

F.No.EP/12.1/827/AP | 23
Government of India
Ministry of Environment, Forests and Climate Change
(Regional Office - Chennai)

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Dated: 17th February, 2015

To

Shri Lalit Bokolia
Scientist 'E'
IA Division – Industry 2 Sector
Indira Paryavaran Bhavan,
Ministry of Environment, Forests & Climate Change,
Jorbagh Road, Aliganj, New Delhi – 110 003.
Tel. No: 24695401; Email: lk.bokalia@nic.in

Subject: Environmental Clearances granted by the Ministry for the existing projects at Visakh Refinery, Andhra Pradesh by M/s Hindustan Petroleum Corporation Limited – **Compliance certification regarding.**

Ref:

- i. EC Letter No.J-11011/22/94-IA II(I) dated 30.05.1995
- ii. EC Letter No.J-11011/88/96-IA-II(I) dated 10.04.1997
- iii. EC Letter No. J-11013/55/2003-IA II(I) dated 03.02.2004
- iv. EC Letter No.J-11011/66/2007-IA II(I) dated 07.03.2008
- v. EC Letter No.J-11011/408/2009-IA-II(I) dated 02.09.2009
- vi. M/s HPCL letter no.CEE/15/SS/VRMP/300 dated 23.01.2015

Sir,

In response to the letter dated 23.01.2015 of M/s HPCL, the above said project was monitored during 3.2.2015 to 4.2.2015 and certified compliance report of the above existing project in connection with the proposed expansion of the refinery from 8.33 MMTPA to 15 MMTPA is enclosed for perusal and further appropriate action.

Encl: as above

Yours faithfully,


(Sundar Ramanathan)
Scientist - D

Copy to:

1. Dr. P.B. Rastogi, Director, Monitoring Cell, IA Division, Indira Paryavaran Bhavan, Ministry of Environment, Forests & Climate Change, Jorbagh Road, Aliganj, New Delhi – 110 003.
2. Shri Ratan Raj, DGM – Process, M/s Hindustan Petroleum Corporation Limited, 17, Jamshedji Tata Road, P.O.Box No.11041, Mumbai – 400020. for information with reference to the letter No. CEE/15/SS/VRMP/300 dated 23.01.2015


(Sundar Ramanathan)
Scientist - D

Government of India
Ministry of Environment, Forests and Climate Change (MoEF&CC)
Nungambakkam, Chennai – 600034.

MONITORING REPORT

PART I

DATA SHEET

F.No. EP/12.1/827/AP

- 1 Project Type : Industry - Petroleum Refinery
River valley / Mining / Industry /
Thermal / Nuclear / Other Specify
- 2 Name of the project : 1. Expansion of Visakh Refinery from 4.5 to 7.5 MMTPA of HPCL.
2. Installation of Diesel Hydro-desulphurisation Project at Visakh Refinery of HPCL.
3. Clean Fuels Project and Expansion from 7.5 to 10 MMTPA by M/s HPCL's Visakh Refinery.
4. Modernisation project for Mounded Storage System for Propylene/LPG at Visakh Refinery, Visakhapatnam, Andhra Pradesh by Hindustan Petroleum Corporation Ltd.
5. Expansion of clean fuels project 7.5 to 10 MMTPA and include EURO-IV diesel production at 17, Jamshedji Tata Road , Mumbai by M/s HPCL's Visakh Refinery.
- 3 Clearance letter(s) / OM No. and dated : 1. EC Letter No.J-11011/22/94-IA II(I) dated 30.05.1995
2. EC Letter No.J-11011/88/96-IA-II(I) dated 10.04.1997
3. EC Letter No. J-11013/55/2003-IA II(I) dated 03.02.2004
4. EC Letter No.J-11011/66/2007-IA II(I) dated 07.03.2008
5. EC Letter No.J-11011/408/2009-IA-II(I) dated 02.09.2009
- 4 Locations :
- a. Taluk(s) : Visakhapatnam
District : Visakhapatnam
- b. State (s) : Andhra Pradesh
- c. Latitudes / Longitudes : Latitude 17.701 N and Longitude of 83.255 E.
- 5 Address of correspondence

- a. Address of concerned project Chief Engineer (with Pin Code & telephone / telex / fax numbers) : The General Manager – Projects, Visakh Refinery, M/s HPCL, Malkapuram, Visakhapatnam
Pin Code: 530011
Phone No. 0891- 2894200 / 4201
Email: corphqo@hpcl.co.in

- b. Address of Executive Project Engineer/ Manager (with Pin Code/fax numbers) : -do-

6 Salient features:

- a. Salient features of the project : Covered in the EIA/EMPs submitted to the Ministry of Environment, Forests and Climate Change (MoEF&CC) from time to time for approval at the time of grant of Environmental Clearance (EC)
- b. of the environmental management plans

7 Breakup of the project area:

- a. Project area : The refinery total area is 511 Acres
Refinery Tankage Project area : 212 Acres

Total area of the refinery complex: 723 Acres
Nil

8 Break up of project affected population with enumeration of those losing houses / dwelling units only, agricultural land only, both dwelling units and agricultural land and landless labourers / artisans

- a. SC,ST/Adivasis : Not Applicable
- b. Others : Not Applicable

9 Financial Details:

- a. Project cost as originally planned and subsequent revised estimates and the years of price reference

Date of EC	Project Cost (in Rs. Crs)	
	Actual	Revised
30.05.1995	990	1230
10.04.1997	794	1020
03.02.2004	1635	1635
07.03.2008	124	124
02.09.2009	3597*	2730
Total	7,140	6,739

*Besides, Diesel Hydrotreater (DHT), the project was inclusive of Delayed Coker and Mild Hydrocracker. EC was accorded only to DHT. Original Project cost as indicated in EC was Rs. 10611.87 Crores.

- b. Allocations made for environmental management plans, with item wise and year wise breakup.

Date of EC	EMP Allocation (in Rs. Crs)	
	Project Cost	Recurring cost/annum
30.05.1995	145	~5
10.04.1997	108	6
03.02.2004	236	213
07.03.2008	-	(risk mitigation proj)
02.09.2009	325	14
Total	814	238

Please note that the project cost towards EC dated 10.04.1997 (DHDS project), 03.02.2004 (VRCFP –MS Euro III/IV) and 02.09.2009 (DHT Project) all are towards complying with Autofuel policy and environment abatement projects.

The EC dated 07.03.2008 (Mounded storage for LPG/Propylene Bullets) is for risk mitigation on LPG storage.

Rs. 2 Crores/Annum spent on continuous environmental activities like Ground Water Monitoring, LDAR/Steam/Air Leak Survey, Third Party Env. Monitoring, R&M for Continuous Ambient Air Monitoring Station.

c Benefit cost ratio / internal rate of return and the years of assessment

1. Expansion of Visakh Refinery from 4.5 to 7.5 MMTPA of HPCL.

As per the project DFR the IRR of the project is ~12%

2. Installation of Diesel Hydro-desulphurisation Project at Visakh Refinery of HPCL

The Diesel Hydrotreatment project is to make Euro III/IV diesel. This is an environmental abatement project in line with GOI auto fuel policy. No returns.

3. Clean Fuels Project and Expansion from 7.5 to 10 MMTPA by M/s HPCL's Visakh Refinery

The Cleans Fuel Project is an environmental abatement project wherein the Motor Spirit Euro III/IV specifications are made. No returns.

4. Modernisation project for Mounded Storage System for Propylene/LPG at Visakh Refinery, Visakhapatnam, Andhra Pradesh by Hindustan Petroleum Corporation Ltd.

This is a project pertaining to reduction of risk. With mounded storage the potential risk involved is brought down when stored in Horton spheres. This is a safety project with no returns.

5. Expansion of clean fuels project 7.5 to 10 MMTPA and include EURO-IV diesel production at 17, Jamshedji Tata Road, Mumbai by M/s HPCL's Visakh Refinery)

The Diesel Hydrotreatment project is to make Euro IV diesel. This is an environmental abatement project in line with GOI auto fuel policy. No returns.

- d Whether (c) includes the cost of environmental management as shown in (b) above : Yes. It is inclusive.
- e Total expenditure on the Project so far : Please refer s.no. 9 (a) project revised amount. **(As per the project proponent)**
- f Actual expenditure incurred on the environmental management plans so far : All the allocation amount referred at s.no. 9 (b) has been spent **(As per the project proponent)**
- 10 Forest land requirement: : Nil
- a The status of approval for a diversion of forest land for non-forestry use : Not Applicable.
- b The status of compensatory afforestation, if any : Not Applicable.
- c The status of clear felling : Not Applicable.
- d Comments on the viability and sustainability of compensatory afforestation programme in the light of actual field experience so far : Not Applicable.
- 11 The status of clear felling in non-forest area (such as submergence area of reservoir, approach road), if any, with quantitative information : Not Applicable.
- 12 Status of construction:
- | EC Date | Commencement | Completion |
|------------|--------------|--------------|
| 30.05.1995 | August 1995 | May 1999 |
| 10.04.1997 | August, 1998 | July 2000 |
| 03.02.2004 | May. 2004 | Oct/Nov 2007 |
| 07.03.2008 | May 2008 | July 2010 |
| 02.09.2009 | Nov. 2009 | March 2014 |
- a. Date of commencement & Completion
- 13 Reasons for the delay if the project is yet to start. : Not Applicable
- 14 Date of site visit:
- a The dates on which the project was monitored by the Regional Office on previous occasions, if any : 3&4.8.1998, 16.08.1999, 24.03.2000, 21.07.2000, 01.04.2003, 14.03.2005, 19.07.2006 and 15.10.2012 & 16.10.2012
- b Date of site visit for this monitoring report : 03.02.2015 and 04.02.2015
- 15 Details of correspondence with project authorities for obtaining action plans, information and status of compliance to safeguards : --

PRESENT STATUS OF THE PROJECT

The Visakh Refinery had its conception in the year 1957 as CORIL (M/s Caltex Oil Refining India Limited) with a capacity of 0.65 MMTPA. In the year 1974, it was nationalized and subsequently made as M/s Hindustan Petroleum Corporation Limited **[M/s HPCL - herein after referred as Project Proponent (PP)]**. In the year 1985, the refinery was capacity increased to 4.5 MMTPA with addition of Crude Distillation Unit along with the requisite associated facilities. Further, in the year 1999, the refinery capacity was augmented from 4.5 MMTPA to 7.5 MMTPA. Subsequently, facilities are put up for Motor Spirit and Diesel fuel quality up-gradation to meet the Auto fuel policy and the refinery capacity was increased to 8.3 MMTPA.

PP informed that the MoEF&CC has accorded following ECs for their petroleum refinery:-

S.No.	Name of the project	EC reference No.
1.	Expansion of Visakh Refinery from 4.5 to 7.5 MMTPA of HPCL.	J-11011/22/94-IA II(I) dated 30.05.1995
2.	Installation of Diesel Hydro-desulphurisation Project at Visakh Refinery of HPCL	J-11011/88/96-IA-II(I) dated 10.04.1997
3.	Clean Fuels Project and Expansion from 7.5 to 10 MMTPA by M/s HPCL's Visakh Refinery	J-11013/55/2003-IA II(I) dated 03.02.2004
4.	Modernisation project for Mounded Storage System for Propylene/LPG at Visakh Refinery, Visakhapatnam, Andhra Pradesh by Hindustan Petroleum Corporation Ltd.	J-11011/66/2007-IA II(I) dated 07.03.2008
5.	Expansion of clean fuels project 7.5 to 10 MMTPA and include EURO-IV diesel production at 17, Jamshedji Tata Road , Mumbai by M/s HPCL's Visakh Refinery)	J-11011/408/2009-IA-II(I) dated 02.09.2009

It was informed that all the above projects have been completed by the PP and the plants are under operational.

The consolidated major units under operation and the product profile of the refinery complex as provided by the PP are summarized as below:-

Major Units are:

Sl No	Unit	Design Capacity
1.	Crude Distillation Unit – I (CDU I)	2.3 MMTPA
2.	Crude Distillation Unit – II (CDU II)	3.0 MMTPA
3.	Crude Distillation Unit –III (CDU III)	3.0 MMTPA
4.	Fluid Catalytic Cracking Unit – I (FCC I)	0.95 MMTPA
5.	Fluid Catalytic Cracking Unit – II (FCC II)	0.97 MMTPA
6.	Diesel Hydro Desulphurisation Unit (DHDS)	2.43 MMTPA
7.	DHDS Hydrogen	18 KTPA
8.	Propylene Recovery Unit (PRU)	72 KTPA
9.	Visbreaker Unit (VBU)	1.0 MMTPA
10.	Bitumen Blowing Unit (BBU)	0.225 MMTPA
11.	Naphtha Hydrotreater (NHT)	1.154 MMTPA
12.	Naphtha Reformer (CCR)	0.769 MMTPA
13.	Naphtha Isomerization Unit (NIU)	0.229 MMTPA
14.	FCC – Naphtha Hydro Treater (Prime G)	0.869 MMTPA

SI No	Unit	Design Capacity
15.	Flue Gas Desulphurisation –I	200 Tons per Hour
16.	Flue Gas Desulphurisation –II	140 Tons per Hour
17.	Diesel Hydro Treater (DHT)	2.2 MMTPA
18.	DHT Hydrogen	36 KTPA
19.	Sulphur Recovery Unit –DHDS	2 trains x 65 Tons Per Day
20.	Sulphur Recovery unit –VRCFP	1 train x 65 Tons Per Day
21.	Sulphur Recovery Unit –DHT	1 train x 300 Tons per day
22.	Captive Power Plants- Refinery	2 Nos x Frame III 9MW each 4 Nos x Frame V 25 MW each
23.	Captive Power Plant- under DHT (proposed)	1 No. Frame VI 33 MW / 1 No STG 17 MW

The refinery estimated product slate as provided by the PP is as follows:-

S.No.	Product	Estimated Product Slate (‘000 Metric Tons Per Annum)
1.	Propylene	36
2.	LPG	362
3.	Naphtha	730
4.	MS – Reg. (Euro-III)	659
5.	MS – Reg. (Euro-IV)	400
6.	MS – Prem. (Euro-III)	0
7.	ATF	78
8.	SKO	532
9.	HSD (Euro-III)	2777
10.	HSD (Euro-IV)	550
11.	FO 180	583
12.	Bitumen	246
13.	Sulphur	69
14.	Fuel & Loss	813 (includes refinery fuel gas 603 TMTA)

During the visit, it was informed by the PP that there were some discrepancies in the analysis reports of APPCB and PP. The BOD, Phenols, Sulphides, Oil & grease are above limits in the treated water as per APPCB during January 2011 to November 2011. The SO₂, SPM and emission flow rates are more than the stipulated limits as per the APPCB during November 2011. APPCB has directed the PP vide their order dated 14.12.2011 to reduce the capacity of refinery to 70% of the existing consent limit. PP contended that the sulphur emissions, odour problems are not directly related to the refinery process. PP approached the Appellate Authority. The Appellate Authority vide its order dated 13.10.2012 (Appeal No. 48 of 2012) directed that the matter has to be disposed of by APPCB after obtaining the study report of IISc and in the mean time status quo with regard to the production capacity of the PP shall continue. PP informed that presently the final study report of IISc is awaited.

The above project was monitored by the Regional Office - Chennai from 03.02.2015 to 04.02.2015 along with the following officers of the M/s HPCL:-

- i. Shri. G.Sriganesh, Executive Director;
- ii. Shri A.S.V Ramanan, General Manager – HR;
- iii. Shri. B.Balagangadharam, Head – Technical Services;

- iv. Shri Ilyas Ali, DGM – Project process;
- v. Shri S.Sriram, Chief Manager – Process;
- vi. Shri S.S.Nandanwar, Head – Process Safety & Environment; and
- vii. Shri A.T. Naidu, Sr. Manager – Task Force.

The report is submitted on the basis of the field visit and as per the information provided by the PP.

The status of compliance on the stipulated conditions contained in the ECs cited above for the entire refinery complex is given below in **Part II & Part III**.


