

F. No. J-11011/63/2013- IA II (I)  
**Government of India**  
Ministry of Environment, Forest and Climate Change  
(I.A. Division)

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Dated : 11<sup>th</sup> February , 2016

To,

The Executive Director  
M/s HPCL  
Petroleum House, PH- 5 17,  
Jamshedji Tata Road, Churchgate, Mumbai,  
Maharashtra - 400020

E-mail : [Oppradhan@hpcl.co.in](mailto:Oppradhan@hpcl.co.in) ; Fax No. : 022-22025140

**Subject: Expansion of Visakh Refinery from 8.33 MMTPA to 15.0 MMTPA at Village Malkapuram, Tehsil Visakhapatnam (Urban), District Visakhapatnam, Andhra Pradesh by M/s HPCL. - Environmental clearance reg.**

**Ref.:** Your online proposal no. IA/AP/IND2/30205/2014 dated 19<sup>th</sup> August, 2015.

Sir,

This has reference to your online proposal no. IA/AP/IND2/30205/2014 dated 19th August, 2015 alongwith project documents including Form 1, Prefeasibility Report, Draft Terms of References and EIA/EMP report on the above mentioned subject.

2.0 The Ministry of Environment, Forest and Climate Change has examined your application. It is noted that the proposal is for expansion of Visakh Refinery from 8.33 MMTPA to 15.0 MMTPA at Village Malkapuram, Tehsil Visakhapatnam (Urban), District Visakhapatnam, Andhra Pradesh by M/s HPCL. The proposed Visakh Refinery Modernisation Project (VRMP) is the brownfield expansion coming up in the existing premises of HPCL in contiguous area on the east side of existing Refinery created after re-siting HPCL Marketing Terminal & LPG bottling plant and in the plot area available towards north of existing Refinery (next to HPCL-Additional Tankage Project, ATP). This land adjacent to ATP area of Refinery is a leased plot acquired from Visakh Port Trust (VPT) and is already under HPCL possession. VRMP Plant area requirement is 167.5 Acres. Out of which, 122.8 acres land is located inside the Refinery premises and balance 44.7 acres of land is located in ATP plot (including VPT plot III). Additional 67.5 acres is earmarked for Green belt. The estimated capital cost is Rs. 18412 Crores. It is reported that no national park/ reserved forest/ protected forest is located within 10 km distance.

The capacities of various process units, auxiliary and revamp units for post VRMP scenario is as given below:

**Process Units and Utilities under VRMP**

S. No.	Unit	Capacity
<b>Primary Processing Unit:</b>		
1	Crude Distillation Unit (CDU)	9.0 MMTPA
2	VGO Hydrocracker (FC HCU)	3.3 MMTPA
3	Naphtha Isomerization Unit (NIU)	0.29 MMTPA
4	Solvent De-asphalting (SDA)	3.1 MMTPA
5	Slurry Hydrocracker (SHCU)	2.5 MMTPA
6	PRU	96 TPD
<b>Auxiliary Units:</b>		
6	Hydrogen Generation Units (HGU)	2 x 113 KTPA
7	Sulphur Recovery Units (SRU) including TGTU	2 x 360 TPD
8	Fuel Gas PSA	36 KTPA
9	SWS-I (Non Hydro-Processing)	300 TPH
10	SWS-II (Hydro processing)	185 TPH
11	ARU	2x540 TPH
12	SR. LPG Treater	112 KTPA
13	Integrated Effluent Treatment Plant (IETP) OWS streams - Wet weather flow	1000 m3/hr
<b>Existing Unit Revamps:</b>		
9	Naphtha Hydrotreating Unit (NHT)	1.154 (30% min) MMTPA
10	Continuous Catalytic Reformer (CCR)	0.769 (20% min) MMTPA
11	Diesel Hydro treating Unit (DHT)	2.2 (20% min) MMTPA
<b>New Power Generation Units ( CPP)</b>		
	Captive Power Plant (Dual fuel - Naphtha as well as Natural Gas)	2 x 33 MW GTGs or (1x66 MW) + 3 x 33 MW STGs

