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

स्वच्छ भारत
एक कदम स्वच्छता की ओर

रिफाइनरी प्रभाग
Refineries Division

REF: IOC/BGR/ENV/MSQ/MoEF&CC/2021-22/01 **Date: 18.12.2021**

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 1st April, 2021 to 30th September, 2021 for MS Quality Improvement Project

Dear Sir,

With reference to above, we are enclosing the Six Monthly Report for the period **1st April, 2021 to 30th September, 2021** for your kind perusal. The reports are being sent as per EIA Rules, 2006 on the "Environmental Clearances" issued by MoEF&CC to Bongaigaon Refinery, (BGR) for **"MS Quality Improvement Project".**

Thanking you,

Yours faithfully,

18/12/21

(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 MS Quality Improvement Project

(1st April, 2021 to 30th September, 2021)

Submitted by:

Indian Oil Corporation Limited

Bongaigaon Refinery

P.O: Dhaligaon District: Chirang. Assam

1.0

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

Six Monthly Status Report for the period (1st April, 2021 to 30th September, 2021)

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:

2.0

Annexure- A

Sl 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 22nd March, 2007.	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 26th February, 2008.
iii	The process emissions (SO2, NOx, 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 **Appendix-A1**. HC Fugitive data in **Appendix-A5**.
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 carried out. Quarterly reports for the period of **1st April, 2021 to 30th September, 2021** are attached as **Appendix-A5**.
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. The reports for the period of **1st April, 2021 to 30th September, 2021** attached as **Appendix-A13**.

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 current FY 2020-21 BGR has planted 25606 nos. of tree sapling.** **In the current FY 2021-22 BGR has planted 1,00,000 nos. of tree sapling.**
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 **Appendix-A6(a).**
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.
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 statuary 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 **F. no.J11011/48/2016-IA-II (I), Dated 19th Apr'2017.** **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.** **All the units of the Project commissioned successfully except SDS (SRU) unit.**

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.	Complied. Taken care during implementation of the project. Emission data for the period of **1st April, 2021 to 30th September, 2021** are attached as **Appendix - A1.** No DG set was installed for the project.
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.	Complied. Waste water treatment and disposal system is designed to conform to this norm. Detail of Waste water treatment and disposal system is attached as **Appendix-A7**. Treated Effluent water quality from refinery is attached as **Appendix-A2**. No Treated Effluent water is discharged outside.
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).	Complied. Taken care during implementation of the project. Quarterly Noise Survey is being carried out regularly. Quarterly Reports for the period of **1st April, 2021 to 30th September, 2021** are attached as **Appendix-A8**.
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.	Complied.
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.	Complied. Authorization under Hazardous and Other Waste (Management, and Transboundary Movement) Rules 2016 obtained from PCBA and valid up to 5th August, 2022. Copy attached as **Appendix-A6(b)**.
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.	Complied. Sufficient fund is being made available at the time of implementation and operational phase of the project.

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.	Complied. 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^3. 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. Details attached as **Appendix-A9**.
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.	Complied.
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 http://www.envfor.nic.in. 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.	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 26th February, 2008. The information is already submitted to statutory agencies. The information is already submitted to statutory agencies.
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.	Complied. BGR is having a separate environmental management cell of HSE department and fully fledged laboratory to carry-out environment management and monitoring functions. Organogram of HSE Department is attached as **Appendix-A11**. BGR Environment Laboratory is accredited by NABL and recognized by **CPCB** as under Section 12&13 of Environment (Protection) Act 1986 and notified in the Govt. of India Gazette no. 439 dated November 4, 2018 vide notification number Legal 42(3)/ 87 dated 3rd October 2018. **(Copy attached as Appendix-A12)** .
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	Complied. Last capitalization date was 08/01/2015.

