इंडियन ऑयल कॉर्पोरेशन लिमिटेड
एओडि - डिगबोई रिफाइनरी
पो.ओ. डिगबोई, पिन-786171, असम

Indian Oil Corporation Limited
AOD - Digboi Refinery
P. O. Digboi, PIN: 786171, Assam
Tel. : 03751-262000
Fax : 03751-269015
E-mail : aoddigboi@indianoil.in
Website : www.iocl.com

असम ऑयल डिवीजन
Assam Oil Division

Ref.HSE: 097-711/24 **Dated: 20th June'2024**

To
The Regional Executive Engineer,
Pollution Control Board, Assam
Regional Office, Dibrugarh
Dibrugarh-786001

Respected Sir,

Sub: Digboi Refinery Environmental Statement for the year 2023-24

Enclosed please find the Environmental Statement of Digboi Refinery for the year 2023-24 prepared as per guidelines given by MoE&F in their notification dated 13.03.1992.

With regards,

Yours sincerely,

For Indian Oil Corporation Limited
(Assam Oil Division)
Digboi Refinery

D K Barua
GM (TS &HSE)
डी.के. बरुवा / D.K. BARUA
जीएम (टीएस एवं एचएसई)
GM (TS & HSE)
आई.ओ.सी.एल. (एओडी), डिगबोई
I.O.C. LTD. (AOD), DIGBOI

Copy to:

1. The Member Secretary, Pollution Control Board, Assam, Guwahati
2. The Regional Officer-Scientist F, Integrated Regional Office, Ministry of Environment Forest and Climate Change, Guwahati-781022
3. The Additional Director, CPCB, N.E. Zonal Office, Shillong

पंजीकृत कार्यालय: इंडियन ऑयल भवन, जी-9, अली यावर जंग मार्ग, बान्द्रा (पूर्व), मुम्बई - 400051, महाराष्ट्र (भारत)
Regd. Office: IndianOil Bhavan, G-9, Ali Yavar Jung Marg, Bandra (E), Mumbai-400051, Maharashtra (India)
CIN: L 23201 MH 1959 GOI 011388

EXECUTIVE SUMMARY

1. Digboi Refinery of Indian Oil Corporation Limited (Assam Oil Division) is the oldest refinery in the country. The original refinery at Digboi came up in 1901 and was rebuilt in 1923. It had an installed capacity of 0.5 MMTPA, which was enhanced in steps to 0.65 MMTPA. After nationalization and merger with Indian Oil Corporation Limited in 1981, the refinery had undergone modernization through the Digboi Refinery Modernization Project (DRMP). In the first phase, crude distillation capacity had been augmented to 0.65 MMTPA with the commissioning of new crude distillation unit (CDU/VDU) in 1996 along with a captive power plant consisting of 3x8.5 MW Gas Turbine and associated offsite facilities. The catalytic reformer unit (CRU) was commissioned in 1997 for production of unleaded motor spirit fuel. In 1999, the new Delayed Coking Unit (DCU) was commissioned, and the old Dubbs Coking Unit shut down. The old and outdated wax treatment plants like Acid Washing and Bauxite Filtration have also been replaced by Wax Hydro Finishing Unit (WHFU) in June 2001, and thereby generation of Acidic Sludge has been eliminated. The Solvent De-waxing / De-oiling Unit (SDU) and Kero /Diesel Hydro treating Unit (HDT) were commissioned in May, 2003 and December 2003 respectively. The Captive Power Plant was also augmented with a new 20 MW Gas Turbine and associated 100 TPH waste heat recovery steam generation facilities.

2. With the commissioning of the SDU, the 1928 vintage Wax Extraction / De-oiling Units, which were generating a large quantity of slop oil, have been shut down. And with the commissioning of HDT, operations of the old Kerosene Treating unit (KTU) have also stopped. The Hydrotreater enables the refinery to produce environmentally friendly Low Sulfur Diesel and facilitated phasing out of the toxic sulfur- dioxide earlier used for kerosene treating.

3. In keeping with the plan for phasing out outdated technologies and also progressing on the path of production of greener fuels, the Digboi Refinery has installed and commissioned its Motor Spirit Upgradation facility in Dec'2010. Thus, the refinery is currently producing both Motor Spirit and High Speed Diesel conforming to Bharat Stage –IV auto-fuel specifications. Digboi Refinery now produces BS-VI quality product since August 2019.

