To,
The Managing Director
M/s Chennai Petroleum Corporation Limited
Manali, Chennai-600 068, Tamil Nadu

E-mail: ramchandran@cpcl.co.in / Fax No.: 044-24349603

Subject: Resid Upgradation Project by adding Delay Coker Unit, OHCU Revamp Unit, Sulfur Recovery Unit, Sour Water Stripper, Amine Regeneration Unit and LPG-CFC Treating Unit at Manali Refinery Complex, District Thiruvallur, Tamil Nadu by M/s Chennai Petroleum Corporation Limited – Environmental clearance reg.


Sir,


2.0 The Ministry of Environment & Forests has examined your application. It is noted that the proposal is for resid upgradation project by adding Delayed Coker Unit, OHCU Revamp, Sulfur Recovery Unit, Sour Water Stripper, Amine Regeneration Unit and LPG-CFC Treating Unit at Manali Refinery Complex, District Thiruvallur, Tamil Nadu. This project will minimize the production of high sulfur fuel oil and maximize the production of higher valued distillate products. Total cost of project is Rs. 3357.00 Crores. Project involves rehabilitation and resettlement. No national park/wildlife sanctuary/reserve forest is located within 10 Km. The following major process units and associated facilities are proposed under the project:

<table>
<thead>
<tr>
<th>S. N.</th>
<th>Units</th>
<th>Capacity</th>
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<tbody>
<tr>
<td>1</td>
<td>Delayed Coker Unit</td>
<td>2.2 MMTPA</td>
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<tr>
<td>2</td>
<td>Once Through Hydrocracker Revamp</td>
<td>1.85 MMTPA to 2.25 MMTPA</td>
</tr>
<tr>
<td>3</td>
<td>Sulphur Recovery Unit</td>
<td>2 x 100 TPD</td>
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<tr>
<td>4</td>
<td>Sour Water Stripper</td>
<td>60 m³/hr.</td>
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<tr>
<td>5</td>
<td>Amine Regeneration Unit</td>
<td>250 m³/hr.</td>
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<tr>
<td>6</td>
<td>Coker LPG CFC Treating Unit</td>
<td>8.8 TPH</td>
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<tr>
<td>7</td>
<td>Gas Turbine Generator or Steam Turbine Generator</td>
<td>20 MW</td>
</tr>
<tr>
<td>8</td>
<td>Boiler</td>
<td>130 TPH</td>
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In addition, it is proposed to locate the coke yard at Amulla Voyal in the lands owned by CPCL, about 3.5 kms away from the existing refinery for storing petroleum coke.

3.0 Adequate stack height will be provided to Once through Hydro Cracker Unit (OHCU), Delayed Coker Unit (DCU), Sulphur Recovery Unit (SRU), resid boiler, GT/HRSG for wider dispersion of pollutants. The overall sulphur recovery efficiency of Sulphur recovery unit with tail gas treating will be 99.9%. Heaters/boilers will be provided with low NOx burners to reduce the emissions of Nitrogen Oxides (NOx). Low sulphur fuel will be used. Flare gas recovery system will be installed. Adequate height of flares will be provided. Water requirement will be increased from 34,320 m³/day to 47,889 m³/day after expansion. The additional water requirement will be met by treated water from sea water desalination and effluent recycling unit. Additional industrial effluent generation will be 3,392 m³/day after expansion and treated in the effluent treatment plant (ETP) comprising primary, secondary and tertiary treatment facilities. Treated effluent will be recycled/reused within the factory premises. No effluent will be discharged outside the plant premises and zero discharge concept will be adopted. Domestic sewage shall be treated in sewage treatment plant (STP). ETP sludge will be sent to treatment storage disposal facility (TSDF) for hazardous waste. Oily sludge will be treated through bioremediation. Spent catalyst will be sent to authorized recyclers/re-processors.

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 exempted as per section 7 (i), (iii) Stage (3), Para (i)(b) of EIA Notification, 2006.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry) in its 15th, 29th, 32nd, 35th and 4th meetings held during 22nd-23rd October, 2010, 17th-18th November, 2011, 16th-17th February 2012, 11th-12th May, 2012 and 8th-9th January 2013 respectively. The project proposal was appraised as per para 4.1.2 of Ministry's O. M dated 13th January, 2010 for projects of national importance.

