

Compliance of Environmental Clearance conditions (DHT Facility at VR) dated October 12, 2011

(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 |
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| 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. Please refer Attachment-I attached herewith. |
| 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 th March 2008. | Noted and will be complied. Please refer Attachment-II |
| iii. | The project authorities shall submit a feasible plan which will be followed to ensure that SO ₂ emission from the refinery does not exceed the stipulated figure of 11.5 TPD at any time. | <p>Will be complied with. The following additional facilities and measures besides the existing pollution abatement facilities and management guide lines would contain SO₂ emission level.</p> <p>A sulphur recovery unit of 300 TPD capacity along with Tail Gas Treatment unit designed to achieve 99.9% sulphur recovery vis-a vis 99.5% sulphur recovery as per MOE&F standards.</p> <p>Installation of additional FG ATU to sweeten the fuel gas for firing in process furnaces and boilers.</p> <p>Usage of treated Naphtha in Captive Power plants.</p> <p>Also refinery is installing Flue Gas Desulphurisation units at both the FCCUs which reduce the SO₂ emission levels.</p> <p>Inview of implementation of above major measures,</p> |

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| | | HPCL-VR is committed towards the compliance of overall sulphur dioxide emission limit of 11.5 TPD. |
| iv. | The company shall undertake measures for control of dust emission during construction and traffic congestion. | Noted. Being complied with. Necessary measures like spraying the water on the ground is being done 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. | Noted. Our fuel gas distribution system is designed to achieve this objective and also strict operational instructions are in place. |
| vi. | The process emissions (SO ₂ , NO _x , HC, VOCs and Benzene) from various units should conform to the standards prescribed by the AP 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. | Noted and will be complied. |
| vii. | Ambient air quality monitoring stations, [SPM, SO ₂ , NO _x , H ₂ 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 ₂ , NO _x , CO and CO ₂ . Low NO _x burners should be installed with online analyzers. | <p>Continuous Ambient Air Quality Monitoring Stations (CAAMS) already exist in the refinery at 3 different locations.</p> <p>However, feasibility to be checked for installation of Mercaptans, H₂S & Benzene analyzers in CAAMS. Low-NO_x burners requirement and online stack analyzers (except CO₂) are complied with. Meanwhile, tests by manual sampling will be carried out.</p> |
| 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 ₂ , NO _x (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. | Website requirement complied with. Display requirement is complied with. Website address is http://www.hindustanpetroleum.com/En/UI/RefineryNewProjects.aspx (item no.6) |

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| 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 Bhopal. 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. | Existing fugitive monitoring programme like LDAR will be extended for DHT facilities also. |
| 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 ₂ 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 HCs/VOCs in the work zone. | Leak Detection and Repair (LDAR) program practiced for existing refinery, will be extended for DHT facilities also. Fugitive emission monitoring at storage tanks is not applicable since no new tanks are envisaged in the project. DHT SRU design efficiency is 99.9% |
| 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. | Noted and will be complied with. CRWS & OWS effluents from DHT block will be routed to ETP-IV and will be treated. |
| 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. | Existing refinery practice will be continued with respect to disposal of spent catalyst from DHT, HGU & SRU. |
| xiii. | The company should strictly follow all the recommendation mentioned in the charter on Corporate Responsibility for Environmental Protection (CREP) for the oil refineries. | CREP report is enclosed herewith. Refer 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. | Separate group exists in Refinery to check oil spillage and control. Overhead flare stack with KO drums is provided. The following systems are in place : - Full fledged Fire & Safety department and designs |

