

**Compliance of Environmental Clearance conditions (DHT Facility at VR) dated April 09, 2014**

(Vide F. No. J-11011/408/2009-IA-II(I) dated Sep 02, 2009 by Ministry of Environment & Forests, GOI)

**A. SPECIFIC CONDIITONS**

S.No.	Particulars	Compliance Status
i.	M/s HPCL shall comply with the stipulations made in the environmental clearance accorded by the Ministry vide letter No. J-11013/55/2003-IA II(I), dated February 03, 2004 for Clean Fuels Project and expansion from 7.5 to 10.0 MMTPA.	Complied.
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.	Complied.
iii.	The project authorities shall submit a feasible plan which will be followed to ensure that SO <sub>2</sub> emission from the refinery does not exceed the stipulated figure of 11.5 TPD at any time.	The following additional facilities and measures besides the existing pollution abatement facilities and management guide lines will maintain the SO <sub>2</sub> level within the stipulated limits: <ul style="list-style-type: none"> <li>• A sulphur recovery unit of 300 TPD capacity along with Tail Gas Treatment unit designed to achieve &gt; 99.5% sulphur recovery.</li> <li>• An additional FG ATU to sweeten the fuel gas for firing in process furnaces and boilers.</li> <li>• Continued usage of treated Naphtha (&lt; 50 ppmwt sulphur) in Captive Power plants.</li> </ul>
iv.	The company shall undertake measures for control of dust emission during construction and traffic congestion.	Necessary measures like spraying the water on the ground taken up as and when required to suppress the dust emissions.
v.	Efforts shall be made to use gas as a fuel in the furnaces to maximum extent possible.	The fuel gas distribution system in the refinery is such that the fuel gas generated is fully consumed in the process furnaces and boilers.
vi.	The process emissions (SO <sub>2</sub> , NO <sub>x</sub> , HC, VOCs and Benzene) from various units should conform to the standards prescribed by the AP	Departmental standing Instructions (DSIs) / Plant Daily Instructions (PDIs) & Occupational Control procedures (OCPs)

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	state Pollution Control Board from time to time. At no time, the emission levels should go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved.	are in place to comply with the stipulated emission standards.
vii.	Ambient air quality monitoring stations, [SPM, SO <sub>2</sub> , NO <sub>x</sub> , H <sub>2</sub> S, Mercaptan, NMHC and Benzene] should be set up in the Refinery complex in consultation with SPCB, 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 Continuous on-line stack monitoring equipment should be installed for measurement of SO <sub>2</sub> , NO <sub>x</sub> , CO and CO <sub>2</sub> . Low NO <sub>x</sub> burners should be installed with online analyzers.	Continuous Ambient Air Quality Monitoring Stations (CAAMS) already exist in the refinery at 3 different locations for measuring SO <sub>2</sub> , NO <sub>x</sub> , CO, PM <sub>10</sub> and PM <sub>2.5</sub> . In addition to these, analyzers for Mercaptans, H <sub>2</sub> S, Benzene, Ammonia & Ozone have been installed. Low-NO <sub>x</sub> burners and online stack analyzers are provided.
viii.	The proponent shall upload the status of compliance of the stipulated EC conditions, including monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant namely; SPM, RSPM, SO <sub>2</sub> , NO <sub>x</sub> (Ambient levels as well as stack emissions) VOC and HC, indicated for the project shall be monitored and displayed at the convenient location near the main gate of the Company in the public domain.	DHT project EC conditions compliance status is uploaded in HPCL website: <a href="http://www.hindustanpetroleum.com/En/UI/RefineryNewProjects.aspx">http://www.hindustanpetroleum.com/En/UI/RefineryNewProjects.aspx</a> (item no.6).  Compliance status updation is being done once in 6 months. Status report is being sent to Regional office of MOE&F, Zonal office of CPCB and SPCB.  Ambient air quality & stack emissions data is available at APPCB & CPCB websites. In addition to this, Ambient air quality data is displayed at main gate.
ix.	Monitoring of fugitive emissions should be carried out as per the guidelines of CPCB by fugitive emission detectors and reports should be submitted to the Ministry's regional office at Bangalore. For control of fugitive emission all unsaturated hydrocarbon will be routed to the flare system and the flare system should be designed for smoke less burning.	Leak Detection and Repair (LDAR) program is a suggested procedure as per MoEF notification dated 18th March 2008 for identification and control of fugitive emissions. LDAR survey is an ongoing process. The existing hydrocarbon flare system is designed for smokeless flaring.
x.	Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage should also be provided at strategic locations. The company should use low sulphur fuel to minimize SO <sub>2</sub> emission. Sulphur recovery units should have efficiency of 99.5 %. Leak Detection and Repair program should be implemented to control HC/VOC emissions. Work zone monitoring should be carried out near the storage tanks besides monitoring of	HC detectors are provided in units and in offsites.  Leak Detection and Repair (LDAR) program is an ongoing process.  DHT-SRU design efficiency is > 99.5%.

