



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

बोंगाइगाँव रिफाइनरी

बकधर, धालीगाँव - 783 365 -  
जिला - चिरांग (असम)

Indian Oil Corporation Limited  
Bongaigaon Refinery

P.O. : Dhaligaon, Dist. : Chirang, Assam-783365

Phone : 03664-

Email :

Website : www.iocl.com - FAX : 03664-



रिफाइनरी प्रभाग

Refineries Division

REF: IOC/BGR/ENV/REP/MoEF&CC/2022-23/02

Date: 28/06/23

To  
The Regional Officer,  
Ministry of Environment, Forest and Climate Change,  
Integrated Regional Office, Guwahati,  
4th Floor, House fed Building,  
GS Road, Rukminigaon Guwahati-781022

Subject: Half Yearly Report for the period of (1<sup>st</sup> October, 2022 to 31<sup>st</sup> March, 2023) for  
"Refinery Expansion, De-bottlenecking of Reformer and LPG facility"

Dear Sir,

With reference to above, we are enclosing the Six Monthly Report for the period of 1<sup>st</sup> October, 2022 to 31<sup>st</sup> March, 2023 for your kind perusal.

The reports are being sent as per EIA Rules'2006 for the "Environmental Clearances" issued by MoEF&CC to Bongaigaon Refinery. (BGR) for "Refinery Expansion, De-bottlenecking of Reformer and LPG facility" Project.

Thanking you,

Yours faithfully,

(Biman Gogoi)  
CM (HSE)  
Ph: 9435122647

Copy to:

1. Member Secretary, Pollution Control Board, Assam  
Bamunimaidam, Guwahati - 781 021
2. Zonal Officer, Central Pollution Control Board  
Eastern Zonal Office, 'TUM-SIR', Lower Motinagar,  
Near Fire Brigade H.Q., Shillong - 793014

# **“Half Yearly Report for “Refinery Expansion Project”** **(1<sup>st</sup> October, 2022 to 31st March, 2023)**

**Environmental Clearance for  
Refinery Expansion, De-bottlenecking of Reformer and LPG facility  
Vide MoEF&CC letter No. J.11011/24/90-IA-II dated 03/06/1991**



**Plant Commissioning dates:**

- |   |                   |
|---|-------------------|
| <b>1. Crude Distillation Unit – II:</b> | <b>09.05.1995</b> |
| <b>2. Delayed Coker Unit – II :</b>     | <b>06.03.1996</b> |

**Submitted by:**

**Indian Oil Corporation Limited  
Bongaigaon Refinery  
P.O: Dhaligaon. District: Chirang. Assam**

## **INDEX**

<b>Sl. No</b>	<b>Conditions</b>	<b>Status</b>
1.	The EC letter MoEF's letter No. J.11011/24/90-IA-II Dt. 03/06/1991	Photocopy Enclosed
2.	General & specific conditions Compliance status of Refinery Expansion Project	Annexure- A
3.	Six monthly Stack Monitoring/ Air Quality Data	Furnished in Appendix-A1
4.	Six monthly effluent discharged Quantity, Quality	Furnished in Appendix-A2
5.	Tree Plantation Data	Furnished in Appendix-A3
6.	Additional Information	Furnished in Appendix-A4
7.	Fugitive Emission Data	Furnished in Appendix-A5
8.	Annual return of hazardous waste	Furnished in Appendix-A6(a)
9.	Authorization from PCBA under Hazardous Waste ( Management , Handling and Transboundary Movement Rules 2008)	Furnished in Appendix-A6(b)
10.	Details of Waste water treatment and disposal system	Furnished in Appendix-A7
11.	Quarterly Noise Survey Report.	Furnished in Appendix-A8
12.	Status of Rainwater Harvesting	Furnished in Appendix-A9
13.	Screen Shot of IOCL Website upload of report	Furnished in Appendix-A10
14.	NABL certificate of QC Lab of Bongaigaon Refinery	Furnished in Appendix-A11
15.	Employees Occupational Health Check up Status	Furnished in Appendix-A12
16.	Flare system.	Furnished in Appendix-A13

Photo Copy of EC letter: MoEF's letter No. J.11011/24/90-IA-II Dt. 03/06/1991

No. J.11011/24/90-IA-II  
Government of India  
Ministry of Environment & Forests  
Department of Environment, Forests & Wildlife  
(IA-II Division)

Paryavaran Bhavan  
CGO Complex,  
Lodi Road,  
New Delhi-110003

May-29, 1991.

June 3

MIN ENV & FORESTS  
RD. N.P. 40 100 G  
(ENV) No. 1 (ING)  
Rec'd on 27.6.91  
Diary No. 115

OFFICE MEMORANDUM

Subject:- Refinery expansion Debottlenecking the reformer and  
LPG facilities:-Bongaigaon Refineries and Petrochemicals  
Ltd:- Environmental Clearance.

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The undersigned is directed to refer to the above proposal and to state that the environmental aspects of the project have been examined and the project is cleared from environmental angle subject to the following stipulations:

- i. The project authority must strictly adhere to the stipulation made by the State Pollution Control Board and the State Government and a comprehensive EIA will be submitted within 18 months.
- ii. Any expansion of the plant, either with the existing product mix or new products can be taken up only with the prior approval of this Ministry.
- iii. The gaseous emissions from various process units should conform to the standard prescribed by the concerned authorities, from time to time. At no time the emission level should go beyond the stipulated standards. In the event of failure of any pollution control system adopted by the unit, the respective unit should be put out of operation immediately and should not be restarted until the control measures are rectified to achieve the desired efficiency.
- iv. Adequate number (a minimum of 5) of air quality monitoring stations should be set up in the downwind direction as well as where maximum ground level concentration is anticipated. Also, stack emission should be monitored by setting up of automatic stack monitoring unit. The data on stack emission should be submitted to State Pollution Control Board once in three months and to this Ministry once in six months along with the statistical analysis. The air quality monitoring station should be selected on the basis of modelling exercise to represent the short-term ground level concentration.

contd.....2/-

C. D.

21/12/8

24/6/91

17/1


xv. A separate environmental management cell with suitably qualified people to carry out various functions should be set up under the control of senior executive who will report directly to the head of the organisation.

xvi. The funds ear-marked for the environmental protection measures should not be diverted for other purposes and year-wise expenditure should be reported to this Ministry.

II. The Ministry or any other competent authority may stipulate any further condition after reviewing the comprehensive impact assessment report or any other reports prepared by project authorities.

III. The Ministry may revoke clearance if implementation of conditions is not satisfactory.

IV. The above condition will be enforced in accordance with the Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981 and Environment (Protection) Act, 1986 along with their amendments.

  
(R. ANANDAKUMAR)  
SCIENTIST 'SP'

Secretary,  
Deptt. of Petroleum & Natural Gas,  
Ministry of Petroleum & Chemicals,  
Shastri Bhavan,  
New Delhi-110001.