(Sundar Ramanathan)
Scientist 'D'

PART II & III

DESCRIPTIVE REPORT ON STATUS OF COMPLIANCE TO THE CONDITIONS OF THE ENVIRONMENTAL CLEARANCE AND ENVIRONMENTAL MANAGEMENT

Reference:

- (i) J-11011/22/94-IA.II(I) dated 30.05.1995
- (ii) J-11011/88/96-IA.II(I) dated 10.04.1997
- (iii) J-11013/55/2003-IA.II(I) dated 03.02.2004
- (iv) J-11011/66/2007-IA.II(I) dated 07.03.2008
- (v) J-11011/408/2009-IA.II(I) dated 02.09.2009

S. No.	Conditions	Compliance status
As per the EC letter no. J-11011/22/94-IA.II(I) dated 30.05.1995		
i.	The project authority must strictly adhere to the stipulations made by the A.P. Pollution Control Board and the State Government.	Partially complied with. Renewal of consent order for the refinery excluding DHT project was obtained from the Andhra Pradesh Pollution Control Board (APPCB) on 13.11.2014 with validity up to 31.12.2015. <i>Consent order for the Diesel Hydro Treatment Unit (DHT) was obtained from APPCB on 20.10.2014 with validity up to 31.12.2014. PP informed that the consent renewal application has already been submitted to the APPCB. However, the renewal of consent from APPCB is yet to be obtained by the PP beyond 31.12.2014.</i>
ii.	An expansion of the plant, either with the existing product mix or new products or storage facilities etc can be taken up only with the prior proposal of this Ministry.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition. Now the PP is proposed to increase their petroleum refinery capacity from 8.33 MMTPA to 15 MMTPA at Vishakhapatnam, Andhra Pradesh.
iii.	The total emission of SO ₂ from the entire refinery should be brought down from 9 TD to 7.5 TPD in a phased manner and action plan for the same should be submitted to the Ministry. Until the SO ₂ limit of 7.5 TPD is achieved in the near future, the total emission of SO ₂ would not exceed the earlier prescribed limit of 9 TPD.	Being complied with. As per EC dated 10.04.1997, the total SO₂ emission from Visakh refinery including DHDS project should not exceed the norm of 11.5 TPD. The detail of the average SO₂ emissions from refinery in 2013-14 and 2014-15 as provided by the PP is enclosed as <u>Annexure – I.</u> As per the data, it is observed that the SO₂ emission limit varies from 7.46 TPD to 11.01 TPD and is within the limit of 11.5 TPD.

S. No.	Conditions	Compliance status
		The measures adopted by the PP to contain the SO₂ emissions are as below:- • A sulphur recovery unit of 300 TPD capacity along with the tail gas treatment unit designed to achieve >99.5% sulphur recovery. • Installation of additional FG ATU to sweeten the fuel gas for firing in the process furnaces and boilers. • Usage of treated Naptha in CPP. • Installation of FGD unit.
iv.	The gaseous emissions from various process units should conform to the standards prescribed by the concerned authorities, from time to time. At no time, the emission level should go beyond the stipulated standards. In the event of failure of any pollution control systems(s) adopted by the immediately and should not be restarted until the control measures are rectified to achieve the desired efficiency.	Being complied with. PP informed that the continuous monitoring system to monitor gaseous emissions through 31 stacks has been commissioned and the online real time monitoring data is being transmitted to APPCB server regularly. The stack emission data (27 stacks only) as provided by the PP for the month of January 2015 is enclosed as Annexure – II. As per the data, it is observed that the emission limits are within the norms.
v.	Sulphur Recovery Units with more than 99% efficiency for sulphur recovery should be provided.	Complied with. Sulphur Recovery Unit (SRU) was installed and reportedly it has the required 99% efficiency.
vi.	Low NOx burners to avoid excessive formulation of NOx should be provided.	Being complied with. Major furnaces have been provided with low NOx burners which reduces the NOx emission.
vii.	Adequate ambient air quality monitoring stations should be set up in the refinery area in the down wind direction as well as where maximum ground level concentrations of SO ₂ , NOx, HC and SPM are anticipated. The monitoring network should be decided based on the modelling exercise to represent the short term GLCs. A mobile van with adequate facilities to monitor ambient air quality outside the refinery premises should also be planned.	Partially complied with. PP informed that based on predominant wind direction and neighboring population, three CAAMS have been installed to monitor ambient air quality parameters w.r.t SO₂, NOx, PM₁₀, PM_{2.5}, CO, Benzene, Ammonia and Ozone. The online real time monitoring data is being transmitted to APPCB server regularly. The CAAMS data as provided by the PP for the month of January 2015 is enclosed as Annexure –III. Further, the AAQ at the CAAMS locations are also being monitored manually by a third party (NABL/MoEF recognized laboratory) on

S. No.	Conditions	Compliance status																																																																				
		monthly basis as per the NAAQS. The monitored data pertaining to HC, H ₂ S and mercaptans through CAAMS have not been provided during the visit and further PP has not provided the mobile van with adequate facilities to monitor the AAQ outside the refinery premises as stipulated in the EC condition.																																																																				
viii.	Fugitive emissions of HC from storage tanks, crude oil tanks etc should be minimized by adopting necessary measures.	Being complied with. Hydro carbon detectors have been provided in the plant and storage tank areas. Leak Detection And Repair (LDAR) program is in place for the existing refinery. PP informed that the crude/light hydrocarbon products are stored in floating roof tanks with secondary seals to minimize vapor space and hence hydrocarbon emission. The data on VOC emissions as provided by the PP from August 2014 to December 2014 is as below:- <table><tr><th>Unit</th><th>No. of points</th><th colspan="2">VOC emissions</th></tr><tr><td></td><td></td><th>Kg/hr</th><th>Kg/day</th></tr><tr><td>CDU- I</td><td>555</td><td>0.023</td><td>0.55</td></tr><tr><td>CDU -II</td><td>678</td><td>0.026</td><td>0.62</td></tr><tr><td>CDU-III</td><td>1126</td><td>0.03</td><td>0.72</td></tr><tr><td>FCCU-I</td><td>182</td><td>0.057</td><td>1.37</td></tr><tr><td>FCCU-II</td><td>227</td><td>0.184</td><td>4.42</td></tr><tr><td>DHDS</td><td>353</td><td>0.026</td><td>0.62</td></tr><tr><td>DHDS-SRU</td><td>567</td><td>0.013</td><td>0.31</td></tr><tr><td>NHT-CCR</td><td>333</td><td>0.002</td><td>0.05</td></tr><tr><td>FCCNHT</td><td>198</td><td>0.027</td><td>0.65</td></tr><tr><td>Merox</td><td>455</td><td>0.004</td><td>0.10</td></tr><tr><td>LPG</td><td>309</td><td>0.020</td><td>0.48</td></tr><tr><td>CPP</td><td>342</td><td>0.005</td><td>0.12</td></tr><tr><td>ETP</td><td>550</td><td>0.035</td><td>0.84</td></tr><tr><td>Tank Farm</td><td>570</td><td>30.000</td><td>720.00</td></tr><tr><td>Total</td><td>570</td><td>30.000</td><td>720.00</td></tr></table>	Unit	No. of points	VOC emissions				Kg/hr	Kg/day	CDU- I	555	0.023	0.55	CDU -II	678	0.026	0.62	CDU-III	1126	0.03	0.72	FCCU-I	182	0.057	1.37	FCCU-II	227	0.184	4.42	DHDS	353	0.026	0.62	DHDS-SRU	567	0.013	0.31	NHT-CCR	333	0.002	0.05	FCCNHT	198	0.027	0.65	Merox	455	0.004	0.10	LPG	309	0.020	0.48	CPP	342	0.005	0.12	ETP	550	0.035	0.84	Tank Farm	570	30.000	720.00	Total	570	30.000	720.00
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ix.	Adequate facilities for monitoring the fugitive emissions should be planned.	Being complied with. Monitoring of hydrocarbon and benzene is accomplished through the LDAR program for VOC emission and control.																																																																				
x.	The stacks should be of appropriate design and height and should be	Partially complied with.																																																																				

S. No.	Conditions	Compliance status												
	attached to pollution control systems wherever necessary. Height of stacks attached to crude oil furnace and waste heat boiler should be increased to the maximum height as permitted by the Civil Aviation Department. Continuous on line stack monitoring equipments for measurement of SO ₂ & NO _x should be installed. The monitored data should be submitted to SPCB every three months and every six months to the Ministry of Env & Forest for review.	Process furnaces, boilers and gas turbines are provided with tall stacks (about 60 m) for better dispersion of flue gases. PP informed that the continuous monitoring system to monitor gaseous emissions through 31 stacks has been commissioned and the online real time monitoring data is being transmitted to APPCB server regularly. Connectivity to CPCB server is in progress and expected to be completed by March 2015. <i>The monitored stack emission data is not being submitted to the Regional Office of the MoEF&CC along with the six monthly compliance reports as stipulated in the EC condition.</i>												
xi.	The existing waste water treatment facilities should be suitably augmented so as to meet the MINAS standards	Complied with. There are three Effluent Treatment Plants as mentioned below to treat the effluents in the refinery complex:- <table border="1"> <thead> <tr> <th>Plant Name</th><th>Design Capacity</th><th>Final disposal</th></tr> </thead> <tbody> <tr> <td>ETP -I</td><td>135 m³/hr</td><td>To sea through open channel</td></tr> <tr> <td>ETP-II</td><td>325 m³/hr</td><td>To ETP - IV</td></tr> <tr> <td>ETP-IV</td><td>180 m³/hr</td><td>To sea through open channel</td></tr> </tbody> </table> PP informed that the effluents are meeting the MoEF standards dated 18.03.2008 and the analysis results as provided by the PP are enclosed as Annexure –IV.	Plant Name	Design Capacity	Final disposal	ETP -I	135 m ³ /hr	To sea through open channel	ETP-II	325 m ³ /hr	To ETP - IV	ETP-IV	180 m ³ /hr	To sea through open channel
Plant Name	Design Capacity	Final disposal												
ETP -I	135 m ³ /hr	To sea through open channel												
ETP-II	325 m ³ /hr	To ETP - IV												
ETP-IV	180 m ³ /hr	To sea through open channel												
xii.	Recycling/Reuse of the treated effluent to the maximum extent possible should be planned.	Partially Complied with. The total fresh water consumption is 15120 KLD. Out of the 15120 KLD, the discharged quantity is 10,430 KLD and the losses are reported to be 4690 KLD. The sea water intake to the refinery complex is 293980 KLD and the sea cooling water discharge is reported to be 282700 KLD. The water balance provided by the PP is enclosed as Annexure –V. PP informed that the water recycling is limited to the usage of stripped water from sour water strippers as desalter												

S. No.	Conditions	Compliance status														
		wash water in CDUs. From the above, it is observed that PP is not recycling the treated effluent to the maximum extent possible as stipulated in the EC condition.														
xiii.	Adequate number of influent and effluents quality monitoring stations have to be planned with adequate facilities especially for the parameters like phenols, sulphides, oil and grease, suspended solids , BOD, COD, pH and flow.	Being complied with. The daily monitoring of the influent and effluent parameters like phenols, sulphides, O&G, suspended solids, BOD, COD, pH is being carried out in the Quality Control laboratory of Refinery. Flow meters are provided on influent and treated effluent lines. Further, the treated effluent quality is being monitored by MoE&F recognized Third Party on monthly basis.														
xiv.	System to recover oil from the oily sludges and incinerator for burning the residues should be provided.	Partially complied with. PP informed that bio-remediation of ETP sludge is being carried out by M/s TERI using oil zipper bacterial. 460 m ³ of oily sludge was taken for bio-remediation in June 2014. The oil content of sludge after bio-remediation would be <1%. PP has not provided the incinerator for burning the residues as stipulated in the EC condition.														
xv.	Hazardous substances and solid wastes should be handled, stored and disposed off as per the Hazardous Wastes (Management and Handling) Rules 1989 of the EPA 1986.	Being complied with. The details of the hazardous waste generated in their refinery along with the description for treatment are furnished under:- <table><tr><th>Haz.waste</th><th>Description of Treatment</th></tr><tr><td>ETP sludge</td><td>Bio-remediation using oil zipper bacteria of M/s TERI, New Delhi</td></tr><tr><td>Oily sludge</td><td>Sludge processing for oil recovery & bio-remediation of the residual sludge</td></tr><tr><td>Spent activated carbon</td><td>Disposal to authorized cement industries or TSDF.</td></tr><tr><td>Slop oil</td><td>Reprocessed in the refinery along with crude oil.</td></tr><tr><td>Spent clay</td><td>Disposal to TSDF.</td></tr><tr><td>Spent</td><td>Disposal to authorized</td></tr></table>	Haz.waste	Description of Treatment	ETP sludge	Bio-remediation using oil zipper bacteria of M/s TERI, New Delhi	Oily sludge	Sludge processing for oil recovery & bio-remediation of the residual sludge	Spent activated carbon	Disposal to authorized cement industries or TSDF.	Slop oil	Reprocessed in the refinery along with crude oil.	Spent clay	Disposal to TSDF.	Spent	Disposal to authorized
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Spent clay	Disposal to TSDF.															
Spent	Disposal to authorized															

S. No.	Conditions	Compliance status	
		catalyst Containers and container liners of hazardous waste and chemicals	recyclers or TSDF. Sale to agencies after detoxification.
xvi.	The overall noise levels in and around the plant area, should be kept well within the standards (85 dBA) by providing acoustic hoods, silencers etc. on all the sources of noise generation.	PP informed that the Hazardous Wastes are being be handled, stored and disposed off in accordance with the Hazardous Wastes (Management and Handling and Transboundary Movement) Rules 2008. Not complied with. <i>Noise levels are being monitored by the Fire and Safety Department on monthly basis at various locations in the refinery complex. As per the report provided, the noise levels exceeds the standards (85 dBA) in the CPP, CDU, H₂ plant, DHDS plant, DHDS-SRU, FCCU I & II, NHT-CCR and FCC-NHT of the refinery complex.</i> <i>Online noise level monitoring facility is provided in the CAAMS stations were found to be not in the working condition during the site visit.</i> Noise survey report provided by the PP is enclosed as Annexure XI.	
xvii.	The density of green belt within the plant premises should be increased using native plant species in consultation with the local DFO.	Not complied with. As per the ECs dated 07.03.2008 and 2.9.2009 green belt should be developed all around the plant in a minimum of 33% plant area in consultation with DFO as per CPCB guidelines. Total area of the refinery complex is 723 acres (Refinery area: 511 acres and crude tank area: 212 acres). Existing green belt area is 40 acres and it is not developed all around the plant area. <i>PP has not covered 33% of the plant area under green belt development as stipulated in the EC condition and there is no land available in the refinery complex for the development of green belt.</i>	

S. No.	Conditions	Compliance status
		During the visit, PP informed that the development of green belt in process plant area is not recommended due to safety issues.
xviii.	Various socio-economic schemes should be initiated by HPCL so as to improve the socio economic environment in the region.	Being complied with. PP informed that various developmental activities are taken up in schools & hospitals in the region under Corporate Social Responsibility (CSR) program. The details of the CSR activities undertaken by the PP during 2012-13 and 2013-14 are enclosed as Annexure –VI . As per the data provided, an amount of Rs.1.22 crores and Rs.1.3 crores spent towards the CSR during 2012-13 and 2013-14 respectively.
xix.	Recommendation made by NEERI in the EMP should be implemented and action plan for implementation of the same should be submitted to the Ministry for review.	Partially complied with. Reportedly, NEERIs recommendations and action plans were submitted to MoEF&CC. Among the NEERI recommendations, one recommendation is yet to be complied by the PP. Effluent discharge through a single outlet was recommended by NEERI. However, PP informed that 2 outlets are provided as the refinery is in a low lying area with respect to MSL. The 2 outlets are joined together outside the boundary of the refinery.
xx.	Necessary approvals from the Chief Explosives Directorate, Inspector of Factories, Fire Safety Inspector etc. should be obtained and copies of approval letters, be made available to this Ministry for the storages and facilities pertaining to highly inflammable materials.	Complied with. PP informed that necessary approvals were obtained.
xxi.	The project authority should set up laboratory facilities for collection and analysis of samples under the supervision of competent technical personnel, who will directly report to the Chief Executive.	Complied with. Refinery has a dedicated laboratory facility for collection and analysis of effluent samples.
xxii.	An Environmental Management Cell should be established with suitably qualified people to carry out various functions and should be set up under the control of a senior executive who will report directly to the Head of the organization.	Complied with. Under Technical Services Department, Process Safety & Environment (PS&E) is a separate division which looks after the environmental and process safety functions. This division in turn reports to

S. No.	Conditions	Compliance status
		Head - Technical. PP informed that following is the composition of the EMC:- • General Manager (Technical) • Chief Manager (PS&E) • Sr. Manager • Engineer – 3 Nos
xxiii.	Medical surveillance of workers should be done regularly to avoid possibility of contracting occupational diseases against the workers engaged in the various plants and record maintained.	Complied with. Regular health checkups of all the employees in the refinery are being carried out and the records are maintained in the Occupational health centre established by the PP.
xxiv.	The project authorities should carry out a water balance study at the proposed site and submit the report within 12 months.	Reportedly complied with. PP informed that the water balance study has been carried out and the report was reportedly submitted to the Ministry. The water balance provided by the PP is enclosed as Annexure –V.
xxv.	The funds earmarked for the environmental protection measures should not be diverted for other purposes and year wise expenditure should be reported to this Ministry.	Partially complied with. Fund provision as shown in s.no. 9 above. <i>The year wise EMP expenditure has not been reported to the Regional Office of the MoEF&CC as stipulated in the EC condition.</i>
	The project authorities should also comply with the additional stipulations and conditions prescribed in the EIA and risk analysis report.	Agreed upon. It was submitted that the condition is “Noted” and assured to abide by the condition.
	The Ministry or any other competent authority may stipulate any further conditions, after reviewing reports prepared by the project authorities, or after assessing the pollution caused after the implementation of the project.	Agreed upon. It was submitted that the condition is “Noted” and assured to abide by the condition.
	The Ministry may revoke or suspend the clearance if implementation of any of the above conditions is not satisfactory. The above stipulated conditions will be monitored by the Ministry's Regional Office.	Agreed upon. It was submitted that the condition is “Noted” and assured to abide by the condition.
	The above conditions will be enforced, inter-alia under the provisions of Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Pollution) Act 1981, the Environment	Partially complied with. Renewal of consent order for the refinery excluding DHT project was obtained from the Andhra Pradesh Pollution Control