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	HCs/VOCs in the work zone.	
xi.	The waste water should be treated in the waste water treatment plant and the treated effluent should meet the prescribed standards. Efforts should be made to recycle the treated effluent to achieve zero discharge.	Waste water from DHT block is treated in the existing waste water treatment plant to meet prescribed standards. Sour water from process units is treated and recycled to use as wash water.
xii.	The project authorities must strictly comply with the rules and regulation with regard to handling and disposal of Hazardous Wastes (Management, Handling and Trans Boundary Movement) Rules, 1989/2003/ 2008 wherever applicable. Authorization from the State Pollution Control Board must be obtained for collection/treatment/storage/disposal of hazardous wastes.	Complied. Authorization for collection/treatment/storage/disposal of hazardous wastes to APPCB/CPCB approved recyclers has been obtained from APPCB (CFO No: APPCB/VSP/VSP/210/HO/CFO/2015-2062 dated 16.03.2015) and is valid upto 31.12.2015.
xiii.	The company should strictly follow all the recommendation mentioned in the charter on Corporate Responsibility for Environmental Protection (CREP) for the oil refineries.	Complied. Status enclosed as Annexure-I.
xiv.	The Company should take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums should be installed to minimize gaseous emissions during flaring.	Extensive fire water network & a well-equipped fire fighting system exist in the refinery to handle fire hazards. Overhead flare stack with knockout drums is provided in the refinery. Oil spills, in the case of occurrence, are contained and cleared immediately.
xv.	To prevent fire and explosion at Oil and Gas facility, potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable material should be in place.	Oil Industry Safety Directorate guide lines (OISD-STD-118) are being followed for unit installations and inter-distances between equipments/facilities.
xvi.	Onsite and Offsite DMP shall be updated to cover the additional facilities and the updated plans shall be implemented.	The Emergency Response and Disaster Management Plan (ERDMP) of Visakh Refinery, including DHT facilities, is in place. Offsite DMP is handled by District Authorities.
xvii.	Occupational health surveillance of worker should be done on a regular basis and records maintained as per the Factory Act.	Regular health check-ups of workers are done and records maintained at Occupational Health Center (OHC) located inside the refinery premises.
xviii.	Greenbelt should be developed to mitigate the effect of fugitive emission all around the plant in a minimum 33% plant area in	HPCL-VR has taken up plantation of 1,50,000 saplings / year in various locations of Visakhapatnam under Green Visakha Program