Copy to:-

1. Chairman and Managing Director, Bongaigaon Refineries, ex Petrochemicals Ltd, P.O. Dhaligaon, Distt. Bongaigaon, Assam-783 385.
2. Chairman, Assam State Pollution Control Board, Bamuni Maidan Guwahati-782 021.
3. Chairman, Central Pollution Control Board, Parivesh Bhavan, CBI-cum-office Complex, East Arjun Nagar, Shahdara, Delhi-110062.
4. Chief Conservator of Forests (Central) Regional Office (North East Region) Upland Road, LOITUNGPAH, SHILLONG-793 001.
5. Adviser (Energy) Planning Commission Yojana Bhavan, New Delhi-110001.
6. Adviser (P/D) Planning Commission, Yojana Bhavan, New Delhi-110001.
7. Joint Secretary (Plan Finance), Deptt. of Expenditure North Block, New Delhi.
8. Guard file.

## 2.0

**ANNEXURE – A**

Sr. No	General Conditions	Compliance Status
1	The project authority must strictly adhere to the stipulations made by Assam State Pollution Control Board and State Government and the comprehensive EIA will be submitted within 18 months.	All stipulations by Pollution Control Board of Assam are strictly followed.
2	Any expansion of the plant, either with the existing product mix or new products can be taken up only with the prior approval of this Ministry.	<p>EC was granted by MoEF&amp;CC to BGR for IndMax &amp; BS-VI projects vide letter F. no.J11011/48/2016-IA-II (I), Dated 19<sup>th</sup> Apr'2017.</p> <p><b>The project is implemented and commissioned with enhance expansion of Crude processing from 2.35 to 2.7 MMTP, other associated projects, e.g. DHDT capacity from 1.2 to 1.8 MMTP, HGU from 25 KTPA to 30 KTPA, CRU-MSQ revamp and SDS(SRU) unit.</b></p> <p>All the units of the Projects are commissioned successfully..</p>
3	The gases emission from the various process units should conform to the standard prescribed by the concern authorities, from time to time. At no time the emission level should go beyond the stipulated standards.	<ol style="list-style-type: none"> <li>1. The process units are designed to meet the prescribed standards.</li> <li>2. Units would be put out of operation in the event of mal functioning of pollution control practice at BGR.</li> <li>3. Please Refer <b>Appendix - A1</b>.</li> </ol>
4	Adequate number of (a minimum of 5) of Air quality monitoring stations should be set up in the down wind direction as well as where maximum ground level concentration is anticipated. Also, stack emission should be monitored by setting of automatic stack monitoring unit.	<ol style="list-style-type: none"> <li>1. Six Ambient Air Quality Monitoring Stations are operating around the complex at BGR including one continuous analyzer set up for compilation of Ambient Air Quality data.</li> <li>2. All these stations are selected based on modeling exercise representing short-term maximum ground level concentration.</li> <li>3. All major stacks in BGR are monitored with On-line continuous monitoring analyzers installed for SO<sub>2</sub>, NO<sub>x</sub>, PM &amp; CO Analysis in all stacks as per CPCB guidelines and connected to CPCB &amp; SPCB servers</li> </ol>
5	There should be no change in the stack design without the approval of State Pollution Control Board. Alternative Pollution Control system and design (steam injection system in the stack) should be provided to take care of the excess emission due to failure in any system of the plant.	<ol style="list-style-type: none"> <li>1. No changes are made to the stack design.</li> <li>2. Steam injection facility is provided in burners of the furnaces.</li> </ol>
6	The ambient Air Quality Data for winter season (November 1990 to January 1991) should be presented by June 1991.	These data were submitted as desired during 1991.
7	The project authority should recycle the waste to the maximum extent. Recycle plan should be submitted within one year. This should include use of recycled water for green belt development plan.	BGR has installed Tertiary Treatment Plant to facilitate reuse of treated effluent inside the complex as Cooling Water & Firewater Make up, unit housekeeping and watering in plantation areas (Horticulture) inside. No effluent is discharged outside the complex.

Sr. No	General Conditions	Compliance Status
8	Adequate number of effluent quality monitoring stations must be set in consultation with State Pollution Control Board and the effluents monitored and should be statistically analysed and the report sent to this Ministry once in six month and State Pollution Control Board every three months.	<ol style="list-style-type: none"> <li>1. Three joint sampling points for effluent are fixed in and around BGR by Pollution Control Board, Assam (PCBA) to monitor the discharge effluent quality. Joint sampling by Pollution Control Board, Assam is conducted once a month. The samples are tested at PCBA Laboratory.</li> <li>2. Beside samples are tested at BGR Laboratory as per consent condition and also on a daily basis to track effluent quality.</li> <li>3. All samples conform to the prescribed Revised Effluent Standards 2008 (Pl. Refer <b>Appendix - A2</b>).</li> </ol>
9	The project authority should prepare a well-designed scheme for solid waste disposal generated during various process operations or in the treatment plant. The plan for disposal should be submitted to the ministry within six months.	<ol style="list-style-type: none"> <li>1. All solid waste generated during various process operations or in the treatment plant are handled and disposed off as per laid down procedures in environmentally friendly manner.</li> <li>2. All hazardous wastes are handled and disposed off as per provisions of the Hazardous and other Waste (Management &amp; Trans boundary Movement) Rules, 2016 and as per directions of statutory agencies.</li> <li>3. As a measure of Haz. Waste Management, 2(two) third parties are engaged for processing of the oily sludge &amp; recovery of oil from the oily sludge stored in the sludge lagoon. During <b>1<sup>st</sup> October'22 and March'23, 4296.0</b> MT of oily sludge has been processed by mechanised processing. Melting pit facility is also available for recovering oil from oily sludge.</li> <li>4. A confined bio-remediation plant of 100 m3 capacity was set up in collaboration with IOCL R&amp;D in 2017 for treatment of oily sludge. During <b>1<sup>st</sup> October'22 and March'23, 21.0</b> MT of oily sludge has been processed in the Bio- reactor.</li> <li>5. All statutory returns are sent to PCBA as per the provision of rule.</li> </ol>
10	A detailed risk analysis of LPG storage facility should be carried out and a report be submitted to the ministry within six months.	<p>Risk Analysis for LPG Storage was prepared and submitted to MOEF in 1992.</p> <p>Environment Clearance from MOEF &amp; CC obtained for mounded bullet as per M.B. Lal committee Report.</p> <p>All the units of the project is commissioned.</p>
11	A detailed risk analysis based on maximum credible accident analysis should be done once the process design and layout frozen. Based on this, a disaster management plan has to be prepared and after approval of the nodal agency, should be submitted to this ministry within 6 months.	<p>Detailed risk analysis was prepared and the report was submitted to MoEF&amp;CC.</p> <ol style="list-style-type: none"> <li>a) On site emergency plan exists and mock drills are conducted time to time to verify effectiveness of the plan as per OISD guidelines.</li> <li>b) Off site emergency plan approved by District authorities exists. Mock drills are conducted time to time to verify effectiveness of the plan in co-ordination with district authorities.</li> </ol> <p>Onsite and offsite Mock drills for FY 22-23 (Q-1, Q-2, Q3 &amp; Q4) conducted on 23/06/22, 31-08-22, 17/11/22 and 18/03/23 respectively.</p>