S. No.	Conditions	Compliance status
	(Protection) Act 1986 and Public Liability Insurance Act 1991 along with their amendment and rules.	Board (APPCB) on 13.11.2014 with validity up to 31.12.2015. <i>Consent order for the Diesel Hydro Treatment Unit (DHT) was obtained from APPCB on 20.10.2014 with validity up to 31.12.2014. PP informed that the consent renewal application has already been submitted to the APPCB. However, the renewal of consent from APPCB is yet to be obtained by the PP beyond 31.12.2014.</i> Insurance policy under PLI, Act 1991 has been taken by the PP.
As per the EC letter no. J-11011/88/96-IA.II(I) dated 10.04.1997		
i.	The project authority must strictly adhere to the stipulations laid down by the APPCB and State Govt.	Partially complied with. Renewal of consent order for the refinery excluding DHT project was obtained from the Andhra Pradesh Pollution Control Board (APPCB) on 13.11.2014 with validity up to 31.12.2015. <i>Consent order for the Diesel Hydro Treatment Unit (DHT) was obtained from APPCB on 20.10.2014 with validity up to 31.12.2014. PP informed that the consent renewal application has already been submitted to the APPCB. However, the renewal of consent from APPCB is yet to be obtained by the PP beyond 31.12.2014.</i>
ii.	No expansion or modernization of the plant should be carried out without prior approval of the MoEF	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition. Now the PP is proposed to increase their petroleum refinery capacity from 8.33 MMTPA to 15 MMTPA at Vishakhapatnam, Andhra Pradesh.
iii.	The total SO ₂ emissions from Visakh Refinery including DHDS project should not exceed the norm of 11.5 TPD.	Being complied with. As per EC dated 10.04.1997, the total SO₂ emission from Visakh refinery including DHDS project should not exceed the norm of 11.5 TPD. The detail of the average SO₂ emissions from refinery in 2013-14 and 2014-15 as provided by the PP is enclosed as

S. No.	Conditions	Compliance status												
		Annexure – I. As per the data, it is observed that the SO₂ emission limit varies from 7.46 TPD to 11.01 TPD and is within the limit of 11.5 TPD. The measures adopted by the PP to contain the SO₂ emissions are as below:- • A sulphur recovery unit of 300 TPD capacity along with the tail gas treatment unit designed to achieve >99.5% sulphur recovery. • Installation of additional FG ATU to sweeten the fuel gas for firing in the process furnaces and boilers. • Usage of treated Naptha in CPP. • Installation of FGD unit.												
iv.	The existing ETP should be adequately augmented (if required) to accommodate the additional effluent from the DHDS project before commissioning project so as to ensure the treated effluent meet the MINAS.	Complied with. There are three Effluent Treatment Plants as mentioned below to treat the effluents in the refinery complex:- <table border="1"> <thead> <tr> <th>Plant Name</th><th>Design Capacity</th><th>Final disposal</th></tr> </thead> <tbody> <tr> <td>ETP -I</td><td>135 m³/hr</td><td>To sea through open channel</td></tr> <tr> <td>ETP-II</td><td>325 m³/hr</td><td>To ETP - IV</td></tr> <tr> <td>ETP-IV</td><td>180 m³/hr</td><td>To sea through open channel</td></tr> </tbody> </table> PP informed that the treated effluents are meeting the MoEF standards dated 18.3.2008 and the analysis results as provided by the PP are enclosed as Annexure –IV.	Plant Name	Design Capacity	Final disposal	ETP -I	135 m ³ /hr	To sea through open channel	ETP-II	325 m ³ /hr	To ETP - IV	ETP-IV	180 m ³ /hr	To sea through open channel
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ETP -I	135 m ³ /hr	To sea through open channel												
ETP-II	325 m ³ /hr	To ETP - IV												
ETP-IV	180 m ³ /hr	To sea through open channel												
v.	Time bound action plan for disposal of Oily sludge/recovery of oil and design details of the solid waste disposal pit should be furnished to the Ministry within a period of 3 months.	Reportedly complied with. PP informed that the time bound action plan for disposal of Oily sludge/recovery of oil and design was reportedly submitted to the Ministry.												
vi.	SRU having an efficiency of more than 99% should be installed.	Being complied with. SRU (with two trains of 65 MT/day capacity each) was installed and is in operation. The efficiency is reportedly more than 99%.												
vii.	The ground water quality should be regularly monitored and report submitted to the Ministry every six months.	Partially complied with. PP informed that the ground water samples are being collected at 29												

S. No.	Conditions	Compliance status
		locations on monthly basis and analyzed for various parameters by an third party (accredited with MoEF&CC/NABL). <i>However, the ground water monitored data is not being submitted to the MoEF&CC's Regional Office along with the six monthly compliance reports.</i>
viii.	Time bound action plan to implement the conditions stipulated by the Ministry while according environmental clearance for the refinery complex should be submitted to the Ministry within 3 months along with details of funds allotted to implementing the above.	Reportedly complied with. PP informed that the time bound action plan to implement the conditions stipulated by the Ministry while according environmental clearance for the refinery complex has been reportedly submitted to the Ministry.
3.	The Ministry reserves the right to revoke the clearance, if implementation of any of the conditions stipulated by the Ministry or any other competent authority are not satisfactory.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition.
4.	The stipulated conditions will be monitored by the Regional Office of this Ministry located at Bangalore/CPCB/SPCB. A six compliance status report should be submitted to them regularly. The Central/State Pollution Control Board will monitor the compliance of EMP measures in meeting the prescribed environmental quality norms.	Agreed upon. Not complied with. <i>Six monthly compliance reports in hard and soft copies along with the monitored data are not being regularly submitted to the MoEF&CC, RO as stipulated in the EC condition.</i>
5.	The Ministry reserves the right to stipulate additional conditions if found necessary. These will be implemented by the project authorities in a time bound manner.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition.
6.	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991 along with their amendments and rules.	Partially complied with. Renewal of consent order for the refinery excluding DHT project was obtained from the Andhra Pradesh Pollution Control Board (APPCB) on 13.11.2014 with validity up to 31.12.2015. <i>Consent order for the Diesel Hydro Treatment Unit (DHT) was obtained from APPCB on 20.10.2014 with validity up to 31.12.2014. PP informed</i>

S. No.	Conditions	Compliance status
		<i>that the consent renewal application has already been submitted to the APPCB. However, the renewal of consent from APPCB is yet to be obtained by the PP beyond 31.12.2014.</i>
As per the EC letter no. J-11013/55/2003-IA.II(I) dated 03.02.2004		
a)	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.	Compliance status against the EC dated 10.04.1997 referred above may please be seen.
b)	Specific limits stipulated for SO ₂ (11.5 TPD), HC (2.5 TPD), SPM (1.1 TPD), and NO _x (6.5 TPD) at para 2 should be strictly complied.	Being complied with. The load based emission levels of SO₂, HC, SPM, and NO_x as provided by the PP are enclosed as Annexure –VII. As per the data provided, the emission levels are as below and its within the limits prescribed in the condition:- SO₂ – 9.3 TPD HC – 1.6 TPD SPM - 0.8 TPD NO_x - 3.9 TPD
c)	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.	Partially Complied with. The water balance provided by the PP is enclosed as Annexure –V. The total fresh water consumption is 15120 KLD (630 m³/hr). Out of the 15120 KLD, the discharged quantity is 10,430 KLD and the losses are reported to be 4690 KLD. PP informed that the water recycling is limited to the usage of stripped water from sour water strippers as desalter wash water in CDUs. From the above, it is observed that fresh water consumption by the PP has exceeded 523 m³/hr and the additional water requirement is not being met through recycling/reuse of the treated effluent as stipulated in the EC condition.
d)	The industry shall implement all the recommendations made in the Charter on Corporate Responsibility for Environment Protection (CREP)	Reportedly complied with. The status of compliance to the recommendations made in the CREP as

S. No.	Conditions	Compliance status
	regarding air pollution, waste water and solid waste management and oil spill response facilities at Coastal refineries	provided by the PP is enclosed as Annexure –VIII.
e)	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.	Reportedly complied with. The status of compliance to the recommendations made in the Risk Analysis Report as provided by the PP is enclosed as Annexure –IX. The details of the fatal accidents and major fire incidents occurred in the refinery during 2013-14 as provided by the PP are enclosed as Annexure –X. <i>In view of the aforesaid accidents, any further expansion of the refinery may be viewed by the Ministry from its point of its location and proximity to the habitation.</i>
f)	No further modernization of the project should be carried out without prior permission of the Ministry.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition. Now the PP is proposed to increase their petroleum refinery capacity from 8.33 MMTPA to 15 MMTPA at Vishakhapatnam, Andhra Pradesh.
g)	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.	Not complied with. <i>Six monthly compliance reports inter-alia including implementation of the project vis-à-vis environmental management /risk mitigation measures are not being regularly submitted to the MoEF&CC, RO as stipulated in the EC condition.</i>
As per the EC letter no. J-11011/66/2007-IA.II(I) dated 07.03.2008		
A. Specific Conditions:-		
i.	All the safety and security systems provided in Risk Analysis Report for the Project shall be implemented. The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the Environmental Management Plan and Risk Analysis Report submitted to the Ministry vide letter no. CEE/07/MLVR/056 dated 19 th October 2007.	The status of compliance to the recommendations made in the Risk Analysis Report as provided by the PP is enclosed as Annexure –IX. The details of the fatal accidents and major fire incidents occurred in the refinery during 2013-14 as provided by the PP are enclosed as Annexure –X. <i>In view of the aforesaid accidents, any further expansion of the refinery may</i>

S. No.	Conditions	Compliance status
		<i>be viewed by the Ministry from its point of its location and proximity to the habitation.</i>
ii.	There shall be no solid waste or release of pollutants.	Being complied with. There is no solid waste generation from the LPG / Propylene Mounded Storage facility.
iii.	Regular Ambient Air Quality Monitoring shall be carried out for VOC, HC and LPG, besides other parameters in the Work Zone Area and ambient air in and around the Plant. The location and results of existing monitoring stations shall be reviewed in consultation with the concerned State Pollution Control Board based on the occurrence of maximum ground level concentration and downwind direction of wind. Additional Stations shall be set up, if required. It will be ensured that at least one monitoring station is set up in up-wind & in down-wind direction along with those in other directions. Data shall be submitted to MoEF, CPCB and TNPCB.	Partially complied with. PP informed that based on predominant wind direction and neighboring population, three CAAMS have been installed to monitor ambient air quality parameters w.r.t SO ₂ , NO _x , PM ₁₀ , PM _{2.5} , CO, Benzene, Ammonia and Ozone. The online real time monitoring data is being transmitted to APPCB and CPCB server regularly. The CAAMS data as provided by the PP for the month of January 2015 is enclosed as Annexure –III . Further, the AAQ at the CAAMS locations is also being monitored manually by a third party (NABL/MoEF recognized laboratory) on monthly basis. <i>The monitored data pertaining to HC, H₂S and mercaptans through CAAMS have not been provided during the visit. Further, the monitored AAQ data is not being submitted to the MoEF&CC's Regional Office along with the six monthly compliance reports.</i>
iv.	Fugitive emissions in the work zone environment of storage area shall be regularly monitored. The emissions shall conform to the limits imposed by the State Pollution control Boards/Central Pollution Control Board.	Being complied with. Hydro carbon detectors have been provided in the plant and storage tank areas. Leak Detection And Repair (LDAR) program is in place for the existing refinery. PP informed that the crude/light hydrocarbon products are stored in floating roof tanks with secondary seals to minimize vapour space and hence hydrocarbon emission.
v.	There shall be no increase in the pollution load for any parameter from the expansion project.	Being complied with. PP informed that there is no increase in pollution due to Mounded storage Project.
vi.	There shall be no additional water requirement for the process except	Reportedly complied with.

S. No.	Conditions	Compliance status
	service water of 5,000 KL for commissioning and testing. Provisions for appropriate storage and treatment for firefighting water shall be provided.	PP informed that there is no additional water consumption due to Mounded storage Project. Further, it was informed that, adequate firefighting facilities are in place.
vii.	Noise level will be within the approved limits of 80 dB (A). The practice of acoustic plant design shall be adopted to limit noise exposure for personnel to an 8 hr time weighted average of 90 db (A).	Not complied with. <i>Noise levels are being monitored by the Fire and Safety Department on monthly basis at various locations in the refinery complex. As per the report provided, the noise levels exceeds the standards (85 dBA) above the Threshold Limit Value (TLV) in the CPP, CDU, H₂ plant, DHDS plant, DHDS-SRU, FCCU I & II, NHT-CCR and FCC-NHT of the refinery complex.</i> <i>Online noise level monitoring facility is provided in the CAAMS stations were found to be not in the working condition during the site visit.</i> Noise survey report as provided by the PP is enclosed as Annexure XI.
viii.	Green belt shall be provided to mitigate the effects of fugitive emissions all around the plant in a minimum of 33% of the plant area in consultation with DFO as per CPCB guidelines.	Not complied with. As per the ECs dated 07.03.2008 and 2.9.2009 green belt should be developed all around the plant in a minimum of 33% plant area in consultation with DFO as per CPCB guidelines. Total area of the refinery complex is 723 acres (Refinery area: 511 acres and crude tank area: 212 acres). Existing green belt area is 40 acres and it is not developed all around the plant area. <i>PP has not covered 33% of the plant area under green belt development as stipulated in the EC condition and there is no land available in the refinery complex for the development of green belt.</i> During the visit, PP informed that the development of green belt in process plant area is not recommended due to safety issues.
ix.	The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion	Complied with. Rain water harvesting facility provided by

S. No.	Conditions	Compliance status
	project and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.	the PP for the Mounded storage facility.
x.	The project authorities shall strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989, as amended in 2000 and the Public Liability Insurance Act for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commissioning of the expansion project. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.	Complied with. PP informed that the approval from Chief Controller of Explosives obtained for the Mounded storage facility. Updated Emergency Response and Disaster Management Plan (ERDMP) is in place to meet any emergency situation. Insurance policy under PLI, Act 1991 has been taken by the PP.
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 Government.	Partially complied with. Renewal of consent order for the refinery excluding DHT project was obtained from the Andhra Pradesh Pollution Control Board (APPCB) on 13.11.2014 with validity up to 31.12.2015. <i>Consent order for the Diesel Hydro Treatment Unit (DHT) was obtained from APPCB on 20.10.2014 with validity up to 31.12.2014. PP informed that the consent renewal application has already been submitted to the APPCB. However, the renewal of consent from APPCB is yet to be obtained by the PP beyond 31.12.2014.</i>
ii.	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition. Now the PP is proposed to increase their petroleum refinery capacity from 8.33 MMTPA to 15 MMTPA at Vishakhapatnam, Andhra Pradesh.
iii.	The project authorities shall strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 and as amended from time to time. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. shall be	Being complied with. PP informed that the necessary approvals from Chief Inspector of Factories and Chief Controller of Explosives etc are in place and complying with the MSIHC Rules, 1989 and Motor Vehicle rules.

S. No.	Conditions	Compliance status
	obtained. All Transportation of Hazardous Chemicals shall be as per the MVA, 1989.	
iv.	On-site and Off-site emergency preparedness plans shall be prepared. Approval from the nodal agency shall be obtained before commissioning the project.	Complied with. Updated Emergency Response and Disaster Management Plan (ERDMP) is in place.
v.	The overall noise levels in and around the plant area shall be limited within the prescribed standards 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).	Not complied with. <i>Noise levels are being monitored by the Fire and Safety Department on monthly basis at various locations in the refinery complex. As per the report provided, the noise levels exceeds the standards (85 dBA) above the Threshold Limit Value (TLV) in the CPP, CDU, H₂ plant, DHDS plant, DHDS-SRU, FCCU I & II, NHT-CCR and FCC-NHT of the refinery complex.</i> <i>Online noise level monitoring facility is provided in the CAAMS stations were found to be not in the working condition during the site visit.</i> Noise survey report as provided by the PP is enclosed as Annexure XI.
vi.	Proper House Keeping and adequate occupational health programs shall be taken up. Regular Occupational Health Surveillance Programme for the relevant diseases shall be carried out and the records shall be maintained properly for at least 10 years. Sufficient preventive measures shall be adopted to avoid direct exposure to emission and other Hydrocarbons etc.	Partially complied with. <i>Housekeeping in the Refinery complex as stipulated in the EC condition is very poor and requires lot of improvement.</i> PP informed that regular health checkups of all the employees in the refinery are being carried out and the records are maintained. Leak Detection And Repair (LDAR) program is a continuous activity which is taken up for identification of the sources of fugitive emissions and control of the leaks through inspection, repair and maintenance schedules.
vii.	Training shall be imported to all employees on safety and health aspects of chemicals handling, Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis.	Being complied with. Periodical training on Safety & Health measures is provided to employees of the refinery. Regular health checkups of all the employees in the refinery are carried out and the records thereof are maintained.
viii.	Usage of PPEs by all employees /	Being complied with.