3.0

APPENDIX –A1

STACK MONITORING DATA: (1st April, 2021 to 30th September, 2021)

A. SO_2 Emission (mg/Nm^3):

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 1700 For F.G. = 50	7.89	19.8	43.3
CDU-II		9.97	12.7	13.5
DCU-I		0.90	12.4	45.9
DCU-II		0.01	9.50	57.3
CPP		2.21	47.3	95.0
Reformer		4.09	10.7	54.9
HO-1		11.9	25.1	106.8
HO-2		Shut Down		
Isomerisation		4.89	14.1	64.9
DHDT		0.45	11.0	77.0
HGU		0.48	12.1	45.3
SRU		90.4	129.6	184.5
GTG		1.39	4.09	12.3

B. NO_X Emission (mg/Nm^3)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 450 For F.G. = 350	11.7	24.2	39.1
CDU-II		1.54	2.80	5.87
DCU-I		2.16	3.21	5.53
DCU-II		0.05	2.83	8.03
CPP		6.71	12.0	20.3
Reformer		33.3	68.9	95.8
HO-1		43.4	100.0	148.1
HO-2		Shut Down		
Isomerisation		18.4	43.8	56.3
DHDT		5.38	25.7	49.7
HGU		2.31	15.9	30.1
SRU		No Analyser		
GTG		16.3	24.32	35.92

C. PM Emission (mg/Nm^3)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 100 For F.G. = 10	10.42	14.3	20.5
CDU-II		2.99	9.0	16.6
DCU-I		1.13	3.8	7.7
DCU-II		0.06	3.7	9.7
CPP		0.04	7.6	15.2
Reformer		0.89	4.1	15.5
HO-1		2.61	7.9	20.3
HO-2		Shut Down		
Isomerisation		0.30	3.0	12.0
DHDT		0.31	3.4	16.2
HGU		0.32	6.6	33.4
SRU		6.78	18.0	35.6
GTG		1.87	16.7	22.2

STACK MONITORING DATA: (1st April, 2021 to 30th September, 2021)

D. CO Emission (mg/Nm^3)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 200 For F.G. = 150	2.97	10.3	13.9
CDU-II		2.04	12.5	36.3
DCU-I		0.30	6.5	45.8
DCU-II		0.04	4.7	13.4
CPP		0.13	5.5	41.0
Reformer		2.17	8.6	14.6
HO-1		0.27	12.5	27.9
HO-2		Shut Down		
ISOMERISATION		6.21	17.6	21.1
DHDT		0.99	7.4	16.0
HGU		4.81	9.7	95.6
SRU		5.03	8.4	15.0
GTG		2.39	8.7	21.5

E. Ni + V Emission (mg/Nm^3):

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)
(1st April, 2021 to 30th September, 2021)

	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
1	SO_2 (Std. 50/80 µg/m^3)						
	Min	0.15	12.0	8.80	11.7	10.5	11.9
	Average	2.35	16.4	16.0	16.7	17.0	17.0
	Max	8.85	30.2	23.6	23.9	23.9	22.1
	No. of observation	Continuous	48	48	54	54	48
2	NO_2 (Std. 40/80 µg/m^3)						
	Min	0.99	15.8	13.3	17.4	11.2	16.2
	Average	7.35	21.0	20.4	21.7	21.7	21.7
	Max	10.0	29.0	29.8	27.6	27.4	25.3
	No. of observation	Continuous	48	48	54	54	48
3	PM-10 (Std. 60/100 µg/m^3)						
	Min	7.69	52.6	51.3	51.0	53.7	51.7
	Average	19.7	68.0	67.4	69.0	69.7	66.9
	Max	92.2	92.0	84.0	89.3	86.5	89.0
	No. of observation	Continuous	48	48	54	54	48
4	PM-2.5 (Std. 40/60 µg/m^3)						
	Min	2.30	26.8	23.7	23.9	25.2	22.8
	Average	9.64	35.1	34.6	35.5	34.9	33.4
	Max	31.0	50.6	49.0	49.9	44.9	49.8
	No. of observation	Continuous	48	48	54	54	48
5	Ammonia (Std. 100/400 µg/m^3)						
	Min	1.69	10.8	10.8	10.5	10.8	10.8
	Average	5.33	16.5	16.4	16.0	17.2	16.0
	Max	10.0	23.0	21.5	23.9	31.1	23.8
	No. of observation	Continuous	48	48	54	54	48
6	Pb (Std. 0.5/1.0 µg/m^3)						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		48	48	54	54	48
7	Arsenic (As) (Std. 6 ng/m3)						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		48	48	54	54	48

