of 73722 square meters (73.72 ha i.e. 33% of Non-Built Area) within existing site boundary. Presently number of well developed trees are 415 which will be increased.

As the emissions from the plant are regulated and minimal with respect to the specified norms, and with a very healthy greenbelt proposed at the site in the form of several species, it then follows that the biological environment will be protected.

Socio-Economic Environment

While assessing the socio-economic and sociological impact to surrounding population, the proposed expansion will bring job opportunities for the local people.

ENVIRONMENTAL MONITORING PROGRAMME

The following will be monitored on a regular basis during operation phase to ensure that a high level of environmental performance is maintained:

- Ambient air monitoring of PM_{10}, $PM_{2.5,}$ SO_2 and NO_x will be carried out during the operational phase within site premises and nearby villages, location of downwind direction, once every season
- Groundwater sample from site once every season.
- Post project sampling and effect on baseline data generated during construction and operation.
- The effectiveness of pollution control measures shall also be monitored.

ADDITIONAL STUDIES

Socio Economic Development Activities

Socio-economic development activities towards community welfare in the field of education, health care services, sanitation, & infrastructure development programs in the study area will be based on the need of the community.

Risk Assessment

Risk Assessment has been analysed using methodology called HIRA-Hazards Identification & Risk Assessment carried out for Storage and Handling of petroleum products like HSD, MS, SKO, Ethanol, ATF and Biodiesel. Major hazards identified and related risk involved (impact) during construction phase are mainly related to injuries, fall, burn, accidents etc. of workers. Mitigation measures suggested are by providing proper PPEs and adequate safety measures.

Fire and Hazard

Hazard identified for operation phase is mainly related to storage and handling of petroleum products which involved hazards like fire, blast or both. Proper safety measures will be taken to ensure no spillage will take place during each stage i.e. receipt of material, Storage of material and dispatch of material. Proper handling and storage procedures will be followed to avoid any kind of accidents. Fire fighting facilities like fire hydrant line and fire extinguishers are provided. In addition, HVLR system will be installed for proposed tanks also.

Safety training and mock drills for all workers will be carried out periodically.

Occupational health and Safety

The project does not envisage any activity leading to high noise level still It will be ensured that all workers will wear ear plugs, muffs etc. The project does not envisage conditions that could lead to excess heating. However, it will be ensured that proper ventilation of air will be provided for heat evacuation, drinking water availability at several locations and providing suitable PPEs for handing of heated equipment.

PROJECT BENEFITS

Due to establishment of the proposed project, following benefits are envisaged for the locals and country:

- Impacts due to current mode of transportation (i.e. through Rail Wagons) will be reduced as material transfer will be done through pipeline.
- This expansion is also important to cater future load to Aurangabad, Pune and Shirdi AFS.
- Additional job creations, temporary and permanent, during construction and operation phase.

ENVIRONMENTAL MANAGEMENT PLAN

Environmental Management Plan for suggested mitigation measures and monitoring plan will include:

- Review of Compliance of EMP, EC & statutory conditions in the management meeting
- Preparation and timely submission of required statutory reports & Cess
- Proper hazardous waste inventory accounting by HSE department
- Monitoring for reduction in air emissions generation of hazardous waste quantity by concerned department heads as per QMS
- Reviewing annual performance of EHS in board meeting

An Environmental Management Cell with adequate professional expertise and resources will be established to discharge responsibilities related to environmental management including statutory compliance, pollution prevention, environmental monitoring, etc.

IOCL will have Environmental Management Cell headed by Senior Managers and supported by EHS In-charge & staff members.

CONCLUSION

Based on the EIA study conducted in Summer Season of 2017 and as per terms of reference given by SEAC, the following highlights emerge

- There are no Protected Areas, Critically polluted areas, Eco-sensitive areas, Interstate boundaries and international boundaries located in 10 km of study area from the proposed project site.
- There will be negligible pollution potential on air, water and noise environment, which, with the implementation of the mitigation measures and EMP, can be reduced considerably.
- The proposed project activities will have positive beneficial effect on the local population, economic output and other related facilities *viz.* employment, development of business, transportation *etc.*
- Rapid risk assessment including emergency response plan and DMP has been prepared to handle any sort of emergencies.

Looking to the overall project justification, process, pollution potential and pollution prevention measures /technologies installed by proponent, environmental management activities of proponent; the proposed project would be environmentally acceptable, in compliance with environmental legislation and standards.