S. No.	Conditions	Compliance status
	workers shall be ensured.	PPE has been provided by the PP to all the employees / workers in the refinery complex.
ix.	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. Under Technical Services Department, Process Safety & Environment (PS&E) is a separate division which looks after the environmental and process safety functions. This division in turn reports to Head - Technical. PP informed that following is the composition of the EMC:- • General Manager (Technical) • Chief Manager (PS&E) • Sr. Manager • Engineer – 3 Nos
x.	The project authorities will provide adequate funds both recurring and non-recurring 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.	Complied with. Fund provision as shown in S.No. 9 above.
xi.	The project proponent shall have a scheme for social upliftment in the surrounding villages with reference to contribution in road construction, education of health centers, sanitation facilities, drinking water supply, community awareness and employment to local people whenever and wherever possible both for technical and non-technical jobs. CSR activities will be undertaken by involving local villages and administration.	Being complied with. PP informed that various developmental activities are taken up in schools & hospitals in the region under Corporate Social Responsibility (CSR) program. The details of the CSR activities undertaken by the PP during 2012-13 and 2013-14 are enclosed as Annexure –VI. As per the data provided, an amount of Rs.1.22 crores and Rs.1.3 crores spent towards the CSR during 2012-13 and 2013-14 respectively.
xii.	The implementation of the project vis-à-vis environmental action plans shall be monitored by concerned Regional Office of the Ministry/States Pollution Control Boards/Central Pollution Control Board. A six monthly compliance status report shall be submitted to monitoring agencies and displayed on the Website of the Company.	Not complied with. <i>Six monthly compliance reports inter-alia including implementation of the project vis-à-vis environmental management /risk mitigation measures are not being regularly submitted to the MoEF&CC, RO as stipulated in the EC condition.</i>
xiii	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance	<i>PP informed that the advertisement have been made in the news papers. However, copies of the news paper</i>

S. No.	Conditions	Compliance status
	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.	advertisement have not been provided during the site visit.
xiv	The date of Financial Closure and final approval of the project by the concerned authorities and the date of commencing the land development work as well as the commissioning of the project will be informed to the Ministry and its Regional Office.	Details not made available by the PP during the site visit.
5	The Ministry may revoke or suspend the clearance if implementation of any of the above conditions is not satisfactory.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition.
6	The Ministry reserves the right to stipulate additional conditions if found necessary. The company will implement these conditions in a time bound manner.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition.
7	The above conditions will be enforced inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act 1986, Public Liability Insurance Act 1991, Hazardous Waste (Management & Handling) Rules, 1989/2003 and Manufacture, Storage and Import of Hazardous Chemicals 1989/2000 along with their amendments and rules.	Partially complied with. Renewal of consent order for the refinery excluding DHT project was obtained from the Andhra Pradesh Pollution Control Board (APPCB) on 13.11.2014 with validity up to 31.12.2015. Consent order for the Diesel Hydro Treatment Unit (DHT) was obtained from APPCB on 20.10.2014 with validity up to 31.12.2014. PP informed that the consent renewal application has already been submitted to the APPCB. However, the renewal of consent from APPCB is yet to be obtained by the PP beyond 31.12.2014.
As per the EC letter no. J-11011/408/2009-IA.II(I) dated 02.09.2009		
A. Specific Conditions:-		

S. No.	Conditions	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.	Compliance status mentioned above against the EC dated 03.02.2004 may please be seen.
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.	Being complied with. The compliance status submitted by the PP to the MoEF&CC standards dated 18.03.2008 is enclosed as Annexure – IV.
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.	Being complied with. The total SO ₂ emission from Visakh refinery including DHDS project should not exceed the norm of 11.5 TPD. The detail of the average SO ₂ emissions from refinery in 2013-14 and 2014-15 as provided by the PP is enclosed as Annexure – I. As per the data, it is observed that the SO ₂ emission limit varies from 7.46 TPD to 11.01 TPD and is within the limit of 11.5 TPD. The measures adopted by the PP to contain the SO ₂ emissions are as below:- • A sulphur recovery unit of 300 TPD capacity along with the tail gas treatment unit designed to achieve >99.5% sulphur recovery. • Installation of additional FG ATU to sweeten the fuel gas for firing in the process furnaces and boilers. • Usage of treated Naptha in CPP. • Installation of FGD unit.
iv.	The company shall undertake measures for control of dust emission during construction and traffic congestion.	Partially complied with. PP informed that necessary measures for controlling the traffic congestion are being taken. No measures have been taken by the PP like spraying of water on the ground to control the dust emission.
v.	Efforts shall be made to use gas as a fuel in the furnaces to maximum extent possible.	Reportedly complied with. Reportedly, fuel gas distribution system has been designed to achieve this objective and also strict operational instructions are in place to use maximum

S. No.	Conditions	Compliance status
		fuel gas.
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.	Being complied with. PP informed that the continuous monitoring system to monitor gaseous emissions through 31 stacks has been commissioned and the online real time monitoring data is being transmitted to APPCB server regularly. The stack emission data (27 stacks only) as provided by the PP for the month of January 2015 is enclosed as Annexure – II. As per the data, it is observed that the emission limits are within the norms.
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.	Partially complied with. PP informed that based on predominant wind direction and neighboring population, three CAAMS have been installed to monitor ambient air quality parameters w.r.t SO₂, NO_x, PM₁₀, PM_{2.5}, CO, Benzene, Ammonia and Ozone. The online real time monitoring data is being transmitted to APPCB server regularly. The CAAMS data as provided by the PP for the month of January 2015 is enclosed as Annexure –III. Further, the AAQ at the CAAMS locations is also being monitored manually by a third party (NABL/MoEF recognized laboratory) on monthly basis as per the NAAQS. <i>The monitored data pertaining to HC, H₂S and mercaptans through CAAMS have not been provided during the visit and further PP has not provided the mobile van with adequate facilities to monitor the AAQ outside the refinery premises as stipulated in the EC condition dated 30.05.1995.</i>
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	Partially complied with. PP informed that DHT project EC conditions compliance status is uploaded in HPCL website. Website address is http://www.hindustanpetroleum.com/majorongoingprojects However, it is observed in the compliance report that AAQ/ground water/fugitive emission data have not been submitted. Further, the six monthly compliance reports (hard and

S. No.	Conditions	Compliance status												
	of the Company in the public domain.	soft copies) in respect of ECs dated 30.05.1995, 10.04.1997, 3.02.2004 and 07.03.2008 have not been submitted to the MoEF&CC, RO regularly and not uploaded on their website. Further, the facility provided by the PP for the display of Ambient levels as well as stack emissions near the main gate of refinery found to be not in the working condition during the site visit. During the visit, PP informed that they have stopped submission of six monthly compliance reports in respect of ECs dated 30.5.1995, 10.4.1997, 3.2.2004 and 7.3.2008 after the grant of CTO by the APPCB.												
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.	Partially complied with. PP informed that LDAR survey is an ongoing process. Three LDAR surveys by MoEF recognized agency were undertaken in Visakh Refinery. About 17000, 22000 and 19500 points have been covered in the first, second and third surveys respectively. The existing hydrocarbon flare system is designed for smokeless flaring. PP is not submitting the fugitive emission report along with the six monthly compliance report												
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.	Being complied with. Hydro carbon detectors have been provided in the plant and storage tank areas. Leak Detection And Repair (LDAR) program is in place for the existing refinery. PP informed that the crude/light hydrocarbon products are stored in floating roof tanks with secondary seals to minimize vapour space and hence hydrocarbon emission. DHT SRU design efficiency is reportedly > 99.5%. The data on VOC emissions as provided by the PP from August 2014 to December 2014 is as below:- <table><tr><th>Unit</th><th>No. of points</th><th colspan="2">VOC emissions</th></tr><tr><td></td><td></td><th>Kg/hr</th><th>Kg/day</th></tr><tr><td></td><td></td><td></td><td></td></tr></table>	Unit	No. of points	VOC emissions				Kg/hr	Kg/day				
Unit	No. of points	VOC emissions												
		Kg/hr	Kg/day											

S. No.	Conditions	Compliance status															
		CDU- I	555	0.023	0.55												
		CDU -II	678	0.026	0.62												
		CDU-III	1126	0.03	0.72												
		FCCU-I	182	0.057	1.37												
		FCCU-II	227	0.184	4.42												
		DHDS	353	0.026	0.62												
		DHDS-SRU	567	0.013	0.31												
		NHT-CCR	333	0.002	0.05												
		FCCNHT	198	0.027	0.65												
		Merox	455	0.004	0.10												
		LPG	309	0.020	0.48												
		CPP	342	0.005	0.12												
		ETP	550	0.035	0.84												
		Tank Farm	570	30.000	720.00												
		Total	570	30.000	720.00												
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.	Partially Complied with. There are three Effluent Treatment Plants as mentioned below to treat the effluents in the refinery complex:- <table><tr><th>Plant Name</th><th>Design Capacity</th><th>Final disposal</th></tr><tr><td>ETP -I</td><td>135 m³/hr</td><td>To sea through open channel</td></tr><tr><td>ETP-II</td><td>325 m³/hr</td><td>To ETP - IV</td></tr><tr><td>ETP-IV</td><td>180 m³/hr</td><td>To sea through open channel</td></tr></table> PP informed that the effluents are meeting the MoEF standards dated 18.3.2008 and the analysis results as provided by the PP are enclosed as Annexure –IV. The total fresh water consumption is 15120 KLD. Out of the 15120 KLD, the discharged quantity is 10,430 KLD and the losses are reported to be 4690 KLD. The sea water intake to the refinery complex is 293980 KLD and the sea cooling water discharge is reported to be 282700 KLD. The water balance provided by the PP is enclosed as Annexure –V. PP informed that the water recycling is limited to the usage of stripped water from sour water strippers as desalter wash water in CDUs.				Plant Name	Design Capacity	Final disposal	ETP -I	135 m ³ /hr	To sea through open channel	ETP-II	325 m ³ /hr	To ETP - IV	ETP-IV	180 m ³ /hr	To sea through open channel
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S. No.	Conditions	Compliance status																
		From the above, it is observed that <i>PP is not recycling the treated effluent to the maximum extent possible to achieve zero discharge as stipulated in the EC condition.</i>																
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.	Being complied with. PP informed that application for obtaining authorization for collection/reception/treatment/transport/storage/ disposal of hazardous waste submitted to APPCB on March 04, 2013 and subsequently resubmitted on April 21, 2014 as suggested by APPCB. The details of the hazardous waste generated in their refinery along with the description for treatment are furnished under:- <table><tr><th>Haz.waste</th><th>Description of Treatment</th></tr><tr><td>ETP sludge</td><td>Bio-remediation using oil zipper bacteria of M/s TERI, New Delhi</td></tr><tr><td>Oily sludge</td><td>Sludge processing for oil recovery & bio-remediation of the residual sludge</td></tr><tr><td>Spent activated carbon</td><td>Disposal to authorized cement industries or TSDF.</td></tr><tr><td>Slop oil</td><td>Reprocessed in the refinery along with crude oil.</td></tr><tr><td>Spent clay</td><td>Disposal to TSDF.</td></tr><tr><td>Spent catalyst</td><td>Disposal to authorized recyclers or TSDF.</td></tr><tr><td>Containers and container liners of hazardous waste and chemicals</td><td>Sale to agencies after detoxification.</td></tr></table> PP informed that the Hazardous Wastes are being be handled, stored and disposed off in accordance with the Hazardous Wastes (Management and Handling and Transboundary Movement) Rules 2008.	Haz.waste	Description of Treatment	ETP sludge	Bio-remediation using oil zipper bacteria of M/s TERI, New Delhi	Oily sludge	Sludge processing for oil recovery & bio-remediation of the residual sludge	Spent activated carbon	Disposal to authorized cement industries or TSDF.	Slop oil	Reprocessed in the refinery along with crude oil.	Spent clay	Disposal to TSDF.	Spent catalyst	Disposal to authorized recyclers or TSDF.	Containers and container liners of hazardous waste and chemicals	Sale to agencies after detoxification.
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Spent catalyst	Disposal to authorized recyclers or TSDF.																	
Containers and container liners of hazardous waste and chemicals	Sale to agencies after detoxification.																	
xiii.	The company should strictly follow all the recommendation mentioned in the charter on Corporate Responsibility for	Reportedly complied with. The status of compliance to the																

S. No.	Conditions	Compliance status
	Environmental Protection (CREP) for the oil refineries.	recommendations made in the CREP as provided by the PP is enclosed as Annexure –VIII.
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.	Being complied with. The measures adopted by the PP to prevent fire hazards are as below:- • Hydrocarbon detectors are provided. • Elaborative fire water network & other equipment exists inside refinery to handle fire hazards. • Overhead flare stack with KO drums is provided. The following systems are in place : • Oil Spill response plan (inside refinery) along with necessary equipment is in place. • Operational control procedures / Departmental standing Instructions (DSIs) / Plant Daily Instructions (PDIs)
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.	Being complied with. PP informed that Oil Industry Safety Directorate guide lines (OISD-STD-118) 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.	Being complied with. PP informed that the Emergency Response and Disaster Management Plan (ERDMP) of Visakh Refinery was updated and certified by PNGRB accredited third party in August 2013. The certified ERDMP has been implemented and covers DHT facilities also. Offsite DMP is provided by District authorities.
xvii.	Occupational health surveillance of worker should be done on a regular basis and records maintained as per the Factory Act.	Being complied with. During the period, 32 workers underwent regular health check-ups. No major abnormalities observed. Records are available at Occupational health center located inside Refinery premises. Data is also made available online through employee portal.
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.	Not complied with. As per the ECs dated 07.03.2008 and 2.9.2009, green belt should be developed all around the plant in a minimum of 33%

S. No.	Conditions	Compliance status
		plant area in consultation with DFO as per CPCB guidelines. Total area of the refinery complex is 723 acres (Refinery area: 511 acres and crude tank area: 212 acres). Existing green belt area is 40 acres and it is not developed all around the plant area. <i>PP has not covered 33% of the plant area under green belt development as stipulated in the EC condition and there is no land available in the refinery complex for the development of green belt.</i> During the visit, PP informed that the development of green belt in process plant area is not recommended due to safety issues.
xix.	The Company should undertake measures for rain water harvesting to recharge the ground water and minimize fresh water consumption.	Complied with. Implementation of rain water harvesting facility for the Administrative buildings (Blocks-A and C) and for control room & sub stations of DHT project have been completed by the PP.
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. PP informed that this condition is not applicable, since the construction labor does not reside in the project site. However, necessary facilities like 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 Government and any other statutory body.	Partially complied with. Renewal of consent order for the refinery excluding DHT project was obtained from the Andhra Pradesh Pollution Control Board (APPCB) on 13.11.2014 with validity up to 31.12.2015. <i>Consent order for the Diesel Hydro Treatment Unit (DHT) was obtained from APPCB on 20.10.2014 with validity up to 31.12.2014. PP informed that the consent renewal application has already been submitted to the APPCB. However, the renewal of consent from APPCB is yet to be</i>

S. No.	Conditions	Compliance status												
		obtained by the PP beyond 31.12.2014.												
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.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition. Now the PP is proposed to increase their petroleum refinery capacity from 8.33 MMTPA to 15 MMTPA at Vishakhapatnam, Andhra Pradesh.												
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.	Being complied with. PP informed that the continuous monitoring system to monitor gaseous emissions through 31 stacks has been commissioned and the online real time monitoring data is being transmitted to APPCB server regularly. The stack emission data (27 stacks only) as provided by the PP for the month of January 2015 is enclosed as Annexure – II. As per the data, it is observed that the emission limits are within the norms. Further, PP informed that 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 meters height are provided.												
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.	Partially Complied with. There are three Effluent Treatment Plants as mentioned below to treat the effluents in the refinery complex:- <table border="1"> <thead> <tr> <th>Plant Name</th><th>Design Capacity</th><th>Final disposal</th></tr> </thead> <tbody> <tr> <td>ETP -I</td><td>135 m³/hr</td><td>To sea through open channel</td></tr> <tr> <td>ETP-II</td><td>325 m³/hr</td><td>To ETP - IV</td></tr> <tr> <td>ETP-IV</td><td>180 m³/hr</td><td>To sea through open channel</td></tr> </tbody> </table> PP informed that the effluents are meeting the MoEF standards dated 18.3.2008 and the analysis results as provided by the PP are enclosed as Annexure –IV. The total fresh water consumption is 15120 KLD. Out of the 15120 KLD, the discharged quantity is	Plant Name	Design Capacity	Final disposal	ETP -I	135 m ³ /hr	To sea through open channel	ETP-II	325 m ³ /hr	To ETP - IV	ETP-IV	180 m ³ /hr	To sea through open channel
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S. No.	Conditions	Compliance status
		10,430 KLD and the losses are reported to be 4690 KLD. The sea water intake to the refinery complex is 293980 KLD and the sea cooling water discharge is reported to be 282700 KLD. The water balance provided by the PP is enclosed as Annexure –V. PP informed that the water recycling is limited to the usage of stripped water from sour water strippers as desalter wash water in CDUs. From the above, it is observed that PP is not recycling the treated effluent to the maximum extent possible.
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).	Not complied with. Noise levels are being monitored by the Fire and Safety Department on monthly basis at various locations in the refinery complex. As per the report provided, the noise levels exceeds the standards (85 dBA) above the Threshold Limit Value (TLV) in the CPP, CDU, H₂ plant, DHDS plant, DHDS-SRU, FCCU I & II, NHT-CCR and FCC-NHT of the refinery complex. Online noise level monitoring facility is provided in the CAAMS stations were found to be not in the working condition during the site visit. Survey report of noise levels as provided by the PP is enclosed as Annexure – XI.
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.	Being complied with. PP informed that the necessary approvals from Chief Inspector of Factories and Chief Controller of Explosives etc are in place and complying with the MSIHC Rules, 1989. The Emergency Response and Disaster Management Plan (ERDMP) of Visakh Refinery was updated and certified by PNGRB accredited third party in August 2013. The certified ERDMP has been implemented and covers DHT facilities also. Offsite DMP is provided by District