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| | | <p>incorporating fire water network, fire alarm systems etc.</p> <p>-Oil Spill Response Plan (OSRP) with VPT .</p> <p>- Oil Spill response plan (inside refinery) along with spill response equipments</p> <p>- Operational control procedures</p> |
| 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. | OISD guide lines are being followed for unit installations and inter distance between equipments. |
| xvi. | Onsite and Offsite DMP shall be updated to cover the additional facilities and the updated plans shall be implemented. | Noted. Existing DMP will be updated to cover all the new facilities. |
| 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 being done. |
| xviii. | Greenbelt should be developed to mitigate the effect of fugitive emission all around the plant in a minimum 33% plant area in consultation with DFO as per CPCB guidelines. | Noted. |
| xix. | The Company should undertake measures for rain water harvesting to recharge the ground water and minimize fresh water consumption. | Noted. |
| 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 live in the project site. However, necessary facilities likes mobile toilets, first aid room, ambulance, drinking water etc; are being provided at site. |
| B. GENERAL CONDITIONS | | |
| i. | The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State | Noted. |

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| | Government and any other statutory body. | |
| 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. | Noted. |
| 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. | Noted. |
| 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. | Will be complied with. OWS & CRW Effluent from DHT block to be routed to existing ETP-IV for further treatment. |
| 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). | Noted and will be complied. Present monitoring mechanism will be applicable for DHT facilities once operational. |
| 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. | PESO (CCOE) approval obtained for plot plan of DHT project. Existing on-site DMP will be updated and updated plan will be submitted to District Authorities for updating offsite DMP. |
| 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 | Noted. |

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| | purposes. | |
| viii. | The company shall develop rain water harvesting structures to harvest the run off water for recharge of ground water. | Noted. |
| 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. | Noted. |
| 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. | Noted. |
| 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. | Complied with. Clearance letter uploaded on HPCL website. |
| 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 http://www.envfor.nic.in . 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. | Complied with Advertisement published in the newspapers; communicated to RO-MOE&F at Bangalore with copies of the same. |
| xiii. | The environmental statement for each financial year ending 31 st 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 | Complied with. |

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| | compliance of EC conditions and shall also be sent to the respective regional Office of the MoEF by e-mail. | |
| 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. | Complied with (Environment Management Cell already 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. | Will be complied with |

Visakh Refinery Clean Fuels Project (VRCFP)

Compliance report of MoEF Environmental Clearance

MoEF, GOI have issued "No Objection Certificate" vide letter no. J-11013/55/2003-IA II (I) dated Feb 03, 2004 to Visakh Refinery Clean Fuels Project (VRCFP). The compliance of the terms and conditions thereto is as follows:

| S.No. | Condition | Status |
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| 1 | The company shall comply with all the conditions stipulated by this Ministry vide its letter no. J-11011/88/96-IA-II (I) dated 10 th April, 1997. | Noted and complied. |
| 2 | Specific limits stipulated for SO ₂ , HC, SPM, and NO _x at para 2 should be strictly complied. | Complied. FGD installation is in progress. All VRCFP heaters are provided with low NO _x burners. |
| 3 | The fresh water consumption should be pegged at 523 m ³ /hr after the proposed modernization. The additional water required, if any, should be met through recycling/reuse of treated effluent. | Noted and complied. Fresh water consumption is restricted to the stipulated level by installation of a Desalination R.O. plant of 100 m ³ /hr permeate. Stripped sour water is being reused in Desalters prior to ETP. Regular steam leak surveys are conducted for steam leak repairs. |
| 4 | The industry shall implement all the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP) regarding air pollution, waste water and solid waste management and oil spill response facilities at Coastal refineries | Please refer to Annexure - I for details on implementation of CREP. |
| 5 | All the recommendations made in the Risk Analysis Report should be complied with during design, construction and operation stages to contain the risk within the plant boundary. | Please refer to Annexure-II for details on compliance of RRA recommendations. |
| 6 | No further modernization of the project should be carried out without prior permission of the Ministry. | Noted and complied. |
| 7 | Implementation of the project vis-à-vis environmental management /risk mitigation measures should be reported to the Ministry/ Regional Office/State Pollution Control Board regularly on a six-monthly basis. | Complied. Progress reports are being sent regularly by Visakh Refinery. |