4. Digboi Refinery utilizes natural gas, which has very low Sulfur Content (<1.0 ppm), as fuel for its Captive Power Plant and process heaters. Hence, the emissions due to the operations of Digboi Refinery are well within the prescribed limits.

5. The Ministry of Environment & Forests, by their notification on 13th March 1992 has specified that as per Environment (Protection) Second Amendment Rules, 1992, industries are required to carry out environmental Audit and submit a report for each financial year to the concerned State Pollution Board.

6. Chairman, Pollution Control Board, Assam Vide Letter No. WB/G-523/05-06/25 dated. Guwahati, the 22nd July 2005 had written to the Honorable Chairman, CPCB to declare Digboi Refinery as non-critically polluted unit.

7. The Environmental statement for the Year 2023-24 is enclosed herewith.

8. The report has been prepared as per prescribed format FORM-V (Rule-14) of MoE& F's notification dated 2nd April 1993.

9. Central Pollution Control Board along with IIT, New Delhi, had carried out an environmental assessment of Industrial clusters across the country based on Comprehensive Environment Pollution Index (CEPI) and Digboi Refinery has been placed at the **lowest level** amongst the 88 clusters of industries surveyed.

ENVIRONMENTAL STATEMENT FOR THE FINANCIAL YEAR ENDING THE 31st MARCH 2022

PART- A

I. Name & address of the owner / occupier of the Industry Operation or Process:

INDIAN OIL CORPORATION LIMITED
(ASSAM OIL DIVISION)
P.O.DIGBOI-786171
DIST: TINSUKIA
ASSAM

II. Industry Category : **(STC. Code) SECONDARY OIL REFINERY**

III. Production Capacity : **650,000 MT of crude oil throughput per annum**

IV. Year of establishment : **1901**

V. Date of last Environmental Statement Submitted: 4th **June, 2023**

PART- B

WATER AND MATERIAL CONSUMPTION

1. WATER CONSUMPTION (M3 / DAY)

	2022-23		2023-24	
	m^3/Yr	m^3/day	m^3/Yr	m^3/day
*1.Process Water including Boiler Feed Water	77,5760	2,125.36	729692	1993.69
2.Boiler Feed water	Incl. above	Incl. above	Incl. above	Incl. above
3.Domestic Water	31,93,405	8,749.05	3362115	9186.76

* Includes fresh water for cooling tower make-up, boiler feed water & direct use in process units.

Name of products/ Raw materials	Water consumption per unit of products Raw materials (m^3/MT)	
	2022-23	2023-24
CRUDE OIL	1.09	1.03

As products are not separately processed and all products are obtained from the same raw material i.e., crude oil, water consumption above has been indicated as m3/MT of crude processed which was **0.71298 MMTPA** in 2022-23and **0. 71021MMTPA** in 2023-24.

2. RAW MATERIALS CONSUMPTION

Name of Raw Materials	Name of products	Consumption of raw materials per unit of Products	
		2022-23	2023-24
	LIST OF PRODUCTS		
CRUDE OIL	LPG	1.61	1.64
	RAW NAPHTHA	0.04	-0.02
	MS XP 100	0.89	0.00
	MS BS VI	16.64	17.37
	Less Light dist. ex RN(GR)	-2.23	-1.65
	H S D BS VI	58.19	55.38
	PARAFFIN WAX	4.3	4.71
	SULPHUR	0.05	0.05
	LVFO (Low Viscosity Fuel Oil)	0.72	1.07
	FO - Regular	10.27	9.64
	LSHS (Premium)	1.94	4.11
	CRMB	0	0
	PETROLEUM COKE	5.44	5.36
	INTERMEDIATE STOCK DIFFERENTIAL	0.46	0.76
	OWN FUEL :LIQUID (HSD to CPP)	0.04	0.05
	OWN FUEL : GAS	3.42	3.72
	Processing /Handling / Storage losses /internal use HSD	0.0	0.11
	FLARE LOSS	0.15	0.11
	GRAND TOTAL	**101.92**	**102.41**

PART-C

Pollutants Generated (Parameters as specified in consent issued)

- **WATER EFFLUENT(As per Gazette of India.GSR-186 (E), dated 18.03.2008)** Table -1

