Consent For Operation
(CFO-Air,Water)

Consent No. AW-332309
Valid upto: 30/06/2026

Karnataka State Pollution Control Board
Parisara Bhavana,No.49, Church Street,Bengaluru-560001
Tele : 080-25589112/3, 25581383
Fax:080-25586321
email id: ho@kspcb.gov.in

Industry Colour: RED Industry Scale: LARGE

Application Type: CfO-Renewal

(This document contains 10 pages including annexure & excluding additional

Combined Consent Order No. AW-332309 **PCB ID:** 10206 **Date:** 15/07/2022

Combined consent for discharge of effluents under the Water (Prevention and Control of Pollution) Act , 1974 and emission under the Air (Prevention and Control of Pollution)Act , 1981

Ref: 1. Application filed by the applicant/organization on 21/09/2021

2.Inspection of the Industry/organization/by RO, on 23/09/2021

3.Proceedings of the ECM dated 30/03/2022 ,held on 28/03/2022

Consent is hereby granted to the Occupier under Section 25(4) of the Water (Prevention & Control of Pollution) Act, 1974 (herein referred to as the Water Act) & Section 21 of Air (Prevention & Control of Pollution) Act, 1981, (herein referred to as the Air Act) and the Rules and Orders made there under and authorized the Occupier to operate /carryout industry/activity & to make discharge of the effluents & emissions confirming to the stipulated standards from the premises mentioned below and subject to the terms and conditions as detailed in the Schedule Annexed to this order.

Location:

Name of the Industry: Mangalore Refinery And Petrochemicals Limited Kuthethoor P.O via,

Address: Mangalore Refineries And Petrochemicals Limited,Kuthethoor P, Kuthethoor Post

Industrial Area: Not In I.A, Mangalore,

Taluk: Mangalore, District: Dakshina Kannada

CONDITIONS:

a) Discharge of effluents under the Water Act:

Sr	Water Code	WC(KLD)	WWG(KLD)	Remark
1	Cooling Water	62616.000	12168.000	Phase-I & II CTBD is discharged to Sea. Phase-III (qty. 1752 KLD) CTBD is recycled as per CC NO. AW-301293 dated: 28.10.2016.
2	D.M Water Plant	22392.000	3144.000	Phase-I & II DM Blow-down is discharged to sea. Phase-III DM Blow-down is recycled, discharged to sea.
3	Domestic Purpose	1912.000	1407.000	Recycled and discharged to sea.
4	Manufacturing Processes	12576.000	12120.000	Qty. for current Operation-12288 and additional Qty for BS-VI- 288 shall be treated in ETP as per as per CC NO. AW-301293 dated: 28.10.2016 and discharged to sea.
5	Others	0.000	1728.000	Contaminated condensates/tank bottoms - Recycled, Discharged to Sea.
6	Others	5640.000	0.000	Fire Water Make-up, BASF, HPCL - No Waste Water Generation.
7	Others	600.000	0.000	Washing/Quenching - No Waste Water Generation.
8	Others	1800.000	0.000	Greenbelt - No Waste Water Generation

b) Discharge of Air emissions under the Air Act from the following stacks etc.

Sl. No.	Description of chimney/outlet	Limits specified refer schedule
The details of Sources, control equipments and its specification, type of fuel,constituents to be controlled in emissions etc. are detailed in Annexure-II.		

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The consent for operation is granted considering the following activities/Products;

Sr	Product Name	Applied Qty	Unit
1	1. Processing of petroleum crude oil of capacity 16.6 million metric tonnes per annum (mmtpa) to manufacture various products mentioned below	1.3833	Million Metric Tons/month
2	atf	0.1264	Million Metric Tons/month
3	bitumen	0.0240	Million Metric Tons/month
4	diesel	0.5840	Million Metric Tons/month
5	fuel oil	0.0184	Million Metric Tons/month
6	kerosene	0.0051	Million Metric Tons/month
7	lpg	0.1000	Million Metric Tons/month
8	motor spirit (ms)	0.1070	Million Metric Tons/month
9	naphtha	0.1148	Million Metric Tons/month
10	pet coke	0.0850	Million Metric Tons/month
11	polypropylene	0.0430	Million Metric Tons/month
12	sulphur	0.0220	Million Metric Tons/month
13	vgo	0.0070	Million Metric Tons/month
14	xylols+aromatics	0.0410	Million Metric Tons/month

This consent is valid for the period from 01/07/2021 **to** 30/06/2026

To,

Mangalore Refinery And Petrochemicals Limited Kuthethoor P.O via,

Katipalla Mangalore 573030.

COPY TO:

The Environmental Officer, KSPCB, Regional Office Mangalore for information and necessary action.

2. Master Register.
3. Case file.

Consent Fee paid : Rs. 2000000

SCHEDULE

TERMS AND CONDITIONS

A. TREATMENT AND DISPOSAL OF EFFLUENTS UNDER THE WATER ACT.

1. The discharge from the premises of the occupier shall pass through the terminal manhole/manholes where from the Board shall be free to collect samples in accordance with the provisions of the Act/Rules made there under.

2(a). The sewage/domestic effluent shall be treated in septic tank and with soak pit. No overflow from the soak pit is allowed. The septic tank and soak pit shall be as per IS 2470 Part-I & Part-II.

2(b). The treated sewage effluent discharged shall conform to the standards specified in Annexure-I.

3(a). The trade effluent generated in the industry shall be treated in the ETP and treated effluent shall confirm to the standards stipulated by the Board in Annexure-I

3(b). The trade effluent shall be handed over to CETP and maintain logbook of effluent generated & sent every day.

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4. The applicant shall install flow measuring/recording devices to record the discharge quantity and maintain the record.

5. The applicant shall not change or alter either the quality or the quantity or the place of discharge or temperature or the point of discharge without the previous consent/ permission of the Board.

6. The applicant shall not allow the discharge from the other premises to mix with the discharge from his premises. Storm water shall not be allowed to mix with the effluents on the upstream of the terminal manhole where the flow measuring devices are installed.

7. The daily quantity of domestic effluent and trade effluent from the industry shall not exceed the limits as indicated in this consent order:

8. The applicant shall discharge the effluents only to the place mentioned in the Consent order and discharge of treated/untreated outside the premises is not permitted.

B. EMISSIONS:

1. The discharge of emissions from the premises of the applicant shall pass through the air pollution control equipment and discharged through stacks/chimneys mentioned in **Annexure-II** where from the Board shall be free to collect the samples at any time in accordance with the provisions of the Act and Rules made there under.The tolerance limits of the constituents forming the emissions in each of the stacks shall not exceed the limits laid down in Annexure-II.

2. The applicant shall provide port holes for sampling of emission, access platforms for carrying out stack sampling, electrical points and all other necessary arrangements including ladder as indicated in Annexure-II.

3. The applicant shall upgrade/modify/replace the control equipment with prior permission of the Board.

C.MONITORING & REPORTING:

1. The applicant shall get the samples of effluents & emissions collected and get them analyzed once a month/either by in house monitoring laboratory or through EP approved laboratories for the parameters as Indicated in Annexure I & II.