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	consultation with DFO as per CPCB guidelines.	initiated by the Parliamentary Standing Committee on Science & Technology, Environment & Forests. Plantation of 3,00,000 saplings has already been completed.
xix.	The Company should undertake measures for rain water harvesting to recharge the ground water and minimize fresh water consumption.	Rain water harvesting facilities have been provided for administrative buildings (Blocks-A and C) and for control room & sub-stations of DHT Project.
xx.	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, mobile STP, 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.	Not applicable since the construction labor do not reside in the project site. However, necessary facilities like mobile toilets, first aid room, ambulance, drinking water, etc., were provided at project site during execution.
<b>B. GENERAL CONDITIONS</b>		
i.	The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government and any other statutory body.	Complied.
ii.	No further expansion or modification in the project shall be carried without prior approval of the Ministry of Environment and Forests. In case of deviations or alternations in the project proposal from those submitted to the Ministry for clearance, a fresh reference shall be made to the Ministry.	Any expansion, modification, deviation or alteration in the approved project shall be carried out with prior approval.
iii.	At no time, the emissions shall go beyond the prescribed standards. In the event of failure of any pollution control system, the respective facilities should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved. Provision of adequate height of stack attached to DG sets & flare is to be done.	Departmental standing Instructions (DSIs) / Plant Daily Instructions (PDIs) & Occupational Control procedures (OCPs) are in place to comply with the stipulated emission standards. Stacks with 60 m height are provided as per the standards.
iv.	Waste water shall be properly collected and treated so as to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the relevant SPCB.	Waste water from DHT block is processed in the existing waste water treatment plant to meet prescribed standards.
v.	The overall noise levels in and around the premises shall be limited within the prescribed standards (75 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	High noise generating machines are provided with enclosures to maintain noise level within norms.

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vi.	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2000 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission of the expansion project, if required. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.	Plot plan approval for DHT Project was obtained from PESO. The Emergency Response and Disaster Management Plan (ERDMP) of Visakh Refinery, updated with DHT facilities, is in place.
vii.	The project authorities will provide adequate funds as non-recurring and recurring expenditure 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 should not be diverted for any other purposes.	DHT project is an environmental project with a cost of around ₹ 2730 crores. DHT facilities are setup at Visakh refinery for meeting Euro-IV specification for Diesel as per the latest Auto Fuels Policy of India.
viii.	The company shall develop rain water harvesting structures to harvest the run off water for recharge of ground water.	Rain water harvesting facilities have been provided for administrative buildings (Blocks-A and C) and for control room & sub-stations of DHT Project.
ix.	The stipulated conditions will be monitored by the concerned Regional Office of this Ministry/ Central Pollution Control Board/ State Pollution Control Board. A six monthly compliance report and the monitored data should be submitted to them regularly. It will also be displayed on the Website of the Company.	Hard and soft copies of six monthly compliance report on EC conditions have been sent to MOE&F Bengaluru, CPCB and APPCB on regular basis vide following letters: PROJ/PROC/CS/DHT VR EC/01 dtd. Oct. 12, 2011 PROJ/PROC/CS/DHT VR EC/03 dtd. May. 01, 2012 PROJ/PROC/CS/DHT VR EC/06 dtd. Oct. 12, 2012 PROJ/PROC/CS/DHT VR EC/10 dtd. April 22, 2013 PROJ/PROC/CS/DHT VR EC/12 dtd. Oct. 22, 2013 PROJ/PROC/CS/DHT VR EC/15 dtd. April 09, 2014 PROJ/PROC/CS/DHT VR EC/15 dtd. Oct 15, 2014
x.	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated EC conditions including results of monitored data (both on hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the SPCB.	Hard and soft copies of six monthly compliance report on EC conditions have been sent to MOE&F Bengaluru, CPCB and APPCB vide letters below: PROJ/PROC/CS/DHT VR EC/01 dtd. Oct. 12, 2011 PROJ/PROC/CS/DHT VR EC/03 dtd. May. 01, 2012 PROJ/PROC/CS/DHT VR EC/06 dtd. Oct. 12, 2012