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<b>UTILITY SYSTEM</b>	
<b>Recirculating Sea Cooling Water System</b>	
Cooling Tower Cells	CT-1 : Capacity : 4000 m3/hr Number : 7w+1s CT-2 : Capacity : 4000 m3/hr Number : 7w+1s
Recirculating Sea Cooling Water Pumps	CT-1 : Capacity : 4000 m3/hr Number : 7w+2s CT-2 : Capacity : 4000 m3/hr Number : 7w+2s
<b>Bearing Cooling Water System</b>	
Bearing Cooling Tower Cells	Capacity : 800 m3/hr Number : 4w+1s
Bearing Cooling Water Pumps	Capacity : 800 m3/hr Number : 4w+1s
<b>Demineralized Water System</b>	
RO System	500 m3/hr
DM Water Tanks	2 X 4700 m3 capacity.
<b>Power Plant Configuration</b>	
Captive Power Plant	New GTG: 2 Power : 2 X 33 MW (Frame VI) or 1 x 66 MW (Frame VI-FA) HRSG : 2 X 110 TPH ; Pressure : 100 Kg/cm2(g)
	Boiler : 1W+ 1S Design capacity : 225 TPH Pressure : 36 kg/cm2 (g) <b>Steam Turbine Generator:</b> 1. Type : Double Extraction (VVHP to MP & LP) Power : 33 MW 2. Type : Extraction Cum Condensing (VHP to LP & Condensate) Power : 33 MW 3. Type: Total Condensing (VHP to Condensate) Power : 33 MW
Condensate Polishing Unit	Capacity: 65 m3/hr Number : 1W + 1S
Air Compressors (plant air, instrument air and Nitrogen)	Capacity : 13000 Nm3/hr, Number : 2W +1S
N2 System	Gaseous : 1560 Nm3/hr, Liquid Storage : 1000 M3

3.0 It is estimated that the total SO<sub>2</sub> emissions before and after VRMP will be 9.45 TPD and 11.5 TPD respectively. It is estimated that the total NO<sub>x</sub> emissions before and after VRMP will be 7.1 TPD and 11.15 TPD respectively. Heater/furnace will be provided with low NO<sub>x</sub> burner to reduce the NO<sub>x</sub> emissions. The height of new stack will be determined taking into consideration the guidelines for minimum stack height. Low Sulphur fuels will be used for internal fuel purpose. Sulphur recovery unit with tail gas treating facilities having 99.9 % efficiency will be provided. Flare gas recovery system will be installed. Steam injection facility to maintain adequate steam to fuel ration is provisioned to achieve smokeless operations in both existing and new flares. Total water requirement for post VRMP will be 1538 m<sup>3</sup>/hr. Out of which, fresh water consumption will be 873 m<sup>3</sup>/hr, which will be met from Greater Visakha Municipal Corporation and remaining

water requirement i.e. 665 m<sup>3</sup>/hr will be met from treated effluent/recycled effluent. Besides, Post-VRMP total sea water requirement will be 21292 m<sup>3</sup>/hr. In order to have better control in terms of liquid effluent treatment/management of the entire refinery effluent at single location, it is proposed to install a new state-of-the-art Integrated Effluent Treatment Plant (IETP), which shall replace all the existing effluent treatment plants apart from treating additional effluent from the VRMP facilities. The treated effluent from IETP is proposed to be treated in a RO plant to meet the DM water requirement. With the operation of RO plant in post VRMP scenario, the water consumption will be optimised with maximum recycle/reuse option. The rejects of effluent treatment plan will be discharged to the sea cooling water, which ultimately disposed to the sea. The oily sludge (1.5TPD-post VRMP) will be dewatered, handled and disposed as per existing practice. The bio sludge (2TPD-post VRMP) from bio-treatment section will be utilized as manure/landfill. Small quantities of non-hazardous and non-recyclable solid waste (approx 1500T/ year) will be sent to authorized landfill agency (TSDf) or recyclers for further disposal. This sludge is estimated to be generated (Approx. 1000 T/ tank) at the periodicity of 5 to 10 years and shall be handled and disposed as per existing refinery practice. The sludge will be treated for oil recovery after which the residual sludge will be subjected to bio-remediation. Spent catalyst will be disposed to authorized recyclers or TSDf located in Visakhapatnam.

4.0 All the Petroleum Refinery Plants are listed at S.N. 4(a) under Category 'A' and appraised at the Central level.

5.0 Public Hearing was held on 26<sup>th</sup> June, 2015.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry) in its 20<sup>th</sup> meeting held during 23<sup>rd</sup> - 24<sup>th</sup> June, 2014, 38<sup>th</sup> meeting held during 16<sup>th</sup>-17<sup>th</sup> March, 2015 and 2<sup>nd</sup> meeting held during 16<sup>th</sup> -17<sup>th</sup> December, 2015 respectively. Project Proponent and the EIA Consultant namely M/s Engineers India Ltd. have presented EIA / EMP report as per the TOR. EAC has found the EIA / EMP Report and additional information to be adequate and in full consonance with the presented TORs. The Committee recommended the proposal for environmental clearance.

7.0 Based on the information submitted by the project proponent, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14<sup>th</sup> September 2006, subject to the compliance of the following Specific and General Conditions:

**A. SPECIFIC CONDITIONS :**

- i. Compliance to all the environmental conditions stipulated in the environmental clearance letter no. J-11011/22/94-IA II(I) dated 30<sup>th</sup> May, 1995, F. No. J-11011/88/96- IA II (I) dated 10<sup>th</sup> April, 1997, J-11013/55/2003- IA II (I) dated 3<sup>rd</sup> February, 2004 and J-11011/66/2007-IA II (I) dated 7<sup>th</sup> March, 2008 and J-11011/408/2009-IA II (I) dated 2<sup>nd</sup> September, 2009 shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office at Chennai.
- ii. M/s HPCL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18<sup>th</sup> March, 2008.
- iii. Continuous on-line stack monitoring for SO<sub>2</sub>, NO<sub>x</sub> and CO of all the stacks shall be carried out. Low NO<sub>x</sub> burners shall be installed.



