



REF: IOC/BGR/ENV/REP/MoEF&CC/2020-21/01

Date: 12.12.2020

To
The Chief Conservator of Forests
Regional Office, North East Region
Ministry of Environment & Forests & Climate Change
Law-U-SIB, Lumbatnngen, Near M.T.C. Workshop,
Shillong – 793021

Subject: Half Yearly Report for the period of (1st April, 2020 to 30th September, 2020) 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 **1st April, 2020 to 30th September, 2020** 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,

(P. Ramchiary)
DGM (TS)

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



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

बोंगाइगॉव रिफाइनरी

डाकघर : धालीगॉव - 783 385

जिला : चिरांग (असम)

Indian Oil Corporation Limited

Bongaigaon Refinery

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

Phone : 03664-

E-mail :

Website : www.iocl.com FAX : 03664-



रिफाइनरी प्रभाग
Refineries Division

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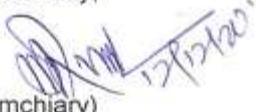
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Near Fire Brigade H.Q., Shillong – 793014.

“Half Yearly Report for “Refinery Expansion Project” **(1st April, 2020 to 30th September, 2020)**

**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:

- | | |
|---|-------------------|
| 1. Crude Distillation Unit – II: | 09.05.1995 |
| 2. Delayed Coker Unit – II : | 06.03.1996 |

Submitted by:

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

INDEX

Sl. No	Conditions	Status
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.	Organogram of HSE Department	Furnished in Appendix-A11
15.	Gazette Notification of BGR Quality Control laboratory (QC Lab) approval under Environment (Protection) Act 1986.	Furnished in Appendix-A12
16.	Employees Occupational Health Check up Status	Furnished in Appendix-A13
17	Flare system.	Furnished in Appendix-A14

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
(2A-II Division)

Paryoveran Bhever
CGO Complex,
Lodi Road,
New Delhi-110003

May-29, 1991.
Page 3

MIN ENV FORESTS
RD, MP, 11011/24/90-IA-II
(ENVIRONMENTAL) (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.

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 stipulations 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/-

S.D.
21/7/91

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21/7/91

- 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 earmarked 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 insofar as along 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, and Petrochemicals Ltd, P.O. Dhalighan, Distt. Bongaigaon, Assam-783 385.
2. Chairman, Assam State Pollution Control Board, Bamani Maidan, Guwahati-782 021.
3. Chairman, Central Pollution Control Board, Parivesh Bhavan, CEF-cum-office Complex, East Arjun Nagar, Shahdara, Delhi-110062.
4. Chief Conservator of Forests (Central) Regional Office (North East Region) Upland Road, LOITUGHAN, SHILLONG-793 001.
5. Adviser (Energy) Planning Commission Yojana Bhavan, New Delhi.
6. Adviser (P&D) Planning Commission, Yojana Bhavan, New Delhi.
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&CC to BGR for IndMax & BS-VI projects vide letter F. no.J11011/48/2016-IA-II (I), Dated 19th Apr'2017.</p> <p>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.</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"> 1. The process units are designed to meet the prescribed standards. 2. Units would be put out of operation in the event of mal functioning of pollution control practice at BGR. 3. Please Refer Appendix - A1.
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"> 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. 2. All these stations are selected based on modeling exercise representing short-term maximum ground level concentration. 3. All major stacks in BGR are monitored with On-line continuous monitoring analyzers installed for SO₂, NO_x, PM & CO Analysis in all stacks as per CPCB guidelines and connected to CPCB & SPCB servers
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"> 1. No changes are made to the stack design. 2. Steam injection facility is provided in burners of the furnaces.
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 inside. Only during monsoon nominal quantity of effluent is being discharged through eco pond to 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"> 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. 2. Beside samples are tested at BGR Laboratory as per consent condition and also on a daily basis to track effluent quality. 3. All samples conform to the prescribed Revised Effluent Standards 2008 (Pl. Refer Appendix - A2).
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"> 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. 2. All hazardous wastes are handled and disposed off as per provisions of the Hazardous and other Waste (Management & Trans boundary Movement) Rules, 2016 and as per directions of statutory agencies. 3. As a measure of Haz. Waste Management, a new third party is engaged for processing of the oily sludge & recovery of oil from the oily sludge stored in the sludge lagoon. Equipment mobilization by the third party is under progress. During April'20 and September'20, 0.00 MT of oily sludge has been processed by mechanised processing. Melting pit facility is also available for recovering oil from oily sludge. 4. A confined bio-remediation plant of 100 m3 capacity was set up in collaboration with IOCL R&D in 2017 for treatment of oily sludge. During April'20 and September'20, 210 MT of oily sludge has been processed in the Bio- reactor. 5. All statutory returns are sent to PCBA as per the provision of rule.
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 & CC obtained for mounded bullet as per M.B. Lal committee Report.</p> <p>The project is under progress</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&CC.</p> <ol style="list-style-type: none"> a) On site emergency plan exists and mock drills are conducted time to time to verify effectiveness of the plan as per OISD guidelines. 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.