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		PROJ/PROC/CS/DHT VR EC/10 dtd. April 22, 2013 PROJ/PROC/CS/DHT VR EC/12 dtd. Oct. 22, 2013 PROJ/PROC/CS/DHT VR EC/15 dtd. April 09, 2014 PROJ/PROC/CS/DHT VR EC/15 dtd. Oct 15, 2014
xi.	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 put up on the website of the Company by the proponent.	Clearance letter uploaded on HPCL website with the address <a href="http://www.hindustanpetroleum.com/En/UI/RefineryNewProjects.aspx">http://www.hindustanpetroleum.com/En/UI/RefineryNewProjects.aspx</a> (item no.6).
xii.	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at <a href="http://www.envfor.nic.in">http://www.envfor.nic.in</a> . This should 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 should be forwarded to the concerned Regional office of this Ministry.	Advertisement published in the newspapers for DHT project was communicated to RO-MOE&F at Bengaluru with copies of the same.
xiii.	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 along with the status of compliance of EC conditions and shall also be sent to the respective regional Office of the MoEF by e-mail.	Refinery is submitting Annual Environmental statement to Member Secretary, APPCB, Hyderabad.  Environmental statement is also being displayed in HPCL website. <a href="http://www.hindustanpetroleum.com/En/UI/RefineryNewProjects.aspx">http://www.hindustanpetroleum.com/En/UI/RefineryNewProjects.aspx</a> (item no.6).
xiv.	A separate environment management cell with full fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.	Environment Management Cell exists in the refinery.
xv.	The 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 start of the project.	DHT project has been completed.

## ANNEXURE-I

	<b>Action item</b>	<b>Present status</b>
1	All refineries shall provide connectivity of stack to CPCB and SPCB by May 31, 2013 and in case of any problem or hurdles, this will be informed to SPCB/CPCB with reasons.	On-line connectivity of stack analyzers to APPCB has been established in January 2014 & connectivity to CPCB is in progress.
2	The refineries shall assess the technical feasibility with cost economics for implementation of bottom loading of all products in trucks & railways for emission reduction so that further action required can be taken.	Not applicable. (Loading of hydrocarbon products into tank trucks and tank wagons is not carried out by HPCL-Visakh Refinery).
3	The refineries shall report to CPCB of any accident or pipe leakages occurring within 24 hours along with action taken or proposed.	Noted; will be reported.
4	All refineries shall forward notes on success accomplished by them in environmental activities during 2005-13.	Enclosed as Annexure-Ia.
5	RIL to forward a note on the proposed modifications of effluent treatment facilities to comply with the notifications alongwith the time schedule i.e. covering of ETP and providing system for VOC adsorption.	Not applicable to HPCL Visakh Refinery.
6	All refineries shall submit note on the storage arrangement made for oily sludge including details of stored oily sludge, proposal for bio-remediation with time bound programme and status of disposal of bio-remediated soil.	<ul style="list-style-type: none"> <li>• Oily sludge is stored in cement lined lagoons and is currently being processed (from February 2014) for recovery of oil; about 6000 MT of oily sludge has been processed. About 4000 MT of oily sludge sold to authorized recyclers prior to that.</li> <li>• Low-oily sludge is being handled by way of bio-remediation within the refinery premises; bio-remediation of one batch of 456 m<sup>3</sup> of ETP sludge has been completed by M/s TERI. Bio-remediation of another batch of 480 m<sup>3</sup> of oily sludge is in progress. The bio-remediated soil is disposed as manure/landfill.</li> </ul>
7	Refineries to compile data on particulate matter emitted, wherein the dual fuel (fuel gas and fuel oil) is used, to assess the factors effecting achievability of emission norms.	<ul style="list-style-type: none"> <li>• Suspended Particulate Matter (SPM) emission from all the refinery stacks is being maintained within the stipulated limits.</li> <li>• Particulate matter emission from all the refinery stacks is being monitored by MOE&amp;F-approved third party on a monthly basis.</li> </ul>
8	The comments on proposed guidelines for bio-remediation be forwarded for consideration before finalizing.	Comments on the proposed guidelines for bio-remediation submitted to MoEF/CPCB/APPCB.