	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/m3)						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		48	48	54	54	48
9	CO (Std. 2/4 mg/m3						
	Min	0.00	BDL	BDL	BDL	BDL	BDL
	Average	0.13	BDL	BDL	BDL	BDL	BDL
	Max	1.49	BDL	BDL	BDL	BDL	BDL
	No. of observation	Continuous	48	48	54	54	48
10	Ozone (Std.100/180 µg/m^3 for 8 hrs/1 hr)						
	Min	29.4	18.1	16.0	14.8	15.2	14.8
	Average	43.6	22.5	22.1	21.7	22.3	21.6
	Max	80.1	29.4	32.0	30.3	29.8	29.0
	No. of observation	Continuous	48	48	54	54	48
11	Benzene (Std. 5 µg/m^3)						
	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	48	48	54	54	48
12	Benzo (a) Pyrene (Std. 1 ng/m^3)						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		48	48	54	54	48

Average of Six Stations

Parameter	SO_2	NO_2	PM-10	PM-2.5	NH_3	Pb	As	Ni	Benzo (a) Pyrene	CO	C_6H_6	O_3
Unit	µg/m^3						ng/m^3			mg/m^3	µg/m^3	
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	0.15	0.99	7.69	2.3	1.69	BDL	BDL	BDL	BDL	0.00	0.06	14.8
Average	14.2	19.0	60.1	30.5	14.6	BDL	BDL	BDL	BDL	0.13	0.24	25.6
Max	30.2	29.8	92.2	50.6	31.1	BDL	BDL	BDL	BDL	1.49	0.68	80.1

4.0

APPENDIX-A2

Effluent Discharged (Figure in M^3/Hr): (1^{st} April, 2021 to 30^{th} September, 2021)

A	Industrial Effluent M^3/Hr	152.9
B	Domestic Effluent from BGR Township M^3/Hr	43.7
C	Total Effluent Treated (A + B) M^3/Hr	196.6
D	Treated Effluent Reused M^3/Hr	196.6
E	Effluent Discharged M^3/Hr	0.00
F	M^3 of Effluent discharged for 1000 tons of Crude processed	0.00

1. Treated Effluent Quality

(1^{st} April, 2021 to 30^{th} September, 2021)

Sl. No	Parameter	Std,2008	Min	Avg.	Max
1	p^H value	6.0 - 8.5	6.5	7.3	8.5
2	Oil and Grease, mg/l	5.0	0.8	3.7	5.0
3	Bio-Chemical Oxygen Demand (3 Day at 27^oC), mg/l	15.0	4.0	9.4	15.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	9.4	30.2	121.7
5	Suspended solids, mg/l	20.0	6.0	12.9	18.6
6	Phenolic compounds (as C6H5OH), mg/l	0.35	0.04	0.17	0.35
7	Sulphide (as S), mg/l	0.50	0.17	0.22	0.42
8	CN mg/l	0.20	0.10	0.10	0.10
9	Ammonia as N, mg/l	15.0	2.00	3.00	4.20
10	TKN, mg/l	40.0	5.20	7.33	11.20
11	P, mg/l	3.0	0.40	0.49	0.62
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	0.13	0.25	0.41
17	Ni, mg/l	1.0	-	BDL	-
18	Cu, mg/l	1.0	0.27	0.35	0.42
19	V, mg/l	0.20	-	BDL	-
20	Benzene, mg/l	0.10	-	BDL	-
21	Benzo (a) pyrene, mg/l	0.20	-	BDL	-

EFFLUENT QUALITY

2. Final Outlet (From the Complex) Effluent Quality

(1st April, 2021 to 30th September, 2021)