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 <u>Appendix A -13</u> .
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. Environment Laboratory of BGR is accredited by NABL and recognized by CPCB as approved 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 3 rd October 2018. (Copy attached as <u>Appendix-A12</u>)
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. Organogram of HSE Department is attached as <u>Appendix - A11</u> .
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 FY 2019-20 was 503.84 Lacks and CER expenditure against IndMax & BS-VI is 249.9 Lacks till date.
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 –A1STACK MONITORING DATA: (1st April, 2020 to 30th September, 2020)A. SO₂ Emission (mg/Nm³):

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 1700 For F.G. = 50	8.3	46.0	143
CDU-II		20.2	22.5	270
DCU-I		I/M	I/M	I/M
DCU-II		15.4	27.4	71.2
CPP		17	178	453
Reformer		8.3	11.4	22.8
HO-1		5.0	10.7	21.8
HO-2		Shut Down		
Isomerisation		0.8	16.8	59.3
DHDT		8.3	13.6	127.2
HGU		9.1	10.1	13.0
SRU		90.2	90.4	90.4
GTG		0.8	10.2	25.9

B. NO_x Emission (mg/Nm³)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 450 For F.G. = 350	80	81	82
CDU-II		55	56	255
DCU-I		0.6	1.4	12.5
DCU-II		28.3	87.5	206
CPP		9.7	48.5	52.1
Reformer		2.3	38.4	47.8
HO-1		11.5	37.8	50.6
HO-2		Shut Down		
Isomerisation		0.7	56.6	101
DHDT		0.4	42.6	47.1
HGU		12.3	13.1	15.3
SRU		No Analyser		
GTG		35.6	35.9	36.0

C. PM Emission (mg/Nm³)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 100 For F.G. = 10	0.40	0.59	10.4
CDU-II		2.29	2.81	10.2
DCU-I		0.11	3.17	27.3
DCU-II		0.94	1.01	1.07
CPP		0.07	0.82	65.5
Reformer		0.89	0.90	0.93
HO-1		2.21	5.49	17.0
HO-2		Shut Down		
Isomerisation		0.30	0.31	0.31
DHDT		1.23	1.26	1.47
HGU		4.06	4.48	6.91
SRU		5.31	8.34	13.6
GTG		16.8	20.7	32.1

STACK MONITORING DATA: (1st April, 2020 to 30th September, 2020)

D. CO Emission (mg/Nm³)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 200 For F.G. = 150	20.5	21.9	25.6
CDU-II		12.4	27.6	190.1
DCU-I		2.70	21.9	37.0
DCU-II		1.49	1.63	1.76
CPP		0.22	15.2	86.3
Reformer		0.01	11.7	109.7
HO-1		0.62	13.1	78.7
HO-2		Shut Down		
ISOMERISATION		14.8	18.5	31.4
DHDT		0.99	5.10	10.5
HGU		8.42	17.7	22.9
SRU		14.9	15.0	17.5
GTG		1.78	9.11	27.9