Sl.No.	Pollutants	Quantity of Pollutants generated		Total Kg/Yr	% Variation from prescribed standard with reasons
		As per Revised Consent kg/1000 MT of crude processed	Actual in kg/1000 MT of crude processed		
1.1	pH	6~8.5			
1.2	Oil & Grease	2.0	0.000	0.000	Meets revised standard
1.3	Phenol	0.14	0.000	0.000	Do
1.4	Sulfide	0.20	0.000	0.000	Do
1.5	BOD	6.0	0.000	0.000	Do
1.6	COD	50.0	0.000	0.000	Do
1.7	TSS	8.0	0.000	0.000	Do
1.8	CN	0.08	0.000	0.000	Do
1.9	NH3 as N	6.0	0.000	0.000	Do
1.10	TKN	16.0	0.000	0.000	Do
1.11	P	1.2	0.000	0.000	Do
1.12	Cr^{+6}	0.04	0.000	0.000	Do
1.13	Cr(Total)	0.8	0.000	0.000	Do
1.14	PB	0.04	0.000	0.000	Do
1.15	Hg	0.004	0.000	0.000	Do
1.16	Zn	2.0	0.000	0.000	Do
1.17	Ni	0.4	0.000	0.000	Do
1.18	Cu	0.4	0.000	0.000	Do
1.19	V	0.8	0.000	0.000	Do
1.20	C_6H_6	0.04	0.000	0.000	Do
1.21	$\propto$ C_6H_6	0.08	0.000	0.000	Do

NOTES:

- Total Crude processed during 2023-24= **710.208 TMT**
- Total treated effluent discharged during 2023-24= **0 m^3**
- % Variation is calculated on the basis of average data of the year in accordance with permissible limit w.r.t Gazette of India.GSR-186 (E), dtd 18.03.2008
- Major part of treated effluent reused as firewater makeup, coke cutting water makeup, Wax Sector Cooling tower makeup, housekeeping, Horticulture.
- Storm water is released to natural drain (Digboi Nullah)

2 EMISSIONS

NOx & SO_2 Emission as per Revised Standards: Table -2

Furnace Stack	Fuel Type used for burning	SO_2 emission (mg/NM^3)		NOx emission (mg/NM^3)	
		Limit	Actual	Limit	Actual
HGU	FG & NG	50	7.49	350	10.79
CDU	FG & NG	50	5.50	350	7.16
VDU	FG & NG	50	3.91	350	4.69
CRU HDT	FG & NG	50	8.54	350	NA
CRU OBSG	FG & NG	50	4.64	350	NA
DCU	FG & NG	50	13.71	350	2.44
HDT	FG & NG	50	7.30	350	6.55
SDU	FG & NG	50	38.42	350	26.55
HRSG-1/2/3	NG	50	0.86	350	4.24
HRSG-4	NG	50	2.95	350	39.54

Real Time Data Base of the analyzers installed at the furnace.
#NA - Analyzer not available.

Yearly average value Ambient Air quality data for 2023–24 as given below: Table -3

Pollutants	Concentration µgm / m^3									
	Limit ug/Nm3	Station-1, CAAQMS (Welfare Centre)			Station-2, NE direction (Bazar gate)			Station-3, W direction (ETP)		
		Max	Min	Avg	Max	Min	Avg	Max	Min	Avg
SO_2	50(A)	9.70	0	3.89	16.17	6.90	8.50	9.32	6.30	7.38
NOx	40 (A)	27.26	0	20.03	24.08	18.00	20.40	20.43	15.20	18.07
PM_{10}	60 (A)	26.78	4.62	14.98	69.79	60.75	65.02	67.6	55.10	62.53
$PM_{2.5}$	40 (A)	17.4	1.28	5.62	40.41	32.62	35.02	44.25	29.50	34.62
CO	02(8hrs)	1.61	0.82	1.18	2.00	1.09	1.32	2.00	1.13	1.32
NH_3	100(A)	3.94	0	2.84	12.90	10.20	11.21	12.61	10.20	11.01
O_3	100(8hrs)	10.87	2.19	4.21	24.2	18.14	21.41	25.01	20.40	21.48
Pb	0.50(A)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
As	06 (A)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
Ni	20 (A)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL
C_6H_6	05 (A)	0.07	0	0.01	BDL	BDL	BDL	BDL	BDL	BDL
α C6H6	01 (A)	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL

Pollutants	Concentration µgm / m^3						
	Limit ug/Nm3	Station-4, NW direction (NTF)			Station-5, Cooling Tower(wax)		
		Max	Min	*Avg	Max	Min	*Avg
SO_2	50 (A)	9.30	6.77	7.70	11.90	6.20	7.94
NOx	40 (A)	22.10	17.14	19.63	21.29	15.60	18.62
PM_{10}	60 (A)	66.80	57.13	63.70	66.28	55.00	60.68
$PM_{2.5}$	40 (A)	44.98	30.60	36.11	39.08	29.75	33.97
CO	02 (8hrs)	1.34	0.96	1.181	1.40	1.14	1.27
NH_3	100 (A)	13.16	10.40	11.12	11.90	10.10	10.91
O_3	100(8hrs)	24.48	20.19	21.68	24.43	20.10	21.90
Pb	0.50(A)	BDL	BDL	BDL	BDL	BDL	BDL
As	06 (A)	BDL	BDL	BDL	BDL	BDL	BDL
Ni	20 (A)	BDL	BDL	BDL	BDL	BDL	BDL
C_6H_6	05 (A)	BDL	BDL	BDL	BDL	BDL	BDL
α C6H6	01 (A)	BDL	BDL	BDL	BDL	BDL	BDL

PART D

Hazardous Wastes – Stock as on 1st April of each Year

(As specified under hazardous waste management and handling rules, 1989)

Sl. No	List of Items	Waste Category	Quantity (MTPA)	
			Stock as on 1st April of each Year	
			2022-23	2023-24
1	Oil Sludge from process ex ETP	4.1	180.00	0.0
2	Oil Sludge from tank cleaning*	4.1	10358.04	8750.39
3	Slop Oil	4.3	496.92	1272.28
4	Organic Residues from process (including Bio-Sludge)	4.4	868.00	868.00
5	Spent Catalyst	4.2	0.00	0.00

* The above Oily Sludge from tank cleaning quantity relates to raw oily waste generated from tanks cleaning along with the residual oily sludge which is kept in main sludge pit area inside Refinery.

PART- E

SOLID WASTE

Wastes	TOTAL QUANTITY GENERATED (MT)	
	2022-23	2023-24
A) From process ➢ Oily Sludge from ETP & Tank Cleaning	1197.289	1699.77
B) From Pollution Control Facilities ➢ Oily Sludge ➢ Chemical Sludge ➢ Bio Sludge	 Nil Nil 262.8	 Nil Nil 140
C) Quantity Recycled	Nil	Nil
D) Spent Catalyst *(Non-precious)	45.46	77.82
E) Spent Catalyst (Precious)	0	0

PART-F

CHARACTERISTIC & DISPOSAL METHODS OF HAZARDOUS AND SOLID WASTES:

1. **Characteristics**
   a) **Oily Sludge**

Parameters	Units	value
Density	% Wt.	1.124
Oil	% Wt.	20-40
Water	% Vol.	25-35
Sediment	% Wt.	40-55

b) **Bio-sludge (After Weathering): Heavy metal content**

Heavy Metals Content	Cr	Cu	Ni	Pb	V	Zn	Co	As	Mn
Unit	ppm	mg/l	ppm	ppm	ppm	ppm	mg/l	mg/l	mg/l
Limit	5	25	20	5	24	250	80	5	5
Metals concentration	4.3	13.1	10.2	3.2	21.3	0.1	<0.1	<ND	10

NB: - Heavy metal content test done by Nitya Laboratories (Report is attached).

2.0 **DISPOSAL METHODS**:

a) **Oily Sludge:**

i) The oily sludge is being bioremediated. Bioremediation is done using soil mixed with sludge and then tilled for proper mixing. Confined Bioremediation is carried out with the help of IOCL R&D bacteria. The oil degrading microbes along with nutrients area spread over the mixture of soil and sludge. The mixture is left for action of microbes for few months. Few months later tilling of sludge is done again and random sample collected for testing oil%. If oil content is found above 1%, same action is repeated over the mixture till oil% comes down to 1%. If the oil content is found below 1% along with the heavy metal concentration below the approved limit then the soil is disposed or used within refinery battery limit for filling or construction purpose. Confined Bioremediation is done with the help of IOCL R&D bacteria in 60 days.

ii) Sale of Oily sludge to authorized re-cyclers through e-auction has been carried out.

b) **Bio-Sludge:**

Bio-Sludge generated in ETP is allowed to dry in the sludge drying beds. The weathered sludge is then Bio remediated and used for land filling in low lying areas.

c) **Spent Catalyst:**

Spent catalysts are being disposed through CPCB approved buyers/recyclers through e-auction and IOCL tendering.

