

J-11011/413/2015-IA II (I)  
**Government of India**  
**Ministry of Environment, Forests and Climate Change**  
**(I.A. Division)**

Indira Paryavaran Bhawan  
Aliganj, Jorbagh Road,  
New Delhi -110003

Telefax: 24695313  
**E-mail : [lk.bokolia@nic.in](mailto:lk.bokolia@nic.in)**  
Date: 18<sup>th</sup> May, 2015

To

Mr. Vijay  
General Manager- project  
Hindustan Petroleum Corporation Ltd.  
Mumbai Refinery, P.O. Box No. 18820,  
B.D. Patil Marg,  
Mahul, Mumbai.

Email : Nil ; Fax: Nil

**Subject: Proposed expansion of Mumbai Refinery from 7.5 MMTPA to 9.5 MMTPA at BD Patil Marg, Mahul, Mumbai, Maharashtra by M/s HPCL- reg TOR .**

Sir,

Kindly refer your letter no. nil dated 2st January, 2015 along with project documents including Form-I, Pre-feasibility Report and draft 'Terms of Reference' as per the EIA Notification, 2006. It is noted that proposal is for proposed expansion of Mumbai Refinery from 7.5 MMTPA to 9.5 MMTPA at BD Patil Marg, Mahul, Mumbai, Maharashtra by M/s HPCL.

2.0 Draft Terms of Reference (TOR) have been discussed and finalized during the 36<sup>th</sup> Reconstituted Expert Appraisal Committee (Industry) held during 16-17<sup>th</sup> March , 2015 for preparation of EIA/EMP report. The committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure-I .

**A. Specific TOR**

1. Complete process flow diagram describing each unit, its capacity along-with material and energy balance.
2. Details of intermediate product, their storages and final products to be manufactured.
3. Sulphur balance giving input from crude, refinery fuel ( if used) and any other outside fuel and output in various products and emissions.
4. Details of proposed source-specific pollution control schemes and equipment to meet the national standards for petroleum refinery.
5. Details of emissions from all the stacks including volumetric flow rate.

6. Details on availability of raw materials (crude oil, natural gas, chemicals, etc.), its source and storage at the plant.
7. Details on mode of transportation of crude and products.
8. Details of storage capacity of crude and products.
9. Ambient air quality data should include hydrocarbon (methane and non-methane), VOC, Ni & V etc.
10. Efforts to minimize water consumption, effluent discharge and to maintain quality of receiving water body.
11. Details of effluent treatment plant, inlet and treated water quality with specific efficiency of each treatment unit in reduction in respect of all concerned/regulated environmental parameters. Also, include treatment details such as primary (physico-chemical), secondary (biological) and tertiary (activated carbon filters) treatment systems.
12. Storm water management plan.
13. Estimation SO<sub>2</sub> and NO<sub>x</sub> emissions load.
14. Details on flaring system.
15. Details of VOC recovery devices in the storage tanks.
16. Arrangement for spill management.
17. Oily sludge management plan.
18. Risk Assessment & Disaster Management Plan
  - i. Identification of hazards
  - ii. Consequence Analysis
  - iii. Risk assessment should also include leakages and location near to refinery & proposed measures for risk reduction.
  - iv. Arrangement for fire protection and control.

## **B. Additional TOR**

1. Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made.
2. Company shall provide proposed crude as well as products tankages plot plan
3. Estimate SO<sub>2</sub> emissions considering existing all stacks in the refinery.
4. Sulphur balance giving input from crude and any other outside fuel and output in various products and emissions.
5. Detailed water balance chart of the existing and proposed expansion considering inlet raw water, process losses, wastewater generation and treated effluent to be recycled.
6. Efforts to minimize water consumption, effluent discharge and to maintain quality of receiving water body.
7. Action plan to reduce oil and grease content as well as scum in the treated effluent discharged into sea.
8. Action plan to install series of mechanized oil catchers in the discharge drain to contain oil and grease /scum.
9. Final effluent letting out to the sea shall be passed through holding tank and action plan to install online monitoring system viz. pH meter, flow meter and TOC analyzer to be provided.
10. HPCL to carry out risk analysis study and ensure that the damage distance in case of any accident remains within boundary of the plot. If this study shows any

change in layout or the quantity of the product to be stored this will have to be incorporated in the proposal.