2. The applicant shall maintain log books to reflect the working condition of pollution control systems and also self monitoring results and keep it open for inspection.

D. SOLID WASTE (OTHER THAN HAZARDOUS WASTE) DISPOSAL:

1.The applicant shall segregate solid waste from Hazardous Waste, Municipal Solid Waste and store it properly till treatment/disposal without causing pollution to the surrounding Environment.

2.The solid waste generated shall be handled & disposed by scientific method without causing eye sore to the general public and to the surrounding environment.

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E. NOISE POLLUTION CONTROL:

The applicant shall ensure that the ambient noise levels within its premises during construction and during operational period shall not exceed w.r.t Area/Zone as per Noise Pollution (Regulation and Control) Rules, 2000 as mentioned below:-

a) In Industrial Area 75 dB(A) Leq during day time and 70 dB(A) Leq during night time.

b) In Commercial Area 65 dB(A) Leq during day time and 55 dB(A) Leq during night time.

c) In Residential Area 55 dB(A) Leq during day time and 45 dB(A) Leq during night time.

d) In Silence Zone 50 dB(A) Leq during day time and 40 dB(A) Leq during night time.

Note: - * Day time shall mean 6 am to 10 pm and Night time shall mean 10 pm to 6 am.

* dB(A) Leq denotes the time weighted average of the level of sound in decibels on scale A which is relatable to human hearing.

* A "decibel" is a unit in which noise is measured.

* "A", in dB(A) Leq, denotes the frequency weighting in the measurement of noise and corresponds to frequency response characteristics of the human ear.

* Leq: It is an energy mean of the noise level over a specified period.

F. HAZARDOUS AND OTHER WASTES (MANAGEMENT & TRANSBOUDARY MOVEMENT)Rules 2016:

The applicant shall comply with the provisions of the Hazardous and other Wastes (Management & Transboundry Movement) Rules 2016.

G. GENERAL CONDITIONS:

1. The applicant shall not allow the discharge from the other premises to mix with the discharge from his premises.

2. The applicant shall promptly comply with all orders and instructions issued by the Board from time to time or any other officers of the Board duly authorized in this behalf.

3. The applicant shall set-up Environmental Cell comprising of qualified and competent personnel for complying with the conditions specified.

4. The Board reserves the right to review, impose additional conditions, revoke, change or alter terms and conditions of this consent.

5. The applicant shall forthwith keep the Board informed of any accidental discharge of emissions/effluents into the atmosphere in excess of the standards laid down by the Board. The applicant shall also take corrective steps to mitigate the impact.

6. The applicant shall provide alternate power supply sufficient to operate all Pollution control equipments.

7. The entire premises shall always be kept clean. The effluent holding area, inspection chambers, outlets, flow measuring points should made easily approachable.

8. The applicant shall display the consent granted in a prominent place for perusal of the inspecting officers of the Board.

9. The applicant his heirs, legal representatives or assignee shall have no claims what so ever to the continuation or renewal of this consent after expiry of the validity of consent.

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10. The applicant shall make an application for consent for subsequent period at least 45 days before expiry of this consent.

11. The applicant shall develop and maintain adequate green belt all around the periphery.

12. The applicant shall provide rain water harvesting system and shall provide proper storm water management system.

13. This consent is issued without prejudice to any Court Cases pending in any Hon'ble Court

14. The applicant shall furnish the Environmental statement for every financial year ending with 31st March in Form-V as per Environment (Protection) Rules, 1986. The statement shall be furnished before the end of September.

15. The applicant shall display flow diagram of the pollution control system near the pollution contol system/s.

NOTE:

The Conditions Nil mentioned in the schedule are not applicable.

Additional Conditions:

1. The occupier shall comply with all the additional conditions and standards stipulated in Annexures attached to this consent order.
2. This consent order contains 26 pages including additional conditions and Annexures.
3. The products with quantities, water consumption, waste water generation, mode of disposal with standards, air pollution sources with control measures mentioned in additional conditions attached with this order shall be considered and to be complied by the industry.

Chim.No.	Chimney attached to	Capacity/ KVA Rating	Minimum chimney height to be provided above ground level (in Mts)	Constituents to be controlled in the emission	Tolerance limits mg/NM3	Fuel	Air pollution Control equipment to be installed,in addition to chimney height as per col.(4)	Date of which air pollution control equipments shall be provided to achieve the stipulated tolerance limits and chimney heights conforming to stipulated heights.
1	Incinerator	Sulphur Recover Unit -7	90	PM,SO2,NOx,CO, NMHC	0,0,122	F.G	HLS,INC,LNB,PRT	
2	D.G. Sets	Phase-3 DG 2 4850 KVA	23	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	
3	D.G. Sets	Phase-3 DG 1 4850 KVA	23	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	
4	D.G. Sets	Phase-2 DG 4 1000 KVA	22	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	
5	D.G. Sets	Phase-2 DG 3 1000 KVA	22	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	

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6	D.G. Sets	Phase-2 DG 2 1000 KVA	22	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	
7	D.G. Sets	Phase-2 DG 1 1000 KVA	22	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	
8	D.G. Sets	Phase-2 CPP DG 500 KVA	19	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	
9	D.G. Sets	Phase-2 CPP DG 650 KVA	19	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	
10	D.G. Sets	Phase-1 DG-2 set 1000 KVA	22	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	
11	D.G. Sets	Phase-1 DG-1 set 1000 KVA	22	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC	
12	Any Other	Phase-3 CPP GTG-HRSG 2	70	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
13	Any Other	Phase-3 CPP GTG-HRSG 1	70	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
14	Boiler	Phase-3 CPP UB 4	120	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
15	Boiler	Phase-3 CPP UB 3	120	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
16	Boiler	Phase-3 CPP UB 2	120	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
17	Boiler	Phase-3 CPP UB 1	120	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
18	Incinerator	Phase-3 SRU 6 Incinerator	90	PM,SO2,NOx,CO, NMHC	NA,NA,122	F.G	HLS,LNB,PRT	
19	Incinerator	Phase-3 SRU 5 Incinerator	90	PM,SO2,NOx,CO, NMHC	NA,NA,122	F.G	HLS,LNB,PRT	
20	Incinerator	Phase-3 SRU 4 Incinerator	90	PM,SO2,NOx,CO, NMHC	NA,NA,122	F.G	HLS,LNB,PRT	
21	Any Other	Phase-3 Delayed Coker unit	120	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
22	Any Other	Phase-3 HGU	65	PM,SO2,NOx,CO, NMHC	50,298,170	NEP	HLS,LNB,PRT	
23	FCC ReGenerator	Phase-3 PFCCU Regen. stack	80	PM,SO2,NOx,CO, NMHC	50,175,170		CYC,LNB,PRT,SCR	
24	Any Other	Phase-3 PFCCU Charge heater	90	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
25	DHDS heater	Phase-3 DHDT heater	110	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	

