



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

बोंगाइगाँव रिफाइनरी

डाकघर : घालीगाँव - 783 385

जिला : चिरांग (असम)

Indian Oil Corporation Limited

Bongaigaon Refinery

P.O. : Dhaligaon, Dist. : Chirang, Assam-783385

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रिफाइनरी प्रभाग  
Refineries Division

REF: IOC/BGR/ENV/MSQ/MoEF&CC/2023-24/02

Date: 27/06/24

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'23 and 31<sup>st</sup> March'24ber'23) for  
"MS Quality Improvement Project"

Reference: MS Quality Improvement Project (Light Naphtha Isomerisation using existing Xylene Isomerisation unit)" at Dhaligaon, Chirang, Assam by M/s Bongaigaon Refinery & Petrochemicals Ltd. vide MoEF letter No. J.11011/1171/2007-IA-II (I) dated 5/02/2008

Dear Sir,

With reference to above, we are enclosing the Six Monthly Report for the period of 1<sup>st</sup> October'23 and 31<sup>st</sup> March'24 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 "MS Quality Improvement Project" 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

रजिस्टर्ड ऑफिस : जी-9, अली यावर जंग मार्ग, बान्द्रा (पूर्व) मुम्बई - 400 051

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# **Half yearly Report for MS Quality Improvement Project**

**(1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)**



**Submitted by:**

**Indian Oil Corporation Limited**

**Bongaigaon Refinery**

**P.O: Dhaligaon District: Chirang. Assam**

## Compliance Status w.r.t. Env. Clearance of MS Quality Improvement Project

Six Monthly Status Report for the period (1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)

Environmental Clearance for “MS Quality Improvement Project (Light Naphtha Isomerisation using existing Xylene Isomerisation unit)” at Dhaligaon, Chirang, Assam by M/s Bongaigaon Refinery & Petrochemicals Ltd. vide MoEF letter No. J.11011/1171/2007-IA-II (I) dated 5/02/2008.

**Project was commissioned in September, 2011**

### INDEX:

Sl. No	Conditions	Status
1.	Special/General conditions and Compliance status of MS Quality improvement Project.	Annexure- A
2.	Six monthly Stack Monitoring/ Air Quality Data	Furnished in Appendix-A1
3.	Six monthly effluent discharged Quality	Furnished in Appendix-A2
4.	Tree Plantation Data	Furnished in Appendix-A3
5.	Additional Information	Furnished in Appendix-A4
6.	Fugitive Emission Data	Furnished in Appendix-A5
7.	Annual return of hazardous waste	Furnished in Appendix-A6(a)
8.	Authorization from PCBA under Hazardous and Other Waste (Management and Transboundary Movement) Rules 2016	Furnished in Appendix-A6(b)
9.	Details of Waste water treatment and disposal system	Furnished in Appendix-A7
10.	Quarterly Noise Survey Report.	Furnished in Appendix-A8
11.	Status of Rainwater Harvesting	Furnished in Appendix-A9
12.	Screen Shot of IOCL Website upload of report	Furnished in Appendix-A10
13.	NABL certificate of QC Lab of Bongaigaon Refinery	Furnished in Appendix-A11
14.	Employees Occupational Health Check up Status	Furnished in Appendix-A12
15.	Flare system.	Furnished in Appendix-A13

Annexure- A

SI No	Specific Conditions	Compliance Status
i	The company shall comply with new standards/norms that are being proposed by the CPCB for petrochemical plants and refineries.	Complied. Basic Design Engineering Package / Process Package have been prepared in line with the revised standards / norms for Oil Refinery and implemented in the project.
ii	The company shall comply with all the stipulations of environmental clearance issued vide File No. – 11011/375/2006-IA.II (I) dated 22 <sup>nd</sup> March, 2007.	Complied BGR had advertised “Public Notice” in three local news papers that are widely circulated in the region namely “The Assam Tribune” English daily, “Asomiya Pratidin” an Assamese daily & “Sanseyari Bodosa” a Bodo daily on 26 <sup>th</sup> February, 2008. All conditions of the environmental clearance are compiled and verified by statutory agencies time to time.
iii	The process emissions (SO <sub>2</sub> , NO <sub>x</sub> , HC, VOCs and Benzene) from various units shall conform to the standards prescribed by the Assam State Pollution Control Board from time to time. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	Complied. Detailed Engineering for the project was carried out considering the revised standards / norms for Oil Refinery and conditions /guidelines issued by SPCB. Environment Monitoring and control facilities are installed to achieve the stipulated standards. Emission and ambient air (VOC) data attached as <b>Appendix-A1</b> .HC Fugitive data in <b>Appendix-A5</b> .
iv	The improvement project shall be through the retrofitting of existing Xylene fractionation, Isomerisation and Parex units and within the existing land.	Complied. The improvement project is only through the retrofitting of existing Xylene Fractionation, Isomerisation and Parex units and within the existing land.
v	Quarterly monitoring of fugitive emissions shall be carried out as per the guidelines of CPCB by fugitive emission detectors (GMI Leak Surveyor) and reports shall be submitted to the Ministry’s regional office at Shillong.	Complied. Quarterly monitoring of fugitive emissions is being carried out. Quarterly reports for the period of <b>1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024</b> are attached as <b>Appendix-A5</b> .
vi	For control of fugitive emission all unsaturated hydro carbon will be routed to the flare system and the flare system shall be designed for smoke less burning.	Complied. Taken care during implementation of the project.
vii	The company shall strictly follow all the recommendation mentioned in the charter on corporate responsibility for environmental protection (CREP)	Complied. The company followed all the recommendation mentioned in the charter on Corporate Responsibility for Environmental Protection (CREP) prior to coming of the Revised Standards applicable to refinery for Environment Protection.
viii	Occupational health surveillance of worker shall be done on a regular basis and records maintained as per the Factory Act.	Complied. Occupational health surveillance of the workers are done on a regular basis and records maintained as per the Factories Act. The reports attached as <b>Appendix-A12</b> .