PART-G

Benefits of Pollution Control Measures:

1) **Reuse /Recycling of Treated Effluent**:

A permanent pumping system had been installed in ETP and commissioned in Nov'93. Recycling of treated effluent has since then been stepped up. In 2018-19, 97% of treated effluent is recycled into refinery and reused as Fire water make up, for cleaning purposes and gardening. Another scheme for reuse was commissioned in Aug'11 for use of the treated effluent as make-up for coke-cutting water used in the delayed coking unit. For increasing reuse of treated effluent in wax sector cooling tower as make up water Dual Media Filter was commissioned in 28th March' 2014. Refinery is recycling the entire ETP effluent water except occasional discharge during high rain.

2) **Oil Recovery from Sludge / Slop Recovery from API separators**

Regular recovery of oil from oily sludge treatment facilities and directly from API separators is carried out. The recovered oil is then reprocessed in Distillation unit/Blended in Furnace oil. This recovery has helped in reducing hydrocarbon loss and pollution.

3) **Tree plantation and Green Belt Development**

Digboi Refinery and its township are surrounded by Upper Reserve Forest in all directions except in the north. There are plenty of trees in the refinery campus and the residential areas. Moreover, AOD has been drawing up plans for plantation of trees since 1983 in consultation

with forest officers and the Digboi Horticultural Society. Nos. of trees planted in the last decade, including last FY 2023-24 are given below.

Year	Trees Planted
2002-03	1800
2003-04	300
2004-05	180
2005-06	150
2006-07	450
2007-08	580
2008-09	1150
2009-10	10953
2010-11	21897
2011-12	5500
2012-13	5000
2013-14	5133
2014-15	3,428
2015-16	2,168
2016-17	5,860
2017-18	1,000
2018-19	5,000
2019-20	5,290
2020-21	12,050
2021-22	45,100
2022-23	20,430
2023-24	21680
Total	**1,75099**

4) **Energy Conservation Measures:**

i) Numerous energy conservation measures have been implemented which have accounted for reduction in energy consumption and loss. These measures have enabled reduction in the "Specific Energy Consumption" of the refinery to the lowest ever 91.47 in FY 2023-24 from previous lowest of 95.95 MBN achieved in FY 2022-23. Consistent strive to reduce energy consumption led to reduction of ~ 33 MBN from FY 2013-14 to FY 2023-24.

ii) Refinery also achieved lowest ever yearly EII of 103.20, surpassing previous best EII of 109.42 in FY 2022-23 and thus achieved one quartile jump as per Solomon benchmarking from 4th to 3rd quartile. Digboi achieved reduction of ~31 EII from FY 2013-14 to FY 2023-24.

iii) Digboi refinery implemented 14 major encon schemes and thus achieved 3648 SRFT savings against Target of 3000 SRFT in FY 2023-24.

The details of ENCON schemes implemented during 2023-24 are enclosed in **Annexure I**

PART- H

Pollution Control Measures:

1. Schemes Implemented during 2023-24:

i) More than 21,680 tree saplings were planted around Digboi Township during 2023-24.

ii) In situ Bio-remediation of 2659 MT oily sludge Completed by M/S INNOTECH during 2023-24 and 25.4 MT Via confined Space Bioremediation.

iii) Sale of 3000 MT Oily sludge to authorized re-cyclers through e-auction. Out of 3000 MT, 610.82 MT has been uplifted by M/S STAR PETROCHEM during FY 2023-24.

Sale of 3000 MT Oily sludge to authorized re-cyclers through e-auction. Out of 3000 MT, 53.65 MT has been uplifted by M/S Falak Fuel Industries during FY 2023-24.

iv) Use of rainwater from SCP for DM water generation in DM plant to reduce freshwater consumption. Technical study was carried out by M/s JUSCHEM SOLUTIONS PRIVATE LIMITED. Micro cartridge filter installed and commissioned at DM Plant on 17.07.23. With this DM water is now operates with 100 % rainwater from SCP and will be continued till rainwater availability during rainy season.