ACTION POINTS: CHARTER ON CORPORATE RESPONSIBILITY FOR ENVIRONMENT PROTECTION

| S.No | Action points | Present status /Action Taken |
|---------------------------------|--|---|
| AIR POLLUTION MANAGEMENT | | |
| 1 | All the refineries located in the critically polluted areas, identified by CPCB, will submit an action plan (within six months) for phase wise reduction of SO ₂ emission from the present level. | <ul style="list-style-type: none"> ♦ Monitoring and control of SO₂ emissions from the Refinery is a continuous activity. ♦ SO₂ emissions are maintained within the stipulated limit. |
| 2 | Future refineries will have Sulphur Recovery Unit with minimum 99% efficiency. | ♦ Complied with. |
| 3 | To enhance the efficiency of SRUs in the existing refineries, an expert committee will be constituted to look into various aspects and suggest a road map within six months. | ♦ Not applicable. SRU efficiency requirement complied with. |
| 4 | With regard to NO _x Emission, the new refineries/process units will install low NO _x burners. For retrofitting of low NO _x burners in existing units, the expert committee will suggest the strategies and action plan within six months including NO _x standards. | ♦ Complied with. |
| 5 | The flare losses will be minimized and monitored regularly. | ♦ Complied with. |
| 6 | Refineries will install continuous emission monitoring systems for SO _x and NO _x in major stacks with proper calibration facilities. Action Plan for this will be submitted within six months. | ♦ Refinery has provided on-line stack analyzers for all process unit stacks and utility boilers. Analyzers are regularly calibrated. |
| 7 | <p>Refineries will also monitor total HC and benzene in the premises (particularly at loading/un-loading operations and ETP). The status and action plan will be submitted within six months.</p> <p>The expert committee will also suggest an action plan, within six months, for control and monitoring of hydrocarbon loss & VOC emissions, leak detection and repair (LDAR) program and vapor recovery systems (for loading & un-loading operations within refineries only).</p> | ♦ LDAR program for VOC emission monitoring and control is an ongoing activity in the refinery. |
| WASTE WATER MANAGEMENT | | |
| 1 | Refineries will prepare action plan for conservation of water resources and maximizing reuse/recycling of treated effluent within six months. The treated effluent discharge quantity (excluding once through cooling water) will be limited to 0.4 m ³ /tonne (for 90% of time) except for the monsoon season. | <ul style="list-style-type: none"> ♦ Stripped water from process units is being used as wash water in process units. This is resulting in reduction in waste water generation of around 60 M³/hr. ♦ Average effluent discharge is within limits. |

| S.No | Action points | Present status /Action Taken |
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| 2 | Oil Spill response facilities at Coastal refineries will be in position within two years. To facilitate this, MOEF will coordinate with Coast Guards, Port Trust and other departments. | ♦ Entered into MOU with Visakhapatnam Port Trust (VPT) towards Oil Spill Response facility. |
| SOLID WASTE MANAGEMENT | | |
| 1 | Refineries will explore new technologies for reduction in the generation of oily sludge. Strategy and action plan for liquidation of existing sludge will be submitted within six months. | ♦ State-of-the-art technologies chosen for all refinery processes and storage tanks to minimize generation of oily sludge. ♦ Oily sludge is being disposed to CPCB authorized recyclers; 2525MT of oily sludge has been disposed since 2009. |
| 2 | The petroleum coke having high sulphur content will only be sold to/reused by organized industries (having consent of SPCBs) which have systems to control SO ₂ emissions. This will be ensured by June 2003. | ♦ Complied with. |

| S.No | Action points | Present status /Action Taken |
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| New action points as per first meeting on Revised National task Force held on October 09,2009 | | |
| 1 | Refineries will carry out monitoring and survey to assess HC loss and concentration of VOC in Ambient Air/Wastewater treatment plant. (Action plan was to be submitted by Jan 2010) | ♦ Complied with. LDAR program for VOC emission monitoring and control is an ongoing activity in the refinery. |
| 2 | Refineries will assess the quantity of flare gas. (Install the measurement system if the same is not possible) (Action plan was to be submitted by March 2010) | ♦ Complied with. Flaring quantity is accounted. |
| 3 | Assessment of Potential leakages from petroleum storage tanks. (Action plan was to be submitted by Jan 2010) | ♦ LDAR program in practice on storage tanks. |
| 4 | Cleaner Technology options and information to be provided to CPCB. (to be submitted by Feb 2010) | ♦ State-of-the-art technologies adopted for all refinery processes. |