Sl. No.	Specific Conditions	Compliance Status
ix	Greenbelt shall be developed to mitigate the effect of fugitive emission all around the plant in a minimum 30% plant area in consultation with DFO as per CPCB guidelines.	Greenbelt is already existed. More than 30% of plant area is having green cover. Tree Census has been carried out through DFO Chirang District in 2013 where 84545 Nos. of grown up trees were enumerated. Post IndMax & BS-VI project, following plantation done to achieve required greenbelt. In the financial year 2017-18 BGR has planted 29600 nos of Sapling In the financial year 2018-19, BGR has planted 30062 nos. of trees in and around the complex. In financial year 2019-20 BGR has planted 14340 nos. of tree sapling. In FY 2020-21 BGR has planted 25606 nos. of tree sapling. In the FY 2021-22 BGR has planted 1,00,000 nos. of tree sapling. In the FY 2022-23 BGR has planted 27610 nos. of tree sapling. In the FY 2023-24 : 105630 nos. of saplings planted
x	The Company shall make the suitable arrangement for disposal of catalyst waste and alumina balls. The report of waste disposal shall be submitted to Ministry's Regional Office at Shillong.	Complied.  Please refer <b><u>Appendix-A6(a)</u></b> .
xi	The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during flaring.	Complied.  Necessary measures are in place to prevent fire hazards, containment of oil spill. Overhead flaring stack with knockout drums is available Please refer <b><u>Appendix-A13</u></b> .
xii	To prevent fire and explosion at Oil and Gas facility, potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable material shall be in place.	Complied.  All necessary precautions are in place as per OISD Guidelines.

### B. General Conditions:

S. No.	General Conditions	Compliance status
i	The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government and any other statutory body.	Complied.  Taken care during implementation of the project.
ii	No further expansion or modification in the project shall be carried without prior approval of the Ministry of Environment and Forests. In case of deviations or alternations in the project proposal from those submitted to the Ministry for clearance, a fresh reference shall be made to the Ministry.	Complied.  EC was granted by MoEF&CC to BGR for IndMax & BS-VI projects vide letter <b>F. no.J11011/48/2016-IA-II (I), Dated 19<sup>th</sup> Apr'2017.</b>  <b>The project aims to 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> <b>All the units of the Project commissioned successfully.</b>

