

## 1. J-11011/22/94-A 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.**

**Status: Partially complied**

It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. However, it has been observed that the PAs are not adhering the some of the stipulations made by Andhra Pradesh State Pollution Control Board (APPCB). In this regard, directions also issued by APPCB vide letter no. 702/APPCB/UH-II/TF/VSP/2020 dated 10.03.2020.

**It is required to strictly adhere to the stipulations made by the Andhra Pradesh Pollution Control Board (APPCB), State Government and any other statutory authority.**

- ii. **Any expansion of the plant, either with the existing product mix or new product (s) or storage facilities etc. can be taken up only with the prior proposal of this Ministry.**

**Status: Partially complied**

It has been observed that the Ministry has accorded following EC's to the project:

SN	EC Letter No.	Date	Subject
01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA
02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization
03	J-11013/55/2003-IA II (I)	03.02.2004	Expansion from 7.5 to 10.0 MMTPA
04	J-11011/66/2007-IA II (I)	07.03.2008	Mounded storage for Propylene/LPG
05	J-11011/408/2009-IA-II(I)	02.09.2009	Expansion from 7.5 to 10.0 MMTPA
06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA

As per the above, it has been observed that, vide EC dated 03.02.2004 and 02.09.2009 project was under expansion from 7.5 to 10.0 MMTPA. As per EC dated 11.02.2016, project is under expansion from 8.33 MMTPA to 15.0 MMTPA. However, during inspection, no information has been provided for expansion of project from 7.5 to 8.33 MMTPA.

**It is required to provide detailed explanation regarding expansion of project from 7.5 MMTPA to 8.33 MMTPA along with the approval obtained from Ministry, if any.**

- iii. **The total emission of SO<sub>2</sub> from the entire refinery should be brought down from 9 TPD to 7.5 TPD in a phased manner and action plan for the same should be submitted to the Ministry. Until the SO<sub>2</sub> limit of 7.5 TPD is achieved in the near future, the total emission of SO<sub>2</sub> would not exceed the earlier prescribed limit of 9 TPD.**

**Status: Being complied**

	<p>It has been observed that, as per EC dated 10.04.1997, the total SO<sub>2</sub> emission from the project including DHDS should not exceed 11.5 TPD. It has been observed that the SO<sub>2</sub> emissions from the refinery is with in 11.5 TPD.</p>
<p>iv.</p>	<p><b>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 system (s) adopted by the unit, the respective unit should be shut down immediately and should not be restarted until the control measures are rectified to achieve the desired efficiency.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been stated that the process emissions, VOCs and Benzene from various units are under the prescribed limits of Environment (P) Act. However, it has been observed that the PAs have installed Methane (CH<sub>4</sub>) and H<sub>2</sub>S detectors only.</p> <p>It has been assured that, in the event of failure of pollution control system(s) adopted by the unit, the unit will be immediately put out of operation and will not be restarted until the desired efficiency of the pollution control device has been achieved.</p> <p><b>It is required to monitor process emissions viz., SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane &amp; Non-methane), VOCs and Benzene from various units and monitoring reports to be submitted along with six monthly compliance reports on regular basis.</b></p>
<p>v.</p>	<p><b>Sulphur recovery units with more than 99% efficiency for Sulphur recovery should be provided.</b></p> <p><b>Status: Being complied</b></p> <p>As per the discussions held during meeting, it has been observed that the Sulphur recovery units with more than 99% efficiency for Sulphur recovery were provided.</p>
<p>vi.</p>	<p><b>Low NO<sub>x</sub> burners to avoid excessive formulation of NO<sub>x</sub> should be provided.</b></p> <p><b>Status: Being complied</b></p> <p>As per the discussions held during meeting, it has been observed that the low NO<sub>x</sub> burners were provided to avoid excessive formulation of NO<sub>x</sub>.</p>
<p>vii.</p>	<p><b>Adequate ambient air quality monitoring stations should be setup in the refiner are in the down wind direction as well as where maximum ground level concentrations of SO<sub>2</sub>, NO<sub>x</sub>, 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.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs have installed three (03) nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) for monitoring of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub> and Benzene. However, HS, mercaptan and non-methane-HC are not being monitored at CAAQMS stations. As per the data observed, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> emissions were exceeded the prescribed limits of NAAQMS, 2009.</p>

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**It is required to monitor HS, mercaptan and non-methane-HC at all AAQ monitoring stations. It is required to take appropriate measures to control the PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> emissions in the project area.**

During the inspection the Joint Committee, with the help of Zonal Laboratory, APPCB, Visakhapatnam has carried out ambient air quality monitoring within the refinery premise. Ambient air quality monitoring was carried at five locations within and outside the industry premises and monitored for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, NH<sub>3</sub>, O<sub>3</sub>, CO, Benzene and VOCs between 25.03.2021 and 27.03.2021 using manual & Mobile CAAQM stations. Monitoring locations and results are as below:

SN	Location	Latitude	Longitude	Date of monitoring	Parameters
<b>I Manual Stations</b>					
1	North-east side of the industry (near industry CAAQM stations at HLPH)	17.696921	83.251094	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> & NH <sub>3</sub> .
2	South-west to industry (Yarada park housing colony - S10 building)	17.688231	83.240756		
3	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038		

<b>II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)</b>					
1	North-west corner of the industry near ETP - 4	17.700329	83.237126	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , NH <sub>3</sub> , O <sub>3</sub> , CO,
2	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038	26.03.2021 and 27.03.2021	Benzene and VOCs.

Ambient air quality monitoring analysis results

SN	Location	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
<b>I Manual Stations</b>									
1	North-east side of the industry (near industry CAAQM stations at HLPH)	267	92	44	33	29	-	-	-
2	South-west to industry (Yarada park	115	69	19	17	27	-	-	-

	housing colony - S10 building)								
3	South-east side of the industry (near industry CAAQM station)	248	83	48	36	30	-	-	-
<b>II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)</b>									
1	North-west corner of the industry near ETP - 4	320	89	84	39	40	57.7	1.4	2.7
2	South-east side of the industry (near industry CAAQM station)	298	94	52	42	35	66.2	1.7	3.3
24 Hour average standard		100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
Annual average standard		60	40	50	40	100	180 (1 hr)	2 (8 hrs)	5
All values are expressed in $\mu\text{g}/\text{m}^3$ , except CO. CO value expressed in $\text{mg}/\text{m}^3$ .									
<p>On the request of the Joint Committee, Zonal Laboratory, Andhra Pradesh Pollution Control Board, Visakhapatnam has carried out ambient air quality monitoring using mobile CAAQM Station for three days between 03.05.2021 and 06.05.2021 in the residential area of Malkapuram at Ajanta colony which lies south-east direction of M/s. HPCL Refinery to verify the impact of emissions from the refinery. The results obtained are as follows:</p>									
SN	Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
1	03.05.2021 to 04.05.2021	91	25	33	25	16	41.2	0.9	1.5
2	04.05.2021 to 05.05.2021	72	17	25	22	15	29.7	1.0	0.6
	05.05.2021 to 06.05.2021	67	16	37	24	23	55.1	0.9	0.7
24 Hour average standard		100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
Annual average standard		60	40	50	40	100	180 (1 hr)	2 (8 hrs)	5
All values are expressed in $\mu\text{g}/\text{m}^3$ , except CO. CO value expressed in $\text{mg}/\text{m}^3$ .									
<p>From the above data, it has been observed that the values of PM<sub>10</sub> and PM<sub>2.5</sub> are exceeding the 24 hour standards. The values of SO<sub>2</sub> and NO<sub>2</sub>, though not exceeding the standard limits found far higher than the values obtained at the locations elsewhere in Visakhapatnam city. This indicates that there are leaks in the process systems through which, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, etc. are find their way into the ambient air as fugitive emissions. Higher values of PM<sub>10</sub> &amp; PM<sub>2.5</sub> in the ambient air could also be attributed the expansion works going on within the premises of the refinery.</p>									

	<p><b>It is required to take adequate measures to control the PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> in the ambient air of the project surroundings. It requires immediate action.</b></p> <p><b>It is required to provide a mobile van with adequate facilities to monitor ambient air quality outside the refinery premises. It requires immediate action.</b></p>														
viii.	<p><b>Fugitive emissions of HC from storage tanks, crude oil tanks etc., should be minimised by adopting necessary measures.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are in process of controlling fugitive emissions of HC from storage tanks, crude oil tanks et.,. However, monitoring reports of fugitive emissions at storage tanks, crude oil tanks and processing locations are not being submitted.</p> <p><b>It is required to submit the fugitive emissions monitoring to be conducted at storage tanks, crude oil tanks and processing locations and the monitoring reports to be submitted along with six monthly compliance reports on regular basis.</b></p>														
ix.	<p><b>Adequate facilities for monitoring the fugitive emissions should be planned.</b></p> <p><b>Status: Partially complied</b></p> <p>As stated above, it has been observed that the PAs are in process of controlling fugitive emissions of HC from storage tanks, crude oil tanks et.,. However, monitoring reports of fugitive emissions at storage tanks, crude oil tanks and processing locations are not being submitted. It has been observed that the sensor for detection of Methane (CH<sub>4</sub>) and H<sub>2</sub>S were installed at the process locations.</p> <p><b>It is required to submit the fugitive emissions monitoring to be conducted at storage tanks, crude oil tanks and processing locations and the monitoring reports to be submitted along with six monthly compliance reports on regular basis.</b></p>														
x.	<p><b>The stacks should be of appropriate design and height and should be attached to pollution control systems wherever necessary. Height of stacks attached to crude oil furnace and waste heat boilers should be increased to the maximum height as permitted by the Civil Aviation Department. Continuous on-line stack monitoring equipment's for measurement of SO<sub>2</sub> &amp; NO<sub>x</sub> should be installed. The monitored data should be submitted SPC every 3 months and every 6 months to the Ministry of Env. &amp; Forest for review.</b></p> <p><b>Status: Partially complied</b></p> <p>The Joint Committee has carried out monitoring of flue gas emissions from five important stacks for SPM, SO<sub>2</sub> and NO<sub>x</sub> during the period of inspection between 25.03.2021 and 27.03.2021. Details of stacks monitored and the results are as follows:</p> <table border="1"> <thead> <tr> <th>SN</th> <th>Sample code</th> <th>Stack identity</th> <th>Date of monitoring</th> <th>Parameter</th> <th>Value (mg/Nm<sup>3</sup>)</th> <th>Standard</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ST-006</td> <td></td> <td>25.03.2021</td> <td>SPM</td> <td>39.0</td> <td>100</td> </tr> </tbody> </table>	SN	Sample code	Stack identity	Date of monitoring	Parameter	Value (mg/Nm <sup>3</sup> )	Standard	1	ST-006		25.03.2021	SPM	39.0	100
SN	Sample code	Stack identity	Date of monitoring	Parameter	Value (mg/Nm <sup>3</sup> )	Standard									
1	ST-006		25.03.2021	SPM	39.0	100									

		Stack attached to DHDS Reformer-61F11				
				SO <sub>2</sub>	63.5	--
				NO <sub>x</sub>	35.7	--
2	ST-007	Stack attached to combined feed heater and product fractionators reboilers-90F01, 90F02	26.03.2021	SPM	24.9	100
				SO <sub>2</sub>	184.7	--
				NO <sub>x</sub>	204.9	--
3	ST-008	Stack attached to Flue gas desulphurization unit FGD-II	26.03.2021	SPM	36.0	50
				SO <sub>2</sub>	147.5	--
				NO <sub>x</sub>	112.8	--
4	ST-009	Stack attached to continuous catalytic reforming unit (CCR) 74F1, F2, F3, F4	26.03.2021	SPM	22.0	100
				SO <sub>2</sub>	25.1	--
				NO <sub>x</sub>	117.4	--
5	ST-010	Stack attached SRU Train - III Incinerator 79F302	27.03.2021	SPM	23.0	100
				SO <sub>2</sub>	32.5	--
				NO <sub>x</sub>	35.7	--

Out of 35 stacks installed, PAs have installed Online Continuous Emission Monitoring Systems (OCEMS) to 32 stacks to monitor the flue gas emissions for Particulate Matter (PM), Sulfur dioxide (SO<sub>2</sub>), Nitrogen dioxide (NO<sub>2</sub>) and Carbon monoxide (CO) on real-time basis and connected to APPCB & CPCB server. Analysis data obtained from these stacks for the period from 01.01.2020 to 30.04.2021 has been collected and annexed. There is an few exceedances noticed during March, 2021

According to the CFO conditions issued by APPCB has prescribed stipulated standards for pollutant emission loads from the stacks for PM, SO<sub>2</sub>, NO<sub>x</sub> & hydrocarbons. The Joint Committee calculated pollutant emission load for compliance verification as tabulated below.

SN	Stack ID		SPM (TPD)	NO <sub>x</sub> (TPD)	SO <sub>2</sub> (TPD)
	SN as per CFO order	As per CEMS	Actual as per CEMS	Actual as per CEMS	Actual as per CEMS
1	Stack 4	Stack 01_CDU_I_2F1	0.028	0.058	0.283
2	Stack 6	Stack02_CDU_I_2F2-	0.008	0.043	0.182
3	Stack 5	Stack03_CDU_I_2F4-	0.016	0.055	0.275
4	Stack 1	Stack04_CDU_II_11F1-	0.068	0.173	0.543
5	Stack 2	Stack05_CDU_II_12F1-	0.015	0.066	0.166
6	Stack 12	Stack06_CDU_III_42F1-	0.057	0.133	0.552
7	Stack 13	Stack07_CDU_III_42F2-	0.01	0.04	0.15
8	Stack 14	Stack08_VBU_46F1-	0.006	0.062	0.137
9	Stack 15	Stack09_FCCU_I_4F51-	0.015	0.02	0.116
10	Stack 16	Stack10_FCCU_I_4F52-	0.094	0.045	0.146
11	Stack 35	Stack11_FCCU_I_FGD1-	0.063	0.42	0.184
12	Stack 3	Stack12_FCCU_II_14F1-	0.012	0.023	0.139
13	Stack 9	Stack13_FCCU_II_14F3-	NA	0.029	0.093
14	Stack 34	Stack14_FCCU_II_FGD2-	0.111	0.31	0.098
15	Stack 8	Stack15_PP_I_WIL8-	NA	NA	NA

16	Stack 27	Stack16_PP_1_IBH-	0.01	0.203	0.273
17	Stack 21	Stack17_DHDS_60F1-	0.002	0.045	0.108
18	Stack 19	Stack_18_DHDS_REFORME R-	NA	0.042	0.054
19	Stack 20	Stack19_DHDS_HGU_61F1	NA	NA	NA
20	Stack 22	Stack20_DHDS_SRU_65F00 1-	NA	0.02	0.042
21	Stack 26	Stack21_DHDS_SRU_79F30 2-	NA	0.008	0.176
22	Stack 24	Stack22_CCR_74_F1toF4-	0.021	0.135	0.042
23	Stack 23	Stack23_NHT_72_F1F2-	0.003	0.017	0.02
24	Stack 25	Stack24_FCCNHT_75F1-	0.001	0.004	0.006
25	Stack 17	Stack25_CPP_HRSGIII-	0.083	0.978	0.047
26	Stack 18	Stack26_CPP_HRSGIV-	0.103	0.575	0.06
27	Stack 28	Stack27_CPP_HRSGV-	0.058	0.648	0.192
28	Stack 29	Stack28_CPP_HRSGVI-	0.064	0.74	0.176
29	Stack 30	Stack_29_DHT_FEED_90F01 _02-	0.054	0.092	0.138
30	Stack 32	Stack_30_DHT_HGU_NAPTH A_HEATER_91F01-	0	0.002	0.001
31	Stack 31	Stack_31_DHT_HGU_91M20 -	0.063	0.079	0.071
32	Stack 33	Stack_32_DHT_SRU_92M22-	0.004	0.018	0.051
Total (as calculated from the results obtained from CEMS connected to 32 stacks)			0.969	5.083	4.521
Total emission load (as stipulated to each stack in the CFO Order against the 32 stacks)			5.609	---	---
Total emission load (as stipulated to each stack in the CFO Order against all the 36 stacks)			6.72	---	---
Total emission load prescribed as per CFO Order			1.11	6.5	11.5

From the above calculations, the parameters PM, SO<sub>2</sub> and NO<sub>2</sub> are meeting the prescribed standard for pollution emission load.

**It has been observed that, as per CFO, there were 35 stacks were present in the project. However, continuous on-line stack monitoring facilities were provided for 32 stacks only. It is required to provide the same for rest of three stacks also.**

xi. **The existing waste water treatment facilities should be suitable augmented so as to meet the MINAS standards.**

**Status: Partially complied**

It has been assured that the fresh water requirement from Greater Visakha Municipal Corporation will not exceed 873 m<sup>3</sup>/hr after expansion and prior permission will be obtained from the competent authority. As per the discussions held during monitoring, it has been observed that the domestic and process & washings requirements of the refinery are met from the Greater Visakhapatnam Municipal Corporation supply. Cooling water requirements are met from the water drawn from sea. PAs have provided the data of water consumption & wastewater generation during the year 2020 (January to December) and are as follows:

SN	Purpose	Permitted quantity as per the CFO order (KLD)	Actual consumption (KLD)
1	Process & washings	10,176	9,250

2	Boiler feed	1,680	7,718
3	Industrial cooling (make up) / humidification / water spraying	5,03,305	2,13,035
4	Industrial water	6,900	---
5	Domestic	732	732
Total		5,22,793	2,30,735

It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO.

Wastewater is generated mostly during desalting of crude oil (striped Water), spent caustic solutions, floor washings, crude & product tank washings, boiler blowdowns, etc.

SN	Outlet description	Max. daily discharge as per CFO order (KLD)	Point of disposal	Actual quantity of wastewater discharge during the year 2020 (KLD)
1	Process & Washings	11,820	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment in ETPs – I, II & IV.	5,272
2	Cooling blow down	2,18,286	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment	2,18,286
3	Domestic effluents	636	Shall be used for on land for irrigation within the industry premises after treatment in STP.	636
Total		2,30,742	---	2,24,194

It has been observed that the project have three ETPs and two effluent discharge streams. The details of ETP and flow patterns are as follows:

SN	ETP / STP	Capacity	Units
<b>I Industrial effluents:</b>			
1	ETP - 1	135 KL/Hour (3,240 KLD)	API, TPIs for free oil removal, dissolved air floatation, flocculation tank, equalisation tank, aeration tank & duel media filters (carbon & sand).
2	ETP - 2	325 KL/Hour (7,800 KLD)	API, TPIs for free oil removal, neutralisation tank, ammonia stripper, dissolved air floatation tank, equalisation tank, two-stage biological treatment, duel media & activated carbon filters.

3	ETP - 4	180 KL/Hour (4,320 KLD)	API, TPIs, flash mixing tanks, flocculation tank, dissolved air floatation tank, sequential batch reactor for removal of organics, duel media filters, activated carbon filters followed by disinfection through bromination.
Point of disposal: Treated effluent along with the ones-through cooling water is discharged into Megadrigedda surplus overflow channel through two numbers of Main Hay Filters, which finally joins the sea Bay of Bengal.			
Total		640 KL/Hour (15360 KLD)	---
<b>II Domestic effluents:</b>			
1	STP - 1	25 KLD	Constructed Wetland Technology treatment followed by on land for gardening.
2	STP - 2	15 KLD	
Total		40 KLD	---

During the inspection, Joint Committee has collected treated effluents from various Effluent Treatment Plants for compliance verification on 26.03.2021 and these samples have been analysed in the Zonal Laboratory, APPCB, Visakhapatnam. Details of samples collected and analysis results are as follows:

SN	Parameters	MHF-II outlet (E-332)	MHF-I outlet (E-333)	CFO Order stipulated standards
1	pH	7.16	7.28	6.50 - 8.50
2	Oil & grease	< 1.0	< 1.0	1.0
3	Hexavalent chromium (as Cr)	0.01	BDL	0.10

All values are expressed in mg/lit. except pH.