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26	Any Other	Phase-3 CHTU heater Reboiler	90	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
27	CDU/VDU Heater	Phase-3 CDU/VDU (Dual firing)	120	PM,SO2,NOx,CO, NMHC	50,298,170	F.O	HLS,LNB,PRT	
28	Boiler	Phase-2 CPP Stack 2	90	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
29	Boiler	Phase-2 CPP Stack 1	90	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
30	Any Other	Phase-2 SRU 3 Tail gas heater	71	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
31	Incinerator	Phase-2 SRU 3 Incinerator	71	PM,SO2,NOx,CO, NMHC	NA,NA,170	F.G	INC,PRT	
32	Any Other	Phase-2 SRU 2 Tail gas heater	71	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
33	Incinerator	Phase-2 SRU 2 Incinerator	71	PM,SO2,NOx,CO, NMHC	NA,NA,170	F.G	INC,PRT	
34	Any Other	Phase-2 Isomerisation heater	64	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,NDR,PRT	
35	Any Other	Phase-2 Mixed Xylene heater	61	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
36	Any Other	Phase-2 GOHDS heater	51	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
37	NHT/CCR heater	Phase-2 Platformer heater	74	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
38	NHT/CCR heater	Phase-2 CCR Stripper Reboiler	45	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,NDR,PRT	
39	NHT/CCR heater	Phase-2 CCR NHT Charge heater	45	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,NDR,PRT	
40	Any Other	Phase-2 Hyd Reformer	51	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,PRT	
41	Any Other	Phase-2 Hyd Naphtha Vaporiser	65	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
42	Any Other	Phase-2 HCU feed heater C	51	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
43	Any Other	Phase-2 HCU feed heater B	51	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
44	Any Other	Phase-2 HCU feed heater A	51	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	

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45	Any Other	Phase-2 HCU Recy Splitter	65	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
46	VBU Heater	Phase-2 VBU	65	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
47	Any Other	Phase-2 CDU Kero Splitter	65	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,NDR,PRT	
48	CDU/VDU Heater	Phase-2 CDU/VDU/NSU	94	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
49	Boiler	Phase-1 Captive Power Plant	90	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
50	Any Other	Phase-1 SRU 1 Tail gas heater	54	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
51	Incinerator	Phase-1 SRU 1 Incinerator	71	PM,SO2,NOx,CO, NMHC	NA,NA,170	F.G	INC,PRT	
52	NHT/CCR heater	Phase-1 CCR Platformer heater	64	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,PRT	
53	NHT/CCR heater	Phase-1 CCR NHT Charge Heater	50	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
54	Any Other	Phase-1 Hyd. Reformer	65	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,PRT	
55	Any Other	Phase-1 Hyd. Naphtha Vaporiser	65	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,NDR,PRT	
56	Any Other	Phase-1 HCU feed heater C	51	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
57	Any Other	Phase-1 HCU feed heater B	51	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
58	Any Other	Phase-1 HCU feed heater A	51	PM,SO2,NOx,CO, NMHC	10,17,170	F.G	HLS,LNB,NDR,PRT	
59	Any Other	Phase-1 HCU Recy. Splitter	65	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
60	VBU Heater	Phase-1 VBU	65	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
61	Any Other	Phase-1 NSU Reb.	60	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,NDR,PRT	
62	CDU/VDU Heater	Phase-1 CDU/VDU	94	PM,SO2,NOx,CO, NMHC	100,595,219	F.O	HLS,LNB,PRT	
63	D.G. Sets	EDGS-2 (500KVA)	20	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC,PRT	
64	D.G. Sets	EDGS-1 (500KVA)	20	PM,SO2,NOx,CO, NMHC	0,0,0	DIE	AEC,PRT	
65	Incinerator		0	PM,SO2,NOx,CO, NMHC	0,0,0	---	INC,LNB,PRT	

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66	Furnace		0	PM,SO2,NOx,CO, NMHC	0,0,0	---	N.A	

Note:

HLS,INC, LNB,PRT : Heater/Furnace-Low Sulphur Fuel

AEC : Accoustic Enclosures

HLS,LNB ,PRT : Heater/Furnace-Low Sulphur Fuel

HLS,LNB ,PRT : Heater/Furnace-Low Sulphur Fuel

HLS,LNB ,PRT : Heater/Furnace-Low Sulphur Fuel

CYC,LNB ,PRT,SC R : Cyclone

HLS,LNB ,PRT : Heater/Furnace-Low Sulphur Fuel

HLS,LNB ,PRT : Heater/Furnace-Low Sulphur Fuel

HLS,LNB ,NDR,PR T : Heater/Furnace-Low Sulphur Fuel

INC,PRT : INC-convert SO2+Taila gas

HLS,LNB ,PRT : Heater/Furnace-Low Sulphur Fuel

HLS,LNB ,NDR,PR T : Heater/Furnace-Low Sulphur Fuel

HLS,LNB ,PRT : Heater/Furnace-Low Sulphur Fuel

HLS,NDR ,PRT : Heater/Furnace-Low Sulphur Fuel

AEC,PRT : Accoustic Enclosures

INC,LNB, PRT : INC-convert SO2+Taila gas

N.A : Not Applicable

Note:

1. The Noise levels within the premises shall not exceed 75 dB (A) leq during day time and 70 dB(A) leq during night time respectively.
2. The DG set shall be provided with acoustic measures as per Sl.No.94 in Schedule-I of Environment (Protection)Rules.
3. There shall be no smell or odour nuisance from the industry.

LOCATION OF SAMPLING PORTHOLES, PLATFORMS, ELECTRICAL OUTLET.

1. Location of Portholes and approach platform:

   Portholes shall be provided for all chimneys, stacks and other sources of emission. These shall serve as the sampling points. The sampling point should be located at a distance equal to atleast eight times the stack or duct diameters downstream and two diameters upstream from source of low disturbance such as a Bend, Expansion, Construction Valve, Fitting or Visible Flame for rectangular stacks, the equivalent diameter can be calculated from the following equation.

$$\text{Equivalent Diameter} = \frac{2\,(\text{Length} \times \text{Width})}{(\text{Length} + \text{Width})}$$

2. The diameter of the sampling port should not be less than 100 mm dia". Arrangements should be made so that the porthole is closed firmly during the non sampling period

3. An easily accessible platform to accommodate 3 to 4 persons to conveniently monitor the stack emission from the portholes shall be provided. Arrangements for an Electric Outlet Point of 230 V 15 A with suitable switch control and 3 Pin Point shall be provided at the Porthole location.