SL. No.	General Conditions	Compliance status
iii	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system, the respective well site should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved. Provision of adequate height of stack attached to DG sets & flare is to be done.	<p>Complied.</p> <p>Taken care during implementation of the project. Emission data for the period of <b>1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024</b> are attached as <b><u>Appendix - A1</u></b>.</p> <p>No DG set was installed for the project.</p>
iv	Wastewater shall be properly collected and treated so as to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the relevant SPCB.	<p>Complied.</p> <p>Waste water treatment and disposal system is designed to conform to this norm. No Treated Effluent water is discharged outside. 100% reused within the complex.</p> <p>Detail of Waste water treatment and disposal system is attached as <b><u>Appendix-A7</u></b>.</p> <p>Treated Effluent water quality from refinery is attached as <b><u>Appendix-A2</u></b>.</p>
v	The overall noise levels in and around the premises shall be limited within the prescribed standards (75 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	<p>Complied.</p> <p>Taken care during implementation of the project.</p> <p>Quarterly Noise Survey is being carried out regularly.</p> <p>Quarterly Reports for the period of <b>1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024</b> are attached as <b><u>Appendix-A8</u></b>.</p>
vi	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2008 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission of the expansion project, if required. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.	<p>Complied.</p> <p>The rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 is complied.</p> <p>Emergency Response &amp; Disaster Management Plan (ERDMP) is in place at BGR and mock drills (on-site &amp; off-site) conducted quarterly on various emergency scenarios.</p> <p>Onsite &amp; offsite Mock drills for FY 23-24 (Q-1, Q-2, Q-3 &amp; Q-4) conducted on 27/06/23, 27/09/23, 12/12/2023 &amp; 28/02/2024 respectively.</p>
vii	Disposal of hazardous wastes shall be as per the Hazardous Wastes (Management and Handling) Rules, 2008. Authorization from the State Pollution Control Board must be obtained for collections / treatment/storage/ disposal of hazardous wastes.	<p>Complied.</p> <p>Disposal is being done as per HW rules 2016</p> <p>Authorization under Hazardous and Other Waste (Management, and Transboundary Movement) Rules 2016 obtained from PCBA and valid up to 31<sup>st</sup> March, 2027.</p> <p>Copy attached as <b><u>Appendix-A6(b)</u></b>.</p>
viii	The project authorities will provide adequate funds as non-recurring and recurring expenditure to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	<p>Complied.</p> <p>Sufficient fund is being made available at the time of implementation and operational phase of the project</p> <p>.</p>

Sr. No.	General Conditions	Compliance status
ix	The company shall develop rain water harvesting structures to harvest the runoff water for recharge of ground water.	<p>Complied.</p> <p>Four more roof top RWH scheme have been commissioned during FY 2020-21. Total 23 nos.(19+4) nos. of Rainwater Harvesting Projects has been implemented covering roof area of 22267.1 SQM and surface area of 32900 SQM, having potential rainwater harvesting volume of 153822 M<sup>3</sup>.</p> <p>The harvested rainwater for ground water recharge is through recharge pits and recharge trench based on technical details and guidelines from Central Ground Water Board, North Eastern Region, Guwahati.</p> <p>Details attached as <b>Appendix-A9</b>.</p>
x	The stipulated conditions will be monitored by the concerned Regional Office of this Ministry /Central Pollution Control Board/State Pollution Control Board. A six monthly compliance report and the monitored data should be submitted to them regularly. It will also be displayed on the Website of the Company.	<p>Complied.</p> <p>Soft copy of last six monthly compliance reports was submitted vide, document no.</p> <p><b>IOC/BGR/ENV/MSQ/MoEF&amp;CC/2023-24/01</b>  <b>Date: 27.12.2023</b>  Same is also uploaded in IOCL website.  Ref: <b>Appendix-A10</b></p>
xi	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment & Forests at <a href="http://www.envfor.nic.in">http://www.envfor.nic.in</a> . This should be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the concerned Regional office of this Ministry.	<p>Complied.</p> <p>BGR had advertised “Public Notice” in three local newspapers that are widely circulated in the region namely “The Assam Tribune” English daily, “Asomiya Pratidin” an Assamese daily &amp; “Sanseyari Bodosa” a Bodo daily on 26<sup>th</sup> February, 2008.</p> <p>The information is already submitted to statutory agencies.</p>
xii	A separate environment management cell with full-fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.	<p>Complied.</p> <p>BGR is having a separate environmental management cell of HSE department and fully fledged laboratory to carry-out environment management and monitoring functions.</p> <p>A well-equipped Laboratory exists in the complex. The Laboratory of BGR is accredited by NABL.  <b>Appendix-A11)</b></p>
xiii	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project	<p>Complied.</p> <p>Last capitalization date was 08/01/2015.</p> <p>Project was commissioned in September, 2011</p>

**APPENDIX –A1****STACK MONITORING DATA: (1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)****A. SO<sub>2</sub> Emission (mg/Nm<sup>3</sup>)**

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For Existing refineries For F.O. = 1700 For F.G. = 50 For New Refineries For F.O. = 850 For F.G. = 50	0.50	46.5	94.1
DCU-I		1.94	2.00	2.20
CDU-II		2.96	4.12	12.3
DCU-II		0.26	4.76	11.9
CPP		6.89	26.1	47.4
HO-1		35.2	120.7	276.3
Reformer		35.0	35.0	35.0
HO-2		Shut Down		
Isomerization		9.90	37.0	83.2
DHDT		2.29	7.46	25.7
HGU		1.45	9.08	72.9
SRU		Shut Down		
GTG		0.05	34.7	183.5
IGHDS		1.08	4.28	20.3
NHT		0.00	4.89	31.8
INDMAX		0.00	23.5	28.2