SN	Parameter	ETP - I - DMF outlet (E-334)	ETP - IV ACF outlet (E-335)	CFO Order stipulated standards
1	pH	7.64	8.33	6.5-8.5
2	Total Suspended Solids at 105° C	23	57	20
3	Chemical Oxygen Demand	44	96	125
4	Biochemical Oxygen Demand	10.5	23.0	15
5	Oil & Grease	<1	2.0	5.0
6	Sulphides (as S <sup>2-</sup> )	1.6	2.4	0.5
7	Ammonical Nitrogen (as NH <sub>3</sub> -N)	3.9	26.3	15.0
8	Phenols (as C <sub>6</sub> H <sub>5</sub> OH)	BDL	0.02	0.35
9	Phosphates (as P)	0.08	0.07	3.0
10	Hexavalent Chromium (as Cr <sup>6+</sup> )	BDL	BDL	0.10
11	Total Chromium (as Cr)	0.0007	0.0010	2.0
12	Lead (as Pb)	0.0002	<0.0001	0.10
13	Zinc (as Zn)	0.0090	0.0080	5.0
14	Nickel (Ni)	0.0083	0.0024	1.0
15	Copper (as Cu)	0.0025	0.0007	1.0
16	Cyanide (as CN <sup>-</sup> )	BDL	BDL	0.2

All values are expressed in mg/l except pH.

From the above, it has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (E – 335).

Analysis results of treated domestic effluent are as follows:

SN	Parameter	STP outlet (E-336)	Standard
1	pH	8.40	6.5-8.5
2	Total Suspended Solids at 105 <sup>o</sup> C	14	100 mg/l
3	Total Dissolved Solids at 105 <sup>o</sup> C	820	----
4	Chemical Oxygen Demand	72	----
5	Biochemical Oxygen Demand	18	30 mg/l

It has been observed that the treated effluent is not being reused/recycled as make-up water for raw water cooling towers.

**It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO. It is required to take appropriate**

**It has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (E – 335). It is required to take adequate measures to control the above pollutants in the effluents.**

**It is required to make efforts to recycle the treated effluent to achieve zero discharge and the treated effluent should be fully reused/recycled as make-up water for raw water cooling towers.**

xii. **Recycling /Reuse of the treated effluent to the maximum extent possible should be planned.**

**Status: Not complied**

As stated above, the treated effluent is not recycled / reused and being discharged outside of the project premises.

**It is required to recycle / reuse the treated effluent to the maximum extent possible.**

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.**

**Status: Partially complied**

It has been observed that the project have three ETPs and two effluent discharge streams. The details of ETP and flow patterns are as follows:

SN	ETP / STP	Capacity	Units
<b>I</b>	<b>Industrial effluents:</b>		
1	ETP - 1	135 KL/Hour (3,240 KLD)	API, TPis for free oil removal, dissolved air floatation, flocculation tank,

			equalisation tank, aeration tank & dual media filters (carbon & sand).
2	ETP - 2	325 KL/Hour (7,800 KLD)	API, TPIs for free oil removal, neutralisation tank, ammonia stripper, dissolved air floatation tank, equalisation tank, two-stage biological treatment, dual media & activated carbon filters.
3	ETP - 4	180 KL/Hour (4,320 KLD)	API, TPIs, flash mixing tanks, flocculation tank, dissolved air floatation tank, sequential batch reactor for removal of organics, dual media filters, activated carbon filters followed by disinfection through bromination.
Point of disposal: Treated effluent along with the ones-through cooling water is discharged into Megadrigedda surplus overflow channel through two numbers of Main Hay Filters, which finally joins the sea Bay of Bengal.			
Total		640 KL/Hour (15360 KLD)	---
<b>II Domestic effluents:</b>			
1	STP - 1	25 KLD	Constructed Wetland Technology treatment followed by on land for gardening.
2	STP - 2	15 KLD	
Total		40 KLD	---

It has been observed that the discharge effluent is being monitored for pH, flow rate, TDS, COD and BOD. During the day of monitoring, the parameters are as follows:

SN	Parameter	Effluent from	
		ETP-I	ETP-IV
1	Flow rate (m <sup>3</sup> /hr)	70	115
2	pH	6.74	7.61
3	COD (mg/L)	93.69	66.03
4	BOD (mg/L)	10.87	9.65
5	TDS (mg/L)	7.81	5.75

However, the flow rate and quality of effluent is being monitored for effluents discharged from ETP only. However, flow rate of cooling discharge water is not being monitored.

**It is required to install/upgrade online monitoring facilities for monitoring of parameters like phenols, sulphides, oil and grease, suspended solids at final treated effluent discharge locations.**

xiv. **System to recover oil from the oily sludges and incinerator for burning the residues should be provided.**

**Status: Being complied**

It has been observed that the oily sludge is being collected in two storage ponds and the collected sludge is being sent to recovery unit. The residual sludge is being disposed to sludge collection units. The sludge from the ETP is being sent to bio-remediation for recovery of residual oil. This is being operated by M/s TERI using oil zapper bacterial remediation treatment method.

xv.	<p><b>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.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021. It has been observed that the PAs are complying with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000 Hazardous waste should be disposed of as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and amended time to time.</p>
xvi.	<p><b>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.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs are in process of taking necessary measures to keep the noise levels within the prescribed limits in and around the plant area. The control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation were implemented.</p>
xvii.	<p><b>The density of green belt within the plant premises should be increased using native plant species in consultation with the local DFO.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are in process of developing green belt in and around the plant premises. However, it has been observed that the plantation around the project area is not satisfactory.</p> <p><b>It is required to develop thick green belt with suitable species as per the CPCB guidelines and in consultation with the local DFO.</b></p>
xviii.	<p><b>Various socio-economic schemes should be initiated by HPCL so as to improve the socio economic environment in the region.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been stated that the PAs are in process of implementing various socio-economic schemes to improve the socio economic environment in the region.</p> <p><b>It is required to provide the detailed report regarding implementation of various socio-economic schemes along with expenditure incurred for last three years.</b></p>
xix.	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been stated that the recommendation made by NEERI in the EMP was implemented.</p> <p><b>It is required to provide the detailed report regarding the implementation of recommendations made by NEERI in EMP of the project.</b></p>

xx.	<p><b>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.</b></p> <p><b>Status: Being complied</b></p> <p>It has been stated that, prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. have been obtained. However, copies were not provided.</p> <p><b>It is required to provide the copies of approvals taken from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc., wherever applicable.</b></p>
xxi.	<p><b>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.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have a dedicated laboratory facility for collection and analysis of samples.</p>
xxii.	<p><b>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 organisation.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have an Environmental Management Cell with suitably qualified people to carry out various functions under the control of a senior executive who will report directly to the head of the organisation.</p>
xxiii.	<p><b>Medical surveillance of workers should be done regularly to avoid possibility of contracting occupational diseases against the workers engaged in the various plants and records maintained.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have own occupational health centre/hospital within the project premises are conducting regular health check-ups of all workers including both departmental and contractual and records are being maintained. As per the records available, all the workers are being going for IME and PME and periodical health check-ups.</p>
xxiv.	<p><b>The project authorities should carry out a water balance study at the proposed site and submit the report within 12 months.</b></p> <p><b>Status: Complied</b></p> <p>As per the discussions held during monitoring, it has been observed that the condition has complied with.</p>
xxv.	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p>

It has been informed that, adequate funds have been earmarked towards capital cost and recurring cost/annum for environment pollution control measures and being used to implement the conditions stipulated by the Ministry as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided were not be diverted for any other purposes.

**It is required to provide the detailed report on expenditure incurred for environment pollution control measures to implement the conditions stipulated by the Ministry as well as the State Government along with the implementation schedule for all the conditions stipulated herein for last three years.**

**2. 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 Andhra Pradesh State Pollution Control Board and the State Govt.**

**Status: Partially complied**

It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. However, it has been observed that the PAs are not adhering the some of the stipulations made by Andhra Pradesh State Pollution Control Board (APPCB). In this regard, directions also issued by APPCB vide letter no. 702/APPCB/UH-II/TF/VSP/2020 dated 10.03.2020.

**It is required to strictly adhere to the stipulations made by the Andhra Pradesh Pollution Control Board (APPCB), State Government and any other statutory authority.**

- ii. **No expansion or modernisation of the plant should be carried out without prior approval of the Ministry of Environment and Forests.**

**Status: Partially complied**

It has been observed that the Ministry has accorded following EC's to the project:

SN	EC Letter No.	Date	Subject
01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA
02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization
03	J-11013/55/2003-IA II (I)	03.02.2004	Expansion from 7.5 to 10.0 MMTPA
04	J-11011/66/2007-IA II (I)	07.03.2008	Mounded storage for Propylene/LPG
05	J-11011/408/2009-IA-II(I)	02.09.2009	Expansion from 7.5 to 10.0 MMTPA
06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA

As per the above, it has been observed that, vide EC dated 03.02.2004 and 02.09.2009 project was under expansion from 7.5 to 10.0 MMTPA. As per EC dated 11.02.2016, project is under expansion from 8.33 MMTPA to 15.0 MMTPA. However, during inspection, no information has been provided for expansion of project from 7.5 to 8.33 MMTPA.

**It is required to provide detailed explanation regarding expansion of project from 7.5 MMTPA to 8.33 MMTPA along with the approval obtained from Ministry, if any.**

- iii. **The total SO<sub>2</sub> emission from Visakh Refinery including DHDS project should not exceed the norm of 11.5 TPD.**

**Status: Being complied**

As per the discussions held during monitoring, it has been observed that the SO<sub>2</sub> emissions are not exceeding 11.5 TPD.

- iv. **The existing ETP should be adequately augmented (if required) to accommodate the additional effluent from the DHDS project before commissioning project so as ensure the treated effluent meets the MINAS.**

**Status: Partially complied**

It has been assured that the fresh water requirement from Greater Visakha Municipal Corporation will not exceed 873 m<sup>3</sup>/hr after expansion and prior permission will be obtained from the competent authority. As per the discussions held during monitoring, it has been observed that the domestic and process & washings requirements of the refinery are met from the Greater Visakhapatnam Municipal Corporation supply. Cooling water requirements are met from the water drawn from sea. PAs have provided the data of water consumption & wastewater generation during the year 2020 (January to December) and are as follows:

SN	Purpose	Permitted quantity as per the CFO order (KLD)	Actual consumption (KLD)
1	Process & washings	10,176	9,250
2	Boiler feed	1,680	7,718
3	Industrial cooling (make up) / humidification / water spraying	5,03,305	2,13,035
4	Industrial water	6,900	---
5	Domestic	732	732
Total		5,22,793	2,30,735

It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO.

Wastewater is generated mostly during desalting of crude oil (striped Water), spent caustic solutions, floor washings, crude & product tank washings, boiler blowdowns, etc.

SN	Outlet description	Max. daily discharge as per CFO order (KLD)	Point of disposal	Actual quantity of wastewater discharge during the year 2020 (KLD)
1	Process & Washings	11,820	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment in ETPs - I, II & IV.	5,272
2	Cooling blow down	2,18,286	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment	2,18,286
3	Domestic effluents	636	Shall be used for on land for irrigation within the industry premises after	636

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			treatment in STP.	
Total		2,30,742	---	2,24,194

It has been observed that the project have three ETPs and two effluent discharge streams. The details of ETP and flow patterns are as follows:

SN	ETP / STP	Capacity	Units
<b>I Industrial effluents:</b>			
1	ETP - 1	135 KL/Hour (3,240 KLD)	API, TPIs for free oil removal, dissolved air floatation, flocculation tank, equalisation tank, aeration tank & duel media filters (carbon & sand).
2	ETP - 2	325 KL/Hour (7,800 KLD)	API, TPIs for free oil removal, neutralisation tank, ammonia stripper, dissolved air floatation tank, equalisation tank, two-stage biological treatment, duel media & activated carbon filters.
3	ETP - 4	180 KL/Hour (4,320 KLD)	API, TPIs, flash mixing tanks, flocculation tank, dissolved air floatation tank, sequential batch reactor for removal of organics, duel media filters, activated carbon filters followed by disinfection through bromination.

Point of disposal: Treated effluent along with the ones-through cooling water is discharged into Megadrigedda surplus overflow channel through two numbers of Main Hay Filters, which finally joins the sea Bay of Bengal.

Total	640 KL/Hour (15360 KLD)	---
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<b>II Domestic effluents:</b>			
1	STP - 1	25 KLD	Constructed Wetland Technology treatment followed by on land for gardening.
2	STP - 2	15 KLD	
Total		40 KLD	---

During the inspection, Joint Committee has collected treated effluents from various Effluent Treatment Plants for compliance verification on 26.03.2021 and these samples have been analysed in the Zonal Laboratory, APPCB, Visakhapatnam. Details of samples collected and analysis results are as follows:

SN	Parameters	MHF-II outlet (E-332)	MHF-I outlet (E-333)	CFO Order stipulated standards
1	pH	7.16	7.28	6.50 - 8.50
2	Oil & grease	< 1.0	< 1.0	1.0
3	Hexavalent chromium (as Cr)	0.01	BDL	0.10

All values are expressed in mg/lit. except pH.

SN	Parameter	ETP - I - DMF outlet (E-334)	ETP - IV ACF outlet (E-335)	CFO Order stipulated standards
1	pH	7.64	8.33	6.5-8.5
2	Total Suspended Solids at 105° C	23	57	20

3	Chemical Oxygen Demand	44	96	125
4	Biochemical Oxygen Demand	10.5	23.0	15
5	Oil & Grease	<1	2.0	5.0
6	Sulphides (as S <sup>2-</sup> )	1.6	2.4	0.5
7	Ammonical Nitrogen (as NH <sub>3</sub> -N)	3.9	26.3	15.0
8	Phenols (as C <sub>6</sub> H <sub>5</sub> OH)	BDL	0.02	0.35
9	Phosphates (as P)	0.08	0.07	3.0
10	Hexavalent Chromium (as Cr <sup>6+</sup> )	BDL	BDL	0.10
11	Total Chromium (as Cr)	0.0007	0.0010	2.0
12	Lead (as Pb)	0.0002	<0.0001	0.10
13	Zinc (as Zn)	0.0090	0.0080	5.0
14	Nickel (Ni)	0.0083	0.0024	1.0
15	Copper (as Cu)	0.0025	0.0007	1.0
16	Cyanide (as CN <sup>-</sup> )	BDL	BDL	0.2

All values are expressed in mg/l except pH.

From the above, it has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (E – 335).

Analysis results of treated domestic effluent are as follows:

SN	Parameter	STP outlet (E-336)	Standard
1	pH	8.40	6.5-8.5
2	Total Suspended Solids at 105 <sup>o</sup> C	14	100 mg/l
3	Total Dissolved Solids at 105 <sup>o</sup> C	820	----
4	Chemical Oxygen Demand	72	----
5	Biochemical Oxygen Demand	18	30 mg/l

It has been observed that the treated effluent is not being reused/recycled as make-up water for raw water cooling towers.

**It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO. It is required to take appropriate**

**It has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (E – 335). It is required to take adequate measures to control the above pollutants in the effluents.**

**It is required to make efforts to recycle the treated effluent to achieve zero discharge and the treated effluent should be fully reused/recycled as make-up water for raw water cooling towers.**

- v. **Time bound Action Plan for disposal of Oil 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.**

**Status: Complied**

	<p>As per the discussions, it has been observed that the PAs have submitted the time bound Action Plan for disposal of Oil Sludge/recovery of oil and design details of the solid waste disposal pit to the Ministry.</p>
vi.	<p><b>SRU having an efficiency of more than 99% should be installed.</b></p> <p><b>Status: Being complied</b></p> <p>It has been stated the SRU having 99.9% efficiency of Sulphur recovery.</p>
vii.	<p><b>The ground water quality should be regularly monitored and report submitted to the Ministry every six months.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions, it has been observed that the PAs are monitoring ground water quality by third party monitoring agency. However, monitoring reports are not being submitted along with six monthly compliance reports.</p> <p><b>It is required to submit the ground water monitoring reports along with six monthly compliance reports to Ministry's Integrated Regional Office at Vijayawada on regular basis.</b></p>
viii.	<p><b>Time Bound Action Plant 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 the details of funds allocated for implementing the above.</b></p> <p><b>Status: Complied</b></p> <p>As per the discussions, it has been observed that the PAs have submitted the time bound action plant to implement the conditions stipulated by the Ministry while according environmental clearance for the refinery complex to the Ministry along with the details of funds allocated for implementing the above.</p>

**3. J-11013/55/2003-IA II (I) dated 03.02.2004**

**Stipulated Conditions:**

- i. **The SO<sub>2</sub> emissions and HC emissions shall remain same at 11.5 TPD and 2.5 TPD respectively, reduction in the SPM and NO<sub>x</sub> emissions from 1.45 TPD to 1.11 and 6.6 to 6.5 TPD respectively by installation of integrated FGD unit in the CFP process and low NO<sub>x</sub> burners.**

**Status: Partially complied**

It has been observed that the PAs are maintaining record of sulphur balance at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance included sulphur input through feed (Sulphur content in crude oil), sulphur output from Refinery through products, by product (elemental sulphur), atmospheric emissions etc. However, the Sulphur balance data is not being submitted to Regional Office.

**It is required to submit the monthly Sulphur balance sheet of the refinery along with six monthly compliance report on regular basis to Integrated Regional Office (IRO), Vijayawada.**

The Joint Committee has carried out Sulphur balance studies during inspection for verification of compliance of stipulated standards. For the study, the Joint Committee has collected Sulphur related data of crude processed and petroleum products produced during the year, 2020 (January to December).

Quantity of crude obtained from various sources and the concentrations of Benzene and Sulphur contents as per the information provided by M/s. HPCL Refinery are as follows:

SN	Type of crude	Crude quantity (TMT)	No. of parcels	Benzene content (wt%)	Sulphur content (%)
1	MH	416.4	8	1.8	0.124
2	Bonny light	1395.7	6	0.1	0.138
3	WTI	1059.3	4	0.1	0.169
4	Quaiboe	467.6	3	0.1	0.115
5	ERHA	127.7	1	0.3	0.169
6	AZERI	92.5	1	0.1	0.158
7	Kuwait	62.1	1	0.1	2.808
8	Arab Lt	206.2	8	0.1	1.997
9	Arab Ex Lt	698.5	7	0.2	1.007
10	Arab Hy	510.8	8	0.05	2.978
11	Murban	390.5	5	0.2	0.769
12	Basrah Hvy	39.9	1	0.1	4.2
12	Basrah Lt	1416.3	14	0.1	3.005
13	Das	1902.4	16	0.2	1.186
14	Ravva	285.0	5	0.1	0.052
Total		9070.9	88	0.243	1.258

Accordingly, an amount of about 22,042 metric tons of Benzene and 1,14,112 metric tons of Sulphur will be having the 90,70,900 metric tons (9070.9 TMT) of crude obtained by the refinery during the year, 2020.