Compliance of Rapid Risk Analysis (RRA) Report recommendationsVisakh Refinery Clean Fuels Project

| S.No. | Recommendation | Status |
|-------|--|-----------|
| 1 | Surrounding Population should be made aware of the safety precautions to be taken in the event of any mishap within the plant. This can effectively be done by conducting the training awareness programs. | Complied. |
| 2 | Critical switches and alarm should be always kept inline | Complied. |
| 3 | Fire extinguishers should be tested periodically and should be always kept in operational mode | Complied. |
| 4 | Flame detectors should be installed near those units which handle large amount of explosive material and operate under high temperature and pressure | Complied. |
| 5 | A wind direction pointer should also be installed at storage site so that in an emergency wind direction can be directly seen and downwind population cautioned | Complied. |
| 6 | Shut off and isolation valves should be easily approachable in emergencies | Complied. |

Compliance status of Proposed DHT Project wrt MoEF Standards

2. i.a: EFFLUENT

| S.no | Parameter | Limit (mg/L) | Compliance Status |
|------|------------------|--------------|--|
| 1 | pH | 6-8.5 | Existing Refinery has Effluent Treatment Plant (ETP-IV) of 180 M3/hr installed under VRCFP. Spare capacity of 30 M3/hr is available in VRCFP ETP-IV. Effluent generation from DHT Project is envisaged to the tune of 22 M3/hr which shall be treated in the above ETP. Discharge of the ETP shall be meeting the standards stipulated herein. |
| 2 | Oil & Grease | 5 | |
| 3 | BOD | 15 | |
| 4 | COD | 125 | |
| 5 | Suspended Solids | 20 | |
| 6 | Phenols | 0.35 | |
| 7 | Sulphides | 0.5 | |
| 8 | CN | 0.2 | |
| 9 | Ammonia as N | 15 | |
| 10 | TKN | 40 | |
| 11 | P | 3 | |
| 12 | Cr (Hexavalent) | 0.1 | |
| 13 | Cr (Total) | 2 | |
| 14 | Pb | 0.1 | |
| 15 | Hg | 0.01 | |
| 16 | Zn | 5 | |
| 17 | Ni | 1 | |
| 18 | Cu | 1 | |
| 19 | V | 0.2 | |
| 20 | Benzene | 0.1 | |
| 21 | Benzo-(a) Pyrene | 0.2 | |

2.1. b: EMISSIONS

Furnace, Boiler and Captive Power Plant

| S.No. | Description | Limiting Concentration, (Gas/ Liquid firing) Mg/NM3 | Compliance |
|-------|-------------------------------------|---|--|
| 1 | Sulphur Dioxide | 50/850 | Shall be complied with based on the measures undertaken during Project Design. |
| 2 | Oxides of Nitrogen | 250/350 | |
| 3 | Particulate Matter | 5/50 | |
| 4 | Carbon Monoxide | 100/150 | |
| 5 | Nickel & Vanadium | 5 | |
| 6 | Hydrogen Sulphide in fuel gas, | 150 | |
| 7 | Sulphur Content in liquid fuel, wt% | 0.5 | |

FCC Regenerators:

| S.No. | Description | Compliance |
|-------|--------------------|----------------|
| 1 | Sulphur Dioxide | Not Applicable |
| 2 | Oxides of Nitrogen | |
| 3 | Particulate Matter | |
| 4 | Carbon Monoxide | |
| 5 | Nickel & Vanadium | |
| 6 | Opacity % | |

