हिन्दुस्तान पेट्रोलियम कॉर्पोरेशन लिमिटेड
(भारत सरकार संस्थान) रजिस्टर्ड आफिस 17 जमशेदजी टाटा रोड, मुंबई - 400 020
HINDUSTAN PETROLEUM CORPORATION LIMITED
(A GOVERNMENT OF INDIA ENTERPRISE) REGISTERED OFFICE:17 JAMSHEDJI TATA ROAD, MUMBAI-400 020
CIN : L23201MH1952GOI008858

विशाख रिफाइनरी, पोस्ट बाक्स नं.15, विशाखपट्नम-530 011 (आंध्रप्रदेश), फोन - 2895000,2895100
VISAKH REFINERY, POST BOX NO. 15, VISAKHAPATNAM-530 011 (A.P.), PHONES : 2895000, 2895100

Date: September 22, 2023
Ref. : TSD/PS&E/APPCB/90/23

The Member Secretary,
Andhra Pradesh Pollution Control Board,
D.No. 33-26-14 D/2, Near Sunrise Hospital,
Pushpa Hotel Centre,Chalamalavari Street,
Kasturibaipet, **Vijayawada – 520010**

Dear Sir,

Sub: Environmental statement for the year ending March 31, 2023

Please find enclosed the "Environmental Statement for the Financial Year 2022-23" in Form-V as per Rule 14 of the Environmental (Protection) Rules, 1986.

With best regards,

GB/KSR

V Ratanraj
Executive Director (I/c) – Visakh Refinery

cc: The Joint Chief Environmental Engineer, APPCB-ZO, Visakhapatnam
cc: The Environmental Engineer, APPCB-RO, Visakhapatnam

FORM V

ENVIRONMENTAL STATEMENT for the financial year ending 31st March, 2023

PART-A

(i) Name and Address : V. Ratanraj,
Executive Director (I/C),
Hindustan Petroleum Corporation Limited,
Visakh Refinery, Post Box No.15, Malkapuram,
Visakhapatnam - 530 011 (A.P).

(ii) Industry Category : Petroleum Refinery

(iii) Production Capacity (Consented quantity) : 10 Million Metric Tonnes per annum of Crude

(iv) Year of Establishment : 1957

(v) Date of last environmental Statement Report submitted : September 14, 2022

PART - B

WATER AND RAW MATERIAL CONSUMPTION

(i) Water Consumption

S.No	Water Consumption (m^3/ calendar day)	2021-2022	2022-2023
1	Fresh water	17277	17010
2	Sea Water for cooling	215915	213501
3	Domestic	480	480

Name of products	Water consumption in m^3/ton of crude processed		
		2021-2022	2022-2023
1. LPG/Propylene 2. MS/Naphtha 3. Kerosene/ATF/MTO 4. Diesel/JBO 5. LDO 6. FO/LSHS 7. Bitumen	Fresh water	0.77	0.67
	Sea water for Cooling	9.37	8.39

(ii) Raw Material Consumption

Name of Raw Material	Name of Products	Consumption of raw material per unit of output	
		2021-2022	2022-2023
Crude Oil	1. LPG/Propylene 2. MS/Naphtha 3. Kerosene/ATF/MTO 4. Diesel/JBO 5. LDO 6. FO/LSHS 7. Bitumen 8. Sulphur	1.09	1.08

PART - C
POLLUTION GENERATED
(As per Consent Order)

WATER

Parameter	Stipulated limit	Actual	% Variation with prescribed standards
pH	6.5 - 8.5	7.7	-Nil-
TSS (mg/Lit)	20	10.1	-Nil-
Oil & Grease (mg/Lit)	5	1.4	-Nil-
Phenols (mg/Lit)	0.35	0.04	-Nil-
Sulphides (mg/Lit)	0.5	0.19	-Nil-
BOD (mg/Lit)	15	9.2	-Nil-
COD (mg/Lit)	125	36.1	-Nil-
Effluent quantity discharged (m^3/1000 tons of crude)	700	173.8	-Nil-

AIR

Emission from Stack:

Parameter		Stipulated limit	Actual	% Variation with prescribed standards
SPM (Tons/day)		1.11	0.80	Nil
SO_2 (Tons /day)		11.5	7.43	Nil
HC (Tons/day)		2.5	0.74	Nil
NO_x (Tons/day)		6.5	2.61	Nil
SPM (mg/Nm^3)	i) Stacks 1 to 23, 25 to 30, 32	100	25.3	Nil
	ii) Stacks 33 & 34	50	33.9	Nil
	iii) Stacks 24, 31 & 35	10	5.3	Nil

PART- D
HAZARDOUS WASTES

A. From Process : Included in Part E
B. From Pollution Control Facilities : Included in Part E.

PART - E
SOLID WASTES

Quantities of hazardous waste generated:

S.no	Source		Quantity (MT) 2021-2022	Quantity (MT) 2022-2023
1	Process	Oily sludge	7089	7958
		Spent catalyst	856.5	436.4
2	Pollution Control Facilities (Sludge from ETPs)		200	650
3	Recycled / re-utilized.		Refer Part F	

PART - F

Characteristics & Disposal practices for Hazardous & Solid Wastes

- **Oily Sludge:**

At Visakh Refinery, oily sludge to be handled is mainly from two sources. One is from the crude and product tanks during outages for inspection & maintenance activities and the other is from Effluent Treatment Plants (ETPs), sumps cleaning, sewer cleaning, etc.