Sr. No	General Conditions	Compliance Status
12	Detailed green belt development plan should be submitted within a year.	Green belt development plan was a part of the comprehensive EIA and the same is already submitted to MOEF. The plan was implemented and continued.
13	A report on occupational health of the workers with the incidents of diseases in the past five years as per record available with the BRPL and their correlation with type of occupational health problem the environment may cause may be submitted within six months.	The report is already submitted as desired.  Latest data is attached in <b><u>Appendix A -12</u></b> .
14	The project must setup a laboratory facility for collection and analysis sampling under the supervision of competent technical personal that will directly report to chief executive.	A well-equipped Laboratory exists in the complex. The Laboratory of BGR is accredited by NABL. <b><u>Appendix-A11)</u></b>
15	A separate environmental management cell with full-fledged laboratory facilities to carry out various management and monitoring functions should be set up under the control of Senior Executive.	BGR is having a separate environmental management cell of HSE department and full-fledged laboratory to carry-out environment management and monitoring functions.
16	The funds earmarked for the environmental protection measures should not be diverted for any other purpose and year-wise expenditure should be reported to this Ministry and SPCB.	The funds earmarked for the environmental projects are used for this purpose only and not diverted or spent for other purposes. Environmental protection related expenditure for financial year 2020-21 was <b>Rs. 455.74</b> Lacks, in FY 2021-22 is <b>726.76</b> Lacks and Lacks, in 2022-23: Rs <b>667.54</b> lakhs CER expenditure against IndMax & BS-VI for the financial year 2021-22: Rs 272.56 lakhs, for FY 2022-23 Rs. 430 lakhs
17	The Ministry or any competent authority may stipulate any further condition(s) on receiving reports from the project authorities.	--
18	The Ministry may revoke or suspend the clearance if implementation of any of the above conditions is not satisfactory.	--
19	The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention and Control of Pollution) Act, 1974, the Air (Prevention and Control of Pollution) Act, 1981, the Environment (Protection) Act, 1986 and the Public Liability Insurance Act, 1991 along with their amendments and rules.	--



**APPENDIX –A1**STACK MONITORING DATA: (1<sup>st</sup> October, 2022 to 31st March, 2023)**A. SO<sub>2</sub> Emission (mg/Nm<sup>3</sup>):**

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 1700 For F.G. = 50	2.37	106	156.4
CDU-II		2.96	10.2	15.5
DCU-I		3.97	11.7	96.0
DCU-II		4.00	8.4	12.2
CPP		10.56	158	355.5
Reformer		10.23	29.6	106.8
HO-1		24.7	116	245.0
HO-2		Shut Down		
Isomerisation		4.89	36.7	122.1
DHDT		0.06	18.8	300.2
HGU		13.7	14.8	20.9
SRU		80.84	169.6	172.1
GTG		0.64	7.9	33.5

**B. NO<sub>x</sub> Emission (mg/Nm<sup>3</sup>)**

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 450 For F.G. = 350	16.0	24.5	31.8
CDU-II		6.7	15.0	22.8
DCU-I		2.8	8.9	19.0
DCU-II		7.0	8.7	10.4
CPP		9.5	24.4	37.0
Reformer		21.6	52.1	60.9
HO-1		84.1	121.7	151.1
HO-2		Shut Down		
Isomerisation		4.4	48.9	78.4
DHDT		6.0	6.0	6.0
HGU		4.9	10.3	25.0
SRU		No Analyser		
GTG		3.4	10.5	19.0

**C. PM Emission (mg/Nm<sup>3</sup>)**

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 100 For F.G. = 10	2.33	9.91	31.8
CDU-II		3.87	7.86	17.8
DCU-I		0.08	5.85	36.2
DCU-II		3.63	7.20	23.0
CPP		1.05	10.46	26.0
Reformer		4.21	15.65	60.9
HO-1		0.62	26.07	147.0
HO-2		Shut Down		
Isomerisation		4.38	13.79	76.6
DHDT		0.22	1.39	8.93
HGU		0.34	2.10	15.6
SRU		0.54	1.71	6.16
GTG		0.83	4.66	25.0

**STACK MONITORING DATA: (1<sup>st</sup> October, 2022 to 31st March, 2023)**

**D. CO Emission (mg/Nm<sup>3</sup>)**

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 200 For F.G. = 150	4.73	33.42	150.1
CDU-II		3.47	10.39	20.6
DCU-I		3.70	9.91	93.0
DCU-II		0.89	6.51	12.2
CPP		2.00	35.64	241.7
Reformer		7.28	11.94	36.2
HO-1		10.54	26.45	130.0
HO-2		Shut Down		
ISOMERISATION		4.89	13.76	40.8
DHDT		0.05	11.18	300.2
HGU		7.22	16.46	21.0
SRU		0.00	0.08	0.3
GTG		4.15	18.43	52.3

**E. Ni + V Emission (mg/Nm<sup>3</sup>):**

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 5	BDL	BDL	BDL
CDU-II		BDL	BDL	BDL
DCU-I		BDL	BDL	BDL
DCU-II		BDL	BDL	BDL
CPP		BDL	BDL	BDL
Reformer		BDL	BDL	BDL
HO-1/2		BDL	BDL	BDL
ISOMERISATION		BDL	BDL	BDL
DHDT		BDL	BDL	BDL
HGU		BDL	BDL	BDL
SRU		BDL	BDL	BDL
GTG		BDL	BDL	BDL

**AMBIENT AIR QUALITY AROUND BGR COMPLEX**

(Average of monthly sample Schedule – VII)

(1<sup>st</sup> October, 2022 to 31st March, 2023)