Sl. No.	Parameter	Std 2008	Min	Avg.	Max
1	p^H value	6.0 - 8.5	6.50	7.32	8.50
2	Oil and Grease, mg/l	5.0	0.80	4.34	5.80
3	Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l	15.0	4.00	11.3	15.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	9.64	35.3	118.0
5	Suspended Solids, mg/l	20.0	8.00	15.3	20.0
6	Phenolic compounds (as C_6H_5OH), mg/l	0.35	0.06	0.23	0.35
7	Sulphide (as S), mg/l	0.50	0.12	0.39	0.50
8	CN, mg/l	0.20	0.01	0.01	0.01
9	Ammonia as N , mg/l	15.0	2.20	2.51	2.80
10	TKN, mg/l	40.0	8.40	12.13	16.8
11	P, mg/l	3.0	0.16	0.44	0.61
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	0.12	0.14	0.17
17	Ni, mg/l	1.0	0.12	0.15	0.18
18	Cu, mg/l	1.0	0.15	0.34	0.47
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
(1st April, 2021 to 30th September, 2021)

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 and in all seasons of the year.

Tree Census was done by Divisional Forest Office, Chirang. 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

.

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, and in FY 2020-21 25606 nos. of saplings planted in and around the complex

During, 1st April, 2021 to 30th September, 2022 BGR has planted 1,00,000 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. Grouth as on Aug,2021

Tree Plantation 2018-19

BGR TOWNSHIP PLANTATION, Planted Van mahotsav 2018, Growth as on Oct'2021

Tree Plantation 2019-20

Birhangaon State Dispensary Plantation, 5375 nos. Sapling Planted by Miyawaki Method in the month of September,2019 Grouth as on Nov,2021.

Tree Plantation 2020-21

On WED'2020, 3740 nos. of sapling planted in BGR Township, Grouth as on Nov,2021.

Tree Plantation 2020-21

4810 nos of sapling Planted in the month of August'2020 at Hatipota Brahma Mandir, Grouth as on Nov,2021.

Tree Plantation 2020-21

4000 nos of sapling planted at Kashikotra Model Hospital in Nov'2020

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

At Amguri Forest Range, Koila Moila, In collaboration with DFO Chirang

6.0

APPENDIX – A 4

Additional Information

(1st April, 2021 to 30th September, 2021)

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 **1st April, 2021 to 30th September, 2021**, **38823** potential leaky points checked and **142** Leaky points detected and rectified. By following LDAR programme in true spirit, the company could not only avoid potential loss of **126.79** MTA (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 **1st April, 2021 to 30th September,** Noise Survey for two quarters of **2020-21** has been completed and no 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 **1st April, 2021 to 30th September, 82 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 one more implemented in the FY 2020-21 in Admn. Building.

7.0

APPENDIX –A5

Quarterly Fugitive emission Data
(1st April, 2021 to 30th September, 2021)

FUG EMISSION
Report 1ST QTR 2021

FUG EMISSION
Report 2ND QTR 202

8.0

APPENDIX-A6 (a)

Haz Waste Return
FORM-4 (2020-21).d

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

HW Authorisation 2019.pdf

10.0

APPENDIX-A7

Detail of Waste water treatment and disposal system.

ETP Description.pdf

11.0

ANNEXURE-A8

Quarterly Noise Survey Data

(1st April, 2021 to 30th September, 2021)

HSE (ENVIRONMENT) DEPARTMENT

NOISE SURVEY
Report 1ST QTR 2021

NOISE SURVEY
Report 2ND QTR 202

12.0

ANNEXURE-A9

Rain Water Harvesting Data

BGR: Rain Water Harvesting till March 2021

Sl.No.	RWH systems	Area in m^2	Recharging, m^3/Yr	Total Recharging, m^3/Yr	Status
1	Rainwater Harvesting at Mandir Complex Pond	7125	20748	99239.14	In operation
2	Manjeera Guest House	677	1848		
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	1810	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	988	2697	2597	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	