4. The ladder shall be provided with adequate safety features so as to approach the monitoring location with ease.

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Application Type: CfO-Renewal

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For and on behalf of the
Karnataka State Pollution Control Board

Signature valid
Digitally signed by
Date: 2022.07.15 17:52:58 +05:30

ADDITIONAL CONDITIONS

[PCB Id: 10206; Inward: 101974]

Additional conditions to accompany Consent for Operation Order of M/s. Mangalore Refinery and Petrochemicals Limited, Kuthethur, Katipalla, Mangaluru-573030

The consent is issued for Processing of 16.6 MMTPA (Phase I & II of quantity: 13.6 MMTPA and Phase-III of quantity: 3.0 MMTPA) Petroleum crude oil to manufacture the following products and also to carryout associated activities including truck and Wagon loading of Petroleum Products including Poly Propylene, Petcoke, Sulfur (molten & solid) etc.,

Sl. No	Products
1	LPG
2	Naphtha
3	a. Motor Spirit Domestic-EURO III, IV, BS VI, MS 100 RON,
	b. Motor Spirit Export – MS95RON, MS92RON, MS97RON
4	Xylols + Aromatics
5	a. ATF Domestic
	b. ATF Export
6	Kerosene
7	a. Diesel Domestic - EURO-III, IV, BS VI
	b. Diesel Export - EURO III, IV, BSVI
8	a. Fuel Oil Domestic
	b. Fuel Oil Export, including Marine Fuel Oil, Marine Gas Oil
9	Bitumen and bitumen derivatives
10	Sulphur
11	Petroleum Coke
12	Polypropylene
13	Vacuum Gas Oil (VGO)

The Consent isvalid for the period from 01.07.2021 to 30.06.2026

A. TREATMENT AND DISPOSAL OF EFFLUENTS UNDER THE WATER ACT.

I. The Sources of water shall be River Netravathi through Sarpady pumping station, MSEZ reservoir, Desalinated(permeate) water from MRPL Desalination Plant and treated sewage water from Mangalore Sewage Treatment Plant (STP).

II. <u>Treatment and disposal of trade and sewage effluent:</u>

1. The details of water consumption and waste water discharge shall be as follows.

Sl. No	Water Consumed for	Water consumption in KLD	Waste water Generation in KLD	Mode of Disposal
1	Domestic	1765+115*+32# =1912	1291+92*+24# =1407	Recycled and discharged to Sea
2	Cooling Tower	60864+1752# =62616	12168	Phase I and II Cooling tower blow down (CTBD) is discharged to sea, phase III CTBD is recycled, discharged too sea.

3	DM water plant	22392	3144	Phase I and II Demineralised Plant (DM) regeneration is discharged to sea, Phase III DM regeneration is recycled, discharged to sea.
4	Manufacturing process (Industrial purposes/Services)	12288+288#=12576	11952 +168#=12120	Recycled and discharged to sea
5	Contaminated condensates/tank bottoms	0	1728	Recycled and discharged to sea
6	Washing/Quenching	600	00	Contaminated effluent is processed in CRWS System & Discharged to Sea/ Recycle.
6	Fire water makeup and supply to BASF/HPCL	5640	00	Contaminated effluent is processed in CRWS System & Discharged to Sea/ Recycle.
7	Green belt	1800	00	No waste water generation
	Total	**107535**	**30567**	

Note: * Domestic consumption & Generation from CISF Township. RO Reject from treated STP water, shall be treated and discharge directly to Sea.
#BS-VI project Water consumption and Generation.

1. a. The applicant shall ensure that the combined trade and sewage effluent is treated in the Phase-I, Phase-II and Phase III treatment plants constructed as per the flow sheet submitted by the industry to the standards stipulated in **Annexure-A and also load based standards stipulated in Annexure-B.** No effluent shall be by passed or discharged into valley. The treated effluent discharged into sea shall always confirm to the standards stipulated in **Annexure-A&B.**
   b.Domesticeffluent viz., Industrial Townshipsewage (includes all quarters), plant sewage and canteenshall be treated along with tradeeffluent in waste water treatment plant.
   c. Domestic effluent from CISF Township shall be treated in New STP of capacity 100KLD and 30 KLD installed at CISF Township
2. The applicant shall recycle treated trade effluent to the maximum extent and balance shall be discharged to sea at a distance of 650 meters inside the sea form Chitrapura shore and 6.5 meters below the surface and through MSEZ pipeline into sea.
3. Total Permitted Quantity of Treated Trade effluent from all ETP's: Phase-I, II & III-10704 KLD.
4. The open channel provided in the pipeline route should be covered with covers which could easily be lifted for inspection, it is the responsibility of the applicant to keep a watch and ward to avoid any tampering of the pipeline, open channel effluent etc.,
5. It is the responsibility of the applicant to maintain the quality of the treated effluent at the sump after the open channel (at APMC yard) and before discharge into sea.
6. The applicant shall provide alternate power supply for pumping the effluent from sump provided at APMC yard.
7. The applicant shall continue to use the storage tank/guard pond/TE pond/WDS of adequate capacity for storing the treated effluent before pumping the effluent into sea. A Log-Book shall be maintained to record the discharges in to sea and the quantity of treated effluent recycled.
8. The applicant shall continue to operate the integrated flow measuring/recording devices on the effluent line leading to sea. A record of daily effluent discharge shall be maintained.
9. The industry shall continue to maintain alternate power supply to the ETP for its continuous operation.

10. The applicant shall protect all the oil transfer point from rain and oil collected in the catch pit shall be collected without allowing it to reach storm water drain.
11. The applicant shall continue to maintain the Inlet Receiving tanks (IRT)/Sumps / guard pond to hold the untreated effluent in the event of emergency arising out of imbalance in treatment system etc.
12. All the contaminated rain water or contaminated fire water shall be treated and discharged to sea through submarine pipeline.
13. The solid biodegradable waste from the colony and canteen shall be treated in bio-digester. The Biogas shall be used as fuel in the canteen.
14. The discharge from the premises of the applicant shall pass through terminal manhole/manholes where from the Board shall be free to collect samples at any time in accordance with the provisions of the Act or Rules made there under.

III. Monitoring and Reporting

1. The Applicant shall at his own cost get the treated effluent samples collected from the place specified in condition I (a) and/or I (4) analyze the same as per the frequency indicated in **Annexure-A&B**for the parameters indicated in **Annexure A&B**and report submitted to the Board office and to the Regional Office Mangalore, once in a month along with the water used, the waste water generated, treated, recycled and discharged to sea in a compiled statement, with a graphical and statistical analysis shall be submitted along with next consent application.
2. The applicant shall continue to get the plankton studies conducted in the sea through a competent agency at its cost. This shall be conducted to verify whether any heavy metals or any other pollutants are getting accumulated in the vicinity of the discharge and any impact on marine life. This study shall be conducted twice a year before and after monsoon.The results of the study shall be evaluated by the monitoring agency and inferences shall also be reported.
3. The applicant shall carry out ground watermonitoring study every month, the location of test wells shall be decided in consultation with the Boards Regional Office and using the services of experts in the field of ground water/geology. The industry shall carryout the ground water monitoring at least in 10 stations.
4. The industry shall install an on-line monitoring system at the final outlet of treatment plants for pH,BOD, COD, TSS and Flow rate.Data shall be linked to CPCB/KSPCB servers.
5. The applicant shall check the submarine pipeline for any damage, anchorage, etc., through NIO, Goa or any competent agency once in a year and report should be furnished to the Board by November/December every year.

C. EMISSIONS.

1. The discharge of emissions from the premises of the Applicant shall pass through the stacks/chimneys mentioned in **Annexure-C** where from the Board shall be free to collect the samples at any time in accordance with the provisions of the Act and Rules made there under. The stacks/chimneys heights shall be as per **Annexure-C.**
2. The hourly rate of emissions discharged and The tolerance limits of the constituents forming the emissions in each of the chimneys/stacks shall not exceed the limits laid down in **Annexure-C.**
3. The applicant shall operate the Air pollution control equipment as specified in the **Annexure C** continuously so as to ensure that the emission does not exceed the limits specified. The operation of the control equipment shall be synchronized with the operation of the emission source.
4. The Applicant shall maintain access platforms for carrying out stack sampling with electrical outlet points for sampling the emissions from portholes in all the stacks, as per the CPCB guidelines.
5. The industry shall use low Sulphur feed with 1% maximum sulphur in all Heater and boiler for Phase-I & II Refinery and 0.5% maximum in fuel in all heater & boiler for Phase-III Refinery.

