इंडियन ऑयल कॉर्पोरेशन लिमिटेड
बोंगाइगाँव रिफाइनरी
डाकघर : धालीगाँव - 783 385
जिला : चिरांग (असम)
Indian Oil Corporation Limited
Bongaigaon Refinery
P.O. : Dhaligaon, Dist. : Chirang, Assam-783385
Phone : 03664-
E-mail :
Website : www.iocl.com FAX : 03664-

रिफाइनरी प्रभाग
Refineries Division

IOCL BGR/HSE/ENV-ST(2024-25)/01 Date: 11-09-25

To
The Member Secretary,
Pollution Control Board, Assam
Bamunimaidam
Guwahati – 781021

Subject: Environment Statement of IOCL Bongaigaon Refinery for Fy 2024-25

Dear Sir,

In accordance with the Environment Protection Act, 1986, we are submitting herewith Annual Environment Statement of IOCL Bongaigaon Refinery in FORM–V for the year 2024-25 for your perusal please.

Thanking You,

Yours faithfully,

11/09/25

(Biman Gogoi)
Dy. General Manager (HSE)
IOCL Bongaigaon Refinery
Ph- 03664 25- 3321

Copy to :

1. The Regional Executive Engineer,
   Regional Laboratory cum Office
   Pollution Control Board , Assam
   Ratnawali Heights (1st floor)
   Opposite: Birjhora HS School, Near B.Ed. College
   Bongaigaon-783380

2. The Regional Officer,
   Ministry of Environment , Forest and Climate Change,
   Integrated Regional Office, Guwahati,
   4th floor, Housefed Building ,
   GS Road, Rukminigaon Guwahati-781022

FORM – V
(See rule 14)
Environmental Statement for the Financial Year ending 31.03.2025

PART – A

(i) Name and address of the Owner/Occupier of industry Operation or Process:

Mr. Nayan Kumar Barua, ED & Refinery Head.
Indian Oil Corporation Ltd. (Bongaigaon Refinery)
Dhaligaon, Dist. Chirang
ASSAM – 783385

(ii) Industry category:

Primary (STC Code) -----
Secondary (SIC Code) -----

(iii) Production Capacity: Units

Refinery Units	Capacity	Technology	Year of Commissioning
Crude Distillation Unit-I (CDU-I)	1.35 MMTPA	EIL, India	1979
Crude Distillation Unit-II (CDU-II)	1.35 MMTPA	EIL, India	1995
Delayed Coking Unit-I (DCU-I)	0.5 MMTPA	EIL, India	1981
Delayed Coking Unit-II (DCU-II)	0.5 MMTPA	EIL, India	1996
Coke Calcinations Unit (CCU)	75,000 MTPA	EIL, India	1981(Not in operation)
LPG Bottling Plant	22,000 MTPA	EIL, India	2003
Catalytic Reformer Unit (CRU)	0.192 MMTPA (Naphtha processing)	AXENS, France	1985
Diesel Hydro Treatment Plant (DHDT)	1.80 MMTPA	IOCL R& D, EIL	2011
HGU	30KTPA	Linde	2011
MS Quality Improvement Project	0.429 MMTPA	IOCL R& D, EIL	2011
INDMAX	740KTPA	IOCL R& D, EIL	2020
INDMAX Gasoline De-Sulphurisation Unit (Prime-G+)	312 KTPA	AXENS, France	2020
BS-VI: NHT Unit	0.235 MMTPA	IOCL R& D, EIL	2021
Sulphur Recovery Unit	10 TPD	IOCL R& D, EIL	2012
Sulphur Recovery Unit (New)	20 TPD	IOCL R& D, EIL	2022

*(MMTPA : Million Metric Ton Per Annum , KTPA: Kilotonne Per Annum, TPD :Tons per Day,)

(iv) Year of establishment: 20.02.1974

(v) Date of submission of last Environmental statement: 10.09.2024

PART – B

1.11. Water consumption (m^3/day)	2023-24	2024-25
Process	2497.6	2110.7
Boiler Feed Water	2234.7	2094.4
Cooling	307.9	324.5
Service Water	2718.4	2574.4
Domestic Water	4404.1	4315.1
Project Construction	260.0	363.3
Total Water Consumed	12422.7	11419.1

1. WATER AND RAW MATERIAL CONSUMPTION:

Name of products/ Raw materials	Process Water consumption per unit of product (Figures include process and service water consumption)	
	2023-24	2024-25
(i) Water consumed m^3/T Crude processed	0.585	0.569
(ii) Water consumed m^3/MWH power generated	0.27	0.76

Note:

1. The water consumption figures per MT of product include Process Water and proportionate Service Water consumption in units of the complex.
2. Service Water network in the complex caters to the water requirement for sanitary purpose, service/maintenance activities and cleaning, washing and chemical preparation activities in the complex.
3. Refinery Section consists of two Crude Distillation Units, two Delayed Coker Units and one Coke Calcination Unit (Not in operation). Water consumption as per convention is expressed in terms of m^3/MT of Crude Throughput.
4. Conventional Refinery Units produce multiple products, and it is not possible to segregate product-wise water consumption.
5. PSF plant/CCU unit remained under shutdown due to economic reason.