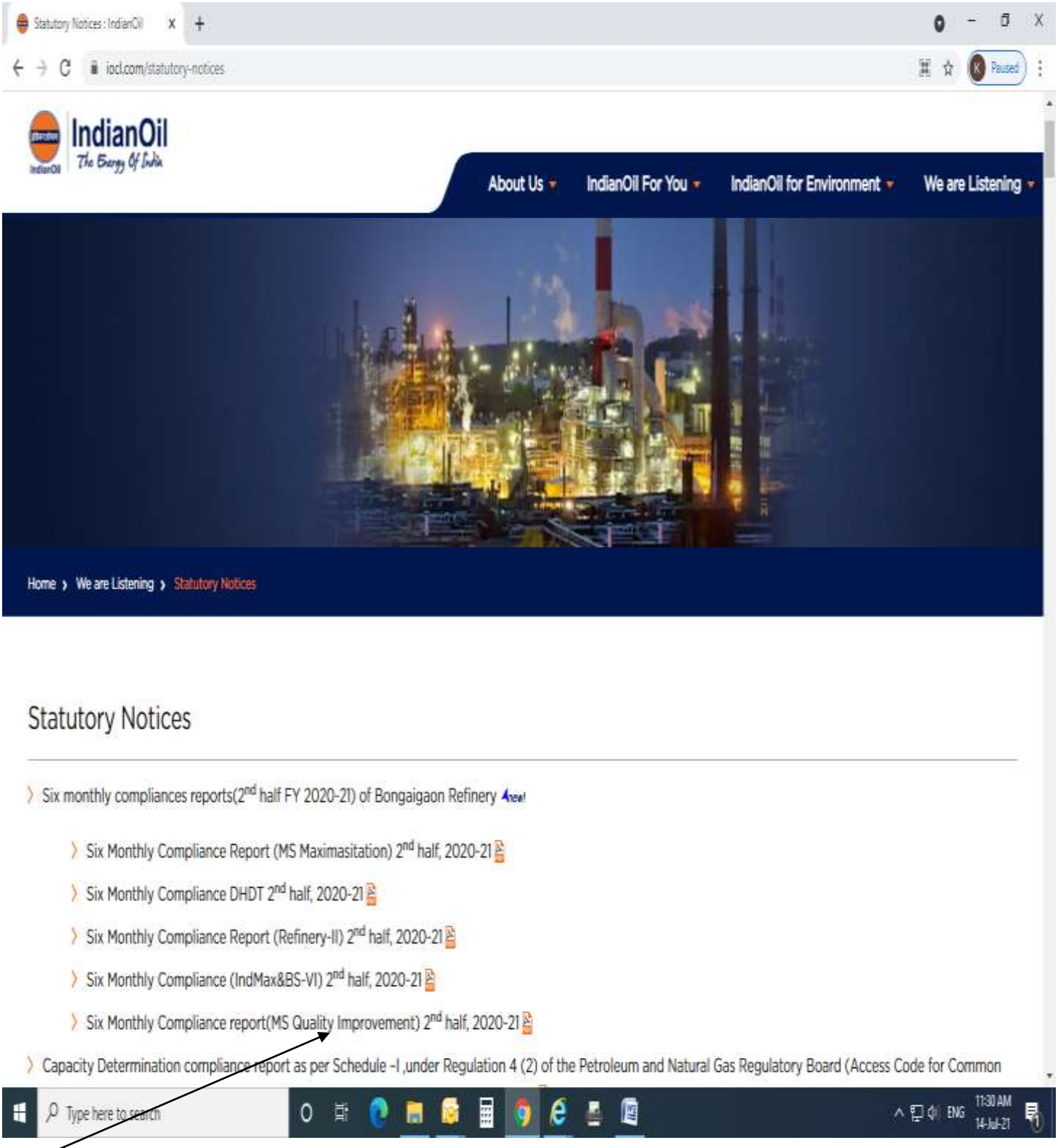
16/12/21
CMLHSE

13.0

ANNEXURE-A10

Screen Shot of IOCL Website upload of report

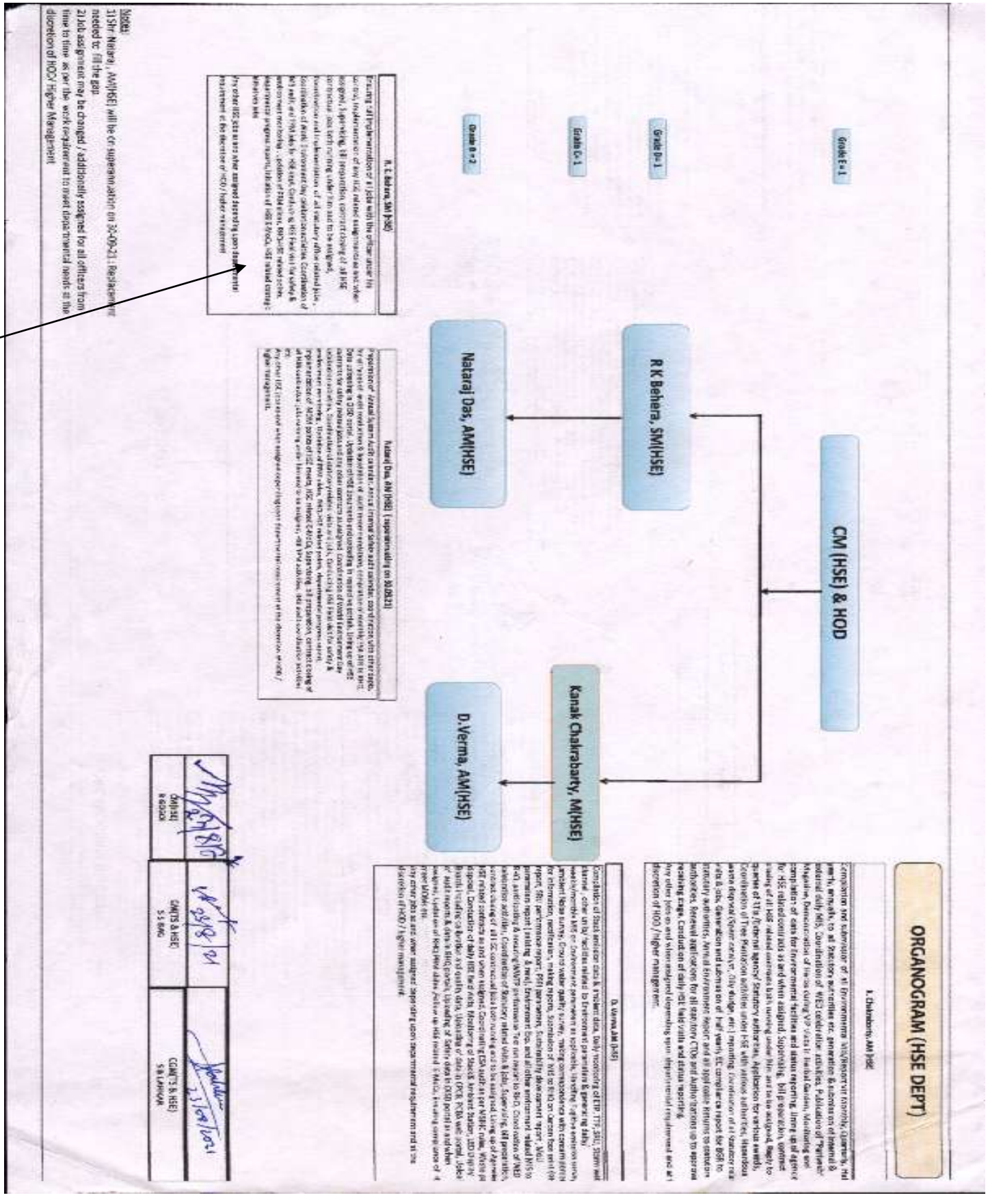
Link: https://iocl.com/statutory-notices



14.0

APPENDIX-A11

HSE Organogram of IOCL-BGR



15.0

ANNEXURE-A12

NABL certificate of QC Lab of Bongaigaon Refinery

National Accreditation Board for Testing and Calibration Laboratories

NABL

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: 29/04/2019 **Valid Until:** 28/04/2021*

*The validity is extended for one year up to 28.04.2022

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)