2. Schemes under implementation:

i) Digboi refinery plans to automate TPI operation by installing automatic interceptor by FY 2025-26.

3. Environmental Monitoring 2023-24

i) Monthly Sampling and Testing of 21 parameters of Treated Effluent done by M/S Mitra S.K. Private Limited and Nitya laboratories.

ii) Monthly Monitoring of Ambient Air Quality in four stations done by M/S Mitra S.K. Private Limited and Nitya laboratories.

iii) Quarterly Monitoring of Fugitive Emission under LDAR Program by M/S Mitra S.K. Private Limited and Nitya laboratories.

iv) Digboi refinery uses Gully Sucker to collect oil from Drains, Sump & OWS under Fire & Safety Department.

4. Long Term Projects of Digboi Refinery

i) Digboi Refinery has entered MOU with Pollution Control Board of Assam for planting 6.25 Lakh of trees in 25 Hectare land through modified Akira Miyawaki method with native trees. Already 1,31,111 trees planted till 10.06.2024.

ii) DR is in advance stage for finalization of one crore trees in collaboration with Forest Department , GoA in 4000 hectare of Forest/non-Forest land.

iii) A rainwater harvesting project along with allied facilities, (SCP) Storage cum Percolation Pond with 28000m3 capacity, has been working successfully. During FY 2023-24, harvested rainwater use was ~42 % of refinery's total water consumption.

5. Achievements from 2011-2024

i) **AOD Digboi Refinery has been bestowed with the prestigious "SHRESHTHA SURAKSHA PURASKAR- 2023"** from the esteemed National Safety Council of India (NSCI). It has been adorned with the Silver Trophy at the national level NSCI Safety Awards in the esteemed Manufacturing Sector, Group-A category.

ii) Digboi Refinery received **Award of Excellence** by His Excellency Governor of Assam, Shri Jagdish Mukhi at Tinsukia on 4th Feb,2023.

iii) **Renewal of Accreditation audit of Digboi Refinery** the Quality Control Laboratory, Digboi Refinery has been reassessed on November 22-23, 2023, for accreditation by the National Accreditation Board for Testing and Calibration Laboratories (NABL) in accordance with the standard ISO/IEC 17025:2017 in the discipline of chemical testing. The accreditation for chemical testing remains valid for a period of two years (2024-25).

iv) **GHG verification certification as per ISO 14064**, for FY 2022-23 is received by Digboi Refinery on 13.07.2023 from CHEMEPT. Audit for 2023-24 has been carried out by M/s BVIPL and draft report submitted. Final report expected by 25.06.2024.

v) Digboi Refinery become India's first refinery to bag Prestigious **"TPM Special Award 2018"** Digboi Refinery also recipient of the Award for TPM Excellence, Category-A in 2011 and Award for Excellence in Consistent TPM Commitment 2013 from JIPM, Japan.

vi) Digboi Refinery was awarded the First Prize for Hindi Implementation for 2019 – 2020 among Refineries in North Eastern Region and TOLICs in North Eastern Region.

vii) AOD Digboi Refinery bagged the Third place of this prestigious A. V Ogle award for the year 2016-17 towards continued commitment for prevention of Fire, Accident and implementing Fire Safety standards in Refinery operation.

viii) Digboi Refinery bagged National Level Award **"Sarba Shrestha Suraksha Puraskar (Golden Trophy & Certificate)** in manufacturing sector Group-A for 2016.

ix) Digboi Refinery won National Level Award **"Sarba Shrestha Suraksha Puraskar (Golden Trophy & Certificate)** in Group-A for 2015.

x) Digboi Refinery won National Level Award **"Shrestha Suraksha Puraskar (Golden Trophy & Certificate)** in Group-A for 2014.

xi) Digboi Refinery bagged the **1st Prize** in the National Energy Conservation Award, 2011" and **2nd prize** in 2012 in the Refineries sector instituted by the Ministry of Power, GOI, for the four consecutive years.

xii) AOD emerged jointly winner of Shri A V Ogale Running Shield for Safety & Fire Prevention for 2013-14.