Quantity of petroleum products generated and their Sulphur content are as follows:

SN	Product	Production in Tons	Sulphur % in product	Sulphur quantity in Tons (Actual)
1	Propylene	46,000	0.004	1.84
2	LPG	4,18,000	0.013	54.34

3	Naphtha	3,68,700	0.024	88.48
4	Motor spirit	16,72,900	0.001	16.729
5	ATF	59,100	0.036	21.276
6	SKO	1,42,200	0.019	27.018
7	Diesel	39,31,500	0.580	22802.7
8	FO 3.5 % S	9,36,100	3.5	32763.5
9	FO 1.0% S	1,68,500	1	1685
10	Bitumen	5,15,400	5.70	29377.8
11	Sulfur	34,800	--	34800
12	Refinery Fuel	7,27,300	0.22	1600.06
13	Intermediate Stream Build up	50,500		
Total:		90,71,100	--	1,23,238.743

Further, the refinery has used three types of fuels viz., fuel gas, low Sulphur heavy stock (LSHS) fuel oil and CPP Naphtha for crude distillation, capital power generation, etc. purposes, which again is also having Sulphur concentrations. The quantities of various fuels used and their Sulphur content have also been verified by the Joint Committee while carrying out Sulphur balance studies as detailed below:

SN	Month	Fuel quantity (metric Tons)	Sulfur concentration	Total sulfur (metric tons)
<b>I Fuel gas</b>				
1	January	18341	82 PPM	1.50396
2	February	19105	75 PPM	1.432875
3	March	20476	69 PPM	1.412844
4	April	19341	70 PPM	1.35387
5	May	18252	63 PPM	1.149876
6	June	18618	75 PPM	1.39635
7	July	17931	66 PPM	1.183446
8	August	16456	54 PPM	0.888624
9	September	19001	53 PPM	1.007053
10	October	19264	27 PPM	0.520128
11	November	19228	21 PPM	0.403788
12	December	17667	17 PPM	0.300339
<b>Total:</b>		<b>223681</b>	<b>---</b>	<b>12.553153</b>
<b>II LSHS (fuel oil)</b>				
1	January	8162	0.65 (wt%)	53.053
2	February	6252	0.51 (wt%)	31.8852
3	March	4856	0.6 (wt%)	29.136
4	April	4921	0.53 (wt%)	26.0813
5	May	7483	0.59 (wt%)	44.1497
6	June	8118	0.58 (wt%)	47.0844
7	July	7718	0.59 (wt%)	45.5362
8	August	5973	0.66 (wt%)	39.4218
9	September	6250	0.61 (wt%)	38.125
10	October	6810	0.61 (wt%)	41.541
11	November	8595	0.52 (wt%)	44.694
12	December	8338	0.59 (wt%)	49.1942
<b>Total:</b>		<b>83477</b>	<b>---</b>	<b>489.9018</b>
<b>III CPP Naphtha</b>				
1	January	17628	0.020 (wt%)	3.5256
2	February	17135	0.028 (wt%)	4.7978
3	March	18031	0.030 (wt%)	5.4093
4	April	17279	0.020 (wt%)	3.4558
5	May	17827	0.016 (wt%)	2.85232

6	June	16256	0.021(wt%)	3.41376
7	July	17721	0.019 (wt%)	3.36699
8	August	16032	0.021 (wt%)	3.36672
9	September	16651	0.022 (wt%)	3.66322
10	October	17733	0.019 (wt%)	3.36927
11	November	17389	0.016 (wt%)	2.78224
12	December	14884	0.014 (wt%)	2.08376
<b>Total:</b>		<b>204567</b>	<b>---</b>	<b>42.08678</b>
<b>Total sulfur content in the fuels used (I+II+III) during the year 2020:</b>				<b>544.542</b>
<b>Total sulfur dioxide content that has emitted by the 544.542 tons of sulfur during the year, 2020:</b>				<b>1,089.08</b>
<b>Sulfur dioxide content emitted per day during the year, 2020 :</b>				<b>2.98</b>
<b>Standard emission load of sulfur dioxide as stipulated in the APPCB CFO order dated 18.12.2019.</b>				<b>11.5</b>

From the above Sulphur balance studies, it appears that the refinery is not exceeding the Sulphur dioxide emission load of 11.5 tons per day.

In support of the claim of the refinery that is recovering the Sulphur from the crude and its products, it has provided the quantity of recovered Sulphur for the five years period from 2016-17 to 2020-21 as detailed below.

SN	Financial year (April-March)	Crude processed (TMT)	Sulfur recovered (TMT)	Sulfur shipment (TMT)	Sulfur inventory at the year end (TMT)
1	2016-17	9,303.9	45.16	47.39	0.12
2	2017-18	9,635.0	43.50	42.89	0.73
3	2018-19	9,773.1	50.80	51.18	0.35
4	2019-20	9,115.0	37.48	36.93	0.90
5	2020-21	9,050.5	34.07	34.82	0.15

ii. **Comprehensive waste water management system and recycling and reuse of treated effluent so that the total treated effluent should not exceed a maximum of 542 m3/hr.**

**Status: Partially complied**

It has been assured that the fresh water requirement from Greater Visakha Municipal Corporation will not exceed 873 m<sup>3</sup>/hr after expansion and prior permission will be obtained from the competent authority. As per the discussions held during monitoring, it has been observed that the domestic and process & washings requirements of the refinery are met from the Greater Visakhapatnam Municipal Corporation supply. Cooling water requirements are met from the water drawn from sea. PAs have provided the data of water consumption & wastewater generation during the year 2020 (January to December) and are as follows:

SN	Purpose	Permitted quantity as per the CFO order (KLD)	Actual consumption (KLD)
1	Process & washings	10,176	9,250
2	Boiler feed	1,680	7,718
3	Industrial cooling (make up) / humidification / water spraying	5,03,305	2,13,035
4	Industrial water	6,900	---

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5	Domestic	732	732
Total		5,22,793	2,30,735

It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO.

Wastewater is generated mostly during desalting of crude oil (striped Water), spent caustic solutions, floor washings, crude & product tank washings, boiler blowdowns, etc.

SN	Outlet description	Max. daily discharge as per CFO order (KLD)	Point of disposal	Actual quantity of wastewater discharge during the year 2020 (KLD)
1	Process & Washings	11,820	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment in ETPs - I, II & IV.	5,272
2	Cooling blow down	2,18,286	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment	2,18,286
3	Domestic effluents	636	Shall be used for on land for irrigation within the industry premises after treatment in STP.	636
Total		2,30,742	---	2,24,194

It has been observed that the project have three ETPs and two effluent discharge streams. The details of ETP and flow patterns are as follows:

SN	ETP / STP	Capacity	Units
<b>I Industrial effluents:</b>			
1	ETP - 1	135 KL/Hour (3,240 KLD)	API, TPis for free oil removal, dissolved air floatation, flocculation tank, equalisation tank, aeration tank & duel media filters (carbon & sand).
2	ETP - 2	325 KL/Hour (7,800 KLD)	API, TPis for free oil removal, neutralisation tank, ammonia stripper, dissolved air floatation tank, equalisation tank, two-stage biological treatment, duel media & activated carbon filters.
3	ETP - 4	180 KL/Hour (4,320 KLD)	API, TPis, flash mixing tanks, flocculation tank, dissolved air floatation tank, sequential batch reactor for removal of organics, duel media filters, activated carbon filters followed by disinfection through bromination.

Point of disposal: Treated effluent along with the ones-through cooling water is discharged into Megadrigedda surplus overflow channel through two numbers of Main Hay Filters, which finally joins the sea Bay of Bengal.

Total	640 KL/Hour (15360 KLD)	---
<b>II Domestic effluents:</b>		
1	STP - 1	25 KLD
2	STP - 2	15 KLD
Total	40 KLD	---

Constructed Wetland Technology treatment followed by on land for gardening.

During the inspection, Joint Committee has collected treated effluents from various Effluent Treatment Plants for compliance verification on 26.03.2021 and these samples have been analysed in the Zonal Laboratory, APPCB, Visakhapatnam. Details of samples collected and analysis results are as follows:

SN	Parameters	MHF-II outlet (E-332)	MHF-I outlet (E-333)	CFO Order stipulated standards
1	pH	7.16	7.28	6.50 - 8.50
2	Oil & grease	< 1.0	< 1.0	1.0
3	Hexavalent chromium (as Cr)	0.01	BDL	0.10

All values are expressed in mg/lit. except pH.

SN	Parameter	ETP - I - DMF outlet (E-334)	ETP - IV ACF outlet (E-335)	CFO Order stipulated standards
1	pH	7.64	8.33	6.5-8.5
2	Total Suspended Solids at 105° C	23	57	20
3	Chemical Oxygen Demand	44	96	125
4	Biochemical Oxygen Demand	10.5	23.0	15
5	Oil & Grease	<1	2.0	5.0
6	Sulphides (as S <sup>2-</sup> )	1.6	2.4	0.5
7	Ammonical Nitrogen (as NH <sub>3</sub> -N)	3.9	26.3	15.0
8	Phenols (as C <sub>6</sub> H <sub>5</sub> OH)	BDL	0.02	0.35
9	Phosphates (as P)	0.08	0.07	3.0
10	Hexavalent Chromium (as Cr <sup>6+</sup> )	BDL	BDL	0.10
11	Total Chromium (as Cr)	0.0007	0.0010	2.0
12	Lead (as Pb)	0.0002	<0.0001	0.10
13	Zinc (as Zn)	0.0090	0.0080	5.0
14	Nickel (Ni)	0.0083	0.0024	1.0
15	Copper (as Cu)	0.0025	0.0007	1.0
16	Cyanide (as CN <sup>-</sup> )	BDL	BDL	0.2

All values are expressed in mg/l except pH.

From the above, it has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP - IV ACF outlet (E - 335).

Analysis results of treated domestic effluent are as follows:

SN	Parameter	STP outlet (E-336)	Standard
1	pH	8.40	6.5-8.5
2	Total Suspended Solids at 105 <sup>o</sup> C	14	100 mg/l
3	Total Dissolved Solids at 105 <sup>o</sup> C	820	----
4	Chemical Oxygen Demand	72	----
5	Biochemical Oxygen Demand	18	30 mg/l

It has been observed that the treated effluent is not being reused/recycled as make-up water for raw water cooling towers.

**It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO. It is required to take appropriate**

**It has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (E – 335). It is required to take adequate measures to control the above pollutants in the effluents.**

**It is required to make efforts to recycle the treated effluent to achieve zero discharge and the treated effluent should be fully reused/recycled as make-up water for raw water cooling towers.**

iii. **Reduction in the oil and grease from 15.6 TPD to less than 12.26 TPD, bio remediation of oily sludge and disposal of hazardous DeSOx sludge at TSDF.**

**Status: Being complied**

It has been observed that the oily sludge is being collected in two storage ponds and the collected sludge is being sent to recovery unit. The residual sludge is being disposed to sludge collection units. The sludge from the ETP is being sent to bio-remediation for recovery of residual oil. This is being operated by M/s TERI using oil zapper bacterial remediation treatment method.

iv. **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<sup>th</sup> April, 1997.**

**Status: Partially complied**

As per the discussions held during monitoring and information provided by PAs, it has been observed that the PAs are in process of complying the conditions stipulated in the environmental clearance letter no. J-11011/88/96-IA-II(I) dated 10<sup>th</sup> April, 1997.

However, it has been observed that the PAs are not submitting the six monthly compliance status reports to Regional Office of MoEFCC.

**It is required to submit the status of compliance to all the environmental conditions stipulated in the environmental clearance letter no. J-11011/88/96-IA-II(I) dated 10<sup>th</sup> April, 1997 on six monthly basis to Ministry's Integrated Regional Office, Vijayawada.**

v. **Specific limits stipulated for SO<sub>2</sub>, HC, SPM and NO<sub>x</sub> at para 2 should be strictly complied.**

**Status: Being complied**

It has been observed that the PAs are in process of complying specific limits stipulated for SO<sub>2</sub>, HC, SPM and NO<sub>x</sub> at para 2.

vi. **The fresh water consumption should be pegged at 523 m<sup>3</sup>/hr after the proposed modernization. The additional water required, if any, should be met through recycling/reuse of treated effluent.**

**Status: Partially complied**

It has been assured that the fresh water requirement from Greater Visakha Municipal Corporation will not exceed 873 m<sup>3</sup>/hr after expansion and prior permission will be obtained from the competent authority. As per the discussions held during monitoring, it has been observed that the domestic and process & washings requirements of the refinery are met from the Greater Visakhapatnam Municipal Corporation supply. Cooling water requirements are met from the water drawn from sea. PAs have provided the data of water consumption & wastewater generation during the year 2020 (January to December) and are as follows:

SN	Purpose	Permitted quantity as per the CFO order (KLD)	Actual consumption (KLD)
1	Process & washings	10,176	9,250
2	Boiler feed	1,680	7,718
3	Industrial cooling (make up) / humidification / water spraying	5,03,305	2,13,035
4	Industrial water	6,900	---
5	Domestic	732	732
Total		5,22,793	2,30,735

It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO.

Wastewater is generated mostly during desalting of crude oil (striped Water), spent caustic solutions, floor washings, crude & product tank washings, boiler blowdowns, etc.

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			Bengal sea after treatment	
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2	STP - 2	15 KLD	
Total		40 KLD	---

During the inspection, Joint Committee has collected treated effluents from various Effluent Treatment Plants for compliance verification on 26.03.2021 and these samples have been analysed in the Zonal Laboratory, APPCB, Visakhapatnam. Details of samples collected and analysis results are as follows:

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All values are expressed in mg/l except pH.

From the above, it has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP - IV ACF outlet (E - 335).

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It has been observed that the treated effluent is not being reused/recycled as make-up water for raw water cooling towers.

**It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO. It is required to take appropriate**

**It has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP - IV ACF outlet (E - 335). It is required to take adequate measures to control the above pollutants in the effluents.**

**It is required to make efforts to recycle the treated effluent to achieve zero discharge and the treated effluent should be fully reused/recycled as make-up water for raw water cooling towers.**

vii.	<p><b>The industry shall implement all the recommendations made in the Charter on Corporate Responsibility for Environment Protection regarding air pollution, waste water and solid waste management and oil spill response facilities at Coastal refineries.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs are in process of following all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).</p>																												
viii.	<p><b>All recommendations made in the Risk Analysis Report should be complied with during design, construction and operation stages to contain the risk within the plant boundry.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been stated that the PAs are in process of complying all recommendations made in the Risk Analysis during design, construction and operation stages to contain the risk within the plant boundry. However, major fire accident has occurred inside the plant on 25.05.2021 around at 03:00 PM.</p> <p><b>It is required to provide detailed report on causes for fire, equipment's/detectors failure, fire control measures taken, workers present at the location during incident and their present status to be provided.</b></p>																												
ix.	<p><b>No further modernization/expansion of the project should be carried out without prior permission of this Ministry.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the Ministry has accorded following EC's to the project:</p> <table border="1" data-bbox="240 1488 1464 1911"> <thead> <tr> <th>SN</th> <th>EC Letter No.</th> <th>Date</th> <th>Subject</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>J-11011/22/94-A II(I)</td> <td>30.05.1995</td> <td>Expansion from 4.5 to 7.5 MMTPA</td> </tr> <tr> <td>02</td> <td>J-11011/88/96-IA-II(I)</td> <td>10.04.1997</td> <td>Installation of Diesel Hydro-desulphurization</td> </tr> <tr> <td>03</td> <td>J-11013/55/2003-IA II (I)</td> <td>03.02.2004</td> <td>Expansion from 7.5 to 10.0 MMTPA</td> </tr> <tr> <td>04</td> <td>J-11011/66/2007-IA II (I)</td> <td>07.03.2008</td> <td>Mounded storage for Propylene/LPG</td> </tr> <tr> <td>05</td> <td>J-11011/408/2009-IA-II(I)</td> <td>02.09.2009</td> <td>Expansion from 7.5 to 10.0 MMTPA</td> </tr> <tr> <td>06</td> <td>J-11011/63/2013-IA II (I)</td> <td>11.02.2016</td> <td>Expansion from 8.33 MMTPA to 15.0 MMTPA</td> </tr> </tbody> </table> <p>As per the above, it has been observed that, vide EC dated 03.02.2004 and 02.09.2009 project was under expansion from 7.5 to 10.0 MMTPA. As per EC dated 11.02.2016, project is under expansion from 8.33 MMTPA to 15.0 MMTPA. However, during inspection, no information has been provided for expansion of project from 7.5 to 8.33 MMTPA.</p> <p><b>It is required to provide detailed explanation regarding expansion of project from 7.5 MMTPA to 8.33 MMTPA along with the approval obtained from Ministry, if any.</b></p>	SN	EC Letter No.	Date	Subject	01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA	02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization	03	J-11013/55/2003-IA II (I)	03.02.2004	Expansion from 7.5 to 10.0 MMTPA	04	J-11011/66/2007-IA II (I)	07.03.2008	Mounded storage for Propylene/LPG	05	J-11011/408/2009-IA-II(I)	02.09.2009	Expansion from 7.5 to 10.0 MMTPA	06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA
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- x. **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.**

**Status: Partially complied**

It has been observed that the Ministry has accorded following EC's to the project:

SN	EC Letter No.	Date	Subject
01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA
02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization
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06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA

As per the discussions held during the monitoring, it has been observed that the PAs are submitting the six monthly compliance reports with respect to latest EC dated 11.02.2016 only. However, compliance status of earlier granted EC's and monitored data of air, water, noise, etc. are not being submitted.

**It is required to submit the compliance status of environmental conditions stipulated in the environmental clearance letter no. J-11011/22/94-A II(I) dated 30<sup>th</sup> May, 1995, F. No. J-11011/88/96- IA II (I) dated 10<sup>th</sup> April, 1997, J- 11013/55/2003-IA II (I) dated 3<sup>rd</sup> February, 2004 and J-11011/66/2007-1A II (I) dated 7<sup>th</sup> March, 2008 and J-11011/408/2009-IA II (I) dated 2<sup>nd</sup> September, 2009 along with all environmental monitored data on six monthly basis to Ministry's Integrated Regional Office, Vijayawada. The same should be uploaded on company's website.**

05/

**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 19th October 2007.**

**Status: Partially complied**

It has been observed that the PAs are in process of complying all the safety and security systems provided in Risk Analysis Report for the Project. PAs are also in process of complying 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 19th October 2007. However, major fire accident has occurred inside the plant on 25.05.2021 around at 03:00 PM.

**It is required to provide detailed report on causes for fire, equipment's/detectors failure, fire control measures taken, workers present at the location during incident and their present status to be provided.**

- ii. **There shall be no solid waste or release of pollutants.**

**Status: Being complied**

As per the discussions held, it has been observed that there is no solid waste or release of pollutants.

- 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.**

**Status: Partially complied**

It has been observed that the PAs have installed three (03) nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) for monitoring of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub> and Benzene. However, HS, mercaptan and non-methane-HC are not being monitored at CAAQMS stations. As per the data observed, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> emissions were exceeded the prescribed limits of NAAQMS, 2009.