Name of Legal Identity : INDIAN OIL CORPORATION LIMITED

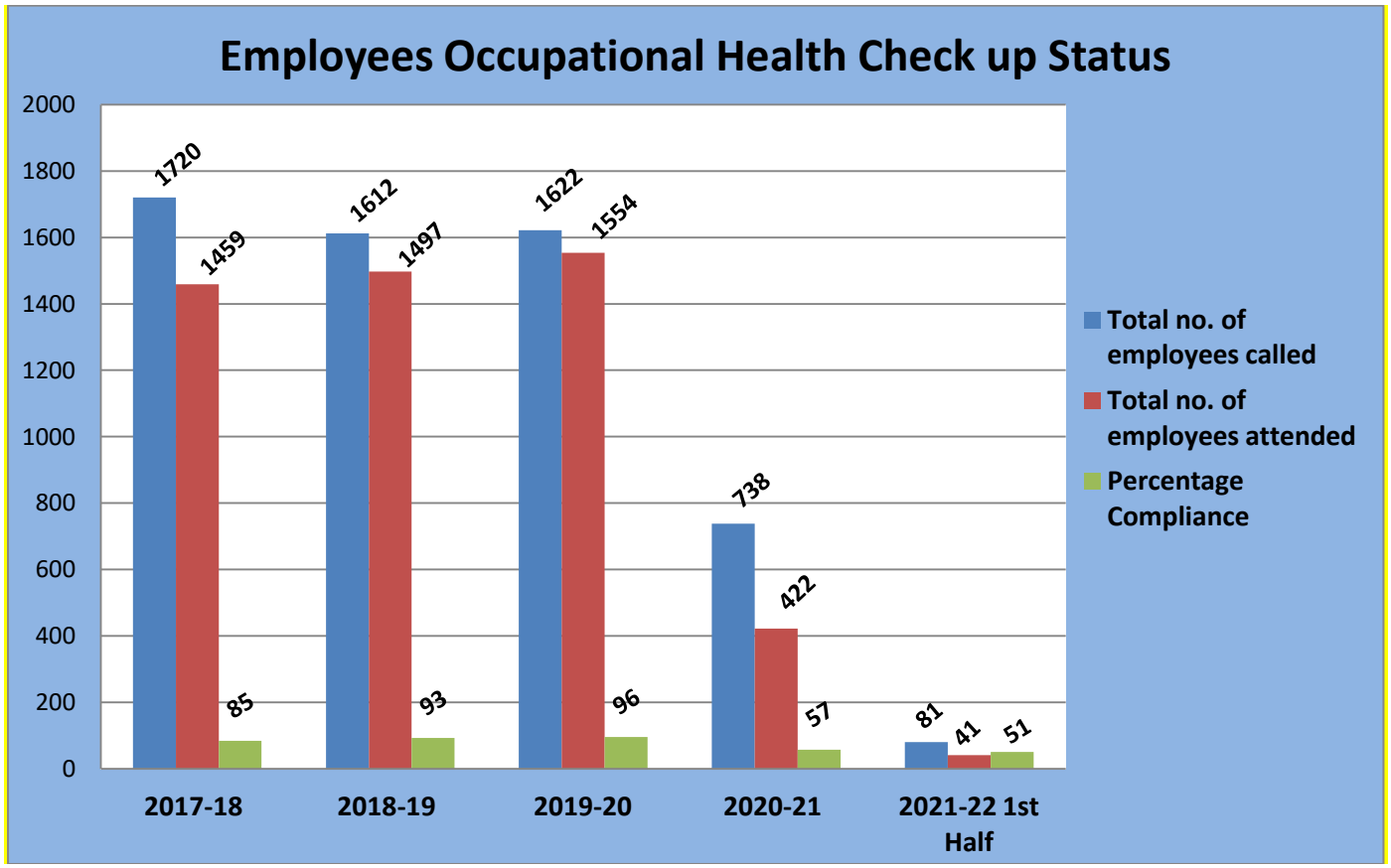
Signed for and on behalf of NABL

N. Venkateswaran
Chief Executive Officer

16.0

Appendix-A13