3.0 These 'TORs' should be considered for the preparation of EIA / EMP for proposed expansion of Mumbai Refinery from 7.5 MMTPA to 9.5 MMTPA at BD Patil Marg, Mahul, Mumbai, Maharashtra by M/s HPCL in addition to all the relevant information as per the 'General Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The EIA/EMP as per TORs should be submitted to the Chairman, Maharashtra Pollution Control Board for public consultation. The SPCB shall conduct the public hearing/public consultation as per the provisions of EIA Notification, 2006.

4.0 You are requested to kindly submit the final EIA/EMP prepared as per TORs and incorporating all the issues raised during Public Hearing / Public Consultation to the Ministry for considering the proposal for environmental clearance ***within 3 years as per the MoEF & CC O.M. No. J-11013/41/2006-IA.II (I) dated 8<sup>th</sup> October, 2014.***

5.0 The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India / National Accreditation Board of Education and Training (QCI/NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other Organization(s)/Laboratories including their status of approvals etc.



(Lalit Bokolia)  
Additional Director

Copy to :

1. The Chairman, Maharashtra State Pollution Control Board, Shri Chatrapati Shivaji Maharaj Municipal Market-Building, 4th Floor, Mata Rambai Ambedkar Road, Mumbai - 400 001, Maharashtra
2. The Chief Conservator of Forests (South), Ministry of Environment & Forests, Regional Office, Kendriya Sadan, 4th Floor, E&F Wing, II Block Koramangala, Bangalore-560034



(Lalit Bokolia)  
Additional Director

**GENERIC TERMS OF REFERENCE (TOR) IN RESPECT OF INDUSTRY SECTOR**

1. Executive summary (*maximum 2-3 sheets in A4 size paper*) of the project covering project description, description of the environment, anticipated environmental impacts & its mitigation measures, environmental management plan, environmental monitoring programme, public consultation, project benefits, Social impacts including R&R.
2. Site Details:
  - i. Location of the project site covering village, Taluka/Tehsil, District and State on Indian map of 1:1000,000 scale.
  - ii. A toposheet of the study area of radius of 10km and site location on 1:50,000/1:25,000 scale on an A3/A2 sheet.
  - iii. Co-ordinates (lat-long) of all four corners of the site.
  - iv. Google map-Earth downloaded of the project site.
  - v. A map showing environmental sensitivity [land use/land cover, water bodies, reserved forests, wildlife sanctuaries, national parks, tiger reserve etc.] and from critically/severely polluted area(s) and Eco-sensitive Areas within 10km radius of the project site vis-à-vis shortest (aerial) distance from the project. If the project is located within 10km of CPAs/severely Polluted Areas, confirm whether moratorium has been imposed on the area.
  - vi. Layout maps indicating existing unit as well as proposed unit indicating storage area, plant area, greenbelt area, utilities etc. In addition, if located within an Industrial area/Estate/Complex, layout of Industrial Area and location of unit within the Industrial area/Estate/Complex, layout of Industrial Area.
  - vii. Photographs of the proposed and existing (if applicable) plant site. If existing, in addition to site map, provide photographs of plantation/greenbelt in the existing project. If fresh EC application, photographs
3. Landuse break-up of total land of the project site (identified and acquired) – agricultural, forest, wasteland, water bodies, settlements, etc shall be included.
4. A copy of the mutual agreement for land acquisition signed with land oustees.
5. Proposal shall be submitted to the Ministry for environment clearance only after acquiring at least 60% of the total land required for the project. Necessary documents indicating acquisition of land shall be included.
6. Forest and wildlife related issues:
  - i. Permission and approval for the use of forest land (forestry clearance), if any, and recommendations of the State Forest Department.
  - ii. Landuse map based on High resolution satellite imagery (GPS) of the proposed site delineating the forestland (*in case of projects involving forest land more than 40 ha*)
  - iii. Status of Application submitted for obtaining the stage I forestry clearance along with latest status shall be submitted.
  - iv. The projects to be located within 10 km of the National Parks, Sanctuaries, Biosphere Reserves, Migratory Corridors of Wild Animals, the project proponent shall submit the map duly authenticated by Chief Wildlife Warden showing these features vis-à-vis the project location and the recommendations or comments of the Chief Wildlife Warden thereon
  - v. Wildlife Conservation Plan duly authenticated by the Chief Wildlife Warden of the State Government for conservation of Schedule I fauna, if any exists in the study area
  - vi. Copy of application submitted for clearance under the Wildlife (Protection) Act, 1972, to the Standing Committee of the National Board for Wildlife
7. Expansion/modernization proposals:
  - i. Copy of all the Environmental Clearance(s) including Amendments thereto obtained for the project from MOEF/SEIAA shall be attached as an Annexure. A certified copy of the latest Monitoring Report of the Regional Office of the Ministry of Environment and Forests as per circular dated 30<sup>th</sup> May, 2012 on the status of compliance of conditions stipulated in all the existing environmental clearances including Amendments should be provided. In addition, status of compliance of