	Station	Continuous Monitoring Station	Near Tube Well No.14	Near LPG Bottling plant	Rural Health Centre	Bartala Rail Gate	Near TW No.7 in Township
<b>1</b>	<b>SO<sub>2</sub> (Std. 50/80 µg/m<sup>3</sup>)</b>						
	Min	0.40	9.80	10.40	8.20	8.70	8.30
	Average	5.58	13.22	14.01	13.54	13.94	12.97
	Max	20.80	17.30	20.80	20.00	19.60	16.60
	No. of observation	Continuous	52	52	52	52	52
<b>2</b>	<b>NO<sub>2</sub> (Std. 40/80 µg/m<sup>3</sup>)</b>						
	Min	0.49	16.1	17.8	15.5	16.2	14.1
	Average	1.45	20.3	21.1	20.3	20.6	18.9
	Max	3.20	25.0	25.6	26.5	26.2	24.1
	No. of observation	Continuous	52	52	52	52	52
<b>3</b>	<b>PM-10 (Std. 60/100 µg/m<sup>3</sup>)</b>						
	Min	35.01	63.8	61.9	63.2	62.3	61.7
	Average	45.50	72.2	72.4	72.6	72.0	65.1
	Max	54.64	85.8	84.8	84.7	87.0	69.2
	No. of observation	Continuous	52	52	52	52	52
<b>4</b>	<b>PM-2.5 (Std. 40/60 µg/m<sup>3</sup>)</b>						
	Min	6.53	21.2	20.4	22.5	21.2	21.2
	Average	14.58	30.2	29.5	30.3	30.2	28.9
	Max	30.11	41.2	39.6	40.8	39.6	37.5
	No. of observation	Continuous	52	52	52	52	52
<b>5</b>	<b>Ammonia (Std. 100/400 µg/m<sup>3</sup>)</b>						
	Min	0.76	11.6	11.4	10.9	10.0	8.70
	Average	1.76	15.5	14.8	14.9	14.6	14.8
	Max	2.51	19.1	19.9	19.9	18.7	20.3
	No. of observation	Continuous	52	52	52	52	52
<b>6</b>	<b>Pb (Std. 0.5/1.0 µg/m<sup>3</sup>)</b>						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		52	52	52	52	52
<b>7</b>	<b>Arsenic (As) (Std. 6 ng/m<sup>3</sup>)</b>						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		52	52	52	52	52

	Station	Continuous Monitoring Station	Near Tube Well No.14	Near LPG Bottling plant	Rural Health Centre	Bartala Rail Gate	Near TW No.7 in Township					
8	Ni (Std. 20 ng/m <sup>3</sup> )											
	Min		BDL	BDL	BDL	BDL	BDL					
	Average		BDL	BDL	BDL	BDL	BDL					
	Max		BDL	BDL	BDL	BDL	BDL					
	No. of observation		52	52	52	52	52					
9	CO (Std. 2/4 mg/m <sup>3</sup> )											
	Min	0.00	0.02	0.01	0.02	0.02	0.02					
	Average	0.39	0.09	0.09	0.05	0.08	0.04					
	Max	0.94	0.17	0.18	0.16	0.17	0.08					
	No. of observation	Continuous	52	52	52	52	52					
10	Ozone (Std.100/180 µg/m <sup>3</sup> for 8 hrs/1 hr)											
	Min	30.3	12.8	10.0	12.0	12.3	11.0					
	Average	36.0	16.4	14.1	15.8	17.1	15.6					
	Max	44.5	19.5	18.8	19.8	21.5	19.2					
	No. of observation	Continuous	52	52	52	52	52					
11	Benzene (Std. 5 µg/m <sup>3</sup> )											
	Min	0.06	BDL	BDL	BDL	BDL	BDL					
	Average	0.24	BDL	BDL	BDL	BDL	BDL					
	Max	0.68	BDL	BDL	BDL	BDL	BDL					
	No. of observation	Continuous	52	52	52	52	52					
12	Benzo (a) Pyrene (Std. 1 ng/m <sup>3</sup> )											
	Min		BDL	BDL	BDL	BDL	BDL					
	Average		BDL	BDL	BDL	BDL	BDL					
	Max		BDL	BDL	BDL	BDL	BDL					
	No. of observation		52	52	52	52	52					
<b>Average of Six Stations</b>												
Parameter	SO <sub>2</sub>	NO <sub>2</sub>	PM-10	PM-2.5	NH <sub>3</sub>	Pb	As	Ni	Benzo (a) Pyrene	CO	C <sub>6</sub> H <sub>6</sub>	O <sub>3</sub>
Unit	µg/m <sup>3</sup>					ng/m <sup>3</sup>			mg/m <sup>3</sup>	µg/m <sup>3</sup>		
NAAQ Std. 2009	50/80	40/80	60/100	40/60	100/400	0.5/1.0	Max 6	Max 20	Max 1	2/4	Max 5	100/180
Min	0.40	0.49	35.0	6.53	0.76	BDL	BDL	BDL	BDL	0.00	0.25	10.0
Average	12.2	17.1	66.6	27.3	12.7	BDL	BDL	BDL	BDL	0.12	0.38	19.2
Max	20.8	26.5	87.0	41.2	20.3	BDL	BDL	BDL	BDL	0.94	0.80	44.5

**APPENDIX-A2****Effluent Discharged (Figure in M<sup>3</sup>/Hr): (1<sup>st</sup> October, 2022 to 31st March, 2023)**

<b>A</b>	<b>Industrial Effluent M<sup>3</sup>/Hr</b>	<b>168.58</b>
<b>B</b>	<b>Domestic Effluent from BGR Township M<sup>3</sup>/Hr</b>	<b>56.15</b>
<b>C</b>	<b>Total Effluent Treated (A + B) M<sup>3</sup>/Hr</b>	<b>224.73</b>
<b>D</b>	<b>Treated Effluent Reused M<sup>3</sup>/Hr</b>	<b>224.73</b>
<b>E</b>	<b>Effluent Discharged M<sup>3</sup>/Hr</b>	<b>0.00</b>
<b>F</b>	<b>M<sup>3</sup> of Effluent discharged for 1000 tons of Crude processed</b>	<b>0.00</b>

**1. Treated Effluent Quality****(1<sup>st</sup> October, 2022 to 31st March, 2023)**

<b>Sl. No</b>	<b>Parameter</b>	<b>Std,2008</b>	<b>Min</b>	<b>Avg.</b>	<b>Max</b>
1	p <sup>H</sup> value	6.0 - 8.5	6.9	7.3	8.4
2	Oil and Grease, mg/l	5.0	2.0	4.2	5.0
3	Bio-Chemical Oxygen Demand (3 Day at 27°C), mg/l	15.0	4.0	8.0	13.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	29.0	55.3	120.0
5	Suspended solids, mg/l	20.0	8.0	14.9	20.0
6	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l	0.35	0.07	0.24	0.34
7	Sulphide (as S), mg/l	0.50	0.17	0.33	0.49
8	CN mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N, mg/l	15.0	3.92	4.43	5.04
10	TKN, mg/l	40.0	9.80	10.31	10.92
11	P, mg/l	3.0	0.40	0.53	0.66
12	Cr (Hexavalent), mg/l	0.10	-	BDL	-
13	Cr (Total), mg/l	2.0	-	BDL	-
14	Pb, mg/l	0.10	-	BDL	-
15	Hg, mg/l	0.01	-	BDL	-
16	Zn, mg/l	5.0	0.35	0.47	0.55
17	Ni, mg/l	1.0		BDL	
18	Cu, mg/l	1.0	0.35	0.41	0.45
19	V, mg/l	0.20	-	BDL	-
20	Benzene, mg/l	0.10	-	BDL	-
21	Benzo (a) pyrene, mg/l	0.20	-	BDL	-