1.2 Raw Material Consumption:

1.2.1: Refinery Section:

Name of Raw Material (24-25)	Name of Products	Consumption of raw materials per unit of out put	
		2023-24	2024-25
Crude Oil (2772.089TMT)	Liquefied Petroleum Gas (LPG)	14.12	11.33
	Naphtha (SRN)	108.75	70.72
	Motor Spirit (MS)	5.39	4.63
	Aviation Turbine Fuel (ATF)	0.00	608.05
	Superior Kerosene Oil (SKO)	733.69	311.72
	Light Diesel Oil (LDO)	202.74	272.47
	High Speed Diesel (HSD)	1.78	1.98
	Low Sulphur Heavy Stock (LSHS)/LVFO	53.58	0
	Raw Petroleum Coke (Net Basis)	27.24	36.12
	Petrosol	0.00	0
	Calcined Petroleum Coke (CPC)	0.00	0
	Bonmax	0.00	0
	Coke dust	0.00	0
	HDTF	0.00	0
	Sulphur Recovery	768.55	797.04

1.2.2: Petrochemical Section:

PSF plant is under shut down since November 2005.

PART – C
POLLUTION GENERATED
(Parameters as specified in the Consent issued)

1.3 WATER POLLUTION:

Sl. No	Parameter	Concentration Value (mg/l except pH)		Quantum Value (Kg/TMT of Crude processed)	
		Limit	Actual	Limit	Actual
1	pH	6.0 – 8.5	7.2	-	-
2	Oil & Grease	5	3.2	2	0
3	BOD (3 days at 27°C)	15	9.17	6	0
4	COD	125	61.3	50	0
5	Suspended Solids	20	8.77	8	0
6	Phenols	0.35	0.22	0.14	0
7	Sulphides	0.5	0.26	0.2	0
8	CN	0.2	0.01	0.08	0
9	Ammonia as N	15	2.47	6	0
10	TKN	40	3.99	16	0
11	P	3	0.84	1.2	0
12	Cr (Hexavalent)	0.1	BDL	0.04	0
13	Cr (Total)	2	BDL	0.8	0
14	Pb	0.1	BDL	0.04	0
15	Hg	0.01	BDL	0.004	0
16	Zn	5	0.28	2	0
17	Ni	1	BDL	0.4	0
18	Cu	1	0.11	0.4	0
19	V	0.2	BDL	0.8	0
20	Benzene	0.1	BDL	0.04	0
21	Benzo (a) - Pyrene	0.2	BDL	0.08	0

NOTE: No treated water is discharged outside the complex. Treated Water is 100% re-used as Fire Water makeup, Cooling Water makeup and Service water after Tertiary Treatment. The effluents after Secondary Treatment are treated in the Tertiary Treatment Plant before reuse.

1.3.1 Air Pollution for (Avg. of all six Ambient Air Quality Monitoring Stations):

Pollutants	Unit of Measurement	NAAQS 2009	Average Value (2023-24)	Average Value (2024-25)	% Deviation from Prescribed standard with Reasons (from Average)
Sulphur Dioxide (SO_2)	$\mu g/m^3$	50/80	13.67	18.64	NIL
Nitrogen Dioxide (NO_2)		40/80	19.68	23.54	NIL
Particulate Matter (PM-10)		60/100	66.77	66.46	NIL
Particulate Matter (PM- 2.5)		40/60	28.48	26.99	NIL
Ammonia (NH_3)		100/400	20.21	25.86	NIL
Ozone (O_3)		100/180	20.54	24.26	NIL
Lead (Pb)		0.5/1.0	BDL	BDL	NIL
Benzene (C_6H_6)		5	0.57	0.6	NIL
Arsenic (As)	ng/m^3	6	BDL	BDL	NIL
Nickel (Ni)		20	BDL	BDL	NIL
Benzo (a) Pyrene		1	BDL	BDL	NIL
Carbon Mono-Oxide (CO)	mg/m^3	2/4	0.54	1.18	NIL