**It is required to monitor HS, mercaptan and non-methane-HC at all AAQ monitoring stations. It is required to take appropriate measures to control the PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> emissions in the project area.**

During the inspection the Joint Committee, with the help of Zonal Laboratory, APPCB, Visakhapatnam has carried out ambient air quality monitoring within the refinery premise. Ambient air quality monitoring was carried at five locations within and outside the industry premises and monitored for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, NH<sub>3</sub>, O<sub>3</sub>, CO, Benzene and VOCs between 25.03.2021 and 27.03.2021 using manual & Mobile CAAQM stations. Monitoring locations and results are as below:

SN	Location	Latitude	Longitude	Date of monitoring	Parameters
<b>I Manual Stations</b>					
1	North-east side of the industry (near industry CAAQM stations at HLPH)	17.696921	83.251094	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> & NH <sub>3</sub> .
2	South-west to industry (Yarada park housing colony – S10 building)	17.688231	83.240756		
3	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038		

<b>II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)</b>					
1	North-west corner of the industry near ETP – 4	17.700329	83.237126	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , NH <sub>3</sub> , O <sub>3</sub> , CO, Benzene and VOCs.
2	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038	26.03.2021 and 27.03.2021	

Ambient air quality monitoring analysis results

SN	Location	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
<b>I Manual Stations</b>									
1	North-east side of the industry (near industry CAAQM stations at HLPH)	267	92	44	33	29	-	-	-
2	South-west to industry (Yarada park housing colony – S10 building)	115	69	19	17	27	-	-	-
3	South-east side of the industry (near industry CAAQM station)	248	83	48	36	30	-	-	-
<b>II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)</b>									
1	North-west corner of the	320	89	84	39	40	57.7	1.4	2.7

	industry near ETP - 4								
2	South-east side of the industry (near industry CAAQM station)	298	94	52	42	35	66.2	1.7	3.3
24 Hour average standard		100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
Annual average standard		60	40	50	40	100	180 (1 hr)	2 (8 hrs)	5

All values are expressed in  $\mu\text{g}/\text{m}^3$ , except CO. CO value expressed in  $\text{mg}/\text{m}^3$ .

On the request of the Joint Committee, Zonal Laboratory, Andhra Pradesh Pollution Control Board, Visakhapatnam has carried out ambient air quality monitoring using mobile CAAQM Station for three days between 03.05.2021 and 06.05.2021 in the residential area of Malkapuram at Ajanta colony which lies south-east direction of M/s. HPCL Refinery to verify the impact of emissions from the refinery. The results obtained are as follows:

SN	Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
1	03.05.2021 to 04.05.2021	91	25	33	25	16	41.2	0.9	1.5
2	04.05.2021 to 05.05.2021	72	17	25	22	15	29.7	1.0	0.6
	05.05.2021 to 06.05.2021	67	16	37	24	23	55.1	0.9	0.7
24 Hour average standard		100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
Annual average standard		60	40	50	40	100	180 (1 hr)	2 (8 hrs)	5

All values are expressed in  $\mu\text{g}/\text{m}^3$ , except CO. CO value expressed in  $\text{mg}/\text{m}^3$ .

From the above data, it has been observed that the values of PM<sub>10</sub> and PM<sub>2.5</sub> are exceeding the 24 hour standards. The values of SO<sub>2</sub> and NO<sub>2</sub>, though not exceeding the standard limits found far higher than the values obtained at the locations elsewhere in Visakhapatnam city. This indicates that there are leaks in the process systems through which, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, etc. are find their way into the ambient air as fugitive emissions. Higher values of PM<sub>10</sub> & PM<sub>2.5</sub> in the ambient air could also be attributed the expansion works going on within the premises of the refinery.

**It is required to take adequate measures to control the PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> in the ambient air of the project surroundings. It requires immediate action.**

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.**

**Status: Partially complied**

	<p>It has been observed that the monitoring reports regarding fugitive emissions of HC from the product storage tank yards etc. are not being submitted along with six monthly compliance reports. It has been observed that the sensor for detection of Methane (CH<sub>4</sub>) and H<sub>2</sub>S were installed at the process locations. PAs are using low Sulphur fuel in the process. The Sulphur recovery from the Sulphur recovery unit is more than 99.5%. Leak Detection and Repair programme is being implemented to control HC/VOC emissions. It has been observed the monitoring reports of work zone near the storage tanks besides monitoring of HCs/VOCs in the work zone are not being submitted along with six monthly compliance reports.</p> <p><b>It is required to submit the monitoring reports of fugitive emissions of HC from the product storage tank yards work zone near the storage tanks besides monitoring of HCs/VOCs in the work zone along with six monthly compliance reports on regular basis.</b></p>
v.	<p><b>There shall be no increase in the pollution load for any parameter from the expansion project.</b></p> <p><b>Status: Being complied</b></p> <p>It has been assured that there is no increase in the pollution load for any parameter from the expansion project.</p>
vi.	<p><b>There shall be no additional water requirement for the process except service water of 5,000 KL for commissioning and testing. Provisions for appropriate storage and treatment for fire fighting water shall be provided.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that there was no additional water requirement for the process. Provisions for storage and treatment for fire fighting water has been provided.</p>
vii.	<p><b>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).</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs are in process of taking necessary measures to keep the noise levels within the prescribed limits in and around the plant area. The control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation were implemented.</p>
viii.	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are in process of developing green belt in and around the plant premises. However, it has been observed that the plantation around the project area is not satisfactory.</p> <p><b>It is required to develop thick green belt 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.</b></p>
ix.	<p><b>The Company shall harvest surface as well as rainwater from the rooftops of the buildings proposed in the expansion project and storm water drains</b></p>

	<p><b>to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have implemented the roof top rain water harvesting system at administrative buildings (block-A and C), control room and sub stations of DHT project.</p>
x.	<p><b>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 commission of the expansion project. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are in process of complying with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. It has been stated that, prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. have been obtained. However, copies were not provided.</p> <p><b>It is required to provide the copies of approvals taken from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc., wherever applicable.</b></p>
	<p><b>B. General Conditions</b></p>
i.	<p><b>The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. However, it has been observed that the PAs are not adhering the some of the stipulations made by Andhra Pradesh State Pollution Control Board (APPCB). In this regard, directions also issued by APPCB vide letter no. 702/APPCB/UH-II/TF/VSP/2020 dated 10.03.2020.</p> <p><b>It is required to strictly adhere to the stipulations made by the Andhra Pradesh Pollution Control Board (APPCB), State Government and any other statutory authority.</b></p>
ii.	<p><b>No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the Ministry has accorded following EC's to the project:</p>

SN	EC Letter No.	Date	Subject
01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA
02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization
03	J-11013/55/2003-IA II (I)	03.02.2004	Expansion from 7.5 to 10.0 MMTPA
04	J-11011/66/2007-IA II (I)	07.03.2008	Mounded storage for Propylene/LPG
05	J-11011/408/2009-IA-II(I)	02.09.2009	Expansion from 7.5 to 10.0 MMTPA
06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA

As per the above, it has been observed that, vide EC dated 03.02.2004 and 02.09.2009 project was under expansion from 7.5 to 10.0 MMTPA. As per EC dated 11.02.2016, project is under expansion from 8.33 MMTPA to 15.0 MMTPA. However, during inspection, no information has been provided for expansion of project from 7.5 to 8.33 MMTPA.

**It is required to provide detailed explanation regarding expansion of project from 7.5 MMTPA to 8.33 MMTPA along with the approval obtained from Ministry, if any.**

- 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 obtained. All Transportation of Hazardous Chemicals shall be as per the MVA, 1989**

**Status: Partially complied**

It has been observed that the PAs are in process of complying with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. It has been stated that, prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. have been obtained. However, copies were not provided.

**It is required to provide the copies of approvals taken from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc., wherever applicable.**

- iv. **On-site and Off-site emergency preparedness plans shall be prepared. Approval from the nodal agency shall be obtained before commissioning the project.**

**Status: Being complied**

As per the discussions held during monitoring, it has been observed that the emergency response and disaster management plant (ERDMP) has been updated to cover the additional facilities and the updated plants is being implemented.

- 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**

	<p><b>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).</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs are in process of taking necessary measures to keep the noise levels within the prescribed limits in and around the plant area. The control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation were implemented.</p>
vi.	<p><b>Proper House keeping and adequate occupational health programmes 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.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are maintaining good house keeping and have own occupational health centre/hospital within the project premises are conducting regular health check-ups of all workers including both departmental and contractual and records are being maintained. As per the records available, all the workers are being going for IME and PME and periodical health check-ups.</p>
vii.	<p><b>Training shall be imparted 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,</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have dedicated safety department and all the staff and workers including contractual workers were undergone training on safety and health aspects of chemicals handling. As per the records available, all the workers are being going for IME and PME and periodical health check-ups.</p>
viii.	<p><b>Usage of PPEs by all employees/ workers shall be ensured.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that, all the employees and workers are using required PPE's.</p>
ix.	<p><b>A separate Environmental 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.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have a separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the environmental management and monitoring functions.</p>
x.	<p><b>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 provide should not be diverted for any other purposes.</b></p>

	<p><b>Status: Partially complied</b></p> <p>It has been informed that, adequate funds have been earmarked towards capital cost and recurring cost/annum for environment pollution control measures and being used to implement the conditions stipulated by the Ministry as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided were not be diverted for any other purposes.</p> <p><b>It is required to provide the detailed report on expenditure incurred for environment pollution control measures to implement the conditions stipulated by the Ministry as well as the State Government along with the implementation schedule for all the conditions stipulated herein for last three years.</b></p>
xi.	<p><b>The project proponent shall have a scheme for social upliftment in the surrounding villages with reference to contribution in road construction, education of health centres, 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.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held, it has been stated that the CSR activities are being implemented by involving local villages and administration. However, no information has been provided.</p> <p><b>It is required to provide the detailed report regarding the scheme for social upliftment in the surrounding villages with reference to contribution in road construction, education of health centres, sanitation facilities, drinking water supply, community awareness and employment to local people whenever and wherever possible both for technical and non-technical jobs along with expenditure incurred for last three years.</b></p>
xii.	<p><b>The implementation of the project vis-à-vis environmental action plan 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.</b></p> <p><b>Status: Partially complied</b></p> <p>The stipulated conditions are being monitored by Integrated Regional Office of the Ministry.</p> <p>As per the discussions held during the monitoring, it has been observed that the PAs are submitting the six monthly compliance reports with respect to latest EC dated 11.02.2016 only. However, compliance status of earlier granted EC's and monitored data of air, water, noise, etc. are not being submitted. The compliance report is also not being uploaded in the company's website.</p> <p><b>It is required to submit the compliance status of conditions stipulated in all EC's along with monitored data of air, water, noise, etc., on six monthly basis to Integrated Regional Office, MoEFCC, Vijayawada by email.</b></p> <p><b>It is also required to upload the six monthly compliance reports of all the EC's granted to the project along with the monitored reports in the company's website.</b></p>

<p>xiii.</p>	<p><b>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 SPCB and may also be seen at Website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>. This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely Circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office of this Ministry.</b></p> <p><b>Status: Partially complied</b></p> <p>The details were not provided by PAs.</p> <p><b>It is required to provide the copies of newspaper advertisement regarding grant of EC dated 07.03.2008.</b></p>
<p>xiv.</p>	<p><b>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.</b></p> <p><b>Status: Not complied</b></p> <p>The details were not provided by PAs.</p> <p><b>It is required to provide the details regarding the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.</b></p>

**A. Specific Conditions**

- i. **M/s HPCL shall comply with the stipulations made in the environmental clearance accorded vide Ministry's vide letter No. J-11013/55/2003-1A II (1), dated February 03, 2004 for Clean Fuels Project and expansion from 7.5 to 10.0 MMTPA.**

**Status: Partially complied**

As per the discussions held during monitoring and information provided by PAs, it has been observed that the PAs are in process of complying the conditions stipulated in the environmental clearance letter no. J- 11013/55/2003-IA II (I) dated 3<sup>rd</sup> February, 2004.

However, it has been observed that the PAs are not submitting the six monthly compliance status reports to Regional Office of MoEFCC.

**It is required to submit the status of compliance to all the environmental conditions stipulated in the environmental clearance letter no. J- 11013/55/2003-IA II (I) dated 3<sup>rd</sup> February, 2004 on six monthly basis to Ministry's Integrated Regional Office, Vijayawada.**

- 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€ dated 18<sup>th</sup> March, 2008.**

**Status: Partially complied**

It has been observed that the PAs are in process of following new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186€ dated 18<sup>th</sup> March, 2008.

However, it has been observed that fugitive emissions are not being monitored and VOC emissions monitoring and control measures are not being implemented at wastewater collection and treatment area as per said notification.

**It is required to comply all new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18<sup>th</sup> March, 2008. It requires immediate action.**

- iii. **The project authorities shall submit a feasible plan which will be followed to ensure that SO emission from the refinery does not exceed the stipulated figure of 11.5 TPD at any time.**

**Status: Being complied**

The Joint Committee has carried out Sulphur balance studies during inspection for verification of compliance of stipulated standards. For the study, the Joint Committee has collected Sulphur related data of crude processed and petroleum products produced during the year, 2020 (January to December).

Quantity of crude obtained from various sources and the concentrations of Benzene and Sulphur contents as per the information provided by M/s. HPCL Refinery are as follows:

SN	Type of crude	Crude quantity (TMT)	No. of parcels	Benzene content (wt%)	Sulphur content (%)
1	MH	416.4	8	1.8	0.124

0-2/

2	Bonny light	1395.7	6	0.1	0.138
3	WTI	1059.3	4	0.1	0.169
4	Quaiboe	467.6	3	0.1	0.115
5	ERHA	127.7	1	0.3	0.169
6	AZERI	92.5	1	0.1	0.158
7	Kuwait	62.1	1	0.1	2.808
8	Arab Lt	206.2	8	0.1	1.997
9	Arab Ex Lt	698.5	7	0.2	1.007
10	Arab Hy	510.8	8	0.05	2.978
11	Murban	390.5	5	0.2	0.769
12	Basrah Hvy	39.9	1	0.1	4.2
12	Basrah Lt	1416.3	14	0.1	3.005
13	Das	1902.4	16	0.2	1.186
14	Ravva	285.0	5	0.1	0.052
Total		9070.9	88	0.243	1.258

Accordingly, an amount of about 22,042 metric tons of Benzene and 1,14,112 metric tons of Sulphur will be having the 90,70,900 metric tons (9070.9 TMT) of crude obtained by the refinery during the year, 2020.

Quantity of petroleum products generated and their Sulphur content are as follows:

SN	Product	Production in Tons	Sulphur % in product	Sulphur quantity in Tons (Actual)
1	Propylene	46,000	0.004	1.84
2	LPG	4,18,000	0.013	54.34
3	Naphtha	3,68,700	0.024	88.48
4	Motor spirit	16,72,900	0.001	16.729
5	ATF	59,100	0.036	21.276
6	SKO	1,42,200	0.019	27.018
7	Diesel	39,31,500	0.580	22802.7
8	FO 3.5 % S	9,36,100	3.5	32763.5
9	FO 1.0% S	1,68,500	1	1685
10	Bitumen	5,15,400	5.70	29377.8
11	Sulfur	34,800	--	34800
12	Refinery Fuel	7,27,300	0.22	1600.06
13	Intermediate Stream Build up	50,500		
Total:		90,71,100	--	1,23,238.743

Further, the refinery has used three types of fuels viz., fuel gas, low Sulphur heavy stock (LSHS) fuel oil and CPP Naphtha for crude distillation, capital power generation, etc. purposes, which again is also having Sulphur concentrations. The quantities of various fuels used and their Sulphur content have also been verified by the Joint Committee while carrying out Sulphur balance studies as detailed below:

SN	Month	Fuel quantity (metric Tons)	Sulfur concentration	Total sulfur (metric tons)
<b>I Fuel gas</b>				
1	January	18341	82 PPM	1.50396
2	February	19105	75 PPM	1.432875
3	March	20476	69 PPM	1.412844
4	April	19341	70 PPM	1.35387
5	May	18252	63 PPM	1.149876
6	June	18618	75 PPM	1.39635
7	July	17931	66 PPM	1.183446
8	August	16456	54 PPM	0.888624

9	September	19001	53 PPM	1.007053
10	October	19264	27 PPM	0.520128
11	November	19228	21 PPM	0.403788
12	December	17667	17 PPM	0.300339
<b>Total:</b>		<b>223681</b>	<b>---</b>	<b>12.553153</b>
<b>II LSHS (fuel oil)</b>				
1	January	8162	0.65 (wt%)	53.053
2	February	6252	0.51 (wt%)	31.8852
3	March	4856	0.6 (wt%)	29.136
4	April	4921	0.53 (wt%)	26.0813
5	May	7483	0.59 (wt%)	44.1497
6	June	8118	0.58 (wt%)	47.0844
7	July	7718	0.59 (wt%)	45.5362
8	August	5973	0.66 (wt%)	39.4218
9	September	6250	0.61 (wt%)	38.125
10	October	6810	0.61 (wt%)	41.541
11	November	8595	0.52 (wt%)	44.694
12	December	8338	0.59 (wt%)	49.1942
<b>Total:</b>		<b>83477</b>	<b>---</b>	<b>489.9018</b>
<b>III CPP Naphtha</b>				
1	January	17628	0.020 (wt%)	3.5256
2	February	17135	0.028 (wt%)	4.7978
3	March	18031	0.030 (wt%)	5.4093
4	April	17279	0.020 (wt%)	3.4558
5	May	17827	0.016 (wt%)	2.85232
6	June	16256	0.021 (wt%)	3.41376
7	July	17721	0.019 (wt%)	3.36699
8	August	16032	0.021 (wt%)	3.36672
9	September	16651	0.022 (wt%)	3.66322
10	October	17733	0.019 (wt%)	3.36927
11	November	17389	0.016 (wt%)	2.78224
12	December	14884	0.014 (wt%)	2.08376
<b>Total:</b>		<b>204567</b>	<b>---</b>	<b>42.08678</b>
<b>Total sulfur content in the fuels used (I+II+III) during the year 2020:</b>				<b>544.542</b>
<b>Total sulfur dioxide content that has emitted by the 544.542 tons of sulfur during the year, 2020:</b>				<b>1,089.08</b>
<b>Sulfur dioxide content emitted per day during the year, 2020 :</b>				<b>2.98</b>
<b>Standard emission load of sulfur dioxide as stipulated in the APPCB CFO order dated 18.12.2019.</b>				<b>11.5</b>

From the above Sulphur balance studies, it appears that the refinery is not exceeding the Sulphur dioxide emission load of 11.5 tons per day.

In support of the claim of the refinery that is recovering the Sulphur from the crude and its products, it has provided the quantity of recovered Sulphur for the five years period from 2016-17 to 2020-21 as detailed below.

SN	Financial year (April-March)	Crude processed (TMT)	Sulfur recovered (TMT)	Sulfur shipment (TMT)	Sulfur inventory at the year end (TMT)
1	2016-17	9,303.9	45.16	47.39	0.12
2	2017-18	9,635.0	43.50	42.89	0.73
3	2018-19	9,773.1	50.80	51.18	0.35

4	2019-20	9,115.0	37.48	36.93	0.90
5	2020-21	9,050.5	34.07	34.82	0.15

iv. **The company shall undertake. measures for control of dust emission during construction and traffic congestion.**

**Status: Partially complied**

During the inspection the Joint Committee, with the help of Zonal Laboratory, APPCB, Visakhapatnam has carried out ambient air quality monitoring within the refinery premise. Ambient air quality monitoring was carried at five locations within and outside the industry premises and monitored for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, NH<sub>3</sub>, O<sub>3</sub>, CO, Benzene and VOCs between 25.03.2021 and 27.03.2021 using manual & Mobile CAAQM stations. Monitoring locations and results are as below:

SN	Location	Latitude	Longitude	Date of monitoring	Parameters
<b>I Manual Stations</b>					
1	North-east side of the industry (near industry CAAQM stations at HLPH)	17.696921	83.251094	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> & NH <sub>3</sub> .
2	South-west to industry (Yarada park housing colony - S10 building)	17.688231	83.240756		
3	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038		

**II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)**

1	North-west corner of the industry near ETP - 4	17.700329	83.237126	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , NH <sub>3</sub> , O <sub>3</sub> , CO,
2	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038	26.03.2021 and 27.03.2021	Benzene and VOCs.