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

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For Existing refineries For F.O. = 450 For F.G. = 350 For New Refineries For F.O. = 350 For F.G. = 250	42.0	43.4	44.0
DCU-I		2.92	4.29	5.12
CDU-II		0.00	2.25	13.9
DCU-II		0.08	3.55	8.38
CPP		33.5	33.8	35.5
HO-1		44.3	80.3	98.7
Reformer		34.4	34.6	34.7
HO-2		Shut Down		
Isomerization		20.4	43.2	88.4
DHDT		1.88	5.84	12.8
HGU		10.5	20.5	38.1
SRU		Shut Down		
GTG		16.0	16.0	16.0
IGHDS		22.2	37.2	46.9
NHT		1.99	2.00	2.01
INDMAX		0.00	13.7	16.4

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

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For Existing refineries For F.O. = 100 For F.G. = 10 For New Refineries For F.O. = 50 For F.G. = 5	0.38	1.07	3.92
DCU-I		0.34	0.65	0.91
CDU-II		1.57	12.1	21.2
DCU-II		0.74	1.09	1.77
CPP		0.80	1.41	1.66
HO-1		1.10	2.98	15.0
Reformer		0.84	2.36	2.72
HO-2		Shut Down		
Isomerisation		0.27	1.50	2.69
DHDT		0.39	2.10	17.1
HGU		0.39	2.40	12.0
SRU		Shut Down		
GTG		0.60	1.61	2.60
IGHDS		1.31	1.86	1.96
NHT		1.50	2.08	2.81
INDMAX		0.00	12.46	32.0

**STACK MONITORING DATA: (1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)**

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

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For Existing refineries For F.O. = 200 For F.G. = 150 For New Refineries For F.O. = 150 For F.G. = 100	9.27	13.1	51.7
DCU-I		1.00	3.00	15.7
CDU-II		8.57	8.60	8.62
DCU-II		0.21	1.02	3.63
CPP		18.0	18.6	23.9
HO-1		15.0	15.0	15.6
Reformer		12.5	12.6	13.8
HO-2		Shut Down		
Isomerisation		11.4	13.1	17.9
DHDT		0.00	6.49	27.4
HGU		0.26	6.08	15.5
SRU		Shut Down		
GTG		5.57	18.8	46.5
IGHDS		1.43	2.32	2.37
NHT		0.22	6.37	20.0
INDMAX		0.00	68.0	154.9

**STACK MONITORING DATA: (1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)**

**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
DCU-I		BDL	BDL	BDL
CDU-II		BDL	BDL	BDL
DCU-II		BDL	BDL	BDL
CPP		BDL	BDL	BDL
HO-1		BDL	BDL	BDL
Reformer		BDL	BDL	BDL
HO-2		Shut Down		
Isomerisation		BDL	BDL	BDL
DHDT		BDL	BDL	BDL
HGU		BDL	BDL	BDL
SRU		Shut Down		
GTG		BDL	BDL	BDL
IGHDS		BDL	BDL	BDL
NHT		BDL	BDL	BDL
INDMAX		BDL	BDL	BDL

**AMBIENT AIR QUALITY AROUND BGR COMPLEX**

(Average of monthly sample Schedule – VII)

(1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)

	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	0.70	16.20	15.90	19.10	20.10	13.40
	Average	0.70	21.64	20.18	26.69	24.41	16.97
	Max	0.80	28.50	25.60	34.60	31.80	22.40
	No. of observation	Continuous	38	38	38	38	38
<b>2</b>	<b>NO<sub>2</sub> (Std. 40/80 µg/m<sup>3</sup>)</b>						
	Min	2.59	19.80	21.80	30.10	26.10	16.10
	Average	2.73	28.56	26.43	34.62	32.06	20.57
	Max	4.61	35.10	32.30	41.00	39.30	26.10
	No. of observation	Continuous	38	38	38	38	38
<b>3</b>	<b>PM-10 (Std. 60/100 µg/m<sup>3</sup>)</b>						
	Min	19.58	73.20	70.90	81.20	78.10	24.10
	Average	22.54	81.47	78.88	87.78	84.97	43.32
	Max	25.54	90.20	87.20	96.40	95.40	55.80
	No. of observation	Continuous	38	38	38	38	38