Employees Occupational Heath Check up Status

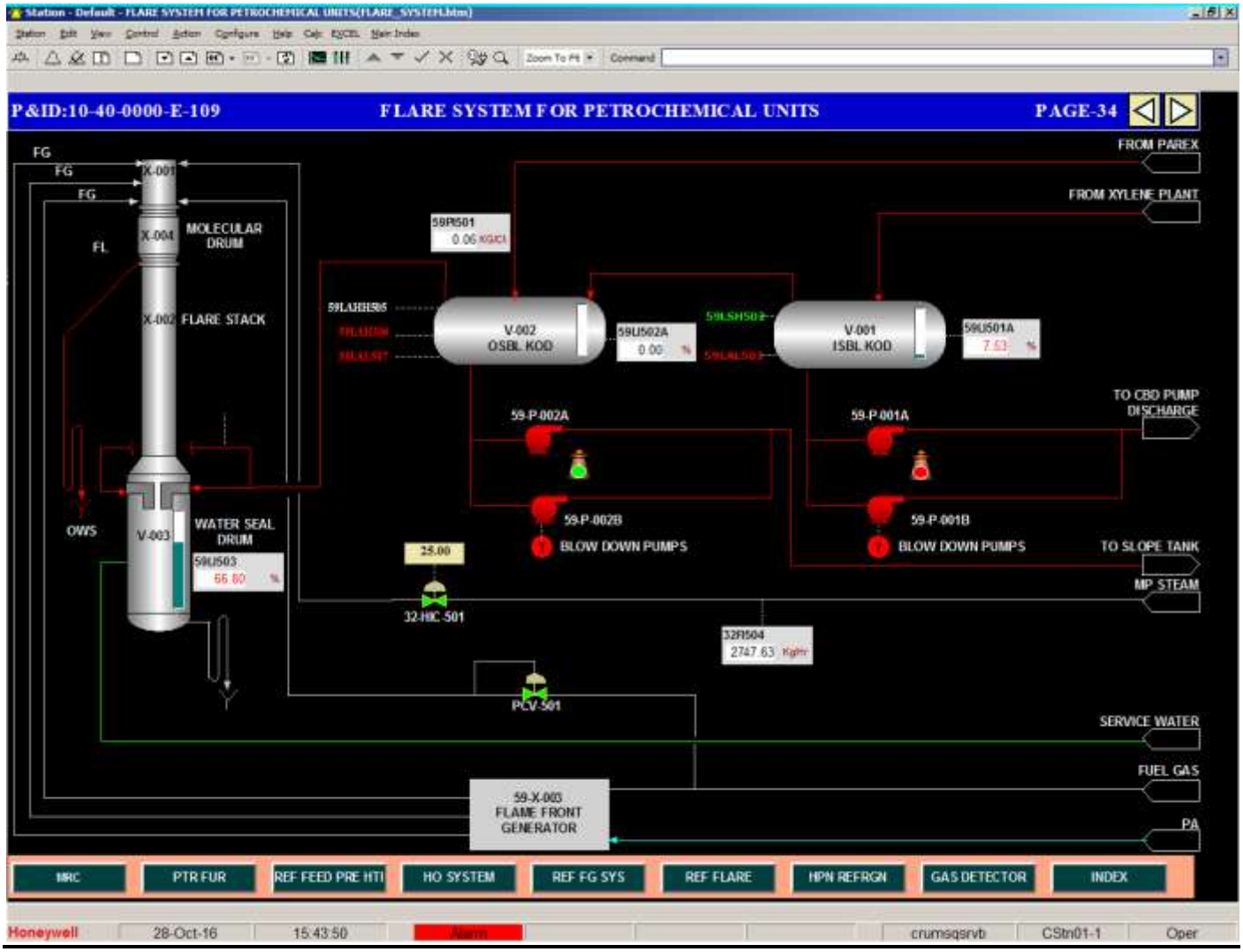


Note: Employees occupational health check up program effected, due to the COVID-2019 pandemic situation.

17.0

Appendix-A14

Flare system.



THANKS