Ambient air quality monitoring analysis results

SN	Location	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
<b>I Manual Stations</b>									
1	North-east side of the industry (near industry CAAQM stations at HLPH)	267	92	44	33	29	-	-	-

2	South-west to industry (Yarada park housing colony - S10 building)	115	69	19	17	27	-	-	-
3	South-east side of the industry (near industry CAAQM station)	248	83	48	36	30	-	-	-

**II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)**

1	North-west corner of the industry near ETP - 4	320	89	84	39	40	57.7	1.4	2.7
2	South-east side of the industry (near industry CAAQM station)	298	94	52	42	35	66.2	1.7	3.3
24 Hour average standard		100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
Annual average standard		60	40	50	40	100	180 (1 hr)	2 (8 hrs)	5

All values are expressed in  $\mu\text{g}/\text{m}^3$ , except CO. CO value expressed in  $\text{mg}/\text{m}^3$ .

On the request of the Joint Committee, Zonal Laboratory, Andhra Pradesh Pollution Control Board, Visakhapatnam has carried out ambient air quality monitoring using mobile CAAQM Station for three days between 03.05.2021 and 06.05.2021 in the residential area of Malkapuram at Ajanta colony which lies south-east direction of M/s. HPCL Refinery to verify the impact of emissions from the refinery. The results obtained are as follows:

SN	Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
1	03.05.2021 to 04.05.2021	91	25	33	25	16	41.2	0.9	1.5
2	04.05.2021 to 05.05.2021	72	17	25	22	15	29.7	1.0	0.6
	05.05.2021 to 06.05.2021	67	16	37	24	23	55.1	0.9	0.7
24 Hour average standard		100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
Annual average standard		60	40	50	40	100	180 (1 hr)	2 (8 hrs)	5

All values are expressed in  $\mu\text{g}/\text{m}^3$ , except CO. CO value expressed in  $\text{mg}/\text{m}^3$ .

From the above data, it has been observed that the values of PM<sub>10</sub> and PM<sub>2.5</sub> are exceeding the 24 hour standards. The values of SO<sub>2</sub> and NO<sub>2</sub>, though not exceeding the standard limits found far higher than the values obtained at the locations elsewhere in Visakhapatnam city. This indicates that there are leaks

	<p>in the process systems through which, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, etc. are find their way into the ambient air as fugitive emissions. Higher values of PM<sub>10</sub> &amp; PM<sub>2.5</sub> in the ambient air could also be attributed the expansion works going on within the premises of the refinery.</p> <p><b>It is required to take adequate measures to control the PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> in the ambient air of the project surroundings. It requires immediate action.</b></p>
v.	<p><b>Efforts shall be made to use gas as a fuel in the furnaces to the maximum extent possible.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are using three types of fuels viz., fuel gas, low Sulphur heavy stock (LSHS) fuel oil and CPP Naphtha for crude distillation, capital power generation, etc.</p> <p><b>It is required to make efforts to use gas as a fuel in the furnaces to the maximum extent possible.</b></p>
vi.	<p><b>The process emissions (SO, NO<sub>x</sub>, HC, VOCs and Benzene) from various units shall 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.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been stated that the process emissions, VOCs and Benzene from various units are under the prescribed limits of Environment (P) Act. However, it has been observed that the PAs have installed Methane (CH<sub>4</sub>) and H<sub>2</sub>S detectors only.</p> <p>It has been assured that, in the event of failure of pollution control system(s) adopted by the unit, the unit will be immediately put out of operation and will not be restarted until the desired efficiency of the pollution control device has been achieved.</p> <p><b>It is required to monitor process emissions viz., SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane &amp; Non-methane), VOCs and Benzene from various units and monitoring reports to be submitted along with six monthly compliance reports on regular basis.</b></p>
vii.	<p><b>Ambient air quality monitoring stations, [SPM, SO<sub>2</sub>, NO<sub>x</sub>, H<sub>2</sub>S, Mercaptan, NMHC and Benzene] should be set up in the Refinery complex in consultation with SPCB, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs Continuous on-line stack monitoring equipment should be installed for measurement of SO<sub>2</sub>, NO<sub>x</sub>, CO and CO<sub>2</sub>. Low NO<sub>x</sub> burners should be installed with online analyzers.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs have installed three (03) nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) for monitoring of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub>. However, HS, mercaptan, non-methane-HC and Benzene</p>

are not being monitored at CAAQMS stations. As per the data observed, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> emissions were exceeded the prescribed limits of NAAQMS, 2009.

**It is required to monitor HS, mercaptan, non-methane-HC and Benzene at all AAQ monitoring stations. It is required to take appropriate measures to control the PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> emissions in the project area.**

During the inspection the Joint Committee, with the help of Zonal Laboratory, APPCB, Visakhapatnam has carried out ambient air quality monitoring within the refinery premise. Ambient air quality monitoring was carried at five locations within and outside the industry premises and monitored for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, NH<sub>3</sub>, O<sub>3</sub>, CO, Benzene and VOCs between 25.03.2021 and 27.03.2021 using manual & Mobile CAAQM stations. Monitoring locations and results are as below:

SN	Location	Latitude	Longitude	Date of monitoring	Parameters
<b>I Manual Stations</b>					
1	North-east side of the industry (near industry CAAQM stations at HLPH)	17.696921	83.251094	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> & NH <sub>3</sub> .
2	South-west to industry (Yarada park housing colony - S10 building)	17.688231	83.240756		
3	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038		
<b>II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)</b>					
1	North-west corner of the industry near ETP - 4	17.700329	83.237126	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , NH <sub>3</sub> , O <sub>3</sub> , CO, Benzene and VOCs.
2	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038	26.03.2021 and 27.03.2021	

Ambient air quality monitoring analysis results

SN	Location	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
<b>I Manual Stations</b>									
1	North-east side of the industry (near industry CAAQM stations at HLPH)	267	92	44	33	29	-	-	-

2	South-west to industry (Yarada park housing colony - S10 building)	115	69	19	17	27	-	-	-
3	South-east side of the industry (near industry CAAQM station)	248	83	48	36	30	-	-	-
<b>II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)</b>									
1	North-west corner of the industry near ETP - 4	320	89	84	39	40	57.7	1.4	2.7
2	South-east side of the industry (near industry CAAQM station)	298	94	52	42	35	66.2	1.7	3.3
24	Hour average standard	100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
	Annual average standard	60	40	50	40	100	180 (1 hr)	2 (8 hrs)	5
All values are expressed in $\mu\text{g}/\text{m}^3$ , except CO. CO value expressed in $\text{mg}/\text{m}^3$ .									
<p>On the request of the Joint Committee, Zonal Laboratory, Andhra Pradesh Pollution Control Board, Visakhapatnam has carried out ambient air quality monitoring using mobile CAAQM Station for three days between 03.05.2021 and 06.05.2021 in the residential area of Malkapuram at Ajanta colony which lies south-east direction of M/s. HPCL Refinery to verify the impact of emissions from the refinery. The results obtained are as follows:</p>									
SN	Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
1	03.05.2021 to 04.05.2021	91	25	33	25	16	41.2	0.9	1.5
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24	Hour average standard	100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
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All values are expressed in $\mu\text{g}/\text{m}^3$ , except CO. CO value expressed in $\text{mg}/\text{m}^3$ .									
<p>From the above data, it has been observed that the values of PM<sub>10</sub> and PM<sub>2.5</sub> are exceeding the 24 hour standards. The values of SO<sub>2</sub> and NO<sub>2</sub>, though not exceeding the standard limits found far higher than the values obtained at the locations elsewhere in Visakhapatnam city. This indicates that there are leaks</p>									

in the process systems through which, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, etc. are find their way into the ambient air as fugitive emissions. Higher values of PM<sub>10</sub> & PM<sub>2.5</sub> in the ambient air could also be attributed the expansion works going on within the premises of the refinery.

**It is required to take adequate measures to control the PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> in the ambient air of the project surroundings. It requires immediate action.**

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, NO<sub>x</sub> (Ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the project shall be monitored and displayed at the convenient location near the main gate of the Company in the public domain.**

**Status: Partially complied**

It has been observed that the Ministry has accorded following EC's to the project:

SN	EC Letter No.	Date	Subject
01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA
02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization
03	J-11013/55/2003-IA II (I)	03.02.2004	Expansion from 7.5 to 10.0 MMTPA
04	J-11011/66/2007-IA II (I)	07.03.2008	Mounded storage for Propylene/LPG
05	J-11011/408/2009-IA-II(I)	02.09.2009	Expansion from 7.5 to 10.0 MMTPA
06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA

As per the discussions held during the monitoring, it has been observed that the PAs are submitting the six monthly compliance reports with respect to latest EC dated 11.02.2016 only. However, compliance status of earlier granted EC's and monitored data of air, water, noise, etc. are not being submitted.

**It is required to submit the compliance status of environmental conditions stipulated in the environmental clearance letter no. J-11011/22/94-A II(I) dated 30<sup>th</sup> May, 1995, F. No. J-11011/88/96- IA II (I) dated 10<sup>th</sup> April, 1997, J- 11013/55/2003-IA II (I) dated 3<sup>rd</sup> February, 2004 and J-11011/66/2007-1A II (I) dated 7<sup>th</sup> March, 2008 and J-11011/408/2009-IA II (I) dated 2<sup>nd</sup> September, 2009 along with all environmental monitored data on six monthly basis to Ministry's Integrated Regional Office, Vijayawada. The same should be uploaded on company's website.**

It has been observed that the PAs are not displaying the criteria pollutant levels namely; PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects main gate of the project.

**It is required to display the criteria pollutant levels namely; PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects main gate of the project. It requires immediate action.**

ix.	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been stated that the Leak Detection and Repair (LDAR) programme is being implemented in existing refinery. It has been observed that the sensor for detection of Methane (CH<sub>4</sub>) and H<sub>2</sub>S were installed at the process locations. It has been observed that the PAs are in process of taking preventing measures for control of fugitive emissions. However, fugitive emissions are not being monitored by PAs. The hydrocarbons are being routed to the flare system.</p> <p><b>It is required to monitor the fugitive emissions as per the guidelines of CPCB and the monitoring reports to be submitted along with six monthly compliance reports on regular basis.</b></p>								
x.	<p><b>Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage should also be provided at strategic locations. The company should use low sulphur fuel to minimize SO<sub>2</sub> emission. Sulphur recovery units should have efficiency of 99.5 %. Leak Detection and Repair programme 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.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the monitoring reports regarding fugitive emissions of HC from the product storage tank yards etc. are not being submitted along with six monthly compliance reports. It has been observed that the sensor for detection of Methane (CH<sub>4</sub>) and H<sub>2</sub>S were installed at the process locations. PAs are using low Sulphur fuel in the process. The Sulphur recovery from the Sulphur recovery unit is more than 99.5%. Leak Detection and Repair programme is being implemented to control HC/VOC emissions. It has been observed the monitoring reports of work zone near the storage tanks besides monitoring of HCs/VOCs in the work zone are not being submitted along with six monthly compliance reports.</p> <p><b>It is required to submit the monitoring reports of fugitive emissions of HC from the product storage tank yards work zone near the storage tanks besides monitoring of HCs/VOCs in the work zone along with six monthly compliance reports on regular basis.</b></p>								
xi.	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been observed that the domestic and process &amp; washings requirements of the refinery are met from the Greater Visakhapatnam Municipal Corporation supply. Cooling water requirements are met from the water drawn from sea. PAs have provided the data of water consumption &amp; wastewater generation during the year 2020 (January to December) and are as follows:</p> <table border="1" data-bbox="211 2254 1481 2380"> <thead> <tr> <th>SN</th> <th>Purpose</th> <th>Permitted quantity as per the CFO order (KLD)</th> <th>Actual consumption (KLD)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Process &amp; washings</td> <td>10,176</td> <td>9,250</td> </tr> </tbody> </table>	SN	Purpose	Permitted quantity as per the CFO order (KLD)	Actual consumption (KLD)	1	Process & washings	10,176	9,250
SN	Purpose	Permitted quantity as per the CFO order (KLD)	Actual consumption (KLD)						
1	Process & washings	10,176	9,250						

2	Boiler feed	1,680	7,718
3	Industrial cooling (make up) / humidification / water spraying	5,03,305	2,13,035
4	Industrial water	6,900	---
5	Domestic	732	732
Total		5,22,793	2,30,735

It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO.

Wastewater is generated mostly during desalting of crude oil (striped Water), spent caustic solutions, floor washings, crude & product tank washings, boiler blowdowns, etc.

SN	Outlet description	Max. daily discharge as per CFO order (KLD)	Point of disposal	Actual quantity of wastewater discharge during the year 2020 (KLD)
1	Process & Washings	11,820	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment in ETPs - I, II & IV.	5,272
2	Cooling blow down	2,18,286	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment	2,18,286
3	Domestic effluents	636	Shall be used for on land for irrigation within the industry premises after treatment in STP.	636
Total		2,30,742	---	2,24,194

It has been observed that the project have three ETPs and two effluent discharge streams. The details of ETP and flow patterns are as follows:

SN	ETP / STP	Capacity	Units
<b>I Industrial effluents:</b>			
1	ETP - 1	135 KL/Hour (3,240 KLD)	API, TPIs for free oil removal, dissolved air floatation, flocculation tank, equalisation tank, aeration tank & duel media filters (carbon & sand).
2	ETP - 2	325 KL/Hour (7,800 KLD)	API, TPIs for free oil removal, neutralisation tank, ammonia stripper, dissolved air floatation tank, equalisation tank, two-stage biological treatment, duel media & activated carbon filters.

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3	ETP - 4	180 KL/Hour (4,320 KLD)	API, TPIs, flash mixing tanks, flocculation tank, dissolved air floatation tank, sequential batch reactor for removal of organics, dual media filters, activated carbon filters followed by disinfection through bromination.
Point of disposal: Treated effluent along with the ones-through cooling water is discharged into Megadrigedda surplus overflow channel through two numbers of Main Hay Filters, which finally joins the sea Bay of Bengal.			
Total		640 KL/Hour (15360 KLD)	---
<b>II Domestic effluents:</b>			
1	STP - 1	25 KLD	Constructed Wetland Technology treatment followed by on land for gardening.
2	STP - 2	15 KLD	
Total		40 KLD	---

During the inspection, Joint Committee has collected treated effluents from various Effluent Treatment Plants for compliance verification on 26.03.2021 and these samples have been analysed in the Zonal Laboratory, APPCB, Visakhapatnam. Details of samples collected and analysis results are as follows:

SN	Parameters	MHF-II outlet (E-332)	MHF-I outlet (E-333)	CFO Order stipulated standards
1	pH	7.16	7.28	6.50 - 8.50
2	Oil & grease	< 1.0	< 1.0	1.0
3	Hexavalent chromium (as Cr)	0.01	BDL	0.10

All values are expressed in mg/lit. except pH.

SN	Parameter	ETP - I - DMF outlet (E-334)	ETP - IV ACF outlet (E-335)	CFO Order stipulated standards
1	pH	7.64	8.33	6.5-8.5
2	Total Suspended Solids at 105° C	23	57	20
3	Chemical Oxygen Demand	44	96	125
4	Biochemical Oxygen Demand	10.5	23.0	15
5	Oil & Grease	<1	2.0	5.0
6	Sulphides (as S <sup>2-</sup> )	1.6	2.4	0.5
7	Ammonical Nitrogen (as NH <sub>3</sub> -N)	3.9	26.3	15.0
8	Phenols (as C <sub>6</sub> H <sub>5</sub> OH)	BDL	0.02	0.35
9	Phosphates (as P)	0.08	0.07	3.0
10	Hexavalent Chromium (as Cr <sup>6+</sup> )	BDL	BDL	0.10
11	Total Chromium (as Cr)	0.0007	0.0010	2.0
12	Lead (as Pb)	0.0002	<0.0001	0.10
13	Zinc (as Zn)	0.0090	0.0080	5.0
14	Nickel (Ni)	0.0083	0.0024	1.0
15	Copper (as Cu)	0.0025	0.0007	1.0
16	Cyanide (as CN <sup>-</sup> )	BDL	BDL	0.2

All values are expressed in mg/l except pH.

From the above, it has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (E – 335).

Analysis results of treated domestic effluent are as follows:

SN	Parameter	STP outlet (E-336)	Standard
1	pH	8.40	6.5-8.5
2	Total Suspended Solids at 105 <sup>o</sup> C	14	100 mg/l
3	Total Dissolved Solids at 105 <sup>o</sup> C	820	----
4	Chemical Oxygen Demand	72	----
5	Biochemical Oxygen Demand	18	30 mg/l

It has been observed that the treated effluent is not being reused/recycled as make-up water for raw water cooling towers.

**It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO. It is required to take appropriate**

**It has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (E – 335). It is required to take adequate measures to control the above pollutants in the effluents.**

**It is required to make efforts to recycle the treated effluent to achieve zero discharge.**

- 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 collections/ treatment/ storage/ disposal of hazardous wastes.**

**Status: Being complied**

It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021. It has been observed that the PAs are complying 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 has been obtained for collections/ treatment/ storage/ disposal of hazardous wastes.

- xiii. **The company should strictly follow all the recommendation mentioned in the charter on Corporate Responsibility for Environmental Protection (CREP) for the oil refineries.**

**Status: Being complied**

	<p>It has been observed that the PAs are in process of following all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).</p>
xiv.	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are taking necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. As per the discussions held during monitoring, it has been stated that the overhead flaring stack with knockout drums has been installed to minimize gaseous emissions during flaring. However, major fire accident has occurred inside the plant on 25.05.2021 around at 03:00 PM.</p> <p><b>It is required to provide detailed report on causes for fire, equipment's/detectors failure, fire control measures taken, workers present at the location during incident and their present status to be provided.</b></p>
xv.	<p><b>To prevent fire and explosion at Oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are in process of making arrangements for protection of possible fire and explosion hazards during construction and operation phase. Proper barricading of the project sites is being done from operating process units during construction phase. Hydrocarbon detectors (CH<sub>4</sub> and H<sub>2</sub>S) are provided to detect any hydrocarbon in vicinity of construction area. Blast proof control rooms arrangements are being followed. However, major fire accident has occurred inside the plant on 25.05.2021 around at 03:00 PM.</p> <p><b>It is required to provide detailed report on causes for fire, equipment's/detectors failure, fire control measures taken, workers present at the location during incident and their present status to be provided.</b></p>
xvi.	<p><b>Onsite and offsite DMP shall be updated to cover the additional facilities and the updated plants shall be implemented.</b></p> <p><b>Status: Being complied</b></p> <p>As per the discussions held during monitoring, it has been observed that the emergency response and disaster management plant (ERDMP) has been updated to cover the additional facilities and the updated plants is being implemented.</p>
xvii.	<p><b>Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factory Act.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have own occupational health centre/hospital within the project premises are conducting regular health check-ups of all workers including both departmental and contractual and records are being</p>

	<p>maintained. As per the records available, all the workers are being going for IME and PME and periodical health check-ups.</p>
xviii.	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are in process of developing green belt in and around the plant premises. However, it has been observed that the plantation around the project area is not satisfactory.</p> <p><b>It is required to develop thick green belt with suitable species as per the CPCB guidelines.</b></p>
xix.	<p><b>The Company should undertake measures for rain water harvesting to recharge the ground water and minimize fresh water consumption.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have implemented the roof top rain water harvesting system at administrative buildings (block-A and C), control room and sub stations of DHT project.</p>
xx.	<p><b>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.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the sanitary and medical facilities are provided with the refinery site. It has been stated that all the construction labor are from nearby locations. It has been observed that the rest shelters were provided for the labor within the refinery site.</p>
	<p><b>B. General Conditions</b></p>
xv.	<p><b>The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory body.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. However, it has been observed that the PAs are not adhering the some of the stipulations made by Andhra Pradesh State Pollution Control Board (APPCB). In this regard, directions also issued by APPCB vide letter no. 702/APPCB/UH-II/TF/VSP/2020 dated 10.03.2020.</p> <p><b>It is required to strictly adhere to the stipulations made by the Andhra Pradesh Pollution Control Board (APPCB), State Government and any other statutory authority.</b></p>
xvi.	<p><b>No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment &amp; Forests. In case</b></p>

of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry.