7.0 The Ministry of Environment and Forests hereby accords environmental clearance to the above project under the provisions of EIA Notification dated 14th September, 2006 subject to strict compliance of the following specific and general conditions:

A. SPECIFIC CONDITIONS :


iii. Adequate stack height shall be provided to Once through Hydro Cracker Unit (OHCU), Delayed Coker Unit (DCU), Sulphur Recovery Unit (SRU), resid boiler, GT/HRSG as per CPCB/ Tamil Nadu Pollution Control Board (TNPCB) guidelines to disperse gases emissions into the atmosphere. Low NOx burners shall be provided to boilers/heaters with on-line analyzers. Low sulphur fuel shall be used.

iv. Continuous on-line stack monitoring for SO₂, NOx and CO of all the stacks shall be carried out.

v. The process emissions [SO₂, NOx, 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. M/s CPCL shall install low NOx burners in all the heaters to mitigate NOx emissions.

vi. 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.

vii. SO₂ emissions after expansion from the plant shall not exceed 16.99 TPD and further efforts shall be made for reduction of SO₂ load through use of low sulphur fuel. Sulphur recovery units shall be installed for control of H₂S emissions. The overall sulphur recovery efficiency of Sulphur recovery unit with tail gas treating shall not be less than 99.9%.

viii. 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, by-product (elemental sulphur), atmospheric emissions etc.

ix. Flare gas recovery system shall be installed.

x. Ambient air quality monitoring stations, [PM₁₀, PM₂.₅, SO₂, NOₓ, H₂S, mercaptan, non-methane-HC and Benzene] shall be set up in the complex in consultation with TNPCB, 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.

xi. Ambient air quality data shall be collected as per NAAQSES standards notified by the Ministry on 16th November, 2009 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. All the monitoring instruments should be properly maintained and regularly calibrated.

xii. 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.

xiii. Total water requirement after expansion shall not exceed 47,869 m³/day. As proposed water requirement will be met from treated water from sea water desalination and effluent recycling unit and prior permission shall be obtained from the competent authority. Additional industrial effluent generation shall not exceed 3,392 m³/day and treated in the effluent treatment plant (ETP) comprising primary, secondary and tertiary treatment facilities. Treated effluent shall be recycled/reused within the plant premises. No effluent shall be discharged outside the plant premises and zero discharge concept shall be adopted. Domestic sewage shall be treated in sewage treatment plant (STP). The storm water drains shall be cleaned and measures shall be taken to prevent non point source of release of water. The excess storm water shall be treated for removal of oil and grease.

xiv. Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.

xv. Oily sludge shall be disposed off through bioremediation or into Coker. Annual Oily sludge generation and disposal data shall be submitted to the Ministry's Regional Office and CPCB.

xvii. 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 Bangalore. 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.

xviii. The proponent shall improve the housekeeping and a separate budget shall be earmarked for this purpose. A detailed plan for continuous upkeeping shall be prepared and sent to the Ministry's Regional Office at Bangalore.

xix. Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil/petroleum products and ensure regular monitoring.

xx. The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).

xxi. 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.

xxii. Green belt shall be developed at least in 33 % of the plant area in and around the plant premises to mitigate the effects of fugitive emissions all around the plant as per the CPCB guidelines in consultation with DFO. Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.

xxiii. Company shall prepare operating manual in respect of all activities. It shall cover all safety & environment related issues and monitoring system including housekeeping plan. One set of environmental manual shall be made available at the project site. Awareness shall be created at each level of the management. All the schedules and results of environmental monitoring shall be available at the project site office.

xxiv. All the recommendations mentioned in the risk assessment report, disaster management plan and safety guidelines shall be implemented.

xxv. Measures shall be taken for rainwater harvesting from the roof tops to recharge the ground water.

xxvi. Company shall adopt Corporate Environment Policy as per the Ministry's O.M. No. J-11013/41/2006-IA.II(l) dated 26th April, 2011 and implemented

xxvii. 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.

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 along with 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; PM10, PM2.5, SO2, NOX, 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.

xi. The environmental statement for each financial year ending 31st 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 along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.

xii. 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 www.moef.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.

(A.N. Singh)
Dy. Director (S)

Copy to:

1. The Principal Secretary, Department of Environment, Ground Floor, Panagal Buildings 1, Jeenis Road, Saidapet, Chennai - 600 015.
2. The Chief Conservator of Forests, Regional Office (Southern Zone, Bangalore) Kendriya Sadan, 4th Floor, E&F Wing, II Block Koramangala, Bangalore-560034.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Tamil Nadu Pollution Control Board, Corporate Office, 76, Anna Salai, Guindy, Chennai - 600 032.
5. Joint Secretary, IA II(l), Ministry of Environment and Forests, Paryavaran Bhawan, CGO Complex, New Delhi.
7. Guard File/Monitoring File/Record File.

(A.N. Singh)
Dy. Director (S)