6. The applicant shall continue to operate Sulphur recovery unit with more than 99% efficiency.
7. Total emissions of SO2 from the plant should not exceed 57TPD maximum.
8. Emission of Mercaptan shall be controlled by using merox unit.
9. All efforts shall be made to control fugitive emissions.
10. The industry shall use the refinery gas to the maximum extent.
11. The industry shall provide continuous online monitoring system for SO2, NOx, CO &PM emission in major stacks having heater duty above 10 MMKcal/hrwith proper calibration facilities.
12. Flare losses shall be minimized and shall be monitored regularly.
13. The industry shall take necessary steps to mitigate smell nuisance.

D.MONITORING & REPORTING:

1. The project proponent shall carry out Environmental monitoring as per EIA/ EMP submitted to obtain EC and submit the report to the Board.
2. The applicant shall monitor the emissions for all the parameters at the frequency indicated in **Annexure-C.**
3. The applicant shall install Online Continuous Effluent/Emission Monitoring System. The specification/ sensor used in online continuous monitoring system shall be in accordance with CPCB specification. The applicant shall calibrate these systems from time to time according to equipment supplier specification through labs recognized under the Environment (Protection) Act, 1986 or NABL accredited laboratories.
4. The OCEMS shall be connected to CPCB and KSPCB server before commissioning the industry for trial production
5. The applicant shall keep daily record of the readings of SO_2 and NOx from the continuous recorder and average daily readings shall be computed once in a month and report along with the manual monitoring results and the data shall be statistically analysed, represented in graphical format and reported to the Board office and to the Regional Office once in four months.
6. The applicant shall monitor the ambient air quality and submit the report to the Regional Office of the Board. The AAQM shall be carried out in all the Ten (10)stations as per the requirement under the revised National Ambient Air Quality Monitoring Standards issued by MOEF (Notification GSR 826 dated 16.11.2009). Monitoring shall include the parameters PM 2.5, PM 10, Sulphur Dioxide, Nitrogen Oxide, VOC'sand Carbon monoxide. Additional stations shall be established as and when directed by the Board.
   The industry shall furnish statistical analysis for annual average of pollutants at all the locations as per Ambient Air Quality standards Notification once in a year.
7. The applicant shall follow the guidelines and requirements for fugitive emissions, Volatile liquids, and emission control for road tank, standards for equipment leaks and the monitoring as prescribed in **MoEF Notification No. GSR 186E, dated 18.3.2008.**
8. The applicant shall provide and maintain at his own cost a meteorological station to collect the data on wind velocity, directions, temperature, humidity, rainfall etc., and the daily reading shall be recorded and the extract be sent to the Board once in a year.
   The industry shall once in a year for all the seasons prepare windrose diagram and furnish the same to the Board Office and Regional Office, Mangalore.
9. The applicant shall continue the self-monitoring system for monitoring the effluents. The laboratory shall be certified under ISO/IEC 17025. Till such time, the analysis shall be carried out through laboratory approved under EP Act, 1986.
10. The total emission of SO2 from the plant should be furnished to the Board once in four months.
11. The applicant shall monitor the total HC and Benzene in the premises (particularly at loading and unloading operations and at ETP area) regularly and submit report.
12. For the purpose of protecting environment industry may consider

- Heaters with LOW NO_x Burners
- Maximum amount of heat recovery from flue gas
- Heaters stacks fitted with Online analyzers for measuring the following:
  - Carbon Monoxide
  - Sulphur Dioxide
  - Nitrogen Oxides
  - Suspended Particulate matters

13. All the pumps and other equipments, where there is a likelihood of HC leakages, shall be provided with appropriate indicators and detectors. Provision for immediate isolation of such equipment, in case of a leakage shall also be made. The company shall adopt Leak Detection and Repair (LDAR) programme for quantification and control of fugitive emissions.
14. The applicant shall install Online detectors for the following in Refinery :
    - ✓ Benzene Detectors
    - ✓ H_2S Detector
    - ✓ Hydrocarbon Detectors
    - ✓ LEL Detectors
    - ✓ Fire Detectors (In case of Fire)
    - ✓ Plant MCP's
15. Quarterly monitoring of fugitive emissions shall be carried out by Fugitive Emission Detectors (GMI Leak Surveyor). Guidelines of CPCB will be followed for monitoring fugitive emissions; all unsaturated hydrocarbons shall be routed to the flare system. The flare system shall be designed for smokeless burning. Flare Gas Recovery System shall be installed for reduction of Hydrocarbon loss and emission of VOC's, NOx, N_2O, SOx& CO_2 to the environment.
16. The applicant maintainNOx, SO_2, CO& PMalways in working condition and the online data shall be connected to CPCB/KSPCB server on continuous basis.

E. GENERAL CONDITIONS:

16. This consent for discharging sewage and/or trade effluents from the factory shall not be taken or construed as the Board's permission to continue to discharge the sewage and/or trade effluents from the factory into the place (as mentioned in this consent Order) which pollutes the water there-in endangering the life and property of the persons using the said water before, during or after the periods indicated in the Terms and Conditions of this Consent Order.
17. The applicant shall not change or alter either the quality or quantity or rate of emission or install/ replace or alter the air pollution control equipment, change in raw material or manufacturing process resulting in change in quality and/or quantity of emissions without the prior permission of the Board.
18. The industry shall not change or alter (a) raw materials or manufacturing process,Change the products or product mix (c) the quality, quantity or rate of discharge/ emissions and (d) install/replace/alter the water or air pollution control equipments without the prior approval of the Board.
19. The applicant shall not store any raw materials on naked ground.

20. The applicant shall appoint a qualified environmental engineer/ scientist for environment management in the factory and also establish an environmental cell.
21. Applicant shall maintain the Environmental Management System in conformity with ISO 14001:2015 standards.
22. The applicant shall comply with the guidelines under Corporate Responsibilities for Environment Protection (CREP) 2003 issued by Ministry of Environmental Forests and CPCB.
23. The applicant shall continue the self monitoring system for monitoring the effluents and emissions.