**Status: Partially complied**

It has been observed that the Ministry has accorded following EC's to the project:

SN	EC Letter No.	Date	Subject
01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA
02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization
03	J-11013/55/2003-IA II (I)	03.02.2004	Expansion from 7.5 to 10.0 MMTPA
04	J-11011/66/2007-IA II (I)	07.03.2008	Mounded storage for Propylene/LPG
05	J-11011/408/2009-IA-II(I)	02.09.2009	Expansion from 7.5 to 10.0 MMTPA
06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA

As per the above, it has been observed that, vide EC dated 03.02.2004 and 02.09.2009 project was under expansion from 7.5 to 10.0 MMTPA. As per EC dated 11.02.2016, project is under expansion from 8.33 MMTPA to 15.0 MMTPA. However, during inspection, no information has been provided for expansion of project from 7.5 to 8.33 MMTPA.

**It is required to provide detailed explanation regarding expansion of project from 7.5 MMTPA to 8.33 MMTPA along with the approval obtained from Ministry, if any.**

xvii. **The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.**

**Status: Partially complied**

It has been observed that the PAs are in process of complying with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. It has been stated that, prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. have been obtained. However, copies were not provided.

**It is required to provide the copies of approvals taken from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc., wherever applicable.**

xviii. **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.**

**Status: Partially complied**

It has been observed that the project have three ETPs and two effluent discharge streams. The details of ETP and flow patterns are as follows:

SN	ETP / STP	Capacity	Units
<b>I Industrial effluents:</b>			
1	ETP - 1	135 KL/Hour (3,240 KLD)	API, TPIs for free oil removal, dissolved air floatation, flocculation tank, equalisation tank, aeration tank & duel media filters (carbon & sand).
2	ETP - 2	325 KL/Hour (7,800 KLD)	API, TPIs for free oil removal, neutralisation tank, ammonia stripper, dissolved air floatation tank, equalisation tank, two-stage biological treatment, duel media & activated carbon filters.
3	ETP - 4	180 KL/Hour (4,320 KLD)	API, TPIs, flash mixing tanks, flocculation tank, dissolved air floatation tank, sequential batch reactor for removal of organics, duel media filters, activated carbon filters followed by disinfection through bromination.
Point of disposal: Treated effluent along with the ones-through cooling water is discharged into Megadrigedda surplus overflow channel through two numbers of Main Hay Filters, which finally joins the sea Bay of Bengal.			
Total		640 KL/Hour (15360 KLD)	---
<b>II Domestic effluents:</b>			
1	STP - 1	25 KLD	Constructed Wetland Technology treatment followed by on land for gardening.
2	STP - 2	15 KLD	
Total		40 KLD	---

During the inspection, Joint Committee has collected treated effluents from various Effluent Treatment Plants for compliance verification on 26.03.2021 and these samples have been analysed in the Zonal Laboratory, APPCB, Visakhapatnam. Details of samples collected and analysis results are as follows:

SN	Parameters	MHF-II outlet (E-332)	MHF-I outlet (E-333)	CFO Order stipulated standards
1	pH	7.16	7.28	6.50 - 8.50
2	Oil & grease	< 1.0	< 1.0	1.0
3	Hexavalent chromium (as Cr)	0.01	BDL	0.10
All values are expressed in mg/lit. except pH.				

SN	Parameter	ETP - I - DMF outlet (E-334)	ETP - IV ACF outlet (E-335)	CFO Order stipulated standards
1	pH	7.64	8.33	6.5-8.5
2	Total Suspended Solids at 105 <sup>0</sup> C	23	57	20
3	Chemical Oxygen Demand	44	96	125
4	Biochemical Oxygen Demand	10.5	23.0	15
5	Oil & Grease	<1	2.0	5.0
6	Sulphides (as S <sup>2-</sup> )	1.6	2.4	0.5

7	Ammonical Nitrogen (as NH <sub>3</sub> -N)	3.9	26.3	15.0
8	Phenols (as C <sub>6</sub> H <sub>5</sub> OH)	BDL	0.02	0.35
9	Phosphates (as P)	0.08	0.07	3.0
10	Hexavalent Chromium (as Cr <sup>6+</sup> )	BDL	BDL	0.10
11	Total Chromium (as Cr)	0.0007	0.0010	2.0
12	Lead (as Pb)	0.0002	<0.0001	0.10
13	Zinc (as Zn)	0.0090	0.0080	5.0
14	Nickel (Ni)	0.0083	0.0024	1.0
15	Copper (as Cu)	0.0025	0.0007	1.0
16	Cyanide (as CN <sup>-</sup> )	BDL	BDL	0.2
All values are expressed in mg/l except pH.				

From the above, it has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP - IV ACF outlet (E - 335).

Analysis results of treated domestic effluent are as follows:

SN	Parameter	STP outlet (E-336)	Standard
1	pH	8.40	6.5-8.5
2	Total Suspended Solids at 105 <sup>o</sup> C	14	100 mg/l
3	Total Dissolved Solids at 105 <sup>o</sup> C	820	----
4	Chemical Oxygen Demand	72	----
5	Biochemical Oxygen Demand	18	30 mg/l

It has been observed that the treated effluent is not being reused/recycled as make-up water for raw water cooling towers.

**It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO. It is required to take appropriate**

**It has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP - IV ACF outlet (E - 335). It is required to take adequate measures to control the above pollutants in the effluents.**

xix. **The overall noise levels in and around the plant area shall be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (P) Rules, 1989 viz., 75 dBA (day time) and 70 dBA (night time).**

**Status: Being complied**

It has been observed that the PAs are in process of taking necessary measures to keep the noise levels within the prescribed limits in and around the plant area. The control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation were implemented.

xx.	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are in process of complying with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. It has been stated that, prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. have been obtained. However, copies were not provided.</p> <p><b>It is required to provide the copies of approvals taken from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc., wherever applicable.</b></p> <p>As per the discussions held during monitoring, it has been observed that the emergency response and disaster management plant (ERDMP) has been updated to cover the additional facilities and the updated plants is being implemented.</p>
xxi.	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been informed that, adequate funds have been earmarked towards capital cost and recurring cost/annum for environment pollution control measures and being used to implement the conditions stipulated by the Ministry as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided were not be diverted for any other purposes.</p> <p><b>It is required to provide the detailed report on expenditure incurred for environment pollution control measures to implement the conditions stipulated by the Ministry as well as the State Government along with the implementation schedule for all the conditions stipulated herein for last three years.</b></p>
xxii.	<p><b>The Company shall develop rain water harvesting structures to harvest the run off water for recharge of ground water.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have implemented the roof top rain water harvesting system at administrative buildings (block-A and C), control room and sub stations of DHT project.</p>
xxiii.	<p><b>The stipulated conditions will be monitored by the concerned Regional Office of this Ministry/ Central Pollution Control Board/ State Pollution</b></p>

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	<p><b>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.</b></p> <p><b>Status: Partially complied</b></p> <p>The stipulated conditions are being monitored by Integrated Regional Office of the Ministry.</p> <p>As per the discussions held during the monitoring, it has been observed that the PAs are submitting the six monthly compliance reports with respect to latest EC dated 11.02.2016 only. However, compliance status of earlier granted EC's and monitored data of air, water, noise, etc. are not being submitted. The compliance report is also not being uploaded in the company's website.</p> <p><b>It is required to submit the compliance status of conditions stipulated in all EC's along with monitored data of air, water, noise, etc., on six monthly basis to Integrated Regional Office, MoEFCC, Vijayawada by email.</b></p> <p><b>It is also required to upload the six monthly compliance reports of all the EC's granted to the project along with the monitored reports in the company's website.</b></p>
xxiv.	<p><b>The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during the monitoring, it has been observed that the PAs are submitting the six monthly compliance reports with respect to latest EC dated 11.02.2016 only. However, compliance status of earlier granted EC's and monitored data of air, water, noise, etc. are not being submitted.</p> <p><b>It is required to submit the compliance status of conditions stipulated in all EC's along with monitored data of air, water, noise, etc., on six monthly basis to Integrated Regional Office, MoEFCC, Vijayawada by email.</b></p>
xxv.	<p><b>A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad/Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions/representations, if any, were received while processing the proposal. The clearance letter shall also be put on the website of the company by the proponent.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been stated that the 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. However, it has been observed that the copy of environmental clearance letter is not available on company's website.</p> <p><b>It is required to upload the copy of environmental clearance letter dated 02.09.2009 and the six monthly compliance reports along with all monitored data in the company's website and regularly updated the same. It requires immediate action.</b></p>
xxvi.	<p><b>The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the</b></p>

	<p>clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at <a href="http://envfor.nic.in">http://envfor.nic.in</a>. This should be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely Circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office of this Ministry.</p> <p><b>Status: Complied</b></p> <p>It has been observed that the newspaper advertisements regarding grant of EC was published in "Sakshi" (Telugu), "Deccan Chronicle" (English) and "The Hindu" (English) dated 18.09.2009. The same were forwarded to Regional Office, Chennai.</p>
xxvii.	<p><b>The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the Company along with the status of compliance of EC conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during the monitoring, it has been observed that the PAs are submitting the environmental statement for each financial year ending 31<sup>st</sup> March in Form-V to Regional Office of MoEFCC. However, the same is not being uploaded in the company's website.</p> <p><b>It is required to upload the environmental statement for each financial year ending 31<sup>st</sup> March in Form-V on company's website and regularly be updated. It requires immediate action.</b></p>
xxviii.	<p><b>A separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have a separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the environmental management and monitoring functions.</p>
xxix.	<p><b>Project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.</b></p> <p><b>Status: Not complied</b></p> <p>The details were not provided by PAs.</p> <p><b>It is required to provide the details regarding the date of financial closure and final approval of the project by the concerned authorities and the date of commencing the land development work.</b></p>

6. J-11011/63/2013-IA II (I) dated 11.02.2016	
A. Specific Conditions	
i.	<p><b>Compliance to all the environmental conditions stipulated in the environmental clearance letter no. J-11011/22/94-A II(I) dated 30<sup>th</sup> May, 1995, F. No. J-11011/88/96-IA II (I) dated 10<sup>th</sup> April, 1997, J-11013/55/2003-IA II (I) dated 3<sup>rd</sup> February, 2004 and J-11011/66/2007-1A II (I) dated 7<sup>th</sup> March, 2008 and J-11011/408/2009-IA II (I) dated 2<sup>nd</sup> September, 2009 shall be satisfactorily implemented and compliance reports submitted to the Ministry's Regional Office at Chennai.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring and information provided by PAs, it has been observed that the PAs are in process of complying the conditions stipulated in the environmental clearance letter no. J-11011/22/94-A II(I) dated 30<sup>th</sup> May, 1995, F. No. J-11011/88/96- IA II (I) dated 10<sup>th</sup> April, 1997, J-11013/55/2003-IA II (I) dated 3<sup>rd</sup> February, 2004 and J-11011/66/2007-1A II (I) dated 7<sup>th</sup> March, 2008 and J-11011/408/2009-IA II (I) dated 2<sup>nd</sup> September, 2009.</p> <p>However, it has been observed that the PAs are not submitting the six monthly compliance status reports of above EC's to Regional Office of MoEFCC.</p> <p><b>It is required to submit the compliance status of environmental conditions stipulated in the environmental clearance letter no. J-11011/22/94-A II(I) dated 30<sup>th</sup> May, 1995, F. No. J-11011/88/96- IA II (I) dated 10<sup>th</sup> April, 1997, J- 11013/55/2003-IA II (I) dated 3<sup>rd</sup> February, 2004 and J-11011/66/2007-1A II (I) dated 7<sup>th</sup> March, 2008 and J-11011/408/2009-IA II (I) dated 2<sup>nd</sup> September, 2009 along with all environmental monitored data on six monthly basis to Ministry's Integrated Regional Office, Vijayawada. The same should be uploaded on company's website.</b></p>
ii.	<p><b>M/s HPCL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18<sup>th</sup> March, 2008.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are in process of complying new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18<sup>th</sup> March, 2008.</p> <p>However, it has been observed that fugitive emissions are not being monitored. In addition, VOC emissions monitoring and control measures are not being implemented at wastewater collection and treatment area as per the said notification.</p> <p><b>It is required to comply all standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18<sup>th</sup> March, 2008. It requires immediate action.</b></p>
iii.	<p><b>Continuous on-line stack monitoring for SO<sub>2</sub>, NO<sub>x</sub> and CO of all the stacks shall be carried out. Low NO<sub>x</sub> burners shall be installed.</b></p> <p><b>Status: Partially complied</b></p> <p>The Joint Committee has carried out monitoring of flue gas emissions from five important stacks for SPM, SO<sub>2</sub> and NO<sub>x</sub> during the period of inspection between 25.03.2021 and 27.03.2021. Details of stacks monitored and the results are as follows:</p>

SN	Sample code	Stack identity	Date of monitoring	Parameter	Value (mg/Nm <sup>3</sup> )	Standard
1	ST-006	Stack attached to DHDS Reformer-61F11	25.03.2021	SPM	39.0	100
				SO <sub>2</sub>	63.5	--
				NO <sub>x</sub>	35.7	--
2	ST-007	Stack attached to combined feed heater and product fractionators reboilers-90F01, 90F02	26.03.2021	SPM	24.9	100
				SO <sub>2</sub>	184.7	--
				NO <sub>x</sub>	204.9	--
3	ST-008	Stack attached to Flue gas desulphurization unit FGD-II	26.03.2021	SPM	36.0	50
				SO <sub>2</sub>	147.5	--
				NO <sub>x</sub>	112.8	--
4	ST-009	Stack attached to continuous catalytic reforming unit (CCR) 74F1, F2, F3, F4	26.03.2021	SPM	22.0	100
				SO <sub>2</sub>	25.1	--
				NO <sub>x</sub>	117.4	--
5	ST-010	Stack attached SRU Train - III Incinerator 79F302	27.03.2021	SPM	23.0	100
				SO <sub>2</sub>	32.5	--
				NO <sub>x</sub>	35.7	--

Out of 35 stacks installed, PAs have installed Online Continuous Emission Monitoring Systems (OCEMS) to 32 stacks to monitor the flue gas emissions for Particulate Matter (PM), Sulfur dioxide (SO<sub>2</sub>), Nitrogen dioxide (NO<sub>2</sub>) and Carbon monoxide (CO) on real-time basis and connected to APPCB & CPCB server. Analysis data obtained from these stacks for the period from 01.01.2020 to 30.04.2021 has been collected and annexed. There is an few exceedances noticed during March, 2021.

According to the CFO conditions issued by APPCB has prescribed stipulated standards for pollutant emission loads from the stacks for PM, SO<sub>2</sub>, NO<sub>x</sub> & hydrocarbons. The Joint Committee calculated pollutant emission load for compliance verification as tabulated below.

SN	Stack ID		SPM (TPD)	NO <sub>x</sub> (TPD)	SO <sub>2</sub> (TPD)
	SN as per CFO order	As per CEMS	Actual as per CEMS	Actual as per CEMS	Actual as per CEMS
1	Stack 4	Stack 01_CDU_I_2F1	0.028	0.058	0.283
2	Stack 6	Stack02_CDU_I_2F2-	0.008	0.043	0.182
3	Stack 5	Stack03_CDU_I_2F4-	0.016	0.055	0.275
4	Stack 1	Stack04_CDU_II_11F1-	0.068	0.173	0.543
5	Stack 2	Stack05_CDU_II_12F1-	0.015	0.066	0.166
6	Stack 12	Stack06_CDU_III_42F1-	0.057	0.133	0.552
7	Stack 13	Stack07_CDU_III_42F2-	0.01	0.04	0.15
8	Stack 14	Stack08_VBU_46F1-	0.006	0.062	0.137
9	Stack 15	Stack09_FCCU_I_4F51-	0.015	0.02	0.116
10	Stack 16	Stack10_FCCU_I_4F52-	0.094	0.045	0.146
11	Stack 35	Stack11_FCCU_I_FGD1-	0.063	0.42	0.184

12	Stack 3	Stack12_FCCU_II_14F1-	0.012	0.023	0.139
13	Stack 9	Stack13_FCCU_II_14F3-	NA	0.029	0.093
14	Stack 34	Stack14_FCCU_II_FGD2-	0.111	0.31	0.098
15	Stack 8	Stack15_PP_I_WIL8-	NA	NA	NA
16	Stack 27	Stack16_PP_1_IBH-	0.01	0.203	0.273
17	Stack 21	Stack17_DHDS_60F1-	0.002	0.045	0.108
18	Stack 19	Stack_18_DHDS_REFORMER-	NA	0.042	0.054
19	Stack 20	Stack19_DHDS_HGU_61F1	NA	NA	NA
20	Stack 22	Stack20_DHDS_SRU_65F001-	NA	0.02	0.042
21	Stack 26	Stack21_DHDS_SRU_79F302-	NA	0.008	0.176
22	Stack 24	Stack22_CCR_74_F1toF4-	0.021	0.135	0.042
23	Stack 23	Stack23_NHT_72_F1F2-	0.003	0.017	0.02
24	Stack 25	Stack24_FCCNHT_75F1-	0.001	0.004	0.006
25	Stack 17	Stack25_CPP_HRSGIII-	0.083	0.978	0.047
26	Stack 18	Stack26_CPP_HRSGIV-	0.103	0.575	0.06
27	Stack 28	Stack27_CPP_HRSGV-	0.058	0.648	0.192
28	Stack 29	Stack28_CPP_HRSGVI-	0.064	0.74	0.176
29	Stack 30	Stack_29_DHT_FEED_90F01_02-	0.054	0.092	0.138
30	Stack 32	Stack_30_DHT_HGU_NAPHTHA_HEATER_91F01-	0	0.002	0.001
31	Stack 31	Stack_31_DHT_HGU_91M20-	0.063	0.079	0.071
32	Stack 33	Stack_32_DHT_SRU_92M22-	0.004	0.018	0.051
Total (as calculated from the results obtained from CEMS connected to 32 stacks)			0.969	5.083	4.521
Total emission load (as stipulated to each stack in the CFO Order against the 32 stacks)			5.609	---	---
Total emission load (as stipulated to each stack in the CFO Order against all the 36 stacks)			6.72	---	---
Total emission load prescribed as per CFO Order			1.11	6.5	11.5

From the above calculations, the parameters PM, SO<sub>2</sub> and NO<sub>2</sub> are meeting the prescribed standard for pollution emission load.