S. No.	Conditions	Compliance status
		authorities.
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.	Complied with. Fund provision as shown in S.No. 9 has been made.
viii.	The company shall develop rain water harvesting structures to harvest the runoff water for recharge of ground water.	Complied with. Implementation of rain water harvesting facility for the Administrative buildings (Blocks-A and C) and for control room & sub stations of DHT project have been completed by the PP.
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.	Partially complied with. PP informed that DHT project EC conditions compliance status is uploaded in HPCL website. Website address is http://www.hindustanpetroleum.com/majorongoingprojects <i>However, it is observed in the compliance report that AAQ/ground water/fugitive emission data have not been submitted and also not uploaded on their website. Further, the six monthly compliance reports (hard and soft copies) in respect of ECs dated 30.05.1995, 10.04.1997, 3.02.2004 and 07.03.2008 have not been submitted to the MoEF&CC, RO regularly and not uploaded on their website.</i>
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.	 During the visit, PP informed that they have stopped submission of six monthly compliance reports in respect of ECs dated 30.5.1995, 10.4.1997, 3.2.2004 and 7.3.2008 after the grant of CTO by the APPCB.
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	Reportedly complied with. PP informed that the copy of clearance letter has been reportedly sent to the concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the Local NGO. Clearance letter of the DHT project is uploaded on HPCL website. Website

S. No.	Conditions	Compliance status
	proponent.	address is http://www.hindustanpetroleum.com/majorongoingprojects
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. PP informed that the advertisement was published in the newspapers; The Hindu, Deccan Chronicle and Sakshi on 18.09.2009 and copies were submitted to the RO, MoEF&CC.
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 compliance of EC conditions and shall also be sent to the respective regional Office of the MoEF by e-mail.	Partially complied with. PP informed that they are submitting the Annual Environmental statement to Member Secretary, APPCB, Hyderabad. Environmental statement is also being displayed in HPCL website. http://www.hindustanpetroleum.com/majorongoingprojects <i>PP is not submitting the Environmental Statement along with the six monthly compliance report as stipulated in the EC condition.</i>
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. Under Technical Services Department, Process Safety & Environment (PS&E) is a separate division which looks after the environmental and process safety functions. This division in turn reports to Head - Technical. PP informed that following is the composition of the EMC:- • General Manager (Technical) • Chief Manager (PS&E) • Sr. Manager • Engineer – 3 Nos
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	<i>Details not made available by the PP during the site visit.</i>

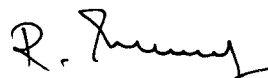
S. No.	Conditions	Compliance status
	project.	
6.	The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition.
7.	The Ministry reserves the right to stipulate additional conditions if found necessary. The company will implement these conditions in a time bound manner.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition.
8.	Any appeal against this environmental clearance shall lie with the National Environment Appellate Authority, if preferred, within a period of 30 days as prescribed under section 11 of the National Environment Appellate Act, 1997.	Agreed upon. It was submitted that the condition is "Noted" and assured to abide by the condition.
9.	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, the Air (Prevention & Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986, the Public Liability Insurance Act, 1991, Hazardous Waste (Management, Handling & Transboundary Movement) Rules, 1989/2003/2008 and Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989/2000 along with their amendments and rules.	Partially complied with. Renewal of consent order for the refinery excluding DHT project was obtained from the Andhra Pradesh Pollution Control Board (APPCB) on 13.11.2014 with validity up to 31.12.2015. <i>Consent order for the Diesel Hydro Treatment Unit (DHT) was obtained from APPCB on 20.10.2014 with validity up to 31.12.2014. PP informed that the consent renewal application has already been submitted to the APPCB. However, the renewal of consent from APPCB is yet to be obtained by the PP beyond 31.12.2014.</i> Insurance policy under PLI, Act 1991 has been taken by the PP.

Comments and End note:-

- 1. Chronology of events:** Project proponent has requested the Regional Office of the MoEF&CC for the certified compliance report vide letter dated 23.1.2015. The site inspection was done from 3.2.2015 to 4.2.2015.
- 2. Status of implementation of stipulated conditions:-** It is inferred from above that following are the non-compliances observed against the stipulated conditions of the Environmental Clearances:-

- i. Consent order for the Diesel Hydro Treatment Unit (DHT) was obtained from APPCB on 20.10.2014 with validity up to 31.12.2014. PP informed that the consent renewal application has already been submitted to the APPCB. However, the renewal of consent from APPCB is yet to be obtained by the PP beyond 31.12.2014.
- ii. PP has not provided the mobile van with adequate facilities to monitor the AAQ outside the refinery premises as stipulated in the EC condition.
- iii. PP is not recycling the treated effluent to the maximum extent possible to reduce the fresh water consumption.
- iv. Fresh water consumption by the PP has exceeded 523 m³/hr as stipulated in the EC condition and the additional water requirement is not being met through recycling/reuse of the treated effluent.
- v. Effluent discharge through a single outlet was recommended by NEERI. However, PP has not complied with the said recommendation and informed that 2 outlets are provided as the refinery is in a low lying area with respect to MSL. These 2 outlets are joined together outside the boundary of the refinery.
- vi. Noise levels exceeds the standards (85 dBA) in the CPP, CDU, H₂ plant, DHDS plant, DHDS-SRU, FCCU I & II, NHT-CCR and FCC-NHT of the refinery complex.
- vii. Online noise level monitoring facility provided in the CAAMS stations were found to be not in the working condition during the site visit.
- viii. PP has not provided the incinerator for burning the residues as stipulated in the EC condition.
- ix. PP has not covered 33% of the plant area under green belt development as stipulated in the EC condition and there is no land available in the refinery complex for the development of green belt.
- x. Further expansion of the refinery may be viewed by the Ministry from its point of its location and proximity to the habitation as PP has reported serious fatal accidents have occurred in the refinery complex in the past.
- xi. Paper advertisement given if any, regarding grant of EC dated 7.3.2008 shall be submitted to the Regional Office of MoEF&CC.
- xii. Date of Financial Closure and final approval of the project in respect of the ECs dated 7.3.2008 and 2.9.2009 shall be submitted to the Regional Office of MoEF&CC.
- xiii. Six monthly compliance reports (hard and soft copies) inter-alia including implementation of the project vis-à-vis environmental management /risk mitigation measures along with the data (stack emission data/AAQ/ground water/ noise/ fugitive emissions/year wise EMP expenditure/environmental statement) in respect of ECs dated 30.05.1995, 10.04.1997, 3.02.2004, 07.03.2008 and 2.9.2009 have not been submitted to the MoEF&CC, RO regularly and not uploaded on their website.
- xiv. Facility provided by the PP for the display of Ambient levels as well as stack emissions near the main gate of refinery found to be not in the working condition during the site visit.

3. **Housekeeping:** Housekeeping is very poor and requires lot of improvement.
4. **Review w.r.to MoEF O.M. dated 30.5.2012:** The above mentioned project was prepared after site visit for the proposed expansion and implementation of stipulation was reviewed from 3.2.2015 to 4.2.2015.
5. **With regard to issuance of show cause/closure notices/directions and court cases:-** It was informed by the PP that there were some discrepancies in the analysis reports of APPCB and PP. The BOD, Phenols, Sulphides, Oil & grease are above limits in the treated water as per APPCB during January 2011 to November 2011. The SO₂, SPM and emission flow rates are more than the stipulated limits as per the APPCB during November 2011. APPCB has directed the PP vide their order dated 14.12.2011 to reduce the capacity of refinery to 70% of the existing consent limit. PP contended that the sulphur emissions, odour problems are not directly related to the refinery process. PP approached the Appellate Authority. The Appellate Authority vide its order dated 13.10.2012 (Appeal No. 48 of 2012) directed that the matter has to be disposed of by APPCB after obtaining the study report of IISc and in the mean time status quo with regard to the production capacity of the PP shall continue. PP informed that presently the final study report of IISc is awaited.


(Sundar Ramanathan)
Scientist 'D'

List of Annexure to the report:

- I. Average SO₂ emissions during 2013-14 and 2014-15 from the refinery complex
- II. Stack emission data for the month of January 2015 from the refinery complex
- III. Continuous Ambient Air Quality Monitoring Station (CAAMS) data for the month of January 2015 for the refinery complex
- IV. Compliance to the MoEF standards dated 18.03.2008
- V. Water balance for the Refinery Complex
- VI. Details of the CSR activities undertaken by the M/s HPCL for the last two years
- VII. Load based emission levels of SO₂, HC, SPM, and NO_x
- VIII. Status of compliance to the CREP recommendations
- IX. Status of compliance to the recommendations made in the Risk Analysis Report
- X. Details of the fatal accidents and major fire incidents occurred in the refinery during 2013-14
- XI. Noise survey report for the refinery complex

ANNEXURE - I

Annexure-II

Sulphur emissions for the year 2013-14

Month	Crude Sulphur (MT)	Sulphur in various products (MT)	Sulphur produced (MT)	Sulphur emitted from refinery as SO ₂ (MT)	SO ₂ emissions (T/day)
	(1)	(2)	(3)	4=1-(2+3)	
Apr-13	6497	3565	2803	129.1	8.61
May-13	5372	3371	1870	131.3	8.47
Jun-13	4100	2428	1520	152.5	10.16
Jul-13	8387	6604	1612	170.6	11.01
Aug-13	6653	4761	1729	162.6	10.49
Sep-13	4345	1328	2905	112.0	7.46
Oct-13	6001	4149	1683	168.9	10.9
Nov-13	6671	4184	2337	149.6	9.97
Dec-13	8303	4887	3273	142.8	9.21
Jan-14	8862	5466	3256	139.6	9.01
Feb-14	8104	5033	2952	119.1	8.50
Mar-14	9512	5810	3553	148.7	9.6

Sulphur emissions for the year 2014-15

Apr-14	6653	4394	2122	137.2	9.1
May-14	7094	5036	1911	147.4	9.5
Jun-14	6246	3961	2132	153.3	10.2
Jul-14	8784	4965	3666	153.0	9.9

ANNEXURE -II

On-line Stack analyzer average data for January 2015					
S. No.	Unit	SO2	NOX	SPM	CO
	Norm	1048 mg/Nm3	411 ppm	64 mg/Nm3	180 ppm
1	CDU-I, 2-F-1	220	62	*	27
2	CDU-I, 2-F-2	171	57	31	108
3	CDU-I, 2-F-4	184	52	*	84
4	CDU-II, 11-F-1	87	7	54	76
5	CDU-II, 12-F-1	216	91	19	42
6	CDU-III, 42-F-1	104	48	48	57
7	CDU-III, 42-F-2	125	87	51	79
8	CDU-III, 46-F-1	5	1	1	62
9	FCCU-I, 4-F-51	121	29	56	44
10	FCCU-II, 14-F-1	124	15	66	*
11	DHDS heater, 60-F-1	102	83	14	5
12	PDS heater, 61-F-1	**	**	**	**
13	Reformer, 61-F-11	**	**	**	**
14	NHT, 72-F-1	35	32	19	16
15	CCR, 74-F-1	25	54	13	40
16	FCCNHT, 75-F-1	77	44	10	24
17	HRSO III	88	112	16	44
18	HRSO IV	3	109	30	4
19	HRSO-V	91	114	14	33
20	HRSO-VI	Analyzers installed . Under commissioning			
21	IBH	48		8	28
		1700 mg/Nm3	450 ppm	50 mg/Nm3	400 ppm
24	FGD-I	17	177		50
25	FGD-II	Analyzers installed . Under commissioning			
			350 ppm		150 ppm
26	DSRU Train I & II 65-X-001	3242	162	-	-
27	DSRU Train III, 79-X-310	2097	189	-	-

* Under repairs

** Unit is down

South gate CAAMS for Jan 2015

Date & Time	CAAMS 1	CAAMS 1	CAAMS 1	CAAMS 1	CAAMS 1	CAAMS 1	CAAMS 1	CAAMS 1	CAAMS 1
Date & Time	PM 10	PM 2.5	SO2	CO	NO2	O3	NH3	Benzene	CAAMS 1
ug/m3	ug/m3	ug/m3	ug/m3	mg/m3	ug/m3	ug/m3	ug/m3	ug/m3	ug/m3

1/1/2015	27.2	5.3	8.3	0.6	3.7	3.7	4.1	14.8	0.8
2/1/2015	57.4	13.2	6.0	1.0	3.7	4.0	7.4	13.8	1.2
3/1/2015	46.1	10.1	5.6	0.9	4.0	5.6	13.5	1.0	
4/1/2015	68.5	19.0	6.3	0.8	4.4	8.4	11.8		
5/1/2015	65.4	17.9	6.1	0.9	27.2	14.3	11.4		
6/1/2015	76.4	21.5	5.8	1.1	19.3	11.3			0.6
7/1/2015	66.0	17.8	6.6	1.0	17.3	11.6			0.6
8/1/2015	85.1	21.5	8.7	0.7	4.9	12.8			0.6
9/1/2015	79.4	25.6	7.1	0.7	15.2	13.5			0.7
10/1/2015	85.8	22.4	10.5	0.6	13.1	12.7			1.7
11/1/2015	79.7	21.5	13.4	0.5	10.8	12.3			2.6
12/1/2015	73.1	19.0	8.6	0.5	5.9	12.4			2.5
13/01/2015	82.3	23.3	7.0	0.5	9.6	15.5			2.6
14/01/2015	89.4	36.8	7.1	0.7	5.7	19.3			3.0
15/01/2015	76.3	26.0	7.1	0.7	5.7	27.8			2.9
16/01/2015	81.9	26.9	8.0	0.8	7.6	19.1			1.6
17/01/2015	71.3	21.2	8.2	0.8	9.5	12.3			1.2
18/01/2015	61.8	18.0	9.6	0.8	10.0	11.3			1.2
19/01/2015	65.4	18.8	10.1	0.8	11.7	12.1			1.0
20/01/2015	47.4	17.0	8.0	0.7	11.0	11.2			1.0
21/01/2015	63.3	17.9	9.3	0.6	11.4	11.6			1.0
22/01/2015	69.8	20.7	9.3	0.7	12.2	12.5			1.0
23/01/2015	58.7	20.0	10.6	0.8	11.9	12.1			1.0
24/01/2015	65.9	17.1	12.2	0.7	11.8	12.0			1.1
25/01/2015	83.1	23.4	12.4	0.7	11.4	11.5			1.1
26/01/2015	86.9	28.8	12.4	0.7	10.8	10.9			1.1
27/01/2015	71.6	30.5	12.3	0.6	11.2	11.3			1.0
28/01/2015	79.0	32.5	13.1	0.8	11.6	11.8			0.6
29/01/2015	86.9	25.5	13.1	1.0	11.2	12.3			0.3
30/01/2015	71.1	20.4	12.6	0.8	11.4	11.6			0.3
31/01/2015	77.6	23.8	13.0	0.5	11.1	11.3			0.3

Norm:

PM 2.5 60 ug/m³

PM 10 100 ug/m³

SO2 80 ug/m³

NO2 80 ug/m³

CO 2 mg/m³

O3 100 ug/m³

NH3 400 ug/m³

Benzene 5 ug/m³

ETP-IV CAAMS for Jan 2015

Date & Time	CAAMS 2	CAAMS 2	CAAMS 2	CAAMS 2	CAAMS 2	CAAMS 2	CAAMS 2	CAAMS 2
Date & Time	PM 10	PM 2.5	SO2	NO2	CO	O3	NH3	Benzene
ug/m3	ug/m3	ug/m3	ug/m3	ug/m3	mg/m3	ug/m3	ug/m3	ug/m3
1/1/2015	29.4	7.3	32.0	7.2	0.7	14.5	15.1	0.5
2/1/2015	49.2	17.2	14.1	8.6	0.8	9.5	18.0	0.5
3/1/2015	57.0	17.7	14.9	10.4	0.8	7.5	21.0	0.4
4/1/2015	60.3	26.9	18.4	9.7	0.7	11.1	18.5	0.3
5/1/2015	65.7	68.9	15.6	8.8	0.5	12.3	17.2	0.3
6/1/2015	64.7	37.1	11.8	7.8	0.5	15.2	16.5	0.3
7/1/2015	64.2	31.3	10.0	8.2	0.5	12.8	15.4	0.3
8/1/2015	75.8	32.6	9.7	9.1	0.5	11.9	15.1	0.2
9/1/2015	88.8	30.7	9.7	9.2	0.7	14.6	15.4	0.3
10/1/2015	81.3	27.1	8.3	8.1	0.7	16.2	14.8	0.2
11/1/2015	61.6	27.5	8.4	8.1	0.8	16.7	14.8	0.3
12/1/2015	65.8	26.4	9.6	10.0	0.9	14.8	14.9	0.3
13/01/2015	78.2	32.4	8.5	12.1	1.0	14.1	15.0	0.2
14/01/2015	72.5	30.7	9.1	8.9	1.1	17.7	15.1	0.7
15/01/2015	63.8	34.3	8.0	8.0	0.9	20.3	15.9	0.3
16/01/2015	66.7	38.6	8.3	8.4	1.0	21.5	16.4	0.3
17/01/2015	67.9	35.2	11.9	9.3		19.8	14.9	0.3
18/01/2015	66.0	29.8	9.3	8.8	0.6	19.1	13.9	0.2
19/01/2015	60.0	29.9	8.5	8.7	0.6	17.0	13.6	0.2
20/01/2015	52.1	23.9	8.6	8.8	0.2	17.2	13.7	0.2
21/01/2015	39.7	14.0	6.9	10.1	0.5	12.6	16.6	0.4
22/01/2015	45.7	16.6	6.5	9.8	0.7	12.4	15.9	0.3
23/01/2015	53.3	18.6	5.8	9.7	0.7	9.7	15.8	0.3
24/01/2015	46.1	16.2	5.4	9.8	0.6	8.6	15.9	0.3
25/01/2015	41.5	14.7	5.2	9.5	0.6	8.2	15.3	0.3
26/01/2015	57.0	19.8	5.9	9.0	0.6	9.9	14.2	0.3
27/01/2015	66.5	23.0	5.2	9.2	0.7	8.1	14.5	0.3
28/01/2015	69.4	24.6	5.3	9.5	0.8	8.4	15.2	0.3
29/01/2015	64.9	22.4	5.0	9.6	0.8	7.6	15.4	0.3
30/01/2015	49.8	17.4	4.2	9.7	0.9	5.4	15.7	0.3
31/01/2015	58.5	20.3	5.2	9.6	1.0	6.0	15.5	0.3

HLPH CAAMS for Jan 2015

[illegible]

2. i.a: EFFLUENT

S.no	Parameter	Limit (mg/L)	Average for 2014-15	
			ETP-I	ETP-IV
1	pH	6-8.5	7.5	7.8
2	Oil & Grease	5	4.1	3.0
3	BOD	15	12.2	11.9
4	COD	125	79.3	75.8
5	Suspended Solids	20	14	14
6	Phenols	0.35	0.24	0.18
7	Sulphides	0.5	0.28	0.2
8	CN	0.2	<0.1	<0.1
9	Ammonia as N	15	7.5	6.2
10	TKN	40	21.8	18.7
11	P	3	0.3	0.2
12	Cr (Hexavalent)	0.1	<0.05	<0.05
13	Cr (Total)	2	0.05	0.04
14	Pb	0.1	0.04	<0.02
15	Hg	0.01	<0.01	<0.001
16	Zn	5	0.81	0.04
17	Ni	1	0.16	0.1
18	Cu	1	0.23	0.05
19	V	0.2	<0.01	<0.01
20	Benzene	0.1	<0.01	<0.01
21	Benzo-(a) Pyrene	0.2	<0.01	<0.01

2.i. b: EMISSIONS**Furnace, Boiler and Captive Power Plant**

S.No.	Description	CPCB limit (Gas/ Liquid Fuel)	Limiting Concentration, (Basis 40:60 Gas/ Liquid firing)	Average emissions for the year 2014-15
1	Sulphur Dioxide, mg/Nm ³	50 / 1700	1048	191.6
2	Oxides of Nitrogen, mg/Nm ³	350 / 450	411	94.9
3	Particulate Matter, mg/Nm ³	10/100	180	25.1
4	Carbon Monoxide, mg/Nm ³	150 / 200	64	46.4
5	Nickel & Vanadium, mg/Nm ³	5	5	0.01
6	Hydrogen Sulphide in fuel gas, mg/Nm ³	150	-	39.5
7	Sulphur Content in liquid fuel, wt%	1.0	-	0.8

FCC Regenerators:

S.No.	Description	Limiting Concentration, mg/Nm ³	Average emissions for the year 2014-15 mg/Nm ³
1	Sulphur Dioxide	1700	52.2
2	Oxides of Nitrogen	450	58.6
3	Particulate Matter	100	7.7
4	Carbon Monoxide	400	22.8
5	Nickel & Vanadium	5	BDL

Sulphur Recovery Units:

S.No.	Description	Limiting Value	Average for 2014-15
1	Sulphur Recovery, %	>98.7	99.2
2	H ₂ S, mg/Nm ³	15	6.0
3	Oxides of Nitrogen from stack, mg/Nm ³	350	186.7
4	Carbon Monoxide (CO) from stack, mg/Nm ³	150	40.3

2. i.e: 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.	Complied.
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.	Complied.
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.	Complied.
4	The tanks with the capacity of more than 75 M ³ and total vapor pressure of more than 76 kpa should have Fixed Roof Tank with vapor control system.	Complied.
5	Secondary seals on Internal Floating Roof & External Floating Roof Tanks as per the specifications listed.	Secondary seals are being provided for the Floating roof tanks.

Storage of Volatile Liquids -Benzene Storage:

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.

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)	Complied with. All odorous wastewater streams are handled in closed systems from source point to effluent treatment plant.
2	The collection system shall be covered with water seals on sewers and drains and gas tight covers on junction boxes.	All OWS systems are designed as per standards.
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.	Oil-water separators are provided with fixed covers.
4	Wastewater from aromatics plants shall be treated to remove benzene and total aromatics to a level of 10, 20 ppm respectively before discharge.	Not applicable.

Schedule VI, Part-C: Petroleum Oil Refinery**Effluent Quantum Limits:**

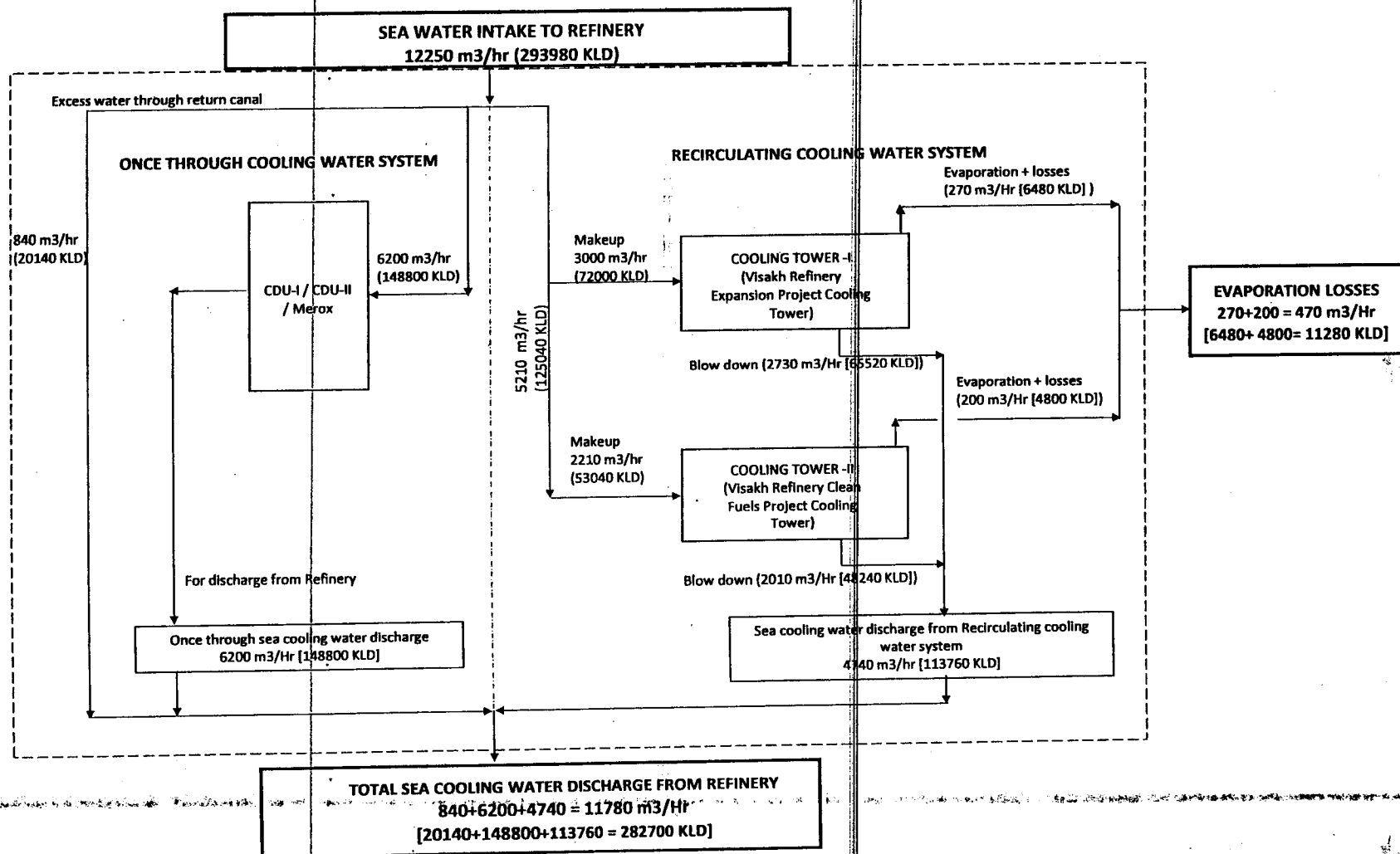
S.no	Parameter	Quantum limit in kg/1000 tons of crude processed	Average for 2014-15
1	Oil & Grease	2.0	0.71
2	BOD	6.0	2.70
3	COD	50	16.10
4	Suspended Solids	8.0	3.11
5	Phenols	0.14	0.04
6	Sulphides	0.2	0.05
7	CN	0.08	<0.1
8	Ammonia as N	6.0	1.18
9	TKN	16	3.25
10	P	1.2	0.05
11	Cr (Hexavalent)	0.04	0.03
12	Cr (Total)	0.8	0.01
13	Pb	0.04	0.03
14	Hg	0.004	<0.001
15	Zn	2.0	0.03
16	Ni	0.4	0.02
17	Cu	0.4	0.02
18	V	0.8	<0.01
19	Benzene	0.04	<0.01
20	Benzo-(a) Pyrene	0.08	<0.01

WATER BALANCE FOR RAW WATER IN VISAKH REFINERY		
WATER INTAKE TO REFINERY	15120	KLD
WATER CONSUMPTION		
BFW	9885	KLD
Process & Washings	4860	KLD
Domestic water	375	KLD
Total requirement	15120	KLD
DISCHARGE & LOSSES		
Discharge		
Influent flow to ETPs	7200	KLD
DM Plant reject	2450	KLD
Bearing Cooling Water Blow down	600	KLD
Domestic	180	KLD
Losses		
Loss from FGD stacks	600	KLD
Evaporation loss from reservoir	600	KLD
Miscellaneous	3300	KLD
Domestic consumption	190	KLD
Total Discharge & losses from refinery	15120	KLD

WATER BALANCE FOR SEA COOLING WATER IN VISAKH REFINERY

WATER INTAKE TO REFINERY	293980	KLD	
WATER CONSUMPTION			
Once Through Cooling water (CDU-I / CDU-II / Merox):	148800	KLD	----(1)
Blowdown from Cooling Tower-I (Visakh Refinery Expansion Project Cooling tower)	65520	KLD	----(2)
Blowdown from Cooling Tower-II (Visakh Refinery Clean Fuels Project Cooling tower)	48240	KLD	----(3)
Evaporation + losses from Cooling Tower-I (Visakh Refinery Expansion Project Cooling tower)	6480	KLD	----(4)
Evaporation + losses from Cooling Tower-II (Visakh Refinery Clean Fuels Project Cooling tower)	4800	KLD	----(5)
Excess water through return canal	20140	KLD	----(6)
Total	293980	KLD	----(1+2+3+4+5+6)

SCHEMATIC REPRESENTATION OF SEA COOLING WATER SUPPLY & DISTRIBUTION SYSTEM IN HPCL-VISAKH REFINERY



**ACTIVITIES UNDER SC/ST/OBC COMPONENT PLAN
DURING 2012-13**

Sl. No.	Proposal	Amount (₹)
1	Construction of School building at Malkapuram with Furniture	4960000
2	Donation of 10th class model paper 8213 books to ITDA	665253
3	Scholarship to Visually Challenged Girls, Yendada, VSP	225600
4	Scholarships to 500 students	2400000
5	School Furniture to Dr. B R Ambedkar School, Anakapalle	168250
6	School furniture to ZP High school, Budathanapalli	325220

Total 87,44,323

ACTIVITIES UNDER CSR DURING 2012-13

Sl. No.	Proposal	Amount (₹)
1	Donation of Ambulance to Vivekananda Medical Trust	1136000
2	Donation of 100 wheel chairs to M/s.Ability People	803295
3	Uniforms to GVMC Schools	1453355
4	5 nos. PCs & Flower making making to M/s.Omkar Lions School for Deaf	151385

Total 35,44,035

Grand Total 1,22,88,358

**ACTIVITIES UNDER CSR & SC/ST/OBC COMPONENT PLAN
DURING 2013-14**

Sl. No.	Proposal	Amount (₹)
1	Construction of Oncology block at KGH for Rs.5 crores for a period of 5 years (1 crore per annum)	10000000
2	Provision of Hospital Furniture to St.Anns Hospital, Malkapuram	2500000
3	Model Paper books for 10 th class students of tribal areas i.e. ITDS, Seethampeta, Parvatipuram and Paderu.	787920
4	School Furniture & Uniforms to ST students of MPP School, Anantagiri	168710

Total 13456630

Emissions for 2014-15

Month	SO2 emissions T/Day
Apr '14	9.1
May '14	9.5
Jun '14	10.2
Jul '14	9.9
Aug '14	9.5
Sept '14	9.1
Oct '14	8
Nov '14	9.2
Dec '14	9
Average	9.3

Month	SPM emissions T/Day
Apr '14	0.95
May '14	0.82
Jun '14	0.89
Jul '14	0.59
Aug '14	0.8
Sept '14	0.83
Oct '14	0.7
Nov '14	0.96
Dec '14	0.91
Average	0.8

Month	HC emissions T/Day
Apr '14	1.82
May '14	1.72
Jun '14	1.67
Jul '14	1.65
Aug '14	1.32
Sept '14	1.7
Oct '14	1.5
Nov '14	1.75
Dec '14	1.6
Average	1.6

Month	NOX emissions T/Day
Apr '14	4.74
May '14	4.05
Jun '14	4
Jul '14	4.25
Aug '14	3.82
Sept '14	3.52
Oct '14	3
Nov '14	3.52
Dec '14	4.1
Average	3.9

Compliance status of 4th task force on CREP

ANNEXURE - VIII

	Action item	Present status
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 CPCB server is being taken up and expected to be completed by March 2015.
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-IIa.
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.
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.	- Oily sludge is stored in cement lined lagoons and is currently being processed (from February 2014) for recovery of oil; about 4900 MT of oily sludge has been processed. About 4000 MT of oily sludge sold to authorized recyclers prior to that. - Low-oily sludge is being handled by way of bio-remediation within the refinery premises; bio-remediation of one batch of 456 m³ of ETP sludge has been completed by M/s TERI. Bio-remediation of another batch of 480 m³ of oily sludge is in progress. The bio-remediated soil is disposed as manure/landfill.
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.	- Particulate matter (SPM) emissions from all the refinery are being maintained within the stipulated limits. - Particulate matter emission from all the refinery stacks is being monitored by MOE&F-approved third party on a monthly basis. The average SPM emission for Oct, Nov & Dec -2014 are 0.7, 0.96 & 0.91 TPD respectively.

Compliance status of 4th task force on CREP

	Action item	Present status
8	The comments on proposed guidelines for bio-remediation be forwarded for consideration before finalizing.	Comments on the proposed guidelines for bio-remediation forwarded in July 2013. A copy of the comments is enclosed as Annexure-IIb.
9	All refineries shall submit action plan to achieve zero-discharge and to cover their ETP with VOC adsorption system.	- 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.p - With regard to covering of ETPs with VOC absorption system, feasibility study by M/s Engineers India Limited is in progress, which is expected to be completed by September 2014.
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.	- 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 - On-stream inspection - Monitoring the status of Cathodic Protection - Intelligent pigging operation Repair/replacement is carried out as required. - 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.
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.