E. Ni + V Emission (mg/Nm³):

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, 2020 to 30th September, 2020)

	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	SO₂ (Std. 50/80 µg/m³)						
	Min	4.28	4.00	4.00	4.00	4.00	4.00
	Average	4.30	6.11	5.65	7.14	6.76	5.29
	Max	4.85	10.60	8.80	13.50	12.40	10.20
	No. of observation	Continuous	27	27	28	28	28
2	NO₂ (Std. 40/80 µg/m³)						
	Min	3.91	9.00	9.00	9.00	9.00	9.00
	Average	6.19	10.64	10.34	11.20	11.16	10.17
	Max	6.20	14.70	14.10	16.60	16.90	19.80
	No. of observation	Continuous	27	27	28	28	28
3	PM-10 (Std. 60/100 µg/m³)						
	Min	5.26	28.00	28.00	32.00	28.00	24.00
	Average	6.04	50.16	50.13	56.58	53.04	45.34
	Max	8.74	75.80	76.50	83.40	82.40	71.90
	No. of observation	Continuous	27	27	28	28	28
4	PM-2.5 (Std. 40/60 µg/m³)						
	Min	1.32	12.00	12.00	15.00	14.00	12.00
	Average	1.76	24.42	23.89	27.75	25.64	22.18
	Max	5.41	38.10	37.50	43.10	43.50	40.80
	No. of observation	Continuous	27	27	28	28	28
5	Ammonia (Std. 100/400 µg/m³)						
	Min	4.64	5.00	5.00	5.00	5.00	5.00
	Average	7.40	8.06	7.45	8.43	7.45	6.59
	Max	7.42	15.10	12.20	16.20	12.50	15.10
	No. of observation	Continuous	27	27	28	28	28
6	Pb (Std. 0.5/1.0 µg/m³)						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		27	27	28	28	28
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		27	27	28	28	28

	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 ³)											
	Min		1.50	1.20	0.80	0.80	0.70					
	Average		1.81	2.09	1.87	2.05	0.93					
	Max		2.30	2.80	2.50	2.60	1.50					
	No. of observation		27	27	28	28	28					
9	CO (Std. 2/4 mg/m ³)											
	Min	0.00	0.22	BDL	0.16	0.33	0.29					
	Average	0.14	0.22	BDL	0.24	0.33	0.29					
	Max	0.46	0.22	BDL	0.31	0.33	0.29					
	No. of observation	Continuous	27	27	28	28	28					
10	Ozone (Std.100/180 µg/m ³ for 8 hrs/1 hr)											
	Min	33.22	5.00	5.00	5.00	5.00	5.00					
	Average	37.75	11.72	7.37	10.07	9.95	7.36					
	Max	46.46	26.40	20.00	21.20	23.50	22.10					
	No. of observation	Continuous	27	27	28	28	28					
11	Benzene (Std. 5 µg/m ³)											
	Min	0.24	BDL	BDL	BDL	BDL	BDL					
	Average	0.27	BDL	BDL	BDL	BDL	BDL					
	Max	0.30	BDL	BDL	BDL	BDL	BDL					
	No. of observation	Continuous	27	27	28	28	28					
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		27	27	28	28	28					
Average of Six Stations												
Parameter	SO ₂	NO ₂	PM-10	PM-2.5	NH ₃	Pb	As	Ni	Benzo (a) Pyrene	CO	C ₆ H 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	4.00	3.91	5.26	1.32	4.64	BDL	BDL	0.70	BDL	0.00	0.26	5.00
Average	5.88	9.95	43.55	20.94	7.56	BDL	BDL	1.75	BDL	0.24	0.28	14.04
Max	13.5	19.8	83.40	43.50	16.20	BDL	BDL	2.80	BDL	0.46	0.28	46.46

APPENDIX-A2**Effluent Discharged (Figure in M³/Hr): (1st April, 2020 to 30th September, 2020)**