**It has been observed that, as per CFO, there were 35 stacks were present in the project. However, continuous on-line stack monitoring facilities were provided for 32 stacks only. It is required to provide the same for rest of three stacks also.**

- iv. **The process emissions [SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane & Non-methane)], VOCs and Benzene from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency of the pollution control device has been achieved.**

**Status: Partially complied**

As per the discussions held during monitoring, it has been stated that the process emissions, VOCs and Benzene from various units are under the prescribed limits of Environment (P) Act. However, it has been observed that the PAs have installed Methane (CH<sub>4</sub>) and H<sub>2</sub>S detectors only.

	<p>It has been assured that, in the event of failure of pollution control system(s) adopted by the unit, the unit will be immediately put out of operation and will not be restarted until the desired efficiency of the pollution control device has been achieved.</p> <p><b>It is required to monitor process emissions viz., SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane &amp; Non-methane), VOCs and Benzene from various units and monitoring reports to be submitted along with six monthly compliance reports on regular basis.</b></p>
v.	<p><b>Leak Detection and Repair programme shall be prepared and implemented to control HC/VOC emissions. Focus shall be given to prevent fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to. Fugitive emissions of HC from product storage tank yards etc. must be regularly monitored. Sensors for detecting HC leakage shall be provided at strategic locations.</b></p> <p><b>Status: Being complied</b></p> <p>It has been stated that the Leak Detection and Repair (LDAR) programme is being implemented in existing refinery. It has been observed that the sensor for detection of Methane (CH<sub>4</sub>) and H<sub>2</sub>S were installed at the process locations. It has been observed that the PAs are in process of taking preventing measures for control of fugitive emissions. Proper maintenance of mechanical seals of pumps and valves were given.</p>
vi.	<p><b>SO<sub>2</sub> emissions after expansion from the plant shall not exceed 11.5 TPD and further efforts shall be made for reduction of SO<sub>2</sub> load through use of low sulphur fuel. Sulphur recovery unit with tail gas treating facilities having 99.9 % efficiency shall be provided.</b></p> <p><b>Status: Being complied</b></p> <p>As per the discussions held during monitoring, it has been observed that the SO<sub>2</sub> emissions are not exceeding 11.5 TPD. It has been stated the SRU having 99.9% efficiency of Sulphur recovery.</p>
vii.	<p><b>As proposed, record of sulphur balance shall be maintained at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance include sulphur input through feed (Sulphur content in crude oil), sulphur output from Refinery through products, by product (elemental sulphur), atmospheric emissions etc.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are maintaining record of sulphur balance at the Refinery as part of the environmental data on regular basis. The basic component of sulphur balance included sulphur input through feed (Sulphur content in crude oil), sulphur output from Refinery through products, by product (elemental sulphur), atmospheric emissions etc. However, the Sulphur balance data is not being submitted to Regional Office.</p> <p><b>It is required to submit the monthly Sulphur balance sheet of the refinery along with six monthly compliance report on regular basis to Integrated Regional Office (IRO), Vijayawada.</b></p> <p>The Joint Committee has carried out Sulphur balance studies during inspection for verification of compliance of stipulated standards. For the study, the Joint</p>

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Committee has collected Sulphur related data of crude processed and petroleum products produced during the year, 2020 (January to December).

Quantity of crude obtained from various sources and the concentrations of Benzene and Sulphur contents as per the information provided by M/s. HPCL Refinery are as follows:

SN	Type of crude	Crude quantity (TMT)	No. of parcels	Benzene content (wt%)	Sulphur content (%)
1	MH	416.4	8	1.8	0.124
2	Bonny light	1395.7	6	0.1	0.138
3	WTI	1059.3	4	0.1	0.169
4	Quaiboe	467.6	3	0.1	0.115
5	ERHA	127.7	1	0.3	0.169
6	AZERI	92.5	1	0.1	0.158
7	Kuwait	62.1	1	0.1	2.808
8	Arab Lt	206.2	8	0.1	1.997
9	Arab Ex Lt	698.5	7	0.2	1.007
10	Arab Hy	510.8	8	0.05	2.978
11	Murban	390.5	5	0.2	0.769
12	Basrah Hvy	39.9	1	0.1	4.2
12	Basrah Lt	1416.3	14	0.1	3.005
13	Das	1902.4	16	0.2	1.186
14	Ravva	285.0	5	0.1	0.052
Total		9070.9	88	0.243	1.258

Accordingly, an amount of about 22,042 metric tons of Benzene and 1,14,112 metric tons of Sulphur will be having the 90,70,900 metric tons (9070.9 TMT) of crude obtained by the refinery during the year, 2020.

Quantity of petroleum products generated and their Sulphur content are as follows:

SN	Product	Production in Tons	Sulphur % in product	Sulphur quantity in Tons (Actual)
1	Propylene	46,000	0.004	1.84
2	LPG	4,18,000	0.013	54.34
3	Naphtha	3,68,700	0.024	88.48
4	Motor spirit	16,72,900	0.001	16.729
5	ATF	59,100	0.036	21.276
6	SKO	1,42,200	0.019	27.018
7	Diesel	39,31,500	0.580	22802.7
8	FO 3.5 % S	9,36,100	3.5	32763.5
9	FO 1.0% S	1,68,500	1	1685
10	Bitumen	5,15,400	5.70	29377.8
11	Sulfur	34,800	--	34800
12	Refinery Fuel	7,27,300	0.22	1600.06
13	Intermediate Stream Build up	50,500		
Total:		90,71,100	--	1,23,238.743

Further, the refinery has used three types of fuels viz., fuel gas, low Sulphur heavy stock (LSHS) fuel oil and CPP Naphtha for crude distillation, capital power generation, etc. purposes, which again is also having Sulphur concentrations. The quantities of various fuels used and their Sulphur content have also been verified by the Joint Committee while carrying out Sulphur balance studies as detailed below:

SN	Month	Fuel quantity (metric Tons)	Sulfur concentration	Total sulfur (metric tons)
<b>I</b>	<b>Fuel gas</b>			
1	January	18341	82 PPM	1.50396
2	February	19105	75 PPM	1.432875
3	March	20476	69 PPM	1.412844
4	April	19341	70 PPM	1.35387
5	May	18252	63 PPM	1.149876
6	June	18618	75 PPM	1.39635
7	July	17931	66 PPM	1.183446
8	August	16456	54 PPM	0.888624
9	September	19001	53 PPM	1.007053
10	October	19264	27 PPM	0.520128
11	November	19228	21 PPM	0.403788
12	December	17667	17 PPM	0.300339
<b>Total:</b>		<b>223681</b>	<b>---</b>	<b>12.553153</b>
<b>II</b>	<b>LSHS (fuel oil)</b>			
1	January	8162	0.65 (wt%)	53.053
2	February	6252	0.51 (wt%)	31.8852
3	March	4856	0.6 (wt%)	29.136
4	April	4921	0.53 (wt%)	26.0813
5	May	7483	0.59 (wt%)	44.1497
6	June	8118	0.58 (wt%)	47.0844
7	July	7718	0.59 (wt%)	45.5362
8	August	5973	0.66 (wt%)	39.4218
9	September	6250	0.61 (wt%)	38.125
10	October	6810	0.61 (wt%)	41.541
11	November	8595	0.52 (wt%)	44.694
12	December	8338	0.59 (wt%)	49.1942
<b>Total:</b>		<b>83477</b>	<b>---</b>	<b>489.9018</b>
<b>III</b>	<b>CPP Naphtha</b>			
1	January	17628	0.020 (wt%)	3.5256
2	February	17135	0.028 (wt%)	4.7978
3	March	18031	0.030 (wt%)	5.4093
4	April	17279	0.020 (wt%)	3.4558
5	May	17827	0.016 (wt%)	2.85232
6	June	16256	0.021 (wt%)	3.41376
7	July	17721	0.019 (wt%)	3.36699
8	August	16032	0.021 (wt%)	3.36672
9	September	16651	0.022 (wt%)	3.66322
10	October	17733	0.019 (wt%)	3.36927
11	November	17389	0.016 (wt%)	2.78224
12	December	14884	0.014 (wt%)	2.08376
<b>Total:</b>		<b>204567</b>	<b>---</b>	<b>42.08678</b>
<b>Total sulfur content in the fuels used (I+II+III) during the year 2020:</b>				<b>544.542</b>
<b>Total sulfur dioxide content that has emitted by the 544.542 tons of sulfur during the year, 2020:</b>				<b>1,089.08</b>
<b>Sulfur dioxide content emitted per day during the year, 2020 :</b>				<b>2.98</b>
<b>Standard emission load of sulfur dioxide as stipulated in the APPCB CFO order dated 18.12.2019.</b>				<b>11.5</b>

From the above Sulphur balance studies, it appears that the refinery is not exceeding the Sulphur dioxide emission load of 11.5 tons per day.

In support of the claim of the refinery that is recovering the Sulphur from the crude and its products, it has provided the quantity of recovered Sulphur for the five years period from 2016-17 to 2020-21 as detailed below.

SN	Financial year (April-March)	Crude processed (TMT)	Sulfur recovered (TMT)	Sulfur shipment (TMT)	Sulfur inventory at the year end (TMT)
1	2016-17	9,303.9	45.16	47.39	0.12
2	2017-18	9,635.0	43.50	42.89	0.73
3	2018-19	9,773.1	50.80	51.18	0.35
4	2019-20	9,115.0	37.48	36.93	0.90
5	2020-21	9,050.5	34.07	34.82	0.15

viii. **Ambient air quality monitoring stations, [PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, HS, mercaptan, non-methane-HC and Benzene) shall be set up in the complex in consultation with Maharashtra Pollution Control Board, based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modelling exercise to represent short term GLCs and trend analysis w.r.t past monitoring results shall also be carried out. Adequate measures based on the trend analysis shall be taken to improve the ambient air quality in the project area.**

**Status: Partially complied**

It has been observed that the PAs have installed three (03) nos. of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) for monitoring of PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub> and NO<sub>x</sub>. However, HS, mercaptan, non-methane-HC and Benzene are not being monitored at CAAQMS stations. As per the data observed, PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> emissions were exceeded the prescribed limits of NAAQMS, 2009.

**It is required to monitor HS, mercaptan, non-methane-HC and Benzene at all AAQ monitoring stations. It is required to take appropriate measures to control the PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> emissions in the project area.**

During the inspection the Joint Committee, with the help of Zonal Laboratory, APPCB, Visakhapatnam has carried out ambient air quality monitoring within the refinery premise. Ambient air quality monitoring was carried at five locations within and outside the industry premises and monitored for PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, NH<sub>3</sub>, O<sub>3</sub>, CO, Benzene and VOCs between 25.03.2021 and 27.03.2021 using manual & Mobile CAAQM stations. Monitoring locations and results are as below:

SN	Location	Latitude	Longitude	Date of monitoring	Parameters
<b>I</b>	<b>Manual Stations</b>				
1	North-east side of the industry (near industry CAAQM stations at HLPH)	17.696921	83.251094	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> & NH <sub>3</sub> .
2	South-west to industry (Yarada park housing colony - S10 building)	17.688231	83.240756		

3	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038						
<b>II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)</b>									
1	North-west corner of the industry near ETP - 4	17.700329	83.237126	25.03.2021 and 26.03.2021	PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>2</sub> , NH <sub>3</sub> , O <sub>3</sub> , CO, Benzene and VOCs.				
2	South-east side of the industry (near industry CAAQM station)	17.688419	83.250038	26.03.2021 and 27.03.2021					
Ambient air quality monitoring analysis results									
SN	Location	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
<b>I Manual Stations</b>									
1	North-east side of the industry (near industry CAAQM stations at HLPH)	267	92	44	33	29	-	-	-
2	South-west to industry (Yarada park housing colony - S10 building)	115	69	19	17	27	-	-	-
3	South-east side of the industry (near industry CAAQM station)	248	83	48	36	30	-	-	-
<b>II Mobile Continuous Ambient Air Quality Monitoring Station (CAAQMS)</b>									
1	North-west corner of the industry near ETP - 4	320	89	84	39	40	57.7	1.4	2.7
2	South-east side of the industry (near industry CAAQM station)	298	94	52	42	35	66.2	1.7	3.3
24 Hour average standard		100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
Annual average standard		60	40	50	40	100	180 (1 hr)	2 (8 hrs)	5
All values are expressed in µg/m <sup>3</sup> , except CO. CO value expressed in mg/m <sup>3</sup> .									

On the request of the Joint Committee, Zonal Laboratory, Andhra Pradesh Pollution Control Board, Visakhapatnam has carried out ambient air quality monitoring using mobile CAAQM Station for three days between 03.05.2021 and 06.05.2021 in the residential area of Malkapuram at Ajanta colony which lies south-east direction of M/s. HPCL Refinery to verify the impact of emissions from the refinery. The results obtained are as follows:

SN	Date	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>2</sub>	NH <sub>3</sub>	O <sub>3</sub>	CO	C <sub>6</sub> H <sub>6</sub>
1	03.05.2021 to 04.05.2021	91	25	33	25	16	41.2	0.9	1.5
2	04.05.2021 to 05.05.2021	72	17	25	22	15	29.7	1.0	0.6
	05.05.2021 to 06.05.2021	67	16	37	24	23	55.1	0.9	0.7
24 Hour average standard		100	60	80	80	400	100 (8 hrs)	4 (1 hr)	-
Annual average standard		60	40	50	40	100	180 (1 hr)	2 (8 hrs)	5

All values are expressed in  $\mu\text{g}/\text{m}^3$ , except CO. CO value expressed in  $\text{mg}/\text{m}^3$ .

From the above data, it has been observed that the values of PM<sub>10</sub> and PM<sub>2.5</sub> are exceeding the 24 hour standards. The values of SO<sub>2</sub> and NO<sub>2</sub>, though not exceeding the standard limits found far higher than the values obtained at the locations elsewhere in Visakhapatnam city. This indicates that there are leaks in the process systems through which, PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, etc. are find their way into the ambient air as fugitive emissions. Higher values of PM<sub>10</sub> & PM<sub>2.5</sub> in the ambient air could also be attributed the expansion works going on within the premises of the refinery.

**It is required to take adequate measures to control the PM<sub>10</sub>, PM<sub>2.5</sub> and SO<sub>2</sub> in the ambient air of the project surroundings. It requires immediate action.**

ix. **The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution. Besides, acoustic enclosure /silencer shall be installed wherever noise levels exceed the limit.**

**Status: Being complied**

It has been observed that the PAs have installed adequate stack heights as per CPCB standards. Acoustic enclosure were provided to the DG sets to mitigate the noise pollution.

x. **Fresh water requirement from Greater Visakha Municipal Corporation shall not exceed 873 m<sup>3</sup>/hr after expansion and prior permission shall be obtained from the competent authority. Industrial effluent generation will be 902 m<sup>3</sup>/hr and treated in the new state-of-the-art Integrated Effluent Treatment Plant (IETP). Treated effluent shall be fully reused/recycled as make-up water for raw water cooling towers. Domestic sewage shall be treated in sewage treatment plant (STP).**

**Status: Partially complied**

It has been assured that the fresh water requirement from Greater Visakha Municipal Corporation will not exceed 873 m<sup>3</sup>/hr after expansion and prior

permission will be obtained from the competent authority. As per the discussions held during monitoring, it has been observed that the domestic and process & washings requirements of the refinery are met from the Greater Visakhapatnam Municipal Corporation supply. Cooling water requirements are met from the water drawn from sea. PAs have provided the data of water consumption & wastewater generation during the year 2020 (January to December) and are as follows:

SN	Purpose	Permitted quantity as per the CFO order (KLD)	Actual consumption (KLD)
1	Process & washings	10,176	9,250
2	Boiler feed	1,680	7,718
3	Industrial cooling (make up) / humidification / water spraying	5,03,305	2,13,035
4	Industrial water	6,900	---
5	Domestic	732	732
Total		5,22,793	2,30,735

It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO.

Wastewater is generated mostly during desalting of crude oil (striped Water), spent caustic solutions, floor washings, crude & product tank washings, boiler blowdowns, etc.

SN	Outlet description	Max. daily discharge as per CFO order (KLD)	Point of disposal	Actual quantity of wastewater discharge during the year 2020 (KLD)
1	Process & Washings	11,820	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment in ETPs - I, II & IV.	5,272
2	Cooling blow down	2,18,286	Shall be discharged into Meghadrigedda surplus course joining Bay of Bengal sea after treatment	2,18,286
3	Domestic effluents	636	Shall be used for on land for irrigation within the industry premises after treatment in STP.	636
Total		2,30,742	---	2,24,194

It has been observed that the project have three ETPs and two effluent discharge streams. The details of ETP and flow patterns are as follows:

SN	ETP / STP	Capacity	Units
I	<b>Industrial effluents:</b>		

1	ETP - 1	135 KL/Hour (3,240 KLD)	API, TPIs for free oil removal, dissolved air floatation, flocculation tank, equalisation tank, aeration tank & duel media filters (carbon & sand).
2	ETP - 2	325 KL/Hour (7,800 KLD)	API, TPIs for free oil removal, neutralisation tank, ammonia stripper, dissolved air floatation tank, equalisation tank, two-stage biological treatment, duel media & activated carbon filters.
3	ETP - 4	180 KL/Hour (4,320 KLD)	API, TPIs, flash mixing tanks, flocculation tank, dissolved air floatation tank, sequential batch reactor for removal of organics, duel media filters, activated carbon filters followed by disinfection through bromination.
Point of disposal: Treated effluent along with the ones-through cooling water is discharged into Megadrigedda surplus overflow channel through two numbers of Main Hay Filters, which finally joins the sea Bay of Bengal.			
Total		640 KL/Hour (15360 KLD)	---
<b>II Domestic effluents:</b>			
1	STP - 1	25 KLD	Constructed Wetland Technology treatment followed by on land for gardening.
2	STP - 2	15 KLD	
Total		40 KLD	---

During the inspection, Joint Committee has collected treated effluents from various Effluent Treatment Plants for compliance verification on 26.03.2021 and these samples have been analysed in the Zonal Laboratory, APCCB, Visakhapatnam. Details of samples collected and analysis results are as follows:

SN	Parameters	MHF-II outlet (E-332)	MHF-I outlet (E-333)	CFO Order stipulated standards
1	pH	7.16	7.28	6.50 - 8.50
2	Oil & grease	< 1.0	< 1.0	1.0
3	Hexavalent chromium (as Cr)	0.01	BDL	0.10

All values are expressed in mg/lit. except pH.

SN	Parameter	ETP - I - DMF outlet (E-334)	ETP - IV ACF outlet (E-335)	CFO Order stipulated standards
1	pH	7.64	8.33	6.5-8.5
2	Total Suspended Solids at 105° C	23	57	20
3	Chemical Oxygen Demand	44	96	125
4	Biochemical Oxygen Demand	10.5	23.0	15
5	Oil & Grease	<1	2.0	5.0
6	Sulphides (as S <sup>2-</sup> )	1.6	2.4	0.5
7	Ammonical Nitrogen (as NH <sub>3</sub> -N)	3.9	26.3	15.0
8	Phenols (as C <sub>6</sub> H <sub>5</sub> OH)	BDL	0.02	0.35
9	Phosphates (as P)	0.08	0.07	3.0

10	Hexavalent Chromium (as Cr <sup>6+</sup> )	BDL	BDL	0.10
11	Total Chromium (as Cr)	0.0007	0.0010	2.0
12	Lead (as Pb)	0.0002	<0.0001	0.10
13	Zinc (as Zn)	0.0090	0.0080	5.0
14	Nickel (Ni)	0.0083	0.0024	1.0
15	Copper (as Cu)	0.0025	0.0007	1.0
16	Cyanide (as CN <sup>-</sup> )	BDL	BDL	0.2

All values are expressed in mg/l except pH.

From the above, it has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (E – 335).