Consent to Operate for the ongoing /existing operation of the project from SPCB shall be attached with the EIA-EMP report.

- ii. In case the existing project has not obtained environmental clearance, reasons for not taking EC under the provisions of the EIA Notification 1994 and/or EIA Notification 2006 shall be provided. Copies of Consent to Establish/No Objection Certificate and Consent to Operate (in case of units operating prior to EIA Notification 2006, CTE and CTO of FY 2005-2006) obtained from the SPCB shall be submitted. Further, compliance report to the conditions of consents from the SPCB shall be submitted.

#### **Details of Industrial Operations**

8. A list of major industries with name and type within study area (10km radius) shall be incorporated.
9. Details of proposed raw materials and products along with production capacity. If expansion project, details for existing unit, separately for existing and new (proposed) unit.
10. Details of manufacturing process, major equipment and machinery. If expansion project, details of existing unit, separately for existing and new (proposed) unit.
11. List of raw materials required and its source along with mode of transportation shall be included. All the trucks for raw material and finished product transportation must be "Environmentally Compliant".
12. Quantity of fuel required, its source and characteristics and documentary evidence to substantiate confirmed fuel linkage shall be furnished
13. Project site layout plan to scale using AutoCAD showing raw materials, fly ash and other storage plans, bore well or water storage, aquifers (within 1 km) dumping, waste disposal, green areas, water bodies, rivers/drainage passing through the project site shall be included.
14. Manufacturing process details of all the plants including captive power plant if any along with process flow chart shall be included.
15. Mass balance for the raw material and products shall be included.
16. Energy balance data for all the components of the plant shall be incorporated.

#### **Environmental Status**

17. Geological features and Geo-hydrological status of the study area shall be included.
18. Details of Drainage of the project upto 5km radius of study area. If the site is within 1 km radius of any major river, peak and lean river discharge as well as flood occurrence frequency based on peak rainfall data of the past 30 years. Details of RL of the project site and mRL of the river should also be provided.
19. One season site specific micro meteorological data using temperature, relative humidity, hourly wind speed and direction and rainfall and AAQ data (except monsoon) at 8 locations for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and HC (methane & non-methane) should be collected. The monitoring stations should take into account the pre-dominant wind direction, population zone and sensitive receptors including reserved forests.
20. Surface water quality of nearby River (60m upstream and downstream) and other surface drains at eight locations to be provided.
21. Ground water monitoring minimum at 8 locations shall be included.
22. Noise levels monitoring at 8 locations within the study area.
23. Traffic study of the area for the proposed project in respect of existing traffic, type of vehicles, frequency of vehicles for transportation of materials, additional traffic due to proposed project, parking arrangement etc.
24. Detailed description on flora and fauna (terrestrial and aquatic) exists in the study area shall be given with special reference to rare, endemic and endangered species. If Schedule-I fauna are found within the study area, a Wildlife Conservation Plan shall be prepared and furnished.
25. Emissions (g/second) with and without the air pollution control measures.
26. Cumulative impact of all sources of emissions (including transportation) on the AAQ of the area shall be well assessed. Details of the model used and the input data used for modeling shall also be provided. The air quality contours should be plotted on a location map showing the location of project site, habitation nearby, sensitive receptors, if any.