	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>4</b>	<b>PM-2.5 (Std. 40/60 µg/m<sup>3</sup>)</b>						
	Min	6.55	24.40	21.90	30.20	27.50	18.20
	Average	8.86	29.32	26.73	35.65	31.80	22.71
	Max	10.59	34.90	32.80	41.50	39.20	28.60
	No. of observation	Continuous	38	38	38	38	38
<b>5</b>	<b>Ammonia (Std. 100/400 µg/m<sup>3</sup>)</b>						
	Min	1.68	25.60	23.40	32.10	25.40	21.40
	Average	1.85	33.25	30.22	38.94	34.99	31.57
	Max	2.11	42.20	38.80	48.20	45.60	52.40
	No. of observation	Continuous	38	38	38	38	38
<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		38	38	38	38	38
<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		38	38	38	38	38
<b>8</b>	<b>Ni (Std. 20 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		38	38	38	38	38
<b>9</b>	<b>CO (Std. 2/4 mg/m<sup>3</sup>)</b>						
	Min	0.03	0.98	0.96	0.15	0.15	1.07
	Average	0.47	1.16	1.12	1.26	1.26	1.25
	Max	1.34	1.38	1.29	1.62	1.62	1.58
	No. of observation	Continuous	38	38	38	38	38

	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>10</b>	<b>Ozone (Std.100/180 µg/m<sup>3</sup> for 8 hrs/1 hr)</b>											
	Min	34.96	16.40	15.00	21.10	19.80	12.10					
	Average	35.03	21.87	19.58	27.34	24.71	15.31					
	Max	35.11	28.50	25.40	34.10	31.50	21.10					
	No. of observation	Continuous	38	38	38	38	38					
<b>11</b>	<b>Benzene (Std. 5 µg/m<sup>3</sup>)</b>											
	Min	0.55	BDL	BDL	BDL	BDL	BDL					
	Average	0.55	BDL	BDL	BDL	BDL	BDL					
	Max	0.55	BDL	BDL	BDL	BDL	BDL					
	No. of observation	Continuous	38	38	38	38	38					
<b>12</b>	<b>Benzo (a) Pyrene (Std. 1 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		38	38	38	38	38					
<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	0.70	2.59	19.58	6.55	1.68	BDL	BDL	BDL	BDL	0.03	12.10	0.55
Average	18.43	24.16	66.49	25.84	28.47	BDL	BDL	BDL	BDL	1.05	23.97	0.55
Max	34.60	41.00	96.40	41.50	52.40	BDL	BDL	BDL	BDL	1.62	35.11	0.55

## APPENDIX-A2

### Effluent Discharged (Figure in M<sup>3</sup>/Hr): (1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)

A	Industrial Effluent M <sup>3</sup> /Hr	143.64
B	Domestic Effluent from BGR Township M <sup>3</sup> /Hr	43.82
C	Total Effluent Treated (A + B) M <sup>3</sup> /Hr	187.46
D	Treated Effluent Reused M <sup>3</sup> /Hr	187.46
E	Effluent Discharged M <sup>3</sup> /Hr	0.00
F	M <sup>3</sup> of Effluent discharged for 1000 tons of Crude processed	0.00

### 1. Treated Effluent Quality

(1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)

Sl. No	Parameter	Std,2008	Min	Avg.	Max
1	p <sup>H</sup> value	6.0 - 8.5	6.50	7.31	8.50
2	Oil and Grease, mg/l	5.0	1.80	3.96	5.00
3	Bio-Chemical Oxygen Demand (3 Day at 27°C), mg/l	15.0	4.00	8.3	15.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	17.6	59.9	124.0
5	Suspended solids, mg/l	20.0	5.00	10.1	19.0
6	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l	0.35	0.06	0.23	0.34
7	Sulphide (as S), mg/l	0.50	0.05	0.22	0.49
8	CN mg/l	0.20	0.02	0.02	0.02
9	Ammonia as N, mg/l	15.0	0.39	4.06	12.40
10	TKN, mg/l	40.0	0.90	5.10	13.70
11	P, mg/l	3.0	0.62	1.05	1.80
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	0.18	0.31	0.54
17	Ni, mg/l	1.0		BDL	
18	Cu, mg/l	1.0	0.04	0.11	0.19
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, 2023 to 31<sup>st</sup> March, 2024)

Sl. No.	Parameter	Std 2008	Min	Avg.	Max
1	p <sup>H</sup> value	6.0 - 8.5	7.29	7.45	7.81
2	Oil and Grease, mg/l	5.0	2.00	3.33	4.00
3	Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l	15.0	11.00	13.2	14.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	70.00	86.7	110.0
5	Suspended Solids, mg/l	20.0	15.00	16.5	19.0
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	BDL	BDL	BDL
8	CN, mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N , mg/l	15.0	0.50	4.44	13.6
10	TKN, mg/l	40.0	1.05	5.77	15.1
11	P, mg/l	3.0	0.99	1.22	2.04
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	0.34	0.51	0.79
17	Ni, mg/l	1.0	BDL	BDL	BDL
18	Cu, mg/l	1.0	0.08	0.09	0.11
19	V, mg/l	0.20	-	BDL	-
20	Benzene, mg/l	0.10	-	BDL	-
21	Benzo (a) pyrene, mg/l	0.20	-	BDL	-