Sulphur Recovery Units:

| S.No. | Description | Limiting Value | Compliance |
|-------|---|----------------|--|
| 1 | Sulphur Recovery, % | 99.5 | Under DHT Project efficiency of SRU shall be 99.9 % by installing SRU unit along with Tail gas Treating Unit (TGTU). |
| 2 | H ₂ S, mg/Nm ³ | 10 | Shall be complied with. |
| 3 | Oxides of Nitrogen from stack, mg/Nm ³ | 250 | |
| 4 | Carbon Monoxide from stack, mg/Nm ³ | 100 | |

2. i.c: FUGITIVE EMISSIONS :

Storage of Volatile Liquids:

| S.No. | Description | Compliance |
|-------|---|--|
| 1 | Storage Tanks with capacity between 4 to 75 M ³ and total vapor pressure (TVP) of more than 10 kpa should have Fixed Roof Tank with pressure valve vent. | No new tankage is envisaged under proposed DHT project. Existing tankages shall be utilized for storing the feed, intermediate & products. Existing tankage already comply with the stated norms herein. |
| 2 | Storage Tanks with capacity between 75 to 500 M ³ and total vapor pressure (TVP) of 10 to 76 kpa should have IFRT or EFRT or Fixed Roof Tank with vapor control or vapor balancing system. | |
| 3 | Storage Tanks with capacity more than 500 M ³ and total vapor pressure (TVP) of 10 to 76 kpa should have IFRT or EFRT or Fixed Roof Tank with vapor control system. | |
| 4 | The tanks with the capacity of more than 75 M ³ | |

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| | and total vapor pressure of more than 76 kpa should have Fixed Roof Tank with vapor control system. | |
| 5 | Secondary seals on Internal Floating Roof & External Floating Roof Tanks as per the specifications listed. | |

Storage of Benzene:

Not applicable.

Solvents for Lube-Base oil Production:

Not applicable.

Standards for equipment leaks:

Leak detection and repair program (LDAR) is an ongoing activity in the refinery and the same shall be extended to the DHT Project/Facilities.

Emissions Standards for VOC from Wastewater Collection and Treatment

| S.No. | Description | Compliance |
|-------|---|--|
| 1 | All contaminated and odorous wastewater streams shall be handled in closed systems from the source to the primary treatment stages (oil water separator and equalization tanks) | Existing refinery has been facilitated with all these standards. Same shall be extended for proposed DHT Facilities. |
| 2 | The collection system shall be covered with water seals on sewers and drains and gas tight covers on junction boxes. | |
| 3 | Oil-water separators tanks shall be provided with floating/fixed covers. The off-gas generated shall be treated to remove at least 90% of VOC and eliminate odour. The system design shall ensure safety by dilution with air/inert gas, installing LEL detector including control devices, seal drums, detonation arrestors, etc. The system shall be designed and operated for safe maintenance of the collection and primary treatment system. | |
| 4 | Wastewater from aromatics plans shall be treated to remove benzene and total aromatics to a level of 10, 20 ppm respectively before discharge. | |

Effluent Quantum Limits:

| S.No. | Parameter | Quantum limit in kg/1000 tons of crude processes | Compliance |
|-------|------------------|---|----------------------------|
| 1 | Oil & Grease | 2.0 | Shall be complied with. |
| 2 | BOD | 6.0 | |
| 3 | COD | 50 | |
| 4 | Suspended Solids | 8.0 | |
| 5 | Phenols | 0.14 | |
| 6 | Sulphides | 0.2 | |
| 7 | CN | 0.08 | |
| 8 | Ammonia as N | 6.0 | |
| 9 | TKN | 16 | |
| 10 | P | 1.2 | |
| 11 | Cr (Hexavalent) | 0.04 | |
| 12 | Cr (Total) | 0.8 | |
| 13 | Pb | 0.04 | |
| 14 | Hg | 0.004 | |
| 15 | Zn | 2.0 | |
| 16 | Ni | 0.4 | |
| 17 | Cu | 0.4 | |
| 18 | V | 0.8 | |
| 19 | Benzene | 0.04 | |
| 20 | Benzo-Pyrene | 0.08 | |