24. The applicant shall maintain register recording the ambient air quality, stack monitoring and analysis report of treated effluents. The register shall be open for inspection by the Board Officers at all time.
25. An inspection Book shall be opened and made available to the Board Officers during their visit to the factory.
26. The industry shall transport and store the raw materials in a manner so as not to cause any damage to environment, life and property. The applicant shall be solely responsible for any damages to environment.
27. Industry shall comply with all the consent conditions and furnish report within 30 days to the Regional Office.
28. The applicant shall display EC, Environmental Statement and Consent orders in the website of the industry and update regularly
29. The applicant shall submit copy of Public Liability Insurance obtained under PLI Act, 1991 along with copy of Form III of Employees Relief Fund scheme under the PLI Act within 15 days.
30. The area around production block, utilities, raw material storage area and the area used movement of vehicles shall be provided with RCC flooring.
31. The applicant shall obtain prior permission of the State Ground Water Board for abstraction of ground water and shall submit copy of such permission issued within 3 months if ground water is proposed to be drawn for industrial/domestic use.
32. The Industry shall explore the possibility of using solar energy.
33. The industry shall comply with Plastic Waste Management Rules and E-Waste Management Rules.
34. The applicant shall submit half yearly consent conditions compliance report to the Board on or before 30th October for the period April to September and on or before 30th April for the period October to March.
35. The applicant shall submit Form V as per Environment (Protection) Rules 1986 before 30th September every year for the previous financial year.
36. The Industry shall conduct Awareness Programme on Environmental Pollution among Employees and community.
37. Non-compliances to the conditions stipulated, Board has the right to withdraw the consent.

SENIOR ENVIRONMENTAL OFFICER
17 CATEGORY CELL

ANNEXURE – A

1. Effluent discharge standards as per MOEF notification No.G.S.R.186(E), dated 18.3.2008.

Sl. No	Characteristics.	Value for concentration (mg/l except for pH)
1.	pH Value.	6.0 to 8.5
2.	Oils and Grease	5.0
3.	Biochemical Oxygen Demand, (3 days at 27°C)	15
4.	Chemical Oxygen Demand	125
5.	Suspended Solids	20
6.	Phenols	0.35
7.	Sulphide (as S)	0.5
8.	Cyanide (as CN)	0.20
9.	Ammonia as N	15
10.	Total Kjeldhal Nitrogen	40
11.	Dissolved Phosphates (as P)	3.0
12.	Hexavalent Chromium (as Cr^{+6})	0.1
13.	Total Chromium (as Cr)	2.0
14.	Lead (as Pb)	0.1
15.	Mercury (as Hg)	0.01
16.	Zinc (as Zn)	5.0
17.	Nickel (as Ni)	1.0
18.	Copper (as Cu)	1.0
19.	Vanadium (as V)	0.2
20.	Benzene	0.1
21.	Benzo (a) – Pyrene	0.2

(b) Additional parameters to be complied with.

Sl. No	Characteristics.	Value for concentration (mg/l except for pH)
1.	Colour and Odour.	All efforts should be made to remove colour and unpleasant odour as for as practicable.
2.	Particle size of suspended Solids.	(a) Floatable solids Max. 3 mm. (b) Settleable solids, Max. 850microns
3.	Temperature °C	Shall not exceed 5°C above the receiving water temperature.
4.	Total Residual Chlorine	1.0
5.	Ammonical Nitrogen (as N)	15
6.	Free Ammonia (as NH_3)	5.0
7.	Arsenic (as As)	0.2
8.	Mercury	0.01
9.	Lead	2.0
10.	Cadmium (as Cd)	2.0
11.	Selenium (as Se)	0.05
12.	Fluoride(as F)	15
13.	Bio-assay test.	90% survival of fish after 96 hrs. in 100% effluent.

14.	Manganese (as Mn)	2.0
15.	Iron (as Fe)	3.0
16.	Nitrate Nitrogen	20

Note:

(i) The parameters indicated Annexure-I (a) shall be monitored **on daily basis** from the samples of treated effluent collected as per condition No. II (1).

(ii) The parameters indicated in the Annexure-I (b) shall be monitored **once in four months** from the samples of treated effluent collected at the outlet of the effluent treatment plant.

(iii) Concentration limits shall be complied with at the outlet discharging effluent (excluding discharge from sea water cooling systems) to receiving environmental [surface water Bodies, marine systems or public sewers]. In case of application of treated effluent directly for irrigation/horticulture purposes (within or outside the premises of refinery), make-up water for cooling systems, fire fighting, etc. The concentration limits shall also be complied with at the outlet before taking the effluent for such application. However, any use in the process such as use of sour water in desalter is excluded for the purpose of compliance.

(iv) In case of circulating seawater cooling, the blow-down from cooling systems shall be monitored for pH and oil and grease (also Hexavalent & Total Chromium, if chromate treatment is given to cooling water) and shall conform to the concentration limits for these parameters. In case of reuse of treated effluent as cooling water make-up, all the parameters (as applicable for treated effluent) shall be monitored and conform to the prescribed standards.

(v) In case of once through cooling with seawater, the oil & grease content in the effluent from cooling water shall not exceed 1.0 mg/l.

(vi) **Emission Standards for VOC from Wastewater Collection and Treatment:**

(a) All contaminated and odorous wastewater streams shall be handled in closed systems from the source to the primary treatment stages (oil-water separator and equalization tanks).

(b) The collection system shall be covered with water seals (traps) on sewers and drains and gas tight covers on junction boxes.

(c) Oil-water separators and equalization tanks shall be provided with floating/fixed covers. The off-gas generated shall be treated to remove at least 90% of VOC and eliminate odour. The system design shall ensure safety (prevention of formation of explosive mixture, possible detonation and reduce the impact) by dilution with air/inert gas, installing LEL detector including control devices, seal drums, detonation arrestors, etc. The system shall be designed and operated for safe maintenance of the collection and primary treatment systems.

SENIOR ENVIRONMENTAL OFFICER

ANNEXURE-B

Load Based Standards as per MOEF Notification No.G.S.R.186(E), dated 18.3.2008.

Sl. No.	Parameter	Quantum limit in Kg/1000 T of CrudeProcessed
1.	Oil & Grease.	2.0
2.	B.O.D. (3 days 27° C)	6.0
3.	COD	50
4.	Suspended Solids.	8.0
5.	Phenols	0.14
6.	Sulphides	0.2
7.	Cyanide	0.08
8.	Ammonia as N	6.0
9.	TKN	16.0
10.	P	1.2
11.	Cr (Hexavalent)	0.04
12.	Chromium (Total)	0.8
13.	Lead	0.04
14.	Hg	0.004
15.	Zn	2.0
16.	Ni	0.4
17.	Cu	0.4
18.	V	0.8
19.	Benzene	0.04
20.	Benzo (a) – Pyrene	0.08

NOTE:

(i) Quantum limits shall be applicable for discharge of total effluent (process effluent, cooling water blow down including sea cooling water blow down. Washing etc.) to receiving environment (excluding direct application on land for irrigation/ horticulture purposes within the premises of refinery).

(ii) In order to measure the quantity of effluent (separately for discharge to receiving environmental, application for irrigation/horticulture purposes within the premises of refinery and blow-down of cooling systems), appropriate flow measuring devices (e.g. V-notch, flow meters) shall be provided with.

(iii) Quantum of pollutants shall be calculated on the basis of daily average of concentration values (one 24-hourly composite sample or average of three grab samples, as the case may be), average flow of effluent during the day and crude throughput capacity of the refinery.

(iv) Limit for quantity of effluent discharged (excluding blow-down from seawater cooling) shall be 400 m^3/1000 tonne of crude processed. However during monsoon, limit of quantity of effluent during rainy days shall not exceed 700 m^3/1000 tonne of crude processed.