A	Industrial Effluent M³/Hr	169.16
B	Domestic Effluent from BGR Township M³/Hr	45.6
C	Total Effluent Treated (A + B) M³/Hr	214.8
D	Treated Effluent Reused M³/Hr	212.8
E	Effluent Discharged M³/Hr	2.02
F	M³ of Effluent discharged for 1000 tons of Crude processed	7.51

1. Treated Effluent Quality**(1st April, 2020 to 30th September, 2020)**

Sl. No	Parameter	Std,2008	Min	Avg.	Max
1	p ^H value	6.0 - 8.5	6.5	6.9	7.5
2	Oil and Grease, mg/l	5.0	1.2	3.6	5.0
3	Bio-Chemical Oxygen Demand (3 Day at 27°C), mg/l	15.0	2.0	7.0	14.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	4.0	29.4	123.0
5	Suspended solids, mg/l	20.0	8.0	14.4	20.0
6	Phenolic compounds (as C ₆ H ₅ OH), mg/l	0.35	0.04	0.15	0.35
7	Sulphide (as S), mg/l	0.50	0.04	0.21	0.50
8	CN mg/l	0.20	0.10	0.10	0.10
9	Ammonia as N, mg/l	15.0	1.12	1.43	1.70
10	TKN, mg/l	40.0	4.50	4.84	5.30
11	P, mg/l	3.0	0.21	0.28	0.42
12	Cr (Hexavalent), mg/l	0.10	0.05	0.05	0.050
13	Cr (Total), mg/l	2.0	0.05	0.05	0.050
14	Pb, mg/l	0.10	0.02	0.04	0.06
15	Hg, mg/l	0.01	0.001	0.001	0.001
16	Zn, mg/l	5.0	0.24	0.39	0.52
17	Ni, mg/l	1.0	0.15	0.18	0.20
18	Cu, mg/l	1.0	0.12	0.16	0.18
19	V, mg/l	0.20	0.10	0.10	0.10
20	Benzene, mg/l	0.10	0.01	0.01	0.01
21	Benzo (a) pyrene, mg/l	0.20	0.01	0.01	0.01

EFFLUENT QUALITY

2. Final Outlet (From the Complex) Effluent Quality

(1st April, 2020 to 30th September, 2020)

Sl. No.	Parameter	Std 2008	Min	Avg.	Max
1	p ^H value	6.0 - 8.5	6.00	6.71	7.50
2	Oil and Grease, mg/l	5.0	0.60	3.59	5.00
3	Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l	15.0	2.00	6.2	14.00
4	Chemical Oxygen Demand (COD), mg/l	125.0	4.00	22.2	122.00
5	Suspended Solids, mg/l	20.0	4.00	12.4	20.00
6	Phenolic compounds (as C ₆ H ₅ OH), mg/l	0.35	0.03	0.13	0.35
7	Sulphide (as S), mg/l	0.50	0.04	0.16	0.45
8	CN, mg/l	0.20	0.01	0.01	0.01
9	Ammonia as N , mg/l	15.0	1.24	1.68	2.12
10	TKN, mg/l	40.0	3.50	4.78	5.80
11	P, mg/l	3.0	0.25	0.31	0.38
12	Cr (Hexavalent), mg/l	0.10	0.05	0.05	0.05
13	Cr (Total), mg/l	2.0	0.05	0.05	0.05
14	Pb, mg/l	0.10	0.01	0.035	0.06
15	Hg, mg/l	0.01	0.001	0.001	0.001
16	Zn, mg/l	5.0	0.28	0.350	0.45
17	Ni, mg/l	1.0	0.10	0.17	0.21
18	Cu, mg/l	1.0	0.14	0.166	0.2
19	V, mg/l	0.20	0.10	0.10	0.10
20	Benzene, mg/l	0.10	0.01	0.01	0.01
21	Benzo (a) pyrene, mg/l	0.20	0.01	0.01	0.01

5.0

APPENDIX - A3

Tree Plantation (1st April, 2020 to 30th September, 2020)

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 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

In the financial year 2018-19, BGR has planted 30,062 nos and in FY 2019-20 14340 nos. of sapling in and around the complex

During, 1st April, 2020 to 30th September, 2020 BGR has planted 19405 nos. of tree saplings