## **APPENDIX - A3**

### **Tree Plantation (1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)**

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, in FY 2021-22, 1,00,000 nos and in FY 2022-23 BGR has planted 26710 nos. of tree saplings planted in and around the complex.**

**During the FY 2023-24 BGR has planted 100630 nos. of tree saplings.**

### **Tree Plantation 2017-18**



**COMPLEX OLD DEBRIS YARD DEVELOPED INTO GREEN BELT. Planted in July'17,  
GROWTH as on 04.10.19**

**Tree Plantation 2017-18**



**Birhangaon State Dispensary Plantation 10000 nos in Aug'2017 and 5375 nos. (2nd Phase in August,2019), Sapling Planted by Miyawaki Method. Growth as on April,2024**

**Tree Plantation 2018-19**



**BGR TOWNSHIP PLANTATION, Planted Van mahotsav 2018, Growth as on May'2024**

**Tree Plantation 2019-20**



**North Bongaigaon High School, 5250 Sapling Planted by Miyawaki Method in the month of September,2019, Growth as on April,2024.**

**Tree Plantation 2020-21**



**On WED'2020, 3740 nos. of sapling planted in BGR Township, Growth as on April,2024.**

**Tree Plantation 2020-21**



**4810 nos of sapling Planted in the month of August'2020 at Hatipota Brahma Mandir, Growth as on April,2024.**

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



**Planted on WED'2021, in BGR Township, Growth as on May,2024**

**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 April,2024**

**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 May,2024**

**Tree Plantation 2022-23**



**Planted on WED'2022, in BGR Township, Growth as on May,2024**

## APPENDIX – A 4

### Additional Information

**(1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)**

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, 2023 to 31<sup>st</sup> March, 2024**, 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 **823.83 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 equipment, quarterly noise survey was conducted covering all the operating plants, control rooms and ambient surrounding the BGR. During **1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024**, Noise Survey for two quarters of **2023-24(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. **During the 2<sup>nd</sup> half of 2023-24, 2545.0 MT** of oily sludge has been processed by mechanised processing 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 bioremediation started from July 2017. From **1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024, 21.0 MT** of oily sludge has been processed in the Bio-reactor.



**Bio-remediation facility of BGR**

Further two more Rainwater 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 inside BGR Township temple complex.

6.0

**APPENDIX –A5**

**Quarterly Fugitive emission survey Data (LDAR)**  
(1<sup>st</sup> October 2023 to 31<sup>st</sup> March, 2024)



Fugitive Emission  
Survey Report 3rd Q



Fugitive emission  
Survey report -4th Q

7.0

**APPENDIX-A6 (a)**

**Annual return of hazardous waste (2023-24)**



H W return IOCL  
BGR for 2023-24.pdf

8.0

**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<sup>th</sup> September, 2022

**FORM – 2**  
**[See Rule 6(2)]**

**[Grant of Authorization 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 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

9.0

**APPENDIX-A7**

**Detail of Wastewater treatment and disposal system.**



**ETP Description.pdf**

**ANNEXURE-A8**

**Quarterly Noise Survey Data**

(1<sup>st</sup> October, 2023 to 31<sup>st</sup> March, 2024)

HSE (ENVIRONMENT) DEPARTMENT



Noise Survey  
Report 3rd Qtr. 23-24



Noise Survey  
report-4th Qtr 23-24

**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 Mandlr Complex Pond	7125	20748	99239.14	In operation
2	Manjeera Guest House	677	1848		
3	Deoshri Guest House	581	1586		
4	Rainwater Harvesting at Parivesh Udyan Pond	5775	16817		
5	Rainwater Harvesting at Eco-Park Pond	20000	60240		
6	Mandlr 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	8556	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	826	2252		
16	CISF Conference Hall & Barack	1050	2867	4541	In operation
17	BGR Community Centre	650	1775		
18	Foot Ball Stadium gallery	988	2697	2697	In operation
19	Vollybell 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
	<b>TOTAL</b>	<b>55,167</b>	<b>156593</b>	<b>156592</b>	

✓  
16/12/21  
CMLHSE

## ANNEXURE-A10

**Screen Shot of IOCL Website upload of report**

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

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### Statutory Notices

- > Six monthly compliances reports(1st half FY 2023-24) of Bongaigaon Refinery.
  - > Six Monthly Compliance (Refinery-II) 1st half 2023-24
  - > Six Monthly Compliance DHDt project, 1st half 2023-24
  - > Six Monthly Compliance for IndMax & BS-VI Project 1st half 2023-24
  - > Six Monthly Compliance MS Maximisation Project 1st half 2023-24
  - > Six Monthly Compliance of MS Quality Improvement project 1st half 2023-24
- > EC Compliance HY Reports (Apr'23-Sep'23)-Digboi Refinery (Content in English) (8.89 MB)