Status of QRA recommendations

Sl. No.	Recommendation	Status
1	The existing safety measures are maintained at their expected level of performance to ensure all these safety measures are in a good condition.	Complied
2	The detection, isolation, spill containment, and ventilation etc., are to be maintained at their expected level of performance. A regular inspection should be performed to ensure all these safety measures are in a good condition throughout the facility lifecycle.	Complied
3	Strict ignition control shall be ensured as per Hot Work Permit system.	Complied
4	Regular maintenance and inspection should be performed for critical equipment, having higher consequence damage distance and have high failure frequencies. This is to minimize potential failure due to material degradation or fatigue.	Complied
5	Ensure availability and effectiveness of Fire & Gas detecting system and the emergency alarm system and means of communication, which would enable early warning to all personnel in the event of accidental release and subsequently enable all personnel to take appropriate action.	Complied
6	As the existing hill beside the flare stacks is acting as a natural barrier against thermal radiations from fire hazards in many of the credible accident scenarios, the hill should be retained / maintained.	Complied
7	Major contributor for off-site risk Toxic release; hence ensure availability and functioning of existing gas detectors for early detection of hazardous events.	Complied
1	DHDS :	
	◆ Ensure to have and effective functioning of toxic gas detectors for early detection and isolation of the segment.	Complied
2	DHT :	
	◆ Ensure to have and effective functioning of toxic gas detectors for early detection and isolation of the segment.	Complied
	◆ Proper functioning of level indicators in Amine regenerator 93-	Complied

Sl. No.	Recommendation	Status
	C-01 and Flash drum 93-V-01.	
3	MS Block:	
	◆ Ensure effective functioning of the present safety systems. Ensure to have toxic gas detectors in LPG-AAU / ARU.	Complied
4	Pipe Track-2:	
	◆ Consider the provision of gas detection along the pipe corridor.	In progress
	DHDS-SRU :	
5	◆ Ensure effective functioning of toxic gas detectors for early detection and isolation of the segment.	Complied
6	DHT-SRU :	
	◆ Ensure to have and effective functioning of toxic gas detectors for early detection and isolation of the segment.	Complied

Annexure - I

Fatal Incidents, Major Fire & Gas Leak Incidents April 2013- March 2014
at HPCL, Visakh Refinery

Sr No	Date of Incident	Type of Incident	Description	Personnel involved
1	16/5/2014	Major Fire	A fire incident occurred in Crude Distillation Unit-3 (CDU-3) at HPCL-Visakh Refinery at about 2200 hrs of 16/05/2013. Fire was noticed by field personnel near the 42PM16A/B pumps and pipe track area. Immediately information was given to Fire & Safety and fire siren was given by Fire & Safety Office at 22:03 hrs after checking the intensity of fire. Parallely, fire fighting activity was started in field. Immediately unit was shut down and fire at unit pipe track was controlled within one hour. Minor fire continued for a longer time to burn out the pipeline contents in a controlled way. At 0435 hrs of 17/05/2013 fire was completely extinguished and all clear siren was given at 0505 hrs.	No Injury / Fatalities
2	23/8/2014	Major Fire	On August 23, 2013 Cell No: 5 of VRCFP & DHT Salt Water Cooling Tower was being commissioned. During the opening of the water line at about 16:46 Hrs, there was an explosion and fire. The Cooling tower burned down and collapsed. Due to the fire, workers working in the other cells and surrounding area sustained burn injuries. There was one fatality of company employee and six contractor employees. 39 persons sustained burn injuries and were shifted to outside hospitals for treatment. Fire call at 1646 hrs, Fire siren at 1648 hrs and all clear siren was given at 1835 hrs. Subsequently another 6 dead bodies were removed from the debris and sent to KGH mortuary for identification.	Contractor (27 Nos) Company (1 No)



Visakh Refinery

Internal Memo**Date:** January 6, 2015**Ref:** F&S/RSNR/NL-55**From :** Sr. Manager – F&S (SCP)

To : Chief Manager – Operations (SB)
 Chief Manager – Operations (SPI)
 Chief Manager – Operations (LVSNR)
 Sr. Manager – Operations (PSM)
 Sr. Manager – Operations (BS)
 Sr. Manager – Operations (CHVSR)

Sub: Survey report of noise levels – Reg

A Noise level survey was carried out from December 24, 2014 to December 31, 2014 at different units & specified locations and enclosed the list of noise level readings.

Please arrange to take the following safety precautions.

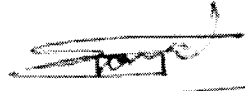
- Display the sign board of "Noise area" and advise field personnel to use Ear Plugs/Ear Muffs in the noisy area.
- As an administrative control, follow the exposure time limits as given below.

<u>Noise level (dBA)</u>	<u>Noise Exposure Duration (Hrs)</u>
Upto 90	8
92	6
95	4
97	3
100	2
105	1
110	30 Minutes

This is for your information and necessary action.

Note: All the above readings were taken at a distance of 1 Mtr from the source of Noise.

RSNRS/SCP


S.C. Panja
Sr Manager (F&S)

CC: ED - VR (GSG)
GM - Operations (GSPS)
Chief Manager I/C - Operations (RR)
Chief Manager - F&S (SNS)

	VISAKH REFINERY FIRE AND SAFETY DEPARTMENT	DOC.NO:OCP/F&S/FR/301 REV :1 DATE : March 2011 PAGE : 1 of 14
	FORMAT FOR MONITORING OF NOISE LEVEL	
	DOC. No : OCP/F&S/FR/301	

Noise level Report – Q3 (OCT-DEC 2014)

Unit: CPP

Date of Checking: 26-12-2014

S. No	Location	Noise Level (TLV:85dbA)		Remarks
GTG-1				
1	Turbine	East	----	Shut Down
		West	----	Shut Down
2	Load Gear Compartment	East	----	Shut Down
		West	----	Shut Down
3	Generator	East	----	Shut Down
		West	----	Shut Down
GTG-II				
4	Turbine	North	----	Shut Down
		West	----	Shut Down
5	Load Gear Compartment	North	----	Shut Down
		West	----	Shut Down
6	Generator	North	----	Shut Down
		West	----	Shut Down
GTG-III				
7	Turbine	North	93.2	Above TLV
		South	96.1	Above TLV
8	Load Gear Compartment	North	99.1	Above TLV
		South	97.3	Above TLV
9	Generator	North	98.6	Above TLV
		South	99.6	Above TLV
GTG-IV				
10	Turbine	North	92.6	Above TLV
		South	106.3	Above TLV
11	Load Gear Compartment	North	102.2	Above TLV
		South	98.4	Above TLV
12	Generator	North	102.9	Above TLV
		South	97	Above TLV
13	Shift In charge room	Door Opened	72.3	Below TLV
		Door Closed	69.2	Below TLV

Monitored By	Sr. Officer-Safety :RSNRS
	Checked By : PVGS

	VISAKH REFINERY FIRE AND SAFETY DEPARTMENT	DOC.NO:OCP/F&S/FR/301 REV :1 DATE : March 2011 PAGE : 2 of 14
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Noise level Report – Q3 (OCT-DEC 2014)

Unit: CPP

Date of Checking: 26-12-2014

S. No	Location	Noise Level(TLV:85db)		Remarks
14	N/E of Control room GTG-3&4	93.4		Above TLV
15	Field control room	Doors open	82.8	Below TLV
		Doors closed	80.3	Below TLV
GTG-V				
16	Turbine	East	96.1	Above TLV
		West	96.8	Above TLV
17	Load Gear Compartment	East	97.1	Above TLV
		West	97.4	Above TLV
18	Generator	East	99.1	Above TLV
		West	98.8	Above TLV
GTG-VI				
19	Turbine	East	97.7	Above TLV
		West	98.1	Above TLV
20	Load Gear Compartment	East	102.4	Above TLV
		West	100.8	Above TLV
21	Generator	East	98.9	Above TLV
		West	99	Above TLV
22	GTG 5&6 Fuel Skid Station:106	90.3		Above TLV
	Below Air Fin Coolers GTG-5&6 (S/W of Unit)	92.8		Above TLV
23	Below Air Fin Coolers GTG-5&6 (N/W of Unit)	90.9		Above TLV
24	Field room of GTG-5&6	Doors open	80.9	Below TLV
		Doors closed	74.4	Below TLV

Monitored By	Sr. Officer-Safety :RSNRS
	Checked By : PVGS



VISAKH REFINERY
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Noise level Report – Q3 (Oct-Dec 2014)

Unit: PP-1

Date of Checking: 29/12/2014

S. No	Location	Noise Level(TLV:85db)	Remarks
Boiler-7			
1	West of Boiler	----	Not in Service
2	East of FD Fan	----	Not in Service
Boiler-8			
3	West of Boiler	----	Under Maintenance
4	South of FD Fan	----	Under Maintenance
5	Inside Control Room	----	Under Maintenance
6	Entrance of South gate near of Control Room(HP/MP Steam Manifold)	----	Under Maintenance
Boiler-9			
1	West of Boiler	86.8	Below TLV
2	East of FD Fan	89.1	Below TLV
Boiler-10			
1	West of Boiler	----	Shut down
2	East of FD Fan	----	Shut down

Monitored By	Sr. Officer-Safety : RSNRS
	Checked By :SD

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Noise level Report – Q3 (Oct-Dec 2014)

Unit: PP-2

Date of Checking: 29/12/2014

S. No	Location	Noise Level(TLV:85db)	Remarks
1	South of Boiler - B burner	----	Shut Down
2	FD fan of Boiler - B	----	Shut Down
3	Below De-aerator	----	Removed
4	South of CO Boiler burner	90.3	Above TLV
5	East of CO Boiler FD Fan	93.1	Above TLV
6	West of CO Boiler FD Fan(14-K-55A)	----	Shut Down
7	MP BFW Pump (140-PM-02A)	----	Removed
8	140-PT-01B	----	Removed
9	HP to MP steam station (Due to nearby steam leak)	----	Removed
10	Field Control Room (Door open)	80.7	Below TLV
11	Field control Room (Door close)	73.3	Below TLV

Monitored By	Sr. Officer-Safety :RSNRS
	Checked By : AS

	VISAKH REFINERY FIRE AND SAFETY DEPARTMENT	DOC.NO:OCP/F&S/FR/301 REV :1 DATE : March 2011 PAGE : 5 of 14
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Noise level Report – Q3 (July-Sep 2014)

Unit: TPH

Date of Checking: 29/12/2014

S. No	Location	Noise Level(TLV:85db)	Remarks
1	21-GM-9 (MS Pump)	----	Not in service
2	120-PM-31A/B/C(Sour Diesel)	91.6	Above TLV
3	120-PM-32A	----	Not in service
4	Outside TPH Control Room	82.4	Below TLV
5	21-GM-6(FO Motor Pump)	98.2	Not in service
6	21-GM-7(LDO/IBO Pump)	----	Not in service
7	120-PM-20A(LSHS)	----	Not in service
8	120-PM-34A(PG. Hy Naphtha)	----	Not in service
9	21-GM-11(Blending Pump)	----	Not in service
10	21-GM-1(Spirit)	----	Not in service
11	120-PM-16(HSD)	----	Not in service
13	120-PM-17(Naphtha)	----	Not in service
14	120-PM-31B	91.6	Above TLV
15	21-GM-06	98.2	Above TLV

Monitored By	Sr. Officer-Safety : RSNRS
	Checked By :SD



**VISAKH REFINERY
FIRE AND SAFETY DEPARTMENT**

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Noise level Report – Q3 (Q3 (OCT-DEC 2014))

Unit: CDU-III

Date of Checking: 26/12/2014

S.N o	Location	Noise Level(TLV:85db)		Remarks
1	West Battery Limit	83.4		Below TLV
2	Crude Feed Pump (42 - P- 01B)	89.9		TLV
3	HVGO Pump (42 - P - 17 D)	97.2		Above TLV
4	Slop Cut Pump(N/ of 42-P-18 A/B/C)	A	89.3	Below TLV
5	RCO Pump (42-P-12A/B/C)	A/c	87.2/88.3	Below TLV
6	HD CR Pump (42 - P - 10 A/B/C)	A/B/C	90/90.3/ 91.3	Above TLV
7	LD CR Pump (North of 42- P-08 A)	89		Below TLV
8	KERO CR Pump (42 - P - 06 A/B/C)	A	89.5	TLV
9	LVGO Pump (42-P-16 A)	91.9		Above TLV
10	ATR Pump - North(42-P-04 B)	90.7		Above TLV
11	LPG Pump (42 - P – 14 A)	83.8		Below TLV
12	Wash Water Pump (42 - PM- 03B)	Not in service		----
13	42 - PM – 02B(Crude Booster Pump)	94.7		Above TLV
14	VB Tar Booster Pump(46 PM-03D)	Not in service		----
15	VB Feed Pump (46- P-01B)	Not in service		----
16	Feed Booster Pump (46 - PM – 02A)	Not in service		----
17	South of VAC Dsl Pump (42- P-15 B)	90.3		Above TLV
18	W/ HY Naphtha Pump (42-P-05 C)	88.8		Below TLV
19	W/ of SR HY Crude Pump (42-P-19B)	87.6		Below TLV
20	Hot Well Drum Area (42-V-15)	86.7		Below TLV
21	42 - LV - 1702 SRN C/V (S/W Corner)	83.8		Below TLV
22	South Battery Limit	84.9		Below TLV
23	Air Fin Coolers	98.3		Above TLV
24	Ejector platform (W/ Top Platform)	97.8		Above TLV
25	Crude Heater 42-F-01 platform	84.3		Below TLV
26	Vac Heater (42-F-02) (Near DCPBox)	83.2		Below TLV
27	Field Room (D/ C with running Fan)	78		Below TLV
28	Field Room (D/O with running Fan)	80.9		Below TLV
29	42 P 22 B area (SR pump)	Not in service		----
30	46 PT 03B(VBTAR turbine)	Not in service		----
31	JV 1501(CR)	95.6		Above TLV
32	46-P-16(A/B/C/D)	B/C	88.1/87.9	Below TLV

Monitored By	Sr. Officer-Safety : RSNRS
	Checked By : AS/KDP



VISAKH REFINERY
FIRE AND SAFETY DEPARTMENT
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Noise level Report – Q3 (OCT-DEC 2014)

Unit: CDU-II

Date of Checking: 26/12/2014

S.No	Location	Noise Level(TLV:85db)		Remarks
1	North of 11 - PM – 10A(RCO Pump)	92.2		Above TLV
2	North of 11-PM-11A(LPGRefluxpump)	Not I/s		----
3	North of 11-PM-04B(Kero Product)	92.7		Above TLV
4	South of 12-PM-02A(Slop Cut pump)	92.6		Above TLV
5	South of 12-PM-01A (Vac Residue)	102.8		Above TLV
6	11 - PM – 07D (DSL CR)	94.8		Above TLV
7	North of 11-PM-08A (Kero Circulation)	103		Above TLV
8	South of 11-PM-09A (TPA SUMP)	92.2		Above TLV
9	North of 11-PM-06A (TOP Reflux)	95.2		Above TLV
10	North of 11-PM-03A/B/C (DSL Product)	A	92.3	Above TLV
		B	91.6	Above TLV
11	South of 12-PM-03A (HVGO Motor)	97.9		Above TLV
12	North of 11-PM-2A(Feed Booster Motor)	104.4		Above TLV
13	North of 11-PM-1A(Feed Charger Motor)	111.3		Above TLV
14	Below 11-F-01 (Atmos Heater)	98.8		Above TLV
15	Below 12 - F – 01 (Vacuum Furnace)	88.9		Below TLV
16	Field Room (Door Open)	79.3		Below TLV
17	Field Room (Closed)	73.3		Below TLV
18	North of 11-PM-12A (De salter Water Motor)	93.1		Above TLV
19	South of 12-PM-07A/B (Temp Water)	93.8		Above TLV
20	North of 10-PM-01A(Caustic Circulation)	92		Above TLV
21	South of 12-PM-04A/B (LVGO Pump)	90.7/91		Above TLV
22	North of 11-PM-08D (Kero CR Booster)	Not I/S		----
23	11-PT-01B (Feed Charger)	91.8		Above TLV
24	North of 11-PT-02B	93.6		Above TLV
25	South of 13-PM-03A	95.8		Above TLV

Monitored By	Sr. Officer-Safety :RSNRS
	Checked By : AS/KDP

	VISAKH REFINERY FIRE AND SAFETY DEPARTMENT	DOC.NO:OCP/F&S/FR/301 REV :1 DATE : March 2011 PAGE : 8 of 14
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Noise level Report – Q3 (OCT-DEC 2014)