## 2. Final Outlet (From the Complex) storm water channel Quality

(1<sup>st</sup> October, 2022 to 31st March, 2023)

Sl. No.	Parameter	Std 2008	Min	Avg.	Max
1	p <sup>H</sup> value	6.0 - 8.5	7.35	7.41	7.50
2	Oil and Grease, mg/l	5.0	2.70	2.70	2.70
3	Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l	15.0	9.00	10.29	12.50
4	Chemical Oxygen Demand (COD), mg/l	125.0	35.00	39.75	45.00
5	Suspended Solids, mg/l	20.0	6.00	8.25	11.00
6	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l	0.35	BDL	BDL	BDL
7	Sulphide (as S), mg/l	0.50	0.20	0.30	0.40
8	CN, mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N , mg/l	15.0	3.23	3.58	3.92
10	TKN, mg/l	40.0	9.52	11.69	13.92
11	P, mg/l	3.0	0.30	0.58	0.74
12	Cr (Hexavalent), mg/l	0.10	-	BDL	-
13	Cr (Total), mg/l	2.0	-	BDL	-
14	Pb, mg/l	0.10	-	BDL	-
15	Hg, mg/l	0.01	-	BDL	-
16	Zn, mg/l	5.0	0.31	0.41	0.52
17	Ni, mg/l	1.0	BDL	BDL	BDL
18	Cu, mg/l	1.0	0.23	0.28	0.37
19	V, mg/l	0.20	-	BDL	-
20	Benzene, mg/l	0.10	-	BDL	-
21	Benzo (a) pyrene, mg/l	0.20	-	BDL	-

## 5.0

### APPENDIX - A3

#### **Tree Plantation (1<sup>st</sup> October, 2022 to 31st March, 2023)**

The entire area inside BGR covered with greenery through massive plantation activities. Through massive plantation work and by giving protection to natural forest growth in side BGR premises, the entire area has become green. The entire plant area where processing plant facilities do not exist has a green cover. This helps in reduction of noise and air pollution level in one hand while on the other hand provides protection to ecological features of the area. The refinery has an excellent quality environment around its complex. Natural greenery can be seen all around the complex as well as in BGR Township in all seasons of the year.

Tree Census was done by Divisional Forest Office, Chirang in the year 2012-13. As per census, 84545 numbers of plants which include trees including shrubs, ocular estimated 33000 numbers bamboos in 1150 no. bamboo culms and also trees, planted by BGR during 2003 to 2012.

**To comply IndMax BS-VI EC conditions, BGR has planted 29600 nos of saplings in the FY 2017-18, in FY 2018-19, 30,062 nos, in FY 2019-20 14340 nos, in FY 2020-21 25606 nos, and in FY 2021-22 BGR has planted 1,00,000 nos of saplings planted in and around the complex**

**During the FY 2022-23 BGR has planted 26710 nos. of tree saplings.**

#### Tree Plantation 2017-18



**Birhangaon State Dispensary Plantation, 10,000 nos. Sapling Planted by Miyawaki Method in the month of August,2017. Growth as on Mar,2023**

Tree Plantation 2018-19



BGR TOWNSHIP PLANTATION, Planted Van mahotsav 2018, Growth as on Mar'2023

Tree Plantation 2019-20



Birhangaon State Dispensary Plantation, 5375 nos. Sapling Planted by Miyawaki Method in the month of September,2019 Growth as on Mar,2023.



**Tree Plantation 2020-21**



**On WED'2020, 3740 nos. of sapling planted in BGR Township, Growth as on April,2023.**

**Tree Plantation 2020-21**



**4810 nos of sapling Planted in the month of August'2020 at Hatipota Brahma Mandir, Growth as on Mar,2023.**

**Tree Plantation 2021-22 (One Lacks sapling planted during FY 2021-22)**



**Part of Plantation at Amguri Forest Range, Koila Moila, In collaboration with DFO Chirang**

**Tree Plantation 2021-22(One Lacks sapling planted during FY 2021-22)**



**Planted on WED'2021, in BGR Township, Growth as on April,2023**

**Tree Plantation 2021-22(One Lacks sapling planted during FY 2021-22)**



**Planted on Aug,2021, in the complex, North side of new project(IndMax & BS-VI), Growth as on Mar,2023**

**Tree Plantation 2022-23**



**Planted on WED'2022, in BGR Township, Growth as on Mar,2023**

## APPENDIX – A 4

### Additional Information

**(1<sup>st</sup> October, 2022 to 31st March, 2023)**

Effluent reused during the period is **100%** of the total effluent treated which includes plant effluent as well as BGR Township sewer.

Under the Leak Detection and Repair programme (LDAR), BGR is conducting quarterly Fugitive Emission Survey. During the period from **1<sup>st</sup> October, 2022 to 31st March, 2023**, all potential leaky points checked and few Leaky points detected and rectified. By following LDAR programme in true spirit, the company could not only avoid potential loss of **798.1092 KG/Day** (approx.) of light Hydrocarbon to the atmosphere through fugitive sources but also able to keep healthy work environment in the plants.

To ensure work area quality and health of equipments, quarterly noise survey was conducted covering all the operating plants, control rooms and ambient surrounding the BGR. During **1<sup>st</sup> October, 2022 to 31st March, 2023**, Noise Survey for two quarters of **2022-23(Q-3 & Q-4)** has been completed and no major abnormality was reported.

As a measure of Hazardous Waste Management, A third party has been engaged for processing tank bottom sludge through mechanized treatment. Another third party is engaged for processing of the oily sludge & recovery of oil from the oily sludge stored in the concrete lagoon. Melting pit facility is available for recovering oil from oily sludge.

One old slurry thickener in ETP from Petrochemical section was converted to confined space bio-remediation reactor to treat oily sludge with help from IOCL-R&D. The process of bio-remediation started from July 2017. From **1<sup>st</sup> October, 2022 to 31st March, 2023**, **21.0 MT** of oily sludge has been processed in the Bio-reactor.



**Bio-remediation facility of BGR**

Further two more Rain Water Harvesting (Ground Water Recharging) schemes in BS-VI project have been implemented during 2019-20 and Two more implemented in the FY 2020-21 in Admn. building and BGR Township temple complex.