Analysis results of treated domestic effluent are as follows:

SN	Parameter	STP outlet (E-336)	Standard
1	pH	8.40	6.5-8.5
2	Total Suspended Solids at 105 <sup>o</sup> C	14	100 mg/l
3	Total Dissolved Solids at 105 <sup>o</sup> C	820	----
4	Chemical Oxygen Demand	72	----
5	Biochemical Oxygen Demand	18	30 mg/l

It has been observed that the treated effluent is not being reused/recycled as make-up water for raw water cooling towers.

**It has been observed that the water consumption for boiler feed was exceeded the permitted quantity as per CFO. It is required to take appropriate**

**It has been observed that the values of Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD) and Ammonical Nitrogen are exceeding the stipulated standards for the sample collected from ETP – IV ACF outlet (E – 335). It is required to take adequate measures to control the above pollutants in the effluents.**

**It is required to make efforts to recycle the treated effluent to achieve zero discharge and the treated effluent should be fully reused/recycled as make-up water for raw water cooling towers.**

**xi. Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MEF&CC. Outcome from the report to be implemented for conservation scheme.**

**Status: Partially complied**

It has been stated that that the comprehensive water audit is being conducted on annual basis and records are being maintained.

**It is required to submit the comprehensive water audit reports to Integrated Regional Office, Vijayawada on annual basis.**

**xii. Automatic / online monitoring system (24 x 7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB, Regional office of MoEF&CC and in the Company's website.**

**Status: Partially complied**

It has been observed that the project have three ETPs and two effluent discharge streams. The details of ETP and flow patterns are as follows:

SN	ETP / STP	Capacity	Units
<b>I Industrial effluents:</b>			
1	ETP - 1	135 KL/Hour (3,240 KLD)	API, TPIs for free oil removal, dissolved air floatation, flocculation tank, equalisation tank, aeration tank & duel media filters (carbon & sand).
2	ETP - 2	325 KL/Hour (7,800 KLD)	API, TPIs for free oil removal, neutralisation tank, ammonia stripper, dissolved air floatation tank, equalisation tank, two-stage biological treatment, duel media & activated carbon filters.
3	ETP - 4	180 KL/Hour (4,320 KLD)	API, TPIs, flash mixing tanks, flocculation tank, dissolved air floatation tank, sequential batch reactor for removal of organics, duel media filters, activated carbon filters followed by disinfection through bromination.
Point of disposal: Treated effluent along with the ones-through cooling water is discharged into Megadrigedda surplus overflow channel through two numbers of Main Hay Filters, which finally joins the sea Bay of Bengal.			
Total		640 KL/Hour (15360 KLD)	---
<b>II Domestic effluents:</b>			
1	STP - 1	25 KLD	Constructed Wetland Technology treatment followed by on land for gardening.
2	STP - 2	15 KLD	
Total		40 KLD	---

It has been observed that the discharge effluent is being monitored for pH, flow rate, TDS, COD and BOD. During the day of monitoring, the parameters are as follows:

SN	Parameter	Effluent from	
		ETP-I	ETP-IV
1	Flow rate (m <sup>3</sup> /hr)	70	115
2	pH	6.74	7.61
3	COD (mg/L)	93.69	66.03
4	BOD (mg/L)	10.87	9.65
5	TDS (mg/L)	7.81	5.75

However, the flow rate and quality of effluent is being monitored for effluents discharged from ETP only. However, flow rate of cooling discharge water is not being monitored. The data is also not being uploaded in the company's website.

**It is required to monitoring total flow rate of effluent being discharged outside of the project and the all monitoring data should be uploaded in the company's website.**

xiii.	<p><b>Oil catchers/oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs have provided oil catcher/oil trap for collection of oil from storm water drainage inside the factory premises. However, the oil is being collected by conventional/gravitational separation system.</p> <p><b>It is required to provide state-of-art/API oil separation system for collection of oil and grease from storm water drainage inside the factory premises.</b></p>
xiv.	<p><b>Oily sludge shall be disposed off into Coker. Annual Oily sludge generation and disposal data be submitted to the Ministry's Regional Office and CPCB.</b></p> <p><b>Status: Not complied</b></p> <p>It has been observed that the oily sludge is being collected in two storage ponds and the collected sludge is being sent to recovery unit. The residual sludge is being disposed to sludge collection units.</p> <p>It has been stated that the Coker unit is not considered in expansion and also not available in existing refinery. The annual oily sludge generation and disposal data is not being submitted to Regional Office.</p> <p><b>It is required to dispose off oily sludge into Coker. The annual oily sludge generation and disposal data to be submitted to Integrated Regional Office, Vijayawada on regular basis.</b></p>
xv.	<p><b>The Company should strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000 Hazardous waste should be disposed of as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and amended time to time.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021. It has been observed that the PAs are complying with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989 as amended in October, 1994 and January, 2000 Hazardous waste should be disposed of as per Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and amended time to time.</p>
xvi.	<p><b>The membership of common TSDF should be obtained for the disposal of hazardous waste. Copy of authorization or membership of TSDF should be submitted to Ministry's Regional Office at Bhopal. Chemical / inorganic sludge shall be sent to treatment storage disposal facility (TSDF) for hazardous waste. Spent catalyst shall be sent to authorized recyclers/re-processors.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been stated that, presently, the solid and hazardous waste is being sent to CPCB authorized TSDF site namely Coastal Waste Management Project at Vishakapatnam.</p>

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	<p><b>It is required to obtain the membership of common TSDF for the disposal of hazardous waste. Copy of authorization or membership of TSDF should be submitted to Integrated Regional Office, Vijayawada.</b></p>
xvii.	<p><b>Proper oil spillage prevention management plan shall be prepared to avoid spillage/leakage of oil petroleum products and ensure regular monitoring.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been observed that the PAs have oil spillage prevention management plan to avoid spillage/leakage of oil petroleum products and regular monitoring is being done.</p> <p><b>It is required to provide the detailed report regarding the oil spillage prevention management plan and monitoring of spillage/leakage of oil petroleum products for last three years.</b></p>
xviii.	<p><b>Acoustic enclosure /silencer shall be installed wherever it is possible.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have installed acoustic enclosure / silencer for all DG sets and wherever is possible.</p>
xix.	<p><b>Occupational Health Surveillance of the workers should be done on a regular basis and records maintained as per the Factories Act.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have own occupational health centre/hospital within the project premises are conducting regular health check-ups of all workers including both departmental and contractual and records are being maintained. As per the records available, all the workers are being going for IME and PME and periodical health check-ups.</p>
xx.	<p><b>The company should make the arrangement for protection of possible fire and explosion hazards during construction and operation phase. To prevent fire and explosion at oil and gas facility, potential ignition sources shall be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been stated that the PAs are in process of making arrangements for protection of possible fire and explosion hazards during construction and operation phase. However, major fire accident has occurred inside the plant on 25.05.2021 around at 03:00 PM.</p> <p><b>It is required to provide detailed report on causes for fire, equipment's/detectors failure, fire control measures taken, workers present at the location during incident and their present status to be provided.</b></p>
xxi.	<p><b>The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).</b></p> <p><b>Status: Being complied</b></p>

	<p>It has been observed that the PAs are in process of following all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).</p>
xxii.	<p><b>All issues raised during public hearing/consultation shall be satisfactorily implemented and adequate budget provision should be made accordingly.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been stated that, all issues raised during public hearing/consultation has been satisfactorily implemented and adequate budget provision were made accordingly.</p> <p><b>It is required to provide detailed compliance status of all issues raised during public hearing/consultation and details of budget provision made.</b></p>
xxiii.	<p><b>Thick greenbelt with suitable plant species shall be developed around unit. Selection of plant species shall be as per the CPCB guidelines.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs are in process of developing green belt in and around the plant premises. However, it has been observed that the plantation around the project area is not satisfactory.</p> <p><b>It is required to develop thick green belt with suitable species as per the CPCB guidelines.</b></p>
xxiv.	<p><b>All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs are in process of implementing all the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines.</p>
xxv.	<p><b>As proposed, Rs. 60 Crore shall be earmarked towards the Enterprise social responsibility based on Public Hearing issues and item-wise details along with time bound action plan shall be prepared and submitted to the Ministry's Regional Office at Chennai. Implementation of such program shall be ensured accordingly in a time bound manner.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during monitoring, it has been stated that the Enterprise Social Responsibility (ESR) amount committed so far is Rs. 39.817 Cr. for the following activities:</p> <ul style="list-style-type: none"> <li>• Construction of Malkapuram Drain, Vishakhapatnam.</li> <li>• Purchase of 10 nos. of 108 ambulance vehicles for saving lives of citizens.</li> <li>• Construction of Conference/Meeting/Audition Hall at MHRM Department Ground Floor, Andhra University, Vishakapatnam.</li> <li>• Providing 3 nos. of container toilet blocks and one unit of toilet block i.e., four urinals and two toilet blocks to GVMC, Vishakapatnam which is Rs. 0.24 Cr.</li> <li>• Providing modernization of garbage transfer solution at Mudasarlova, Vishakapatnam under VRMP to GVMC.</li> </ul>

	<ul style="list-style-type: none"> <li>• Arranging road stoppers and no parking boards to Police Dept. for placing them from Scindhia to Srihariputam.</li> <li>• Release of funds to District Collector (For purchase of critical care equipment, drugs etc for saving livers of citizens during this COVID-19 period)</li> </ul> <p>It has been stated that the amount spent for the above activities so far is Rs. 29.953 Cr. only.</p> <p><b>It is required to earmark Rs. 60 Crore towards the Enterprise social responsibility based on Public Hearing issues and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Integrated Regional Office at Vijayawada. Implementation of such program should be ensured accordingly in a time bound manner.</b></p>
xxvi.	<p><b>Provision shall be made for the housing of construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, Safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structures to be removed after the completion of the project.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the sanitary and medical facilities are provided with the refinery site. It has been stated that all the construction labor are from nearby locations. It has been observed that the rest shelters were provided for the labor within the refinery site.</p>
	<b>B. General Conditions</b>
xxx.	<p><b>The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB), State Government and any other statutory authority.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. However, it has been observed that the PAs are not adhering the some of the stipulations made by Andhra Pradesh State Pollution Control Board (APPCB). In this regard, directions also issued by APPCB vide letter no. 702/APPCB/UH-II/TF/VSP/2020 dated 10.03.2020.</p> <p><b>It is required to strictly adhere to the stipulations made by the Andhra Pradesh Pollution Control Board (APPCB), State Government and any other statutory authority.</b></p>
xxxi.	<p><b>No further expansion or modification in the project shall be carried out without prior approval of the Ministry of Environment &amp; Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been observed that the Ministry has accorded following EC's to the project:</p>

SN	EC Letter No.	Date	Subject
01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA
02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization
03	J-11013/55/2003-IA II (I)	03.02.2004	Expansion from 7.5 to 10.0 MMTPA
04	J-11011/66/2007-IA II (I)	07.03.2008	Mounded storage for Propylene/LPG
05	J-11011/408/2009-IA-II(I)	02.09.2009	Expansion from 7.5 to 10.0 MMTPA
06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA

As per the above, it has been observed that, vide EC dated 03.02.2004 and 02.09.2009 project was under expansion from 7.5 to 10.0 MMTPA. As per EC dated 11.02.2016, project is under expansion from 8.33 MMTPA to 15.0 MMTPA. However, during inspection, no information has been provided for expansion of project from 7.5 to 8.33 MMTPA.

**It is required to provide detailed explanation regarding expansion of project from 7.5 MMTPA to 8.33 MMTPA along with the approval obtained from Ministry, if any.**

xxxii. **The project authorities must strictly comply with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. Prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. must be obtained, wherever applicable.**

**Status: Partially complied**

It has been observed that the PAs are in process of complying with the rules and regulations under Manufacture, Storage and Import of Hazardous Chemicals Rules, 2000 as amended subsequently. It has been observed that the PAs have obtained Consent-For-Operation (CFO) and hazardous waste authorization vide Order No. APPCB/VSP/VSP/72/CFO/HO/2021 dated 09.03.2021 for 10.0 MMTPA of crude oil and 121.20 MW captive power plant. It has been stated that, prior approvals from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc. have been obtained. However, copies were not provided.

**It is required to provide the copies of approvals taken from Chief Inspectorate of Factories, Chief Controller of Explosives, Fire Safety Inspectorate etc., wherever applicable.**

xxxiii. **The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).**

**Status: Being complied**

It has been observed that the PAs are in process of taking necessary measures to keep the noise levels within the prescribed limits in and around the plant area. The control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation were implemented.

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xxxiv.	<p><b>A separate Environmental Management Cell equipped with full fledged laboratory facilities must be set up to carry out the environmental management and monitoring functions.</b></p> <p><b>Status: Being complied</b></p> <p>It has been observed that the PAs have a separate Environmental Management Cell equipped with full fledged laboratory facilities to carry out the environmental management and monitoring functions.</p>
xxxv.	<p><b>Adequate funds shall be earmarked towards capital cost and recurring cost/annum for environment pollution control measures and shall be used to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purposes.</b></p> <p><b>Status: Partially complied</b></p> <p>It has been informed that, adequate funds have been earmarked towards capital cost and recurring cost/annum for environment pollution control measures and being used to implement the conditions stipulated by the Ministry as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided were not be diverted for any other purposes.</p> <p><b>It is required to provide the detailed report on expenditure incurred for environment pollution control measures to implement the conditions stipulated by the Ministry as well as the State Government along with the implementation schedule for all the conditions stipulated herein for last three years.</b></p>
xxxvi.	<p><b>The Regional Office of this Ministry/Central Pollution Control Board/State Pollution Control Board will monitor the stipulated conditions. A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.</b></p> <p><b>Status: Partially complied</b></p> <p>As per the discussions held during the monitoring, it has been observed that the PAs are submitting the six monthly compliance reports with respect to latest EC dated 11.02.2016 only. However, compliance status of earlier granted EC's and monitored data of air, water, noise, etc. are not being submitted.</p> <p><b>It is required to submit the compliance status of conditions stipulated in all EC's along with monitored data of air, water, noise, etc., on six monthly basis to Integrated Regional Office, MoEFCC, Vijayawada by email.</b></p>
xxxvii.	<p><b>A copy of clearance letter shall be sent by the proponent to concerned Panchayat, Zila Parishad / Municipal Corporation, Urban Local Body and the local NGO, if any, from whom suggestions / representations, if any, were received while processing the proposal. The clearance letter shall also be put on the web site of the company by the proponent.</b></p> <p><b>Status: Complied</b></p> <p>It has been stated that the condition has been complied. It has been observed that the copy of EC has been uploaded in the company's website (<a href="https://www.hindustanpetroleum.com/documents/pdf/VRMP%20EC%20LETTER%20021320161HPCL_63_2013new.pdf">https://www.hindustanpetroleum.com/documents/pdf/VRMP%20EC%20LETTER%20021320161HPCL_63_2013new.pdf</a>).</p>

xxviii.

The project proponent shall upload the status of compliance of the stipulated environment clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the Regional Office of the MOEF, the respective Zonal Office of CPCB and the SPCB. The criteria pollutant levels namely; PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects shall be monitored and displayed at a convenient location near the main gate of the company in the public domain.

**Status: Partially complied**

It has been observed that the Ministry has accorded following EC's to the project:

SN	EC Letter No.	Date	Subject
01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA
02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization
03	J-11013/55/2003-IA II (I)	03.02.2004	Expansion from 7.5 to 10.0 MMTPA
04	J-11011/66/2007-IA II (I)	07.03.2008	Mounded storage for Propylene/LPG
05	J-11011/408/2009-IA-II(I)	02.09.2009	Expansion from 7.5 to 10.0 MMTPA
06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA

As per the discussions held during the monitoring, it has been observed that the PAs are submitting the six monthly compliance reports with respect to latest EC dated 11.02.2016 only. However, compliance status of earlier granted EC's and monitored data of air, water, noise, etc. are not being submitted.

**It is required to submit the compliance status of environmental conditions stipulated in the environmental clearance letter no. J-11011/22/94-A II(I) dated 30<sup>th</sup> May, 1995, F. No. J-11011/88/96- IA II (I) dated 10<sup>th</sup> April, 1997, J- 11013/55/2003-IA II (I) dated 3<sup>rd</sup> February, 2004 and J-11011/66/2007-1A II (I) dated 7<sup>th</sup> March, 2008 and J-11011/408/2009-IA II (I) dated 2<sup>nd</sup> September, 2009 along with all environmental monitored data on six monthly basis to Ministry's Integrated Regional Office, Vijayawada. The same should be uploaded on company's website.**

It has been observed that the PAs are not displaying the criteria pollutant levels namely; PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects main gate of the project.

**It is required to display the criteria pollutant levels namely; PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, HC (Methane & Non-methane), VOCs (ambient levels as well as stack emissions) or critical sectoral parameters, indicated for the projects main gate of the project. It requires immediate action.**

xxxix.

The project proponent shall also submit six monthly reports on the status of the compliance of the stipulated environmental conditions including results of monitored data (both in hard copies as well as by e-mail) to the Regional Office of MOEF, the respective Zonal Office of CPCB and the SPCB. The Regional Office of this Ministry/ CPCB /SPCB shall monitor the stipulated conditions.

**Status: Partially complied**

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It has been observed that the Ministry has accorded following EC's to the project:

SN	EC Letter No.	Date	Subject
01	J-11011/22/94-A II(I)	30.05.1995	Expansion from 4.5 to 7.5 MMTPA
02	J-11011/88/96-IA-II(I)	10.04.1997	Installation of Diesel Hydro-desulphurization
03	J-11013/55/2003-IA II (I)	03.02.2004	Expansion from 7.5 to 10.0 MMTPA
04	J-11011/66/2007-IA II (I)	07.03.2008	Mounded storage for Propylene/LPG
05	J-11011/408/2009-IA-II(I)	02.09.2009	Expansion from 7.5 to 10.0 MMTPA
06	J-11011/63/2013-IA II (I)	11.02.2016	Expansion from 8.33 MMTPA to 15.0 MMTPA

As per the discussions held during the monitoring, it has been observed that the PAs are submitting the six monthly compliance reports with respect to latest EC dated 11.02.2016 only. However, compliance status of earlier granted EC's and monitored data of air, water, noise, etc. are not being submitted.

**It is required to submit the compliance status of environmental conditions stipulated in the environmental clearance letter no. J-11011/22/94-A II(I) dated 30<sup>th</sup> May, 1995, F. No. J-11011/88/96- IA II (I) dated 10<sup>th</sup> April, 1997, J- 11013/55/2003-IA II (I) dated 3<sup>rd</sup> February, 2004 and J-11011/66/2007-1A II (I) dated 7<sup>th</sup> March, 2008 and J-11011/408/2009-IA II (I) dated 2<sup>nd</sup> September, 2009 along with all environmental monitored data on six monthly basis to Ministry's Integrated Regional Office, Vijayawada. The same should be uploaded on company's website.**

- xli. **The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated to be submitted by the project proponent to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective Regional Offices of the MOEF by e-mail.**

**Status: Partially complied**

As per the discussions held during the monitoring, it has been observed that the PAs are submitting the environmental statement for each financial year ending 31<sup>st</sup> March in Form-V to Regional Office of MoEFCC. However, the same is not being uploaded in the company's website.

**It is required to upload the environmental statement for each financial year ending 31<sup>st</sup> March in Form-V on company's website and regularly be updated. It requires immediate action.**

- xlii. **The Project Proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB and may also be seen at Website of the Ministry of Environment and Forests at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely Circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the Regional office.**

**Status: Complied**