27. Impact of the transport of the raw materials and end products on the surrounding environment shall be assessed and provided. In this regard, options for transport of raw materials and finished products and wastes (large quantities) by rail or rail-cum road transport or conveyor-cum-rail transport shall be examined.
28. Details of water requirement, water balance chart for new unit or for existing unit as well as proposed expansion (in case of expansion).
29. Source of water supply and quantity and permission of withdrawal of water (surface/ground) from Competent Authority.
30. Details regarding quantity of effluents generated, recycled and reused and discharged to be provided. Methods adopted/to be adopted for the water conservation shall be included. Zero discharge effluent concepts to be adopted.
31. A note on treatment of wastewater from different plant operations, extent recycled and reused for different purposes shall be included. Complete scheme of effluent treatment. Characteristics of untreated and treated effluent to meet the prescribed standards of discharge under E(P) Rules.
32. Action plan for control of ambient air quality parameters as per NAAQES Standards for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub>, etc as per GSR 826(E) dated 16<sup>th</sup> November, 2009.
33. An action plan to control and monitor secondary fugitive emissions from all the sources as per the latest permissible limits issued by the Ministry vide G.S.R. 414(E) dated 30<sup>th</sup> May, 2008.
34. Action plan for solid/hazardous waste generation, storage, utilization and disposal. Copies of MOU regarding utilization of solid waste shall also be included. EMP shall include the concept of waste-minimization, recycle/reuse/recover techniques, Energy conservation, and natural resource conservation.
35. Proper utilization of fly ash shall be ensured as per Fly Ash Notification, 1999 and subsequent amendment in 2003 and 2009. A detailed plan of action should be provided.
36. Action plan for the green belt development plan in 33 % area i.e. land with not less than 1,500 trees per ha. Giving details of species, width of plantation, planning schedule etc. shall be included. The green belt shall be around the project boundary and a scheme for greening of the roads used for the project shall also be incorporated. All rooftops/terraces shall have some green cover.
37. Action plan for rainwater harvesting measures at plant site shall be submitted to harvest rainwater from the roof tops and storm water drains to recharge the ground water and also to use for the various activities at the project site to conserve fresh water and reduce the water requirement from other sources. Rain water harvesting and groundwater recharge structures may also be constructed outside the plant premises in consultation with local Gram Panchayat and Village Heads to augment the ground water level. Incorporation of water harvesting plan for the project is necessary, if source of water is bore well.
38. Environment Management Plan (EMP) to mitigate the adverse impacts due to the project along with item wise cost of its implementation. Total capital cost and recurring cost/annum for environmental pollution control measures shall be included.
39. Details of Rehabilitation & Resettlement (R & R) involving the project. R&R shall be as per policy of the State Govt. and a detailed action plan shall be included.
40. Action plan for post-project environmental monitoring shall be submitted.
41. Disaster Preparedness and Emergency Management Plan including Risk Assessment and damage control needs to be addressed and included.
42. Occupational health:
  - i. Details of existing Occupational & Safety Hazards. What are the exposure levels of above mentioned hazards and whether they are within Permissible Exposure level (PEL). If these are not within PEL, what measures the company has adopted to keep them within PEL so that health of the workers can be preserved,
  - ii. Details of exposure specific health status evaluation of worker. If the workers' health is being evaluated by pre designed format, chest x rays, Audiometry, Spirometry, Vision testing (Far & Near vision, colour vision and any other ocular defect) ECG, during pre placement and periodical examinations give the details of the same. Details regarding last month analyzed data of abovementioned parameters as per age, sex, duration of exposure and department wise.