7.0

**APPENDIX –A5**

**Quarterly Fugitive emission survey Data (LDAR)**  
(1<sup>st</sup> October, 2022 to 31st March, 2023)



Fugitive Emission  
\_3rd Quarter\_Oct - D



Fugitive emission  
survey Q-4 22-23.pdf

8.0

APPENDIX-A6 (a)



HW return FY  
22-23.pdf



IOCL BGR HW  
Return for 2022-23 ii

इंडियन ऑयल कॉर्पोरेशन लिमिटेड

बोंगाइगाँव रिफाइनरी

डाकघर : धालीगाँव - 783 385

शिला : 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

BGR/ENV/HW-RETURN/22-23/ 01

Date: 26.06.23

To

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

Subject: Submission of Hazardous waste Annual Return in Form-4 along with revised Format A,B & C as per Hazardous and Other Waste ( Management and Transboundary Movement ) Rules'2016

Ref: (i) Letter No. PCBA/T-357/23-24/(I-80)/753 dtd. 20<sup>th</sup> June'23

(ii) Letter No. RLO/BON/T-2591/Pt-1/21-22/80/61 dtd. 21<sup>st</sup> June'23

Dear Sir,

As per your mail instruction dtd. 20<sup>th</sup> June'23 , we are submitting herewith the Revised copy of the Annual Return on Hazardous waste for IOCL BGR in Form-4 along with the filled in Format A, B and C as per Hazardous and Other Waste (Management and Transboundary Movement ) Rules'2016 for the period from 1<sup>st</sup> April'22 to 31<sup>st</sup> March'23 for your kind perusal.

Along with this we are again attaching our earlier submitted Annual Return on Hazardous Waste submitted to your good office on 16-05-23.

Thanking You,

Yours faithfully

(Biman Gogoi)

Chief Manager (HSE)

IOCL Bongaigaon Refinery

Ph- 03664 25 3302

9.0

**Annexure –A6 (b)**

**Authorization from PCBA for Hazardous Waste  
(Management and Transboundary Movement) Rules 2016**

No. WB/BONG/T-748/19-20/109

39



HW Auth. Certificate  
22-27.pdf





**Pollution Control Board:: Assam**  
**Bamunimaidam; Guwahati-21**  
(Department of Environment & Forests:: Government of Assam)  
Phone: 0361-2652774 & 3150318; Fax: 0361-3150319  
Website: [www.pcbassam.org](http://www.pcbassam.org)



No. WB/T-311/21-22/ 252

Dated Guwahati the, 08.09.2022 September, 2022

**FORM – 2**  
**[See Rule 6(2)]**

**[Grant of Authorisation under the Provision of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016]**

1. Number of Authorisation and date of issue : No. WB/T-311/21-22/ dtd. .09.2022
2. Reference of application (No. and date) : 634914
3. M/s Indian Oil Corporation Limited ( IOCL ), Bongaigaon Refinery, NH 31C (New NH 27), Dhaligaon, Chirang is hereby granted an authorisation based on the signed inspection report for Generation, storage and transportation of Hazardous or Other wastes or both.

**DETAILS OF AUTHORISATION**

Sl. No.	Category of Hazardous Waste as per the Schedules-I, II & III of these rules	Authorised mode of disposal or recycling or utilisation or co-processing, etc.	Quantity (ton/annum)	Mode of Management
1	Schedule-I, Sl.No. 4.1 : Oil sludge or emulsion	Generation, Storage & Transportation	7000 MT/Annum	Transportation to authorized actual user/Recyclers/ Disposal agencies/ reprocessing and recovery/Captive treatment,through Bio-remediation as per prescribed norms
2	Schedule-I, Sl.No. 4.2: Spent catalyst	Generation, Storage & Transportation	2500 MT/Annum	Transportation to authorized actual user/Recyclers in accordance with HOWM Rules,2016
3	Schedule-I, Sl.No. 4.3: Slop Oil	Generation, Storage & Transportation	32000 MT/Annum	Captive Utilization as per prescribed norms.
4	Schedule-I, Sl.No. 5.1: Used or spent oil	Generation, Storage & Transportation	20 MT/Annum	Transportation to authorized actual user/Recyclers
5	Schedule-I, Sl.No. 33.1:Empty barrels/containers/liners contaminated with hazardous chemicals/wastes	Generation, Storage & Transportation	7000 numbers/Annum	Transportation to authorized actual user/Recyclers

4. This authorisation shall be in force for the period of five years up to 31.03.2027 unless otherwise revoked or withdrawn within this period.

5. The authorisation is subject to the following general and specific conditions:

**A. GENERAL CONDITIONS OF AUTHORISATION:**

1. The authorised person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorisation or its renewal shall be produced for inspection at the request of an officer authorised by the State Pollution Control Board.
3. The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorization.
4. The agencies should ensure that the barrels are decontaminated before collection in the premises of the occupier / generator equipped with adequate effluent treatment plant.
5. Any unauthorised change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorization.
6. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time
7. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time

21/09/22

APPENDIX-A7

**Detail of Waste water treatment and disposal system.**



ETP Description.pdf

11.0

**ANNEXURE-A8**

**Quarterly Noise Survey Data**

(1<sup>st</sup> October, 2022 to 31st March, 2023)

HSE (ENVIRONMENT) DEPARTMENT



Noise \_ 3rd  
Quarter\_Oct-Dec\_2022



Noise survey report  
Q-4 2022-23.pdf

**ANNEXURE-A9**  
**Rain Water Harvesting Data**

BGR: Rain Water Harvesting till March 2021

Sl.No.	RWH systems	Area In m <sup>2</sup>	Recharging, m <sup>3</sup> /Yr	Total Recharging, m <sup>3</sup> /Yr	Status
1	Rainwater Harvesting at Mandir Complex Pond	7125	20743	99239.14	In operation
2	Manjeera Guest House	677	1843		
3	Deoshri Guest House	581	1585		
4	Rainwater Harvesting at Parivesh Udyan Pond	5775	16817		
5	Rainwater Harvesting at Eco-Park Pond	20000	58240		
6	Mandir Complex	833	2274	14597	In operation
7	Manas Guest House	639	1744		
8	BGR HS School, BGR Township	1361	3718		
9	DPS Block-I	704	1922		
10	DPS Block-II	1010	4941		
11	BGR Canteen, CISF Office & Scooter Shed	3134	8555	8556	In operation
12	Champa Club (Officers Club)	1100	3003	10046	In operation
13	Refinery Club cum Community Centre	2580	7043		
14	Employee Union Conference Hall Building	275	751	3003	In operation
15	CISF Quarter Guards Building	825	2252		
16	CISF Conference Hall & Barack	1050	2867	4541	In operation
17	BGR Community Centre	650	1775		
18	Foot Ball Stadium gallery	968	2697	2697	In operation
19	Vollyball Stadium Gallery				
20	Control Room – BS-VI	1372.5	3747	3747	Commissioned in June'2020
21	Substation – BS-VI	942	2572	2572	
22	Admin. Block-B	1730	4723	4723	Commissioned In Aug'2020
23	Temple Complex(NEW)	1015.1	2771	2771	Commissioned in March'2021
	TOTAL	55,167	156593	156592	