Oily sludge is stored in lined lagoons and is being mechanically processed to recover oil. Processing of sludge from sludge lagoons and crude tank was carried out by M/s LMR Oils Pvt Ltd and M/s Chandrika Environ respectively. About 7569 MT of sludge was processed in 2022-23. Oil recovered from sludge is transferred to crude oil tanks for reprocessing. Residual low oily sludge is sent to bio-remediation bins along with the sludge from ETP's to carry out bioremediation by M/s OTBL. Bioremediation of 445.1 m^3 of low oily sludge was completed in 2022-23.

- **Spent Catalyst / Carbon:**

Spent catalyst / carbon is generated from process units on periodic basis, once in 4-5 years whenever replacement becomes necessary. Non-regenerable spent catalysts are sold to SPCB authorized recyclers or disposed to Treatment Storage and Disposal Facility (TSDF). 381.08 MT of spent catalyst was disposed to authorized recyclers, 19197 Nos of empty PVC/Metallic containers (203.35 MT) were disposed to authorized recycler and 318.72 MT of spent catalyst was disposed to TSDF during 2022-23.

PART - G

Impact of Pollution Control Measures on Conservation of Natural Resources and consequently on the Cost of Production

- Effluent Treatment Plants (ETPs) were in continuous operation and effluent quality is meeting the stipulated norms. The average process effluent generated during the year 2022-23 was 184.3 m^3/hr.
- Fuel Gas Amine Absorption Unit (FGAAU) for treatment of sour fuel gas was in continuous operation. The treated fuel gas was consumed as internal fuel in heaters/furnaces.
- Sulphur Recovery Units were in continuous operation to maintain the sulphur dioxide emissions from the refinery below the stipulated limit of 11.5 Tons/day. The total Sulphur recovered in SRU's in 2022-23 was 38783.8 MT.
- Flue Gas Desulphurization (FGD) units for reduction of SPM from flue gases of Fluidized Catalytic Cracking Units (FCCUs) were in continuous operation.
- All the CAAMS (Continuous Ambient Air Monitoring Stations) analysers were continuously in service throughout the year. Online connectivity of CAAMS data to APPCB and CPCB servers is in place. Data is being transferred on a continuous basis.
- Online connectivity of all stack analysers to APPCB and CPCB servers is in place. Data is being transferred on a continuous basis.
- On-line connectivity of ETP-I & ETP-IV treated effluent analysers to APPCB and CPCB servers is in place. Data is being transferred on a continuous basis.

PART – H

Additional investment for environment protection including abatement of pollution

	Description	
Major Investments in the last 3 years (in Rs.Lakhs)		
1	Dedicated stack analyzers	401.2
2	Procurement of Oil Spill Response (OSR) equipment	130.3
Regular Expenditure (cost in Rs. Lakhs / Year)		
1	Ground water monitoring program	0.3
2	Leak Detection and Repair (LDAR) survey	4.3
3	Environmental monitoring by MoEF-recognized third party	6.1
4	Hazardous Waste disposal to TSDF & Recyclers	41.7
5	Maintenance of stack and CAAMS analyzers	300.6

PART- I

MISCELLANEOUS

ANY OTHER PARTICULARS IN RESPECT OF ENVIRONMENT

- **Continuous Ambient Air Monitoring Stations:**

  Continuous Ambient Air Monitoring Stations (CAAMS), 3 in number, were in operation to measure ground level concentration of SO_x, NO_x, HC, PM 2.5, PM 10, CO, O_3, NH_3, C_6H_6 and Mercaptans in ambient air along with weather monitoring station to monitor the meteorological conditions. Monitoring by MoEF recognized laboratory is also done on regular basis.

- **Stack Analyzers:**

  Installation and commissioning of dedicated stack analyzers was carried out.

- **ENCON Activities:**

  Refinery is carrying out periodic surveys for identifying and arresting steam leaks, compressed air leaks and Nitrogen leaks in process units and offsite areas.

- **Leak Detection And Repair:**

  LDAR program for monitoring and control of VOC emissions is in place.

- **Oil Spill Response Plan:**

  Visakh Refinery along with other oil companies entered into an agreement with VPT for oil spill management in the port area. This is in addition to HPCL's own facilities at Single Point Mooring (SPM) for oil spill response.

- **ISO-14001:**

  Visakh Refinery is an ISO-14001:2015 certified organization. Environmental Management System is in place as per the requirement of ISO-14001 standard.