SENIOR ENVIRONMENTAL OFFICER
17 CATEGORY CELL

ANNEXURE –C

Chimney	Chimney Attached to	Fuel type	Chimney height above ground level in meters	Constituents to be Controlled	Limiting concentration in mg/Nm^3	Air Pollution Control equipment to be installed, in addition to Chimney height as per Col (3)
1	2	3	4	5	6	7
	PHASE - I					
1.	CDU & VDUHeater -1	FO	94	SO_2 NOx PM CO	See note (1) below	Chimney as per col.(3) and Amine Treatment unit(ATU) &sour water stripper (SWS)
2.	NSU-1 Heater	FO	60	SO_2 NOx PM CO	See note (1) below	Chimney as per col.(3)
3.	VBU-1 Heater	FO	65	SO_2 NOx PM CO	See note (1) below	- do -
4.	HCU-1 Feed Heater-A	FG	51	SO_2 NOx PM CO	See note (2) below	- do -
5.	HCU-1 Feed Heater-B	FG	51	SO_2 NOx PM CO	See note (2) below	- do -
6.	HCU-1Feed Heater-C	FG	51	SO_2 NOx PM CO	See note (2) below	- do -
7.	HCU-1 Recycle Splitter Heater	FO	65	SO_2 NOx PM CO	See note (1) below	- do -
8.	Hydrogen-1 Naphtha Vaporiser Heater	FG	65	SO_2 NOx PM CO	See note (2) below	- do -
9.	Hydrogen-1 Reformer Heater	FG	51	SO_2 NOx PM CO	See note (2) below	- do -
10.	CCR-1 NHT Charge/ Stripper Heater	FG	50	SO_2 NOx PM CO	See note (2) below	- do -
11.	CCR-1 Platformer Heater	FG	64.5	SO_2 NOx	See note (2) below	Chimney height as per Col.3

Chimney	Chimney Attached to	Fuel type	Chimney height above ground level in meters	Constituents to be Controlled	Limiting concentration in mg/Nm^3	Air Pollution Control equipment to be installed, in addition to Chimney height as per Col (3)
				PM CO		
12.	SRU-1 Incinerator Heater		71	H_2S NOx CO	See note (3) below	Catalyst reduction and chimney as per Col.(3)
13.	SRU-1 Tail Gas Heater	FG	57	SO_2 NOx PM CO	See note (2) below	Chimney as per col.(3)
14.	Cogeneration Power Plant-1 (45 MW) (Boilers 3 x 140 TPH)	FO	90	SO_2 NOx PM CO	See note (1) below	Chimney height as per Col.3
15	D.G. Set 1000 KVA Est: prior to 2003		22	NOx NMHC PM CO	710 100 75 150	Chimney height as per Col.3
16	D.G. Set 1000 KVA Est: prior to 2003		22	NOx NMHC PM CO	710 100 75 150	Chimney height as per Col.3
PHASE – II						
17.	CDU/ VDU/NSU-2 Heater	FO	94	SO_2 NOx PM CO	See note (1) below	Chimney as per Col.(3) and Amine treatment (ATU) sour water stripper (SWS)
18.	KSU-2 Heater	FO	63	SO_2 NOx PM CO	See note (1) below	Chimney height as per Col.3
19.	HCU-2 Feed Heater-A	FG	51	SO_2 NOx PM CO	See note (2) below	- do -
20.	HCU-2 Feed Heater-B	FG	51	SO_2 NOx PM CO	See note (2) below	- do -
21.	HCU-2 Feed Heater-C	FG	51	SO_2 NOx PM CO	See note (2) below	- do -
22.	HCU-2 Recycle splitter feed Heater	FO	65	SO_2 NOx PM CO	See note (1) below	- do -

Chimney	Chimney Attached to	Fuel type	Chimney height above ground level in meters	Constituents to be Controlled	Limiting concentration in mg/Nm^3	Air Pollution Control equipment to be installed, in addition to Chimney height as per Col (3)
23.	VBU-2 Heater	FO	65	SO_2 NOx PM CO	See note (1) below	- do -
24.	Hydrogen-2 Naphtha Vaporizer Heater	FG	65	SO_2 NOx PM CO	See note (2) below	- do -
25.	Hydrogen- 2 Reformer Heater	FG	51	SO_2 NOx PM CO	See note (2) below	- do -
26.	CCR-2 NHT Charge Heater	FO	30	SO_2 NOx PM CO	See note (1) below	- do -
27.	CCR-2 Platformer Heater	FO	73.6	SO_2 NOx PM CO	See note (1) below	- do -
28.	CCR-2 Stripper Heater.	FO	45	SO_2 NOx PM CO	See note (1) below	- do -
29.	GOHDS Heater	FO	51	SO_2 NOx PM CO	See note (1) below	- do -
30.	SRU-2 Incinerator Heater	FG	71	H_2S NOx CO	See note (3) below	Catalyst reduction and chimney as per Col.3
31.	SRU-2 Tail Gas Heater	FG	57	SO_2 NOx PM CO	See note (2) below	Chimney height as per Col.3
32.	SRU - 3 Incinerator Heater	FG	71	H_2S NOx CO	See note (3) below	Catalyst reduction and chimney as per Col.3
33.	SRU-3 Tail Gas Heater	FG	57	SO_2 NOx PM CO	See note (2) below	Chimney height as per Col.3
CAPATIVE POWER PLANT & DG's						
34.	Cogeneration Power Plant-II – (a) Boiler 140 T/hr. (2 Nos.)	FO	Common chimney of 90 mts.	SO_2 NOx PM CO	See note (1) below	- do -
35.	CogenerationPowe	FO	Common	SO_2	See note (1) below	- do -

Chimney	Chimney Attached to	Fuel type	Chimney height above ground level in meters	Constituents to be Controlled	Limiting concentration in mg/Nm^3	Air Pollution Control equipment to be installed, in addition to Chimney height as per Col (3)
	r Plant-II – (b) Boiler 140 T/hr. (2 Nos.)		chimney of 90 mtrs	NOx PM CO		
36.	650 KVA D.G.Set. (CPP)	Diesel	19	10964	SO2	Chimney as per Col.(3) with silencer
37.	1000 KVA D.G. Set. Installed prior to year 2003	Diesel	22	NOx NMHC PM CO	1100 ppmv 150 75 150	Chimney height as per Col.3
38.	1000 KVA D.G. Set. Est: prior to 2003	Diesel	22	NOx NMHC PM CO	710 100 75 150	- do -
39.	1000 KVA D.G. Set. Est: prior to 2003	Diesel	22	NOx NMHC PM CO	710 100 75 150	- do -
40.	1000 KVA D.G. Set. Est: prior to 2003	Diesel	22	NOx NMHC PM CO	710 100 75 150	- do -
41.	500KVA D.G. Set (CCP)	Diesel	19	SO2		Chimney as per Col.(3)
FUEL QUALITY IMPROVEMENT PROJECT						
42.	Isomerisation unit	FO	63.6	SO_2 NOx PM CO	See note (1) below	Naphtha Hydro De-sulphirizer
43.	Mixed xylene	FO	60.8	SO_2 NOx PM CO	See note (1) below	Chimney as per col.(3)
Phase-III						
44.	CDU/ VDU -3 Heater	FO	120.0	SO_2 NOx PM CO	See note (1) below	Chimney as per Col.(3)
45.	DCU	FO	120.0	SO_2 NOx PM CO	See note (1) below	Chimney as per Col.(3)
46. 47.	PFCCU Charge Heater	FO	90.0	SO_2 NOx PM CO 1	See note (1) below	Chimney as per Col.(3)