PART – D

HAZARDOUS WASTE

{As specified under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016}

Hazardous Wastes	Total Quantity	
	Year 2023 - 24	Year 2024 - 25
OILY SLUDGE: **(a) From process unit/tank cleaning** 1. Waste category No. 4.1 (Oil containing sludge/emulsion under petroleum, refining/ re-refining of used oil/recycling of waste oil under serial # 4 of schedule - I.	Generated: 3775.00 MT Processed: 5969.00 MT	Generated: 4836.4 MT Processed: 4464 MT
2. Waste category No. 4.3 (Slop oil under petroleum, refining/ re-refining of used oil/recycling of waste oil under serial # 4 of schedule-I	Generated:19132.00 MT Processed: 19095.00 MT	Generated: 16004 MT Processed: 16279 MT
3. Waste category No. 5.1 (used /Spent lube oil/ oil, (Industrial operations using mineral/synthetic oil as lubricant in hydraulic systems or other applications) serial # 5 of schedule-I	Generated: 19.577 MT Processed: 19.577 MT	Generated: 19.5 MT Processed: 19.5 MT
(b) From Pollution Control Facilities (ETP) 1. Waste category No. 34.4 (Purification process for air and water under serial # 34 of schedule-	NIL	NIL

Note: Generated Oily sludge as mentioned above is stored in concrete lagoons within the complex for further oil recovery and processing

PART – E

SOLID WASTE

	Total Quantity	
	Year 2023-24	Year 2024-25
(a) From Process	NIL	NIL
(b) From Pollution Control Facility, (Bio-sludge from wastewater treatment plants)	500 KL	500 KL
(c) (1) Quantity recycled or re-utilised within the unit. (2) Solid (3) Disposed* (Bio-sludge)	NIL NIL 500 KL	NIL NIL 500 KL

- Dried and composted Bio-sludge is used for Green Belt Development/Gardening, inside the complex and rest are stored in sludge drying bed for further disposal.

PART – F

Please specify the characteristics (in terms of composition and quantum) of Hazardous as well as solid waste and indicate disposal practice adopted for both these categories of wastes.

Quality and disposal methods are furnished below:

Sl. No	Hazardous waste / Solid waste	Method of Disposal	Quantity Available	Characteristics
Hazardous waste as per Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016				
1	Slop oil	Entire slop oil generated in the complex is reprocessed in the refinery.	Continuously processed in the units	Oil = 5 - 95%
2.	Oily sludge	Stored in concrete/ brick lined Lagoons for further processing.	Total quantity of Oily sludge available as on 01.04.2025 is 1833 MT.	Oil (% wt) = 22.7% BS&W %V = 3.0%
3.	Spent Lube oil / Used oil	As used Lube oil is composed of hydrocarbon, it is processed in the Refinery with slop oil.	Continuously processed in the Refinery.	Hydrocarbons = 100%
Other Solid waste (Non-Hazardous):				
1.	Bio- sludge from Wastewater Treatment Plant.	Bio-sludge generated in Waste-Water Treatment Plant is non-hazardous and is used for green belt development inside the plant area.	Nil	pH of 1% Sol : 7.03 O & G in wt% : 0.46 Phenol in ppm : 0.28 Sulphide in ppm : 0.42 Loss on ignition @ 650°C (*) : 80.2% Conductivity of 1% Solution, micro-S : 23.43

(*) Loss on ignition @ 650 ^{0}C includes total organic content.

PART – G

Impact of Pollution Control measures taken on conservation of natural resources and on the cost of production:

(a) The pollution control facilities have been designed to meet the requirement for mitigating pollution control and existed right from inception. The complex has a Tertiary Treatment Plant (TTP) to further polish the treated effluent from ETP. Treated water from TTP is reused as make up water in cooling towers, for housekeeping/horticulture and is also used for firewater system make up. This has resulted in reduced withdrawal of ground water.

(b) Leak Detection and Repair (LDAR) programme is conducted quarterly. During the year 2024-25, 32209 potential points were surveyed, and 195 leaky points were detected. By timely detection and repairing of leaks, BGR could not only avoid potential loss of 39.89 MTPA (approx.) but also could prevent as much emission to the atmosphere. Further it also helped in keeping healthy work environment in the plant complex.

(c) Effluent reused during the year 2024-2025 was 100 % of the total effluent treated which includes Plant effluents as well as Township sewage. Presently Cooling Water Make up, to all the units, for housekeeping and Fire water make-up in its network, is carried out with TTP treated effluent.