- iii. Annual report of health status of workers with special reference to Occupational Health and Safety.
  - iv. Action plan for the implementation of OHS standards as per OSHAS/USEPA.
  - v. Plan and fund allocation to ensure the occupational health & safety of all contract and casual workers.
43. Corporate Environment Policy
- i. Does the company have a well laid down Environment Policy approved by its Board of Directors? If so, it may be detailed in the EIA report.
  - ii. Does the Environment Policy prescribe for standard operating process / procedures to bring into focus any infringement / deviation / violation of the environmental or forest norms / conditions? If so, it may be detailed in the EIA.
  - iii. What is the hierarchical system or Administrative order of the company to deal with the environmental issues and for ensuring compliance with the environmental clearance conditions? Details of this system may be given.
  - iv. Does the company have system of reporting of non compliances / violations of environmental norms to the Board of Directors of the company and / or shareholders or stakeholders at large? This reporting mechanism shall be detailed in the EIA report
44. Details regarding infrastructure facilities such as sanitation, fuel, restroom etc. to be provided to the labour force during construction as well as to the casual workers including truck drivers during operation phase.
45. At least 5 % of the total cost of the project shall be earmarked towards the Enterprise Social Commitment based on Public Hearing issues and item-wise details along with time bound action plan shall be included. Socio-economic development activities need to be elaborated upon.
46. Any litigation pending against the project and/or any direction/order passed by any Court of Law against the project, if so, details thereof shall also be included. Has the unit received any notice under the Section 5 of Environment (Protection) Act, 1986 or relevant Sections of Air and Water Acts? If so, details thereof and compliance/ATR to the notice(s) and present status of the case.
47. The questionnaire for industry sector (available on MOEF website) shall be submitted as an Annexure to the EIA-EMP Report.
48. 'TORs' prescribed by the Expert Appraisal Committee (Industry) shall be considered for preparation of EIA-EMP report for the project in addition to all the relevant information as per the 'Generic Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. Where the documents provided are in a language other than English, an English translation shall be provided. The draft EIA-EMP report shall be submitted to the State Pollution Control Board of the concerned State for conduct of Public Hearing. The SPCB shall conduct the Public Hearing/public consultation, district wise, as per the provisions of EIA notification, 2006. The issues raised in the Public Hearing and during the consultation process and the commitments made by the project proponent on the same shall be included separately in EIA-EMP Report in the form of tabular chart with financial budget (capital and revenue) along with time-schedule of implementation for complying with the commitments made. The final EIA report shall be submitted to the Ministry for obtaining environmental clearance.
49. A tabular chart with index for point wise compliance of above TORs.
50. The TORs prescribed shall be valid for a period of two years for submission of the EIA-EMP reports along with Public Hearing Proceedings (wherever stipulated).

The following general points shall be noted:

- i. All documents shall be properly indexed, page numbered.
- ii. Period/date of data collection shall be clearly indicated.
- iii. Authenticated English translation of all material in Regional languages shall be provided.
- iv. The letter/application for environmental clearance shall quote the MOEF file No. and also attach a copy of the letter.
- v. The copy of the letter received from the Ministry shall be also attached as an annexure to the final EIA-EMP Report.

**ADDITIONAL TORs FOR SYNTHETIC ORGANIC CHEMICALS INDUSTRY**

1. Manufacturing process details along with the chemical reactions and process flow chart.
2. Name of all the solvents to be used in the process and details of solvent recovery system.
3. Design details of ETP, incinerator, if any along with boiler, scrubbers/bag filters etc.
4. The details of solid and hazardous wastes generation, storage, utilisation and disposal particularly related to the hazardous waste calorific value of hazardous waste and detailed characteristic of the hazardous waste. Action plan for the disposal of fly ash generated from boiler shall be included.
5. Precautions to be taken during storage and transportation of hazardous chemicals shall be clearly mentioned and incorporated.
6. Material Safety Data Sheet for all the Chemicals are being used/will be used. CAS No./RTECS No./DOT/UN etc to be mentioned against each chemicals.
7. Details of VOC monitoring in the working zone environment, and other hazardous emissions such as Chlorine, HCl, etc if any.
8. Authorization/Membership for the disposal of solid/hazardous waste in TSDF.
9. Risk assessment for storage for chemicals/solvents. Action plan for handling & safety system.
10. Details of occupational health programme.
  - i) To which chemicals, workers are exposed directly or indirectly.
  - ii) Whether these chemicals are within Threshold Limit Values (TLV)/ Permissible Exposure Levels as per ACGIH recommendation.
  - iii) What measures company has taken to keep these chemicals within PEL/TLV.
  - iv) How the workers are evaluated concerning their exposure to chemicals during pre-placement and periodical medical monitoring.
  - v) Liver function tests (LFT) during pre-placement and periodical examination.
10. A Toxic management Plan shall be prepared.
11. A write up on "Safe Practice" followed for handling, storage, transportation and unloading of chemicals to be submitted.
12. What are onsite and offsite emergency plan during chemical disaster.
13. A write up on "Treatment of workers affected by accidental spillage of chemicals".