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# ANNEXURE-A11

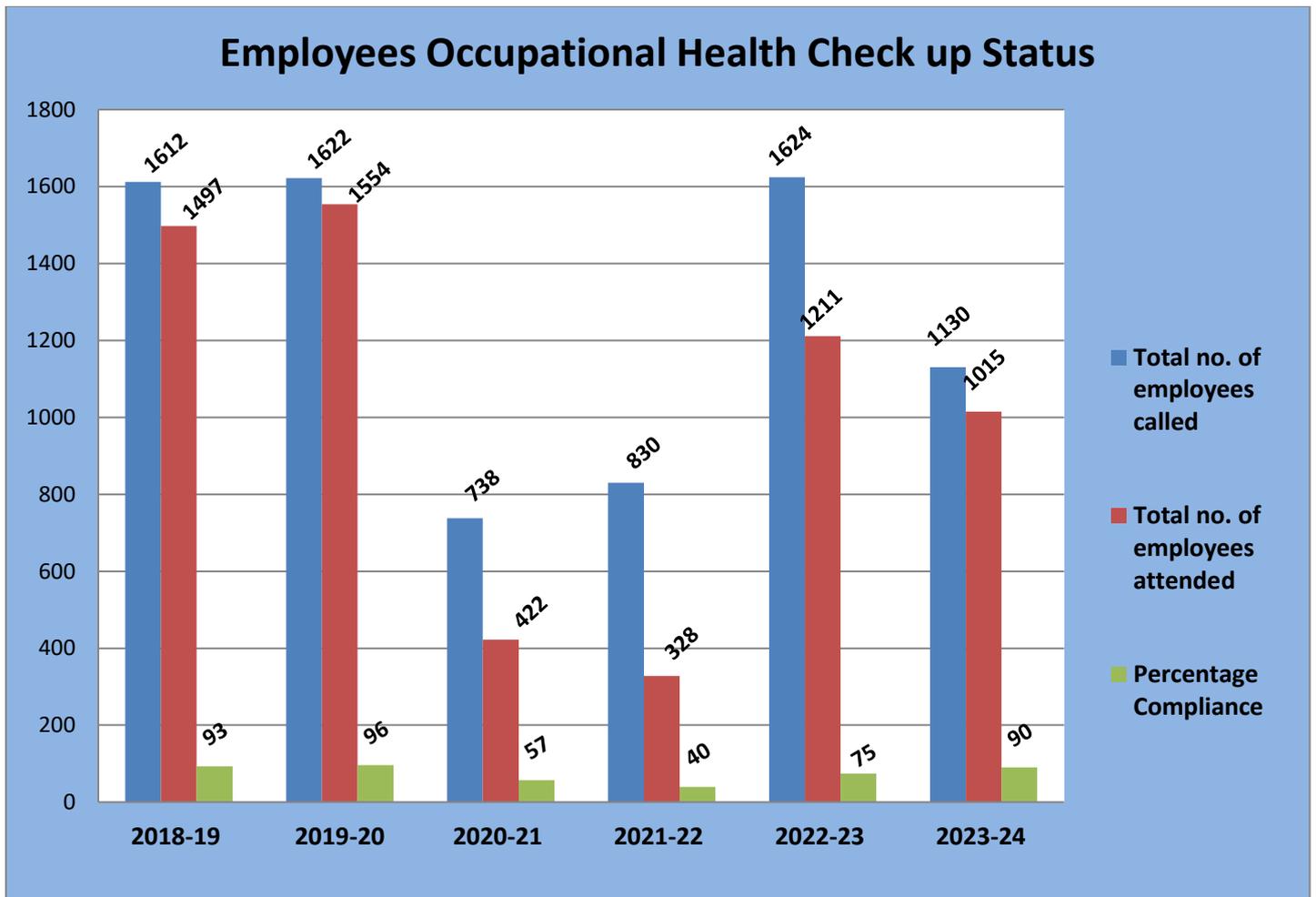
NABL certificate of QC Lab of Bongaigaon Refinery

		<b>National Accreditation Board for Testing and Calibration Laboratories</b>
<b>CERTIFICATE OF ACCREDITATION</b>		
<b>INDIAN OIL CORPORATION LIMITED, QC LABORATORY, BONGAIGAON REFINERY</b>		
has been assessed and accredited in accordance with the standard		
<b>ISO/IEC 17025:2017</b>		
<b>"General Requirements for the Competence of Testing &amp; Calibration Laboratories"</b>		
for its facilities at		
P.O. DHALIGAON, BONGAIGAON, CHIRANG, ASSAM, INDIA		
in the field of		
<b>TESTING</b>		
Certificate Number:	TC-6027	
Issue Date:	29/04/2022	Valid Until: 28/04/2024
<b>This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard &amp; the relevant requirements of NABL. (To see the scope of accreditation of this laboratory, you may also visit NABL website <a href="http://www.nabl-india.org">www.nabl-india.org</a>)</b>		
Name of Legal Identity : Indian Oil Corporation Limited		
<b>Signed for and on behalf of NABL</b>		
		
	N. Venkateswaran Chief Executive Officer	

Note: Audit completed for the renewal certificate, renewal Certificate awaited.