- iv. The process emissions [ $\text{SO}_2$ ,  $\text{NO}_x$ , HC (Methane & Non-methane)], VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.
- v. Leak Detection and Repair programme shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.
- vi.  $\text{SO}_2$  emissions after expansion from the plant shall not exceed 11.5 TPD and further efforts shall be made for reduction of  $\text{SO}_2$  load through use of low sulphur fuel. Sulphur recovery unit with tail gas treating facilities having 99.9 % efficiency shall be provided.
- vii. As proposed, record of sulphur balance shall be maintained at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance include sulphur input through feed (sulphur content in crude oil), sulphur output from Refinery through products, byproduct (elemental sulphur), atmospheric emissions etc.
- viii. Ambient air quality monitoring stations, [ $\text{PM}_{10}$ ,  $\text{PM}_{2.5}$ ,  $\text{SO}_2$ ,  $\text{NO}_x$ ,  $\text{H}_2\text{S}$ , mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with Maharashtra Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs and trend analysis w.r.t past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.
- ix. The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic enclosure /silencer shall be installed wherever noise levels exceed the limit.
- x. Fresh water requirement from Greater Visakha Municipal Corporation shall not exceed 873 m<sup>3</sup>/hr after expansion and prior permission shall be obtained from the competent authority. Industrial effluent generation will be 902 m<sup>3</sup>/hr and treated in the new state-of-the-art Integrated Effluent Treatment Plant (IETP). Treated effluent shall be fully reused/recycled as make-up water for raw water cooling towers. Domestic sewage shall be treated in sewage treatment plant (STP).
- xi. Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MEF&CC. Outcome from the report to be implemented for conservation scheme.
- xii. Automatic /online monitoring system (24 x 7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB, Regional Office of MoEF&CC and in the Company's website.
- xiii. Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.



- xiv. Oily sludge shall be disposed off into Coker. Annual Oily sludge generation and disposal data shall be submitted to the Ministry's Regional Office and CPCB.
- xv. The Company should strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000. Hazardous waste should be disposed of as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and amended time to time.
- xvi. The membership of common TSDF should be obtained for the disposal of hazardous waste. Copy of authorization or membership of TSDF should be submitted to Ministry's Regional Office at Bhopal. Chemical/inorganic sludge shall be sent to treatment storage disposal facility (TSDF) for hazardous waste. Spent catalyst shall be sent to authorized recyclers/re-processors.
- xvii. Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.
- xviii. Acoustic enclosure /silencer shall be installed wherever it is possible.
- xix. Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.
- xx. The company should make the arrangement for protection of possible fire and explosion hazards during construction and operation phase. To prevent fire and explosion at oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.
- xxi. The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).
- xxii. All issues raised during public hearing/consultation shall be satisfactorily implemented and adequate budget provision should be made accordingly.
- xxiii. Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.
- xxiv. All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.
- xxv. As proposed, Rs. 60 Crore shall be earmarked towards the Enterprise social responsibility based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Chennai. Implementation of such program shall be ensured accordingly in a time bound manner.
- xxvi. Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.

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## B. GENERAL CONDITIONS:

- i. The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.
- ii. No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment & Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- iii. The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.
- iv. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (daytime) and 70 dBA (nighttime).
- v. A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.
- vi. Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government alongwith the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.
- vii. The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.
- viii. A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.
- ix. The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.
- x. The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well



as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry / CPCB / SPCB shall monitor the stipulated conditions.

- xii. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company alongwith the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.
- xiii. The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.
- xiii. Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.

8.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

9.0 The Ministry reserves the right to stipulate additional conditions if found necessary. The Company in a time bound manner shall implement these conditions.

10.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986, Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

  
(Lalit Bokolia)  
Additional Director

Copy to :-

1. The Principal Secretary, Department of Environment, Forest, Science & Technology, Government of Andhra Pradesh, Hyderabad, A.P.
2. The Chief Conservator of Forests, Regional Office (Southern Zone, Bangalore)KendriyaSadan, 4th Floor, E&F Wing, II Block Koramangala, Bangalore-560034.
3. The Chairman, Central Pollution Control Board PariveshBhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Andhra Pradesh Pollution Control Board, ParyavaranBhawan, A-III, Industrial Estate, Sanath Nagar, Hyderabad - A.P.
5. Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhavan, Jorbagh Road, New Delhi.
6. Guard File/Monitoring File/Record File.

  
(Lalit Bokolia)  
Additional Director