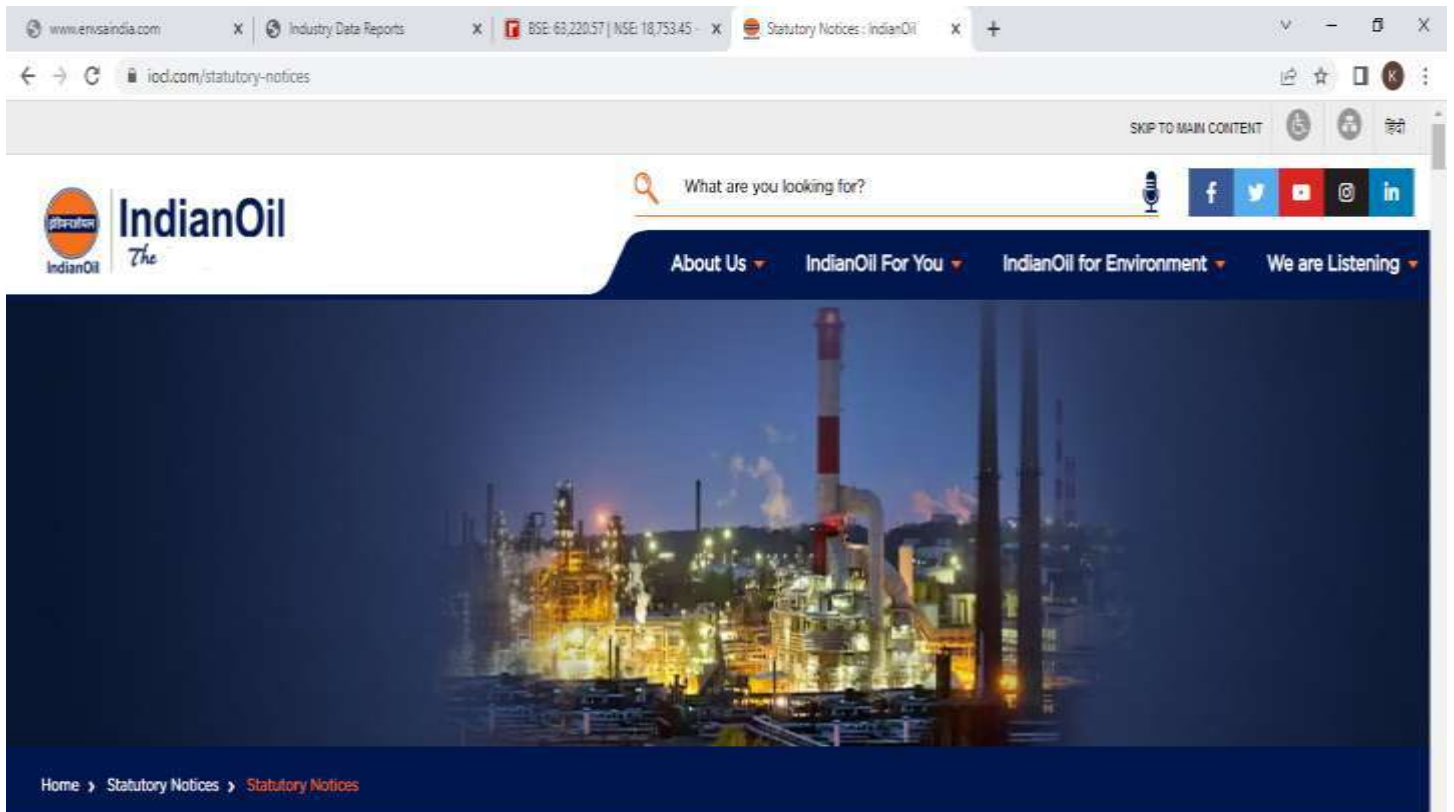
✓  
16/12/21  
CM(CHSE)

13.0

## ANNEXURE-A10

Screen Shot of IOCL Website upload of report

Link: <https://iocl.com/statutory-notice>



### Statutory Notices


> Six monthly compliances reports(1st half FY 2022-23) and Environment Statement for the FY 2021-22 of Bongaigaon Refinery

> Six Monthly Compliance (MS Quality Improvement) 1st half 2022-23 

> Six Monthly Compliance (IndMaxBS-VI) 1st half 2022-23 

> Six Monthly Compliance (Refinery-II) 1st half 2022-23 

> Six Monthly Compliance (DHDT) 1st half 2022-23 

> Six Monthly Compliance (MS Maximisation) 1st half 2022-23 

> Environment Statement 2021-22 

**ANNEXURE-A11**

NABL certificate of QC Lab of Bongaigaon Refinery



National Accreditation Board for  
Testing and Calibration Laboratories

---

**CERTIFICATE OF ACCREDITATION**

**INDIAN OIL CORPORATION LIMITED, QC LABORATORY,  
BONGAIGAON REFINERY**

has been assessed and accredited in accordance with the standard

**ISO/IEC 17025:2017**

**"General Requirements for the Competence of Testing &  
Calibration Laboratories"**

for its facilities at

P.O. DHALIGAON, BONGAIGAON, CHIRANG, ASSAM, INDIA

in the field of

**TESTING**

Certificate Number: TC-6027

Issue Date: 29/04/2022

Valid Until: 28/04/2024

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.  
(To see the scope of accreditation of this laboratory, you may also visit NABL website [www.nabl-india.org](http://www.nabl-india.org))