Chimney	Chimney Attached to	Fuel type	Chimney height above ground level in meters	Constituents to be Controlled	Limiting concentration in mg/Nm^3	Air Pollution Control equipment to be installed, in addition to Chimney height as per Col (3)
48.	PFCCU Regenerator Stack	FO	80.0	SO_2 NOx PM CO	850 350 50 300	Chimney as per Col.(3) with Tertiary separation system to remove suspended particles from flue gas
49.	DHDT Charge Heater	FO	110.0	SO_2 NOx PM CO	See note (1) below	Chimney as per Col.(3)
50.	HGU Heater	FG	65.0	SO_2 NOx PM CO	See note (2) below	Chimney as per Col.(3)
51.	CHTU Charge / SplitterHeater	FO	Common stack 90.0	SO_2 NOx PM CO	See note (1) below	Chimney as per Col.(3)
52.	Sulphur Recovery Unit (SRU) 4 Incinerator-	FG	90.0	H_2S NOx CO	See note (2) below	Chimney as per Col.(3) with TGTU Section for higher efficiency of H2S removal
53.	Sulphur Recovery Unit (SRU) 5 Incinerator	FG	90.0	H_2S NOx CO	See note (2) below	Chimney as per Col.(3) with TGTU Section for higher efficiency of H2S removal
54.	Sulphur Recovery Unit (SRU) 6 Incinerator	FG	90.0	H_2S NOx CO	See note (2) below	Chimney as per Col.(3) with TGTU Section for higher efficiency of H2S removal
55.	CPP-Utility Boiler Stack 1&2	FO	120.0	SO_2 NOx PM CO	See note (1) below	Chimney as per Col.(3)
56.	CPP Utility Boiler Stack 3&4	FO	120.0	SO_2 NOx PM CO	See note (1) below	Chimney as per Col.(3)
57.	CPP-GTG & HRSG (Frame-5)	FO/FG	70	SO_2 NOx PM CO	See note (1) below	Chimney as per Col.(3)
58.	CPP-GTG & HRSG (Frame-6)	FO/FG	70	SO_2 NOx PM	See note (1) below	Chimney as per Col.(3)

Chimney	Chimney Attached to	Fuel type	Chimney height above ground level in meters	Constituents to be Controlled	Limiting concentration in mg/Nm^3	Air Pollution Control equipment to be installed, in addition to Chimney height as per Col (3)
				CO		
59.	4850 KVA DG Set Est : 2012	-	30.0	NOx NMHC PM CO	710ppmv 100 75 150	Chimney as per Col.(3)
60.	4850 KVA DG Set Est : 2012	-	30.0	NOx NMHC PM CO	710 100 75 150	Chimney as per Col.(3)
BS VI Project						
61.	Sulphur Recovery Unit (SRU) 7 Incinerator	FG	90.0	H_2S NOx CO	See note (2) below	Chimney as per Col.(3) with TGTU Section for higher efficiency of H2S removal
62.	500 KVA DG Set	-	4.5 m above roof level	SO2		Chimney as per Col.(3) along with acoustic enclosure.
63.	500 KVA DG Set	-	4.5 m above roof level	SO2		Chimney as per Col.(3) along with acoustic enclosure.

NOTE:

(1) Emission of air pollutants shall conform to the standards mentioned below; (For Liquid Firing)

	Parameters	Limiting concentration in mg/Nm^3, unless stated	Limiting concentration in mg/Nm^3, for Phase-III Refinery(After 2008 MOEF Notification)
(Furance, Boiler and Captive Power Plant	Sulphur Dioxoide (SO_2)	1700	850
	Oxides of Nitrogen (NOx)	450	350
	Particulate Matter (PM)	100	50
	Carbon Monoxide (CO)	200	150
	Nickel and Vanadium (Ni+V)	5	5
	Hydrogen Sulphide (H_2S) in fuel gas	150	150
	Sulphur content in liquid fuel, weight %	1	0.5

(2) Emission of air pollutants shall conform to the standards mentioned below; (For Gas Firing)

(Furance, Boiler and Captive Power	Parameters	Limiting concentration in mg/Nm^3, unless stated	Limiting concentration in mg/Nm^3, for Phase-

Plant			III Refinery (After 2008 MOEF Notification)
	Sulphur Dioxoide (SO_2)	50	50
	Oxides of Nitrogen (NOx)	350	250
	Particulate Matter (PM)	10	5
	Carbon Monoxide (CO)	150	100
	Hydrogen Sulphide (H_2S) in fuel gas	150	150

(3) Sulphur Recovery Units (SRU) - Emission of air pollutants shall be regulated as below;

	Parameters	Plant capacity (Tonnes/day)	Limiting concentration (Installed prior to year 2008)	Limiting concentration (Installed after the year 2008)
Sulphur Recovery Units (SRU)	Sulphur recover, %	Above 20	98.7	99.5
	H_2S mg/Nm^3		15	10
	Oxides of Nitrogen (NOx) mg/Nm^3	All capacity	350	250
	Carbon Monoxide (CO), mg/Nm^3	All capacity	150	100

(a) Sulphur recovery units shall have continuous systems for monitoring of SO_2, Manual monitoring for all the emission parameters shall be carried out once in a month.

(b) Data on Sulphur Dioxide emissions (mg/Nm^3) shall be reported regularly.

(c) Sulphur recovery efficiency shall be calculated on monthly basis, using quantity of sulphur in the feed to SRU and quantity of sulphur recovered.

i. In case of mixed fuel (gas and liquid) use, the limit shall be computed based on heat supplied by gas and liquid fuels.

ii. All the furnaces/boilers with heat input of 10 million Kilo calories/hour or more shall have continuous systems for monitoring of SO_2 and NOx. Manual monitoring for all the emission parameters in such furnaces or boilers will be carried out once in two months. **(Wherever the continuous monitors are not provided the same shall be provided immediately and reported).** Except during Monsoon period (between June to September month)

iii. At the emission parameters in furnaces/boilers having heat input less than 10 million kilo calories/hour will be monitored once in three months. Except during Monsoon period (between June to September month)

iv. In case of continuous monitoring, one hourly average concentration values shall be complied with 98% of the time in a month. Any concentration value obtained through manual monitoring, if exceeds the limits concentration value, shall be considered as non-compliance.

v. Data on Nickel and Vanadium content in the liquid fuel (in ppm) shall be reported. Nickel and Vanadium in the liquid fuel shall be monitored at least once in six months, if liquid fuel source and quality are not changed. In case of changes measurement is necessary after every change.

FUGITIVE EMISSIONS:

Control of fugitive emissions shall be as per the guidelines in MOEF Notification No.G.S.R. 186(E), dated 18th March 2008.

SENIOR ENVIRONMENTAL OFFICER
17 CATEGORY CELL