## Appendix-A12

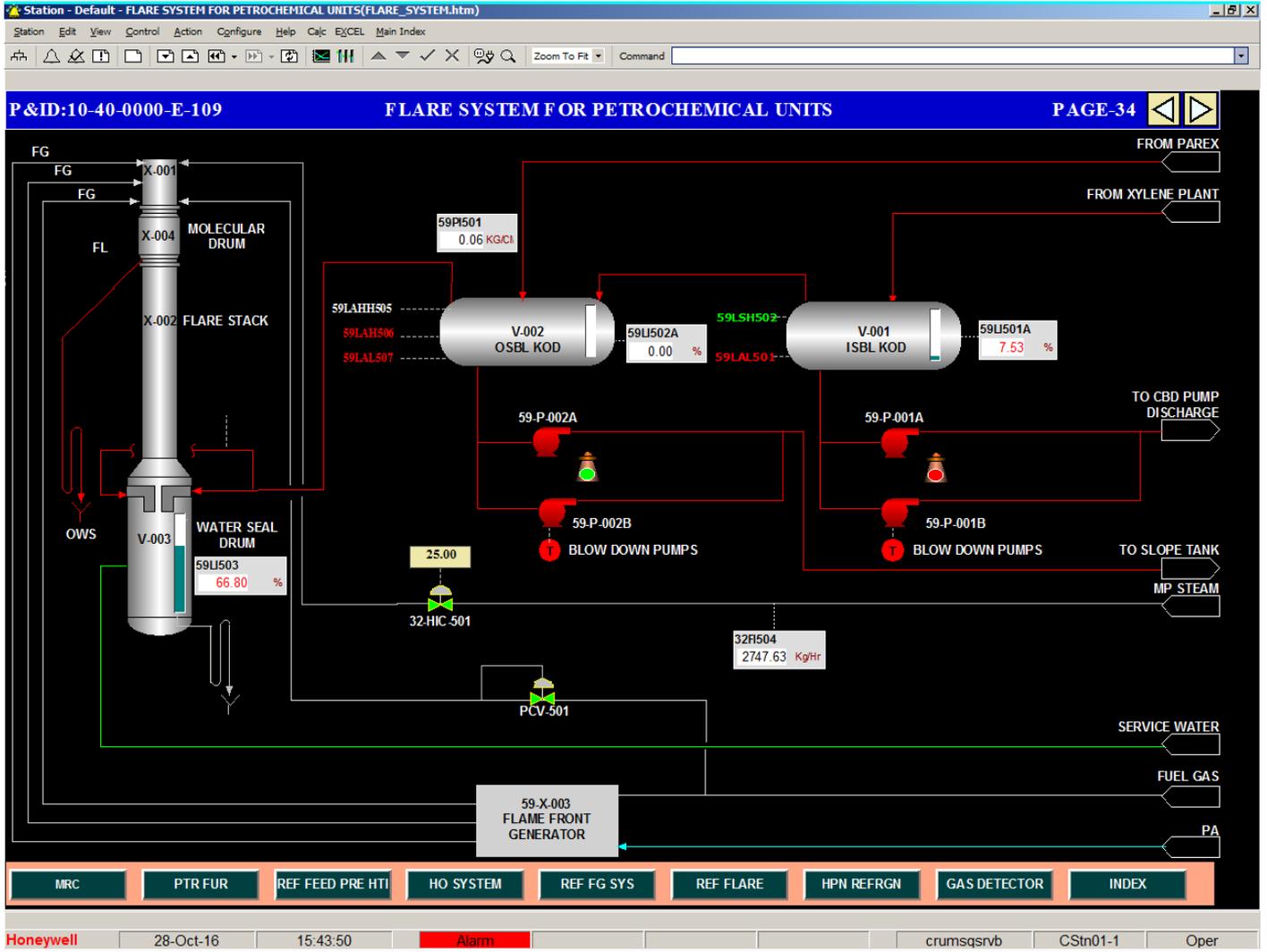
### Employees Occupational Health Checkup Status



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

# Appendix-A13

## Flare system.



THANKS