Name of Legal Identity : Indian Oil Corporation Limited

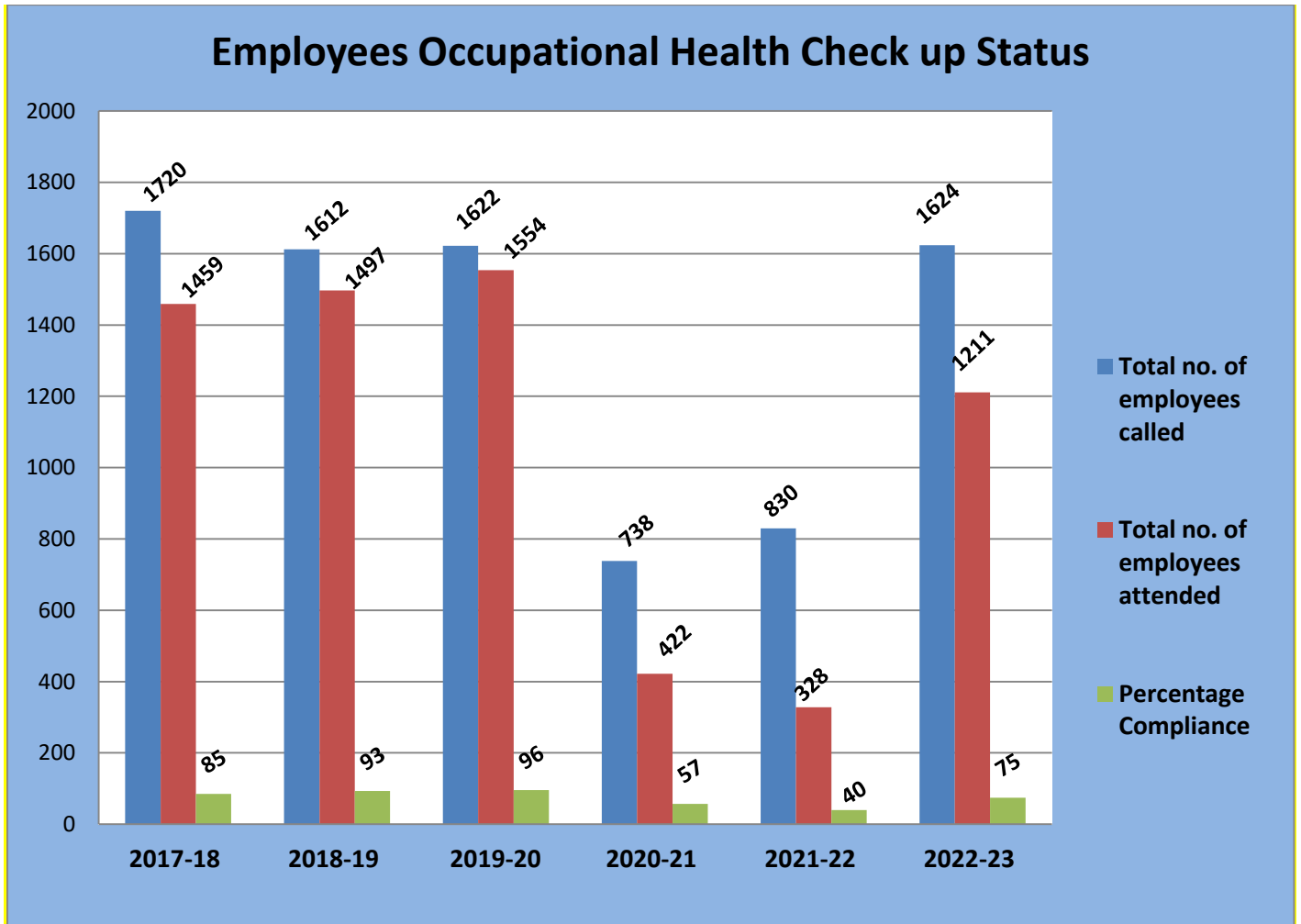
Signed for and on behalf of NABL



N. Venkateswaran  
Chief Executive Officer

**Appendix-A12**

**Employees Occupational Health Check up Status**

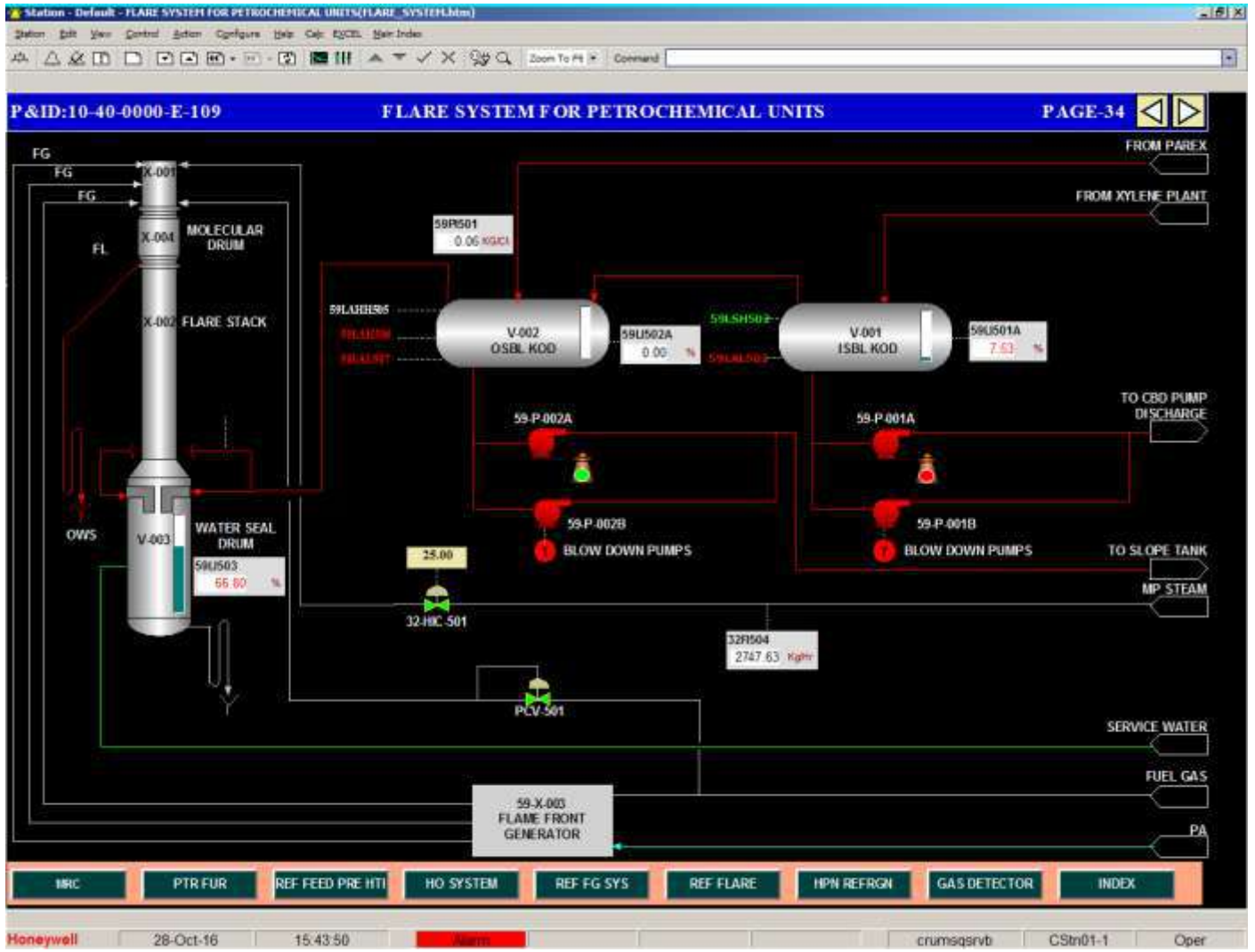


**Note: Employees occupational health check up program affected during the year 2020-22, due to the COVID-2019 pandemic situation.**

17.0

## Appendix-A13

Flare system.



THANKS