Unit: CDU-I

Date of Checking: 26/12/2014

S.No	Location	Noise Level(TLV:85db)		Remarks
1	2 -GM – 41D(2nd Stage Booster)	92.8		Above TLV
2	2 - GM – 1D(Feed Pump)	89.1		Below TLV
3	2 - GM – 52 A/B (LD CR Pump)	A/B	87.2/81.7	Below TLV
4	2 - GM – 30 A/B (Kero CR Pump)	A/B	88.7/89.5	Below TLV
5	2 - GM – 7BC(RCO Pump)	91.4		Above TLV
6	2 - GM - 11A/B (Stab Feed)	A	89	Below TLV
		B	93.4	Above TLV
7	2 - GM – 50B(LVGO Pump)	95.2		Above TLV
8	2 - GM – 36A (HVGO Pump)	97.1		Above TLV
9	2 - GM – 54 A/B (VAC DSL Pump)	A/B	93.2	Above TLV
10	2 - GM – 37A/B (Slop Cut Pump)	B	94.6	Above TLV
11	2 - GM - 23C/D (1st Stage Boost)	C	Not I/S	Above TLV
		D	93.1	Above TLV
12	2 - F - 01 (Atmos Furnace)	96.4		Above TLV
13	2 - F - 02 (Vac Furnace)	94		Above TLV
14	2 - F - 02 ID Fan	Not I/S		Above TLV
15	2-F-4 (Heater)	91.9		Above TLV
16	2 - F - 04 FD FAN (02-KA-01A)	85.6		Below TLV
17	2 - F - 04 ID FAN (02-KA-02)	83.5		Below TLV
18	2 - GM – 40A/B (Salt Water)	A/B	91.8/92.5	Above TLV
19	Field Room (Door Closed)	74.4		Below TLV
20	Field Room (Door Open)	76.4		Below TLV (Fan On)
21	2 - GM – 55B(SR Pump)	93.8		Above TLV
22	2 - F - 01 ID Fan	Not I/S		----
23	2 - F - 02 FD Fan	91.2		Above TLV
24	2-F-01 FD Fan	90.3		Above TLV
25	Kero CR control valve (2-FY-0103)	93.7		Above TLV
26	02-GM-2A(top reflux pump)	94.1		Above TLV
27	West of Unit	84.5		Below TLV

Monitored By	Sr. Officer-Safety :RSNRS
	Checked By : AS



**VISAKH REFINERY
FIRE AND SAFETY DEPARTMENT**

**FORMAT FOR MONITORING OF NOISE
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Noise level Report – Q3 (OCT-DEC 2014)

Unit: MEROX/PRU/SRU1&2

Date of Checking: 31-12-2014

S.No	Location	Noise Level(TLV:85db)	Remarks
MEROX			
1	Old Elliot Compressor (15-KM-02)	Not I/s	Above TLV
2	52-K-01A	Not I/s	Below TLV
3	New Elliot Compressor (15-KM-02A)	91.2	Above TLV
4	52-K-01B(Process Air Compressor)	93.1	Below TLV
5	Mini Elliot Compressor (150-KM-03)	Not I/s	Above TLV
6	VREP - II Compressor (150-KM-2B)	Not I/s	Above TLV
7	DHDS Compressor (150-KM-2C)	99.7	Above TLV
8	LP Air Compressor (150-KM-02DVRCFP)	96.5	Above TLV
9	Field Room (Door Closed)	77.6	Below TLV
PRU			
9	7 - PM -03B (Reflux Pump)	----	Not In Service
10	7 - PM -01A (7-C-01 Feed Pump)	----	Not In Service
11	7 - PM -9B (Condensate Pump)	----	Not In Service
12	7 - PM -8B (LPG Booster Pump)	----	Not In Service
13	7 - PM -02A (C-01/02 Reflux Feed Pump)	----	Not In Service
SRU - I			
14	45 - PM - 1B	----	Not In Service
15	45 - PM - 12 B	----	Not In Service
16	45 - PM - 3B	----	Not In Service
17	45 - PM - 5B	----	Not In Service
18	45 - PM - 1C	----	Not In Service
19	45 - K - 1D	----	Not In Service
20	45 - K - 01B	----	Not In Service
21	45 - PM - 02B	----	Not In Service
SRU - II			
22	N/E 49 -C - 01 (Top Floor)	----	Not In Service
23	DM Water Buffer Tank (49 - V - 11)	----	Not In Service
24	Atmos Hood (49 - KM - 01A)	----	Not In Service
25	Atmos Hood (49 - KM - 01B)	----	Not In Service
26	Atmos Hood (49 - KM - 01D)	----	Not In Service
27	49 - PM - 01A	----	Not In Service
28	49 - PM - 01B	----	Not In Service
29	49 - PM - 01C	----	Not In Service
30	49 - PM - 01D	----	Not In Service
31	49 - PM - 01E	----	Not In Service
32	49 - PM - 02B	----	Not In Service

Monitored By	Sr. Officer-Safety : RSNRS
	Checked By : PVGS

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Noise level Report – Q3 (Oct-Dec 2014)

Unit: DHDS Block

Date of Checking: 24/12/2014

S.No	Location	Noise Level(TLV:85db)		Remarks
H2 PLANT				
1	West of Sour Naphtha feed pump(61-PM-01B)	---		Not In Service
2	West of Recycle Compressor (61-KM-01A/B)	---		Not In Service
3	North of Naphtha Feed pump(61-PM-11A)	---		Not In Service
4	Near 61 PV 213	---		Not In Service
5	Boiler feed water pump (61-PM-12A)	---		Not In Service
6	ID fan O/B bearing side (61-K-11)	---		Not In Service
7	East of 61E12	---		Not In Service
DHDS PLANT				
8	Below Reactor Heater (60-F-01)	93.2		Above TLV
9	60-FT-1902 area	90.3		Above TLV
10	Feed pump (60 - PM – 01A/C	A	94.4	Above TLV
		C	94.7	
11	Hydro Treated D/ Pump 60-PM-05A	93.6		Above TLV
12	DEA Booster Feed Pump 60 - PM – 03A	92.6		Above TLV
13	Make up Compressor(60-KM-01 A/B)	A	N/S	----
		B	93.8	Above TLV
14	Field Room (Door open)	75.4		Below TLV
15	COALESCER (60-D-11)	92.8		Above TLV
16	Washing Water Pump (60-PM-02B)	94.6		Above TLV
17	South of 60-K-02	89.2		Below TLV
DHDS – SRU				24/12/2014
18	East of Lean Amine circulation pump(60-P-32B)	90.9		Above TLV
19	Regenerator feed pump (60-P-30B)	94.3		Above TLV
20	North of Sulphur condenser (Train - I):65-E-103	83.2		Below TLV
21	Sulphur condenser (65 - E - 202)	82		Below TLV
22	Combustion air blower (65 - K)201 B	92.2		Above TLV
23	Field room (Door closed)	75.6		Below TLV
24	N2 plant near PSA (Normal)	----		Shut Down
25	N2 plant near PSA (RV pops)	----		Shut Down
26	N2 Booster Compressor (64 K 1312)	----		Shut Down

Monitored By	Sr. Officer-Safety : RSNRS
	Checked By : PVGS



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Noise level Report – Q3 (Oct-Dec 2014)

Unit: FCCU – I(R)

Date of Checking: 30-12-2014

S.No	Location	Noise Level(TLV:85db)	Remarks
1	Below Heater	90.4	Above TLV
2	Near LCO PA Pump 04 - PM – 59B	90.4	Above TLV
3	Near Sour Water Pump (04-PM-63A)	89.5	Below TLV
4	Near 4-PM-54 B(Un Stabilized Naphtha Pump)	93.9	Above TLV
5	Near 4-PM-67 B(LPG Product Pump)	98.1	Above TLV
6	Near 4-PM-51 A (Feed Pump)	97.3	Above TLV
7	Near 4-PM-65 A(Stab Naphtha PDT Recycle)	97.5	Above TLV
8	Near 4-E-75 (MAB Surface Condenser)	99.3	Above TLV
9	MAB Suction	99.8	Above TLV
10	4-PM-70 A/B(MAB Turbine Condensate Pump)	95.4	Above TLV
11	Near WGC (04-KM-51)	91	Above TLV
12	East of MAB	98.7	Above TLV
13	South of CAB (04-KM-02)	91	Above TLV
14	Field Room (Door Open)	81.7	Below TLV
15	Field Room (Door Closed)	80.2	Below TLV
16	Air Fin Coolers	100	Above TLV

NEW N2 PLANT

1	Compressor (84-P-4212A)	South	96.2	Above TLV
		North	99.8	
2	Compressor (84-P-4212B)	South	96.2	Above TLV
		North	97	
3	Compressor (84-K-4211C)	South	---	Not In Service
		North	---	
	Inside Control Room (Doors Closed)		79.5	Below TLV
	Inside Control Room (Doors Opened)		82	Below TLV

BCW PUMP HOUSE

1	BCW Pump (171-P-101A)	Not In Service	Above TLV
2	BCW Pump (171-P-101B)	92.3	Above TLV
3	BCW Pump (171-P-101C)	92.1	Above TLV
4	South of BCE Tower	86.5	Below TLV

Monitored By	Sr. Officer-Safety : RSNRS
	Checked By :SD



**VISAKH REFINERY
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Noise level Report – Q3 (Oct-Dec 2014)

Unit: FCCU-II

Date of Checking: 30/12/2014

S.No	Location	Noise Level(TLV:85db)	Remarks
1	South of MAB Grade level	98.9	Above TLV
2	North of MAB Grade level	102.8	Above TLV
3	South of MAB Top platform (near suction hood filters)	101.2	Above TLV
4	North of MAB Top platform	99.3	Above TLV
5	Below Heater(14-F-01)	95.7	Above TLV
6	East of WGC-2 lube oil sump	90.8	Above TLV
7	East of WGC-I lube oil sump	97.7	Above TLV
8	North of Wet gas compressor	92.5	Above TLV
9	South of Wet gas compressor	93.4	Above TLV
10	North of 14 - PM – 9D (M/C Reflux Pump)	92.5	Above TLV
11	West of 14-PM-62A (North LPO pump)	94.1	Above TLV
12	Field room door open	83.9	Below TLV
13	North of West slurry pump	81.3	Below TLV
14	Field room door closed	84.2	Below TLV
15	South of 14-PM-6AX (CRO pump)	89.3	Below TLV
16	South of 14-PM-55B(LCO PA)	88.2	Below TLV
17	South of 14-PM-54B pump (HCO PA)	94.2	Above TLV
18	East of GCU stripper (15-C-63X)	89.2	Below TLV
19	South of 14-PM-51A pump(feed pump)	94.9	Above TLV
20	Field room door open	83.8	Below TLV
21	Field room door closed	74.2	Below TLV

Monitored By	Sr. Officer-Safety :RSNRS
	Checked By :DSP

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Noise level Report – Q3 (Oct-Dec 2014)

Unit: MS Block

Date of Checking: 24-12-2014

S.No	Location	Noise Level(TLV:85db)		Remarks
NIU		Date of Checking: 24-12-2014		
1	73-P-27B (Cooling Water Pump)	85.0		Below TLV
2	73-PM-09B (Isomerase Storage Pump)	93.1		Above TLV
3	73-PM-01A(Aromatic Hydrogenation Feed Pump)	95.5		Above TLV
4	73-PM-08A(De-Iso - exnaizer Bottom Pump)	94.7		Above TLV
5	73-K-01B	North	84.6	Below TLV
		South	84.8	Below TLV
6	Air Fin Coolers (N/E Tech Structure)	98.6		Above TLV
7	Air Fin Coolers (West side Tech Structure)	94.8		Above TLV
NHT-CCR Unit		Date of Checking: 24-12-2014		
1	Stab Feed Exchanger Area(West of Unit)	83.2		Below TLV
2	CCR Air fin Cooler	86.1		Below TLV
3	74-PM-51A(LP Condensate Transfer Pump)	95.3		Above TLV
4	74-PM-02A(1st Stage Suction Drum Pump)	85.6		Below TLV
5	74-PV-2008 (H2 Manifold Check V/V)	88.5		Below TLV
6	74-PV-1901 Area	88.1		Below TLV
7	74-PM-04B(Stabilizer O/H Pump)	91.2		Above TLV
8	74-PM-06B(De-Ethanizer Reflux Pump)	87.9		Below TLV
9	72-P-02B(Wash Water Injection Pump)	89.4		Below TLV
10	72-PM-06A (Naphtha Splitter O/H pump)	97.8		Above TLV
11	74-PM-05A&B (BFW Booster Pump)	----		Not in Service
12	72-F-01 (Charge Heater)	94.2		Above TLV
13	72-F-02 (Splitter Re-Boiler)	90.2		Above TLV
14	74-LV-2201(Reformate R/D)	89.6		Below TLV
15	72-FV-0601 (NHT Fresh Feed)	85.9		Below TLV
16	72-PM-07A (Naphtha Splitter Re-Boiler pump)	93.8		Above TLV
17	72-PM-05A (Splitter Bottom)	96.6		Above TLV
18	72-PM-01A (Charge Pump NHT)	98.1		Above TLV
19	72-PM-04A (Stripper Reflux)	92.6		Above TLV
20	74-K-02A/B (B)	East	96.4	Above TLV
		West	94.8	
21	72-K-01A/B (B)	East	89.6	Below TLV
		West	93.7	Above TLV

22	74-P-01B (Separator Pump)	95.7	Above TLV
23	74-K-01 (Motor)	---	Not in service
24	Compressors Foundation Area	95.8	Above TLV
25	74-F-04 (Inter Charge Heater)	89.4	Below TLV
26	74-F-01 (Inter Charge Heater)	92.5	Above TLV
27	74-F-02 (Inter Charge Heater)	92.4	Above TLV
28	74-F-03 (Inter Charge Heater)	91	Above TLV
29	74-FM-01A (Induced Draft Fan)	East 88	Below TLV
		West 85	Below TLV
30	74-FM-01B (Induced Draft Fan)	East 89.1	Below TLV
		West 85	Below TLV
31	Splitter Air Fin Coolers(Above Pump Bay)	90	Above TLV
32	NHT Air Fin Coolers(Above Separartor72-V-04)	89.2	Below TLV
33	NHT-CCR Field Room (Doors Open)	78.4	Below TLV
34	NHT-CCR Field Room (Doors Closed)	76.1	Below TLV
FCC-NHT		Date of Checking:25-09-2014	
1	75-F-01 (HDS Feed Reactor Heater)	86.9	Below TLV
2	75-PM-02A (HDS Feed Pump)	---	Not In Service
3	75-PM-01B (SHU Feed Pump)	88.1	Below TLV
4	75-PM-06B (Quench Pump)	91.1	Above TLV
5	75-PM-05B(FCC Heart Cut Pump)	---	Not in service
6	75-PM-03A(Splitter Reflux Pump)	91.9	Above TLV
7	75-PM-12B (LP Condensate Transfer Pump)	88.8	Below TLV
8	75-PM-09A(Stabilizer Reflux Pump)	86.4	Below TLV
9	75-PM-07A (Stabilizer Bottom Pump)	88.6	Below TLV
10	75-FV-1701 (S/E of Unit)	93.1	Above TLV
11	75-K-01A	South 88.7	Below TLV
		North 89	Below TLV
12	Air Fin Coolers (North Tech Structure)	92.1	Above TLV
13	Air Fin Coolers (South Tech Structure)	91.8	Above TLV
14	Air Fin Coolers between North & South Structure	90.2	Above TLV
15	Field room (Door Close)	73.8	Below TLV
16	Field room (Door Open)	77	Below TLV
17	DCS	62.4	Below TLV

Monitored By	Sr. Officer-Safety : RSNRS
	Checked By : DSP



**VISAKH REFINERY
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Noise level Report – Q3 (Oct-Dec 2014)

Unit: MS Block

Date of Checking: 24-12-2014

S.No	Location	Noise Level(TLV:85db)	Remarks
NLU Unit		Date of Checking: 24-12-2014	
1	77-PM-1002B(Re-Generated Caustic Pump)	93.2	Above TLV
2	77-K-1001 B	----	Not in Service
3	77-PM-1001 A& B (Solvent Circulation Pump)	----	Not in Service
4	77-PM-1005B (Caustic Circulation Pump)	87	Below TLV
5	76-PM-102B (Amine Re-Generator Reflux Pump)	85.5	Below TLV
6	76-PM-101B (Rich Amine Pump)	92.9	Above TLV
7	78-PM-103A&B (Stripper Water Pump)	B 87.4	Below TLV
8	77-PM-1008B (LPG Booster Pump)	----	Not in Service
9	78-PM-104A&B (2nd Stage CR Pump)	B 91.8	Above TLV
10	76-PM-103B (Amine Re-Generator Bottom Pump)	85	Below TLV
11	76-PM-108B (Condensate Pump)	86.7	Below TLV
12	78-PM-102A&B (1st Stage CR Pump)	B 85.4	Below TLV
13	76-PM-104B (Lean Amine Pump)	91.7	Above TLV
14	78-PM-101 B (SWS Feed Pump)	89.8	Below TLV
15	Air Fin Coolers (North Tech Structure)	89.3	Below TLV
16	Air Fin Coolers (South Tech Structure)	96.4	Above TLV

Monitored By	Sr. Officer-Safety :RSNRS
	Checked By :DSP