(d) An Eco-Park developed and maintained with a large earthen lagoon inside the plant complex. The surface drainage/storm water is routed through this large lagoon for natural purification and thus improves the quality of drains/storm water. It also attracts migratory birds during the winter months. Water from the Eco-Park lagoon is used in plants through TTP treatment as and when required, especially during dry season to minimize ground water withdrawal.

(e) As a part of creating environment awareness as well as understanding the implications of various Rules and Regulations on environment and responsibility of employees, regular training is imparted to targeted employees by in-house faculties.

During the year 2024-25, 184 No.s of employees were imparted training on Environment awareness & responsibility by faculties from HSE department.

(f) As a measure of conservation of natural conventional energy sources, Bongaigaon Refinery has implemented Grid connected Solar P V panels of 3009 KWp at roof top of different buildings inside the complex and Township to increase use of renewable energy. In the FY 2024-25 around 2217 MWH Solar Power generated.

(g) The traditional Electrical bulbs are replaced by energy efficient LED bulbs in Plant units and in BGR Township. Cumulative total replaced in plant + township till financial year 2019-20 is 32192 nos. This is 82.61% of total bulb available in plant and BGR Township. In the year 2020-21, 3624 Nos, In 2021-22, 3624 Nos., In 2022-23, 229 Nos., In 2023-24, 432 Nos. and In 2024-25, 605 bulbs replaced with LED bulbs. Total Replacement is 38820 nos. out of total 38965, Cumulative Total Replacement is 99.62 % as on 31.03.2025.

PART – H

Additional investment proposal for environment protection including abatement of pollution:

Online analyzers are provided for treated effluent monitoring parameters- pH, BOD, COD, TSS and Flow. Further separate Server was provided at Pollution Control Board of Assam at Guwahati and On-line stack emission data, treated effluent monitoring data and continuous ambient air quality monitoring station (CAAQMS) data is being transmitted continuously to CPCB and SPCB servers.

1. For further improvement of ETP performance, 2 nos. of oil Skimmer is installed in the month of May'2018 at Effluent Treatment Plant for separation of floating oil from incoming effluent to ETP. VOC control scheme also installed a commissioned in ETP.
2. As a pro-active measure for management of oily sludge, Bioremediation process developed by IOCL, R&D has been successfully installed in the month of July'17 and oily sludge processing is continued. In the financial year 2024-25, 600 MT of oily sludge has been processed.
3. Bongaigaon Refinery has taken up Vermicompost project in a big way for organic waste disposal, in place of Bio-methanation as a measure of solid waste management.

   System has been developed to segregate plastic waste of BGR Township at source and used for road construction.
4. BGR has taken a step forward in improving carbon footprint by signing an agreement with paper recyclers for recycling of wastepaper generated from the unit and by mass plantation program

PART – I

Any other particulars for improving the Quality of Environment:

I. Six Ambient Air Monitoring Stations, including one online monitoring Station, are in operation in various locations surrounding the Unit.

II. All major Stacks (furnaces) are fitted with online SO_2 & NO_x, PM & CO Analysers

III. BGR is an ISO-14001, 2015, ISO- 9001:2015, ISO-45001:2018 certified Refinery Unit of Indian Oil Corporation Ltd, with a validity of the certificates up to 13.12.2027.

Bongaigaon Refinery is the first refinery in the country to implement and certified for Energy Management System as per ISO 50001-2011. Certification is valid till 09.07.2026 under ISO-50001:2018.

BGR inventories and reports the emissions of Green House Gases in line with ISO-14064-2006.

IV. Tree plantation: In the year 2017-18, around 29,600 No.s; In the year 2018-19, 30,062 No.s; In the year 2019-20, 14,340 No.s; In the year 2020-21, 25,606 No.s; In the year 2021-22, 1,00,000 No.s; In the year 2022-23, 26,710 No.s; In the year 2023-24, 1,00,630 of tree saplings planted inside the plant premises as well as in township and nearby area.

During the year 2024-25, BGR has planted 1,07,530 No.s of tree saplings were planted in and around BGR complex.

V. BGR celebrated World Environment Day 2024 in a befitting manner by conducting various awareness programmes, like quiz competition, slogan competition, art competition, photography competition, suggestion scheme drives among Employees, School Children, BGR Township Ladies and security personnels and outreach program with an aim to increase awareness. Plantation program was also kick-off on the day for a large-scale plantation.

VI. BGR has been accorded Environment Clearance by MOEF&CC for eco-friendly BS-VI and other projects in April 2017. All the units under the Project are commissioned by the year 2022.