**J-11011/30/2016-IA II (I)**  
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**Indira Paryavaran Bhawan**  
**Aliganj, Jorbagh Road**  
**New Delhi – 110 003**

**E-mail : [lk.bokolia@nic.in](mailto:lk.bokolia@nic.in)**  
**Telefax: 011-24695313**  
**Dated: 5<sup>th</sup> April, 2016**

To,  
Shri Aloke  
DGM- Projects  
M/s Hindustan Petroleum Corporation Ltd.  
HPCL Mumbai Refinery, P.O. Box no. 18820,  
B.D. Patil Marg, Chembur, Mumbai, Maharashtra

**Email.: Nil. ; Fax.: Nil.**

**Subject: Installation of Propylene Recovery Unit and revamp of CPP at HPCL Mumbai Refinery, B.D. Patil Marg, Chembur, Mumbai, Maharashtra by M/s HPCL- reg. TOR**

**Ref. No.: Your Proposal no. IA/MH/IND2/38078/2015; dated 4<sup>th</sup> January, 2016**

Sir,  
Kindly refer your proposal no. IA/MH/IND2/38078/2016 dated 4<sup>th</sup> January, 2015 along with project documents including Form-I, Pre-feasibility Report and draft 'Terms of Reference' as per the EIA Notification, 2006. It is noted that the proposal is for installation of propylene recovery unit and revamp of CPP at HPCL Mumbai Refinery, B.D. Patil Marg, Chembur, Mumbai, Maharashtra by M/s HPCL. Key features of the project are indicated below.

**Process Units and Utilities under PRU and CPP revamp**

S. No.	Unit	Capacity
<b>Primary Processing Unit:</b>		
1	PRU	100 KTPA
<b>New Power Generation Units ( CPP)</b>		
2	Captive Power Plant (Dual fuel - Naphtha as well as Natural Gas)	81 MW (1 GT + 1 HRSG + 1 STG)

**UTILITY SYSTEM**

<b>Recirculating Sea Cooling Water System</b>	
Cooling Tower Cells	CT-1 : Capacity : 2500 m3/hr Number : 1w (for PRU)
Recirculating Sea Cooling Water Pumps	CT-1 : Capacity : 2500 m3/hr Number : 1w+1s (for PRU)
<b>Bearing Cooling Water System</b>	
Bearing Cooling Tower Cells	Existing facility is adequate
Bearing Cooling Water Pumps	Existing facility is adequate
<b>Demineralized Water System</b>	
	Existing DM water system is adequate with addition of new DM water pumps 1w+1s

<b>Steam Requirement</b>	41.2 T LP steam is required for PRU for which existing facility is adequate
	<b>New GTG: 1</b>
	Power : 1 x 66 MW (Frame VI-FA) ( ISO 77 MW)
	HRSB : 1 X 150 TPH ; Pressure : 100 Kg/cm2(g)
<b>Captive Power Plant</b>	
	<b>Steam Turbine Generator:</b>
	1. Type : Double Extraction (VVHP to MP & LP) Power : 15 MW
<b>Condensate Recovery Unit</b>	Existing Condensate Recovery Unit is adequate
<b>Air Compressors (plant air, instrument air and Nitrogen)</b>	Existing Air Compressors are adequate
<b>N2 System</b>	Existing N2 system is adequate