xiii) Digboi Refinery was awarded the 3rd Prize by the Public Relations Society of India for its Environmental Awareness campaign related to its carbon offset initiative "**Black – 2 – Green** "

xiv) Digboi Refinery achieved the award for **"Excellence in Consistent TPM Commitment" by JIPM Japan in 2013-14.**

xv) Digboi Refinery won 1st prize for "Boiler Efficiency" as a part of **"OGCF Award-2012"** in the category of Refinery having Total Design Heat Duty less 500Mmkcal/hr and won 2nd prize in 2014 having total design Heat Duty less than 650MMKCAL/hr

xvi) Assam Oil School of Nursing won the award in the category of "Outstanding CSR in the Oil & Gas Sector" at an CSR conference in Delhi organized by 'Think Media' on 21st March,2014

xvii) AOD received the Security Index Shield award for best Deterrence for 2014.

xviii) Indian Oil bags the Best-PSU Silver Trophy for its Skill Development program under CSR in the category Best PSU-Public Sector Training program for providing professional training to unemployed girls in the field of nursing and midwifery through its Assam Oil School of Nursing located at Digboi.

xix) Assam Oil College of Nursing received two awards-viz one of ABP News and other from M/S Blue Dart for women empowerment.

xx) Digboi Refinery produced environment friendly **XP100** petrol during FY 2020-21.

xxi) Digboi Refinery has successfully implemented Energy Management System (EnMS) and got the certification of **ISO 50001:2018** on 26th March 2022 by the certification body M/s Staunchly Management & System Services Private Limited (STAUNCHLY) who is accredited with Egyptian Accreditation Council (EGAC), a member of the International Accreditation Forum (IAF). The certification is valid for three (3) years i.e. up to 25th March 2025.

Annexure1

ENCON SCHEME 2023-24 DIGBOI REFINERY	
	SRFT/ year
Installation of solar light pipes in wax godown	20
Direct feeding of DOW from SDU product tank to WHFU feed booster pump suction bypassing WHFU feed tank	385
Insulation hotspots identified during Apr'23 survey.	90
Improvement of Power factor from 0.83 to 0.91 by installation of capacitor Bank (Savings: 53 KW)	160
Rationalization of Air compressors in CPP	1160
Stoppage of HGO Product r/d Pump in AVU	53
Installation of VFD at SCP pump for power saving	229
Reduction of flare loss by routing of CRU – RGC & Booster compressor KOD draining to FG Header	97
Stoppage of CRU-NSU (reboiler)by routing GR Naphtha to MSQ NSU	340
Routing of WHFU MUGC KOD drain to FG Header	142
Replacement of furnace bottom castable refractory in CDU and VDU furnace.	220
HGU cold APH replacement	587
Rectification of steam leaks (SD related steam leaks)	40
Insulation rectification in DCU (transfer & Vapor lines), CRU & HDT, offsite process & steam line	125
Total SRFT saving	3648

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BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

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Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202403110110
Test Report Date: 20/03/2024

Sample Particulars

Nature of the Sample & No. of Sample	:	**ETP Sludge, One No**
Sample Quantity & Packaging	:	1.0 Liter, Pet Bottle
Sample Received at Lab	:	11/03/2024
Test Started on	:	12/03/2024
Test Completed	:	19/03/2024
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	02/03/2024
Sampling Conducted By	:	Mr. Bhaskar
Place of Sampling	:	Space Bio Remediation Near Wax Sector Cooling Tower

Analysis Report

Sr. No.	Parameters	Unit	Test Results	Limits
1	pH	-	7.26	-
2	Moisture	%Wt	82.61	-
3	Total Chromium	mg/kg	4.3	5.0
4	Nickel	mg/kg	10.22	20.0
5	Arsenic	mg/kg	ND (DL-1.0)	5.0
6	Lead	mg/kg	3.15	5.0
7	Cadmium	mg/kg	0.85	1.0
8	Sodium	mg/kg	5.62	-
9	Copper	mg/kg	13.19	25.0
10	Sediments	%Wt	78.85	-
11	Free Oil	%Wt	Nil	-
12	Ash Content	%Wt	46.23	-
13	Polyaromatic Hydrocarbon (PAH)	mg/kg	ND(DL-0.05)	-
14	Polychlorinated Biphenyls (PCB)	mg/kg	ND(DL-0.05)	5.0
15	Total Halogen	%Wt	120	-
16	Calorific Value	Kcal	4086	-
17	Vanadium	mg/kg	21.26	24.0

NITYA LABORATORIES AUTHORISED

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)