## ANNEXURE-I

	<b>Action item</b>	<b>Present status</b>
9	All refineries shall submit action plan to achieve zero-discharge and to cover their ETP with VOC adsorption system.	<ul style="list-style-type: none"> <li>• The targeted project under zero-discharge, viz., conversion of once-through cooling water system in FCCU-II to re-circulating cooling water system, has been implemented and commissioned in 2010.</li> <li>• With regard to covering of ETPs with VOC absorption system, feasibility study by M/s Engineers India Limited is completed. It will be taken up along with the upcoming expansion &amp; modernization project.</li> </ul>
10	Refineries to submit time bound action plan to install state-of-the-art systems like SCADA (for monitoring the health of the pipeline) in all their crude and product pipelines and a time bound programme for replacing the old pipelines.	<ul style="list-style-type: none"> <li>• Regular health-check of the 36" crude in-take pipeline from Off-shore Tanker Terminal (OSTT) to the refinery is being carried out by way of               <ol style="list-style-type: none"> <li>a) On-stream inspection</li> <li>b) Monitoring the status of Cathodic Protection</li> <li>c) Intelligent pigging operation</li> </ol>               Repair/replacement is carried out as required.             </li> <li>• SCADA system is in place for monitoring the Visakhapatnam-Vijayawada-Secunderabad pipeline that is used for transferring the major products from the refinery to the other parts of the state.</li> </ul>
11	M/s Gurugobind Singh Refinery shall provide one more continuous air quality monitoring station to generate background data to assess the impact of air quality due to refinery operation.	Not applicable to HPCL Visakh Refinery.



Major Environmental Facilities provided at HPCl-Visakh Refinery during 2005-13

- **Fuel Gas Amine Absorption Unit (FGAAU):**  
Fuel Gas Amine Absorption Unit (FGAAU) has been installed and commissioned in the year 2007 for desulphurization of Refinery Fuel Gas.

- **Excess Oil Ingress Project:**  
Excess Oil Ingress Project has been installed and commissioned in 2008-09 for reduction of oil ingress into Effluent Treatment Plants (I & II) and thus improving their performance.

- **Visakh Refinery Clean Fuels Project (VRCFP):**

Visakh Refinery Clean Fuels Project (VRCFP) has been implemented and commissioned during 2009-10. The following product treatment plants / facilities were installed under the Project and are in operation since then:

- Naphtha Hydro Treating Unit
- Continuous Catalytic Reformer unit
- Naphtha Isomerization unit
- FCC Naphtha Hydro Treater Unit (FCC NHT)

The following environmental units/facilities were provided as part of the project:

- Sulphur Recovery Unit (SRU) for treatment of H<sub>2</sub>S rich acid gases
- Effluent Treatment Plant (ETP-IV) for treatment of effluents
- Sour Water Stripping Unit

Production of Motor Spirit (MS / Petro) complying with EURO-III and EURO-IV norms could be achieved through this project.

- **Replacement of Continuous Ambient Air Monitoring Stations (CAAMS) analyzers:**

Continuous Ambient Air Monitoring Station (CAAMS) analyzers were replaced during the period 2011-13 with an investment of ₹ 36 Lakhs. Annual Maintenance Contract has been placed at a cost of ₹ 23 Lakhs for maintenance of the analyzers which has resulted in improved reliability of the analyzers and continuous monitoring of the ambient air quality within refinery premises.

- **Replacement of Online Stack analyzers:**

Replacement of 19 Stack analyzers was carried out during the period 2011-13 with an investment of ₹ 7.58 Crores. Annual Maintenance Contract has been placed at a cost of ₹ 57 Lakhs for maintenance of the analyzers which has resulted in improved reliability of the analyzers and continuous monitoring of the emissions from the stacks.

- **Flue Gas Desulphurization Unit:**

Flue Gas Desulphurization (FGD) units have been installed at a cost of ₹ 75 crores for treatment of the flue gases generated from Fluidized Catalytic Cracking Units (FCCUs). FGD-I commissioned in July 2013 and FGD-II commissioned in December 2013.