2.0 Draft Terms of Reference (TOR) have been discussed and finalized during 4<sup>th</sup> Expert Appraisal Committee (Industry-2) meeting held during 11<sup>th</sup>-12<sup>th</sup> February, 2016 for preparation of EIA/EMP report. The Committee prescribed the following Specific and Additional TOR in addition to Generic TOR provided at Annexure-I (refer to Ministry's website) for preparation of EIA-EMP report:

#### A. Specific TOR

- 1 Complete process flow diagram describing each unit, its capacity along-with material and energy balance.
- 2 Details of intermediate product, their storages and final products to be manufactured.
- 3 Sulphur balance giving input from crude, refinery fuel (if used) and any other outside fuel and output in various products and emissions.
- 4 Details of proposed source-specific pollution control schemes and equipment to meet the national standards for petroleum refinery.
- 5 Details of emissions from all the stacks including volumetric flow rate.
- 6 Details on availability of raw materials (crude oil, natural gas, chemicals, etc.), its source and storage at the plant.
- 7 Details on mode of transportation of crude and products.
- 8 Details of storage capacity of crude and products.
- 9 Ambient air quality data should include hydrocarbon ( methane and non-methane), VOC, Ni & V etc.
- 10 Efforts to minimize water consumption, effluent discharge and to maintain quality of receiving water body.
- 11 Details of effluent treatment plant, inlet and treated water quality with specific efficiency of each treatment unit in reduction in respect of all concerned/regulated environmental parameters. Also, include treatment details such as primary (physico- chemical), secondary (biological) and tertiary (activated carbon filters) treatment systems.
- 12 Storm water management plan.
- 13 Estimation SO<sub>2</sub> and NO<sub>x</sub> emissions load.
- 14 Details on flaring system.
- 15 Details of VOC recovery devices in the storage tanks.
- 16 Arrangement for spill management.
- 17 Oily sludge management plan.
- 18 Risk Assessment & Disaster Management Plan

- i Identification of hazards
- ii Consequence Analysis
- iii Risk assessment should also include leakages and location near to refinery & proposed measures for risk reduction.
- iv Arrangement for fire protection and control.

## B. Additional TOR

- i Public hearing to be conducted and issues raised and commitments made by the project proponent on the same should be included in EIA/EMP Report in the form of tabular chart with financial budget for complying with the commitments made
- ii Preparation of consolidated EIA-EMP report with the TOR issued on vide letter no. J-11011/413/2015-IA II(I) dated 18.05.2015.

3.0 These 'TORs' should be considered for the preparation of EIA/EMP for installation of propylene recovery unit and revamp of CPP at HPCL Mumbai Refinery, B.D. Patil Marg, Chembur, Mumbai, Maharashtra by M/s HPCL in addition to all the relevant information as per the 'General Structure of EIA' given in Appendix III and IIIA in the EIA Notification, 2006. The EIA/EMP as per TORs should be submitted to the Chairman, Maharashtra Pollution Control Board, for public consultation. The SPCB shall conduct the public hearing/public consultation as per the provisions of EIA notification, 2006.

4.0 You are requested to kindly submit the final EIA/EMP prepared as per TORs and incorporating all the issues raised during Public Hearing / Public Consultation to the Ministry for considering the proposal for environmental clearance ***within 3 years as per the MoEF O.M. No. J-11013/41/2006-IA.II (I) dated 8<sup>th</sup> October, 2014.***

5.0 The consultants involved in the preparation of EIA/EMP report after accreditation with Quality Council of India/ National Accreditation Board of Education and Training (QCI/NABET) would need to include a certificate in this regard in the EIA/EMP reports prepared by them and data provided by other Organization(s)/Laboratories including their status of approvals etc.

  
(Lalit Bokolia)  
Additional Director

Copy to:

- 1 The Chairman, Maharashtra State Pollution Control Board, Shri Chatrapati Shivaji Maharaj Municipal Market-Building, 4th Floor, Mata Rambai Ambedkar Road, Mumbai - 400 001, Maharashtra.
- 2 Regional Office (WCZ), Ministry of Environment, Forest and Climate Change, Nagpur.

  
(Lalit Bokolia)  
Additional Director