Tree Plantation 2017-18



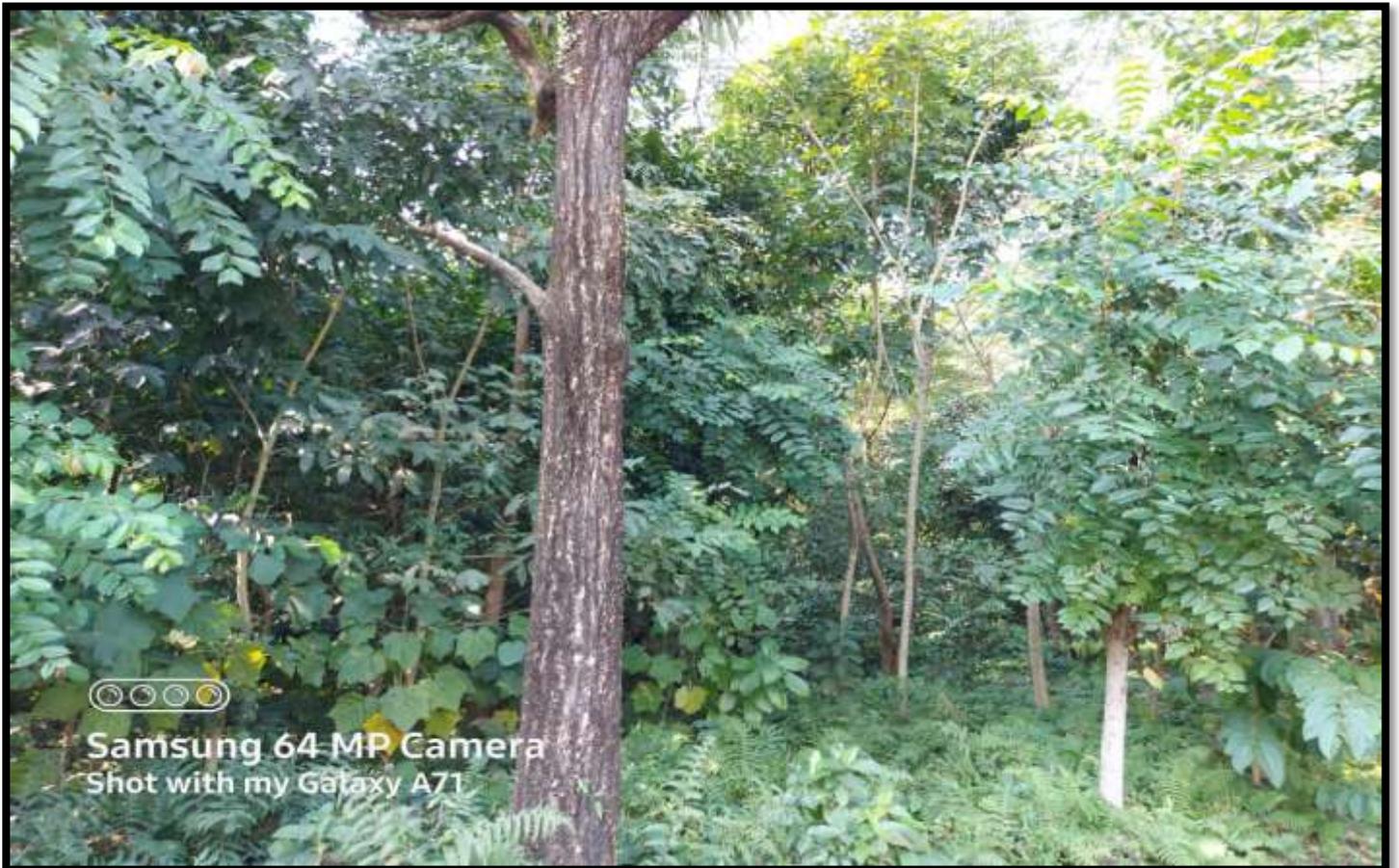
COMPLEX OLD DEBRIS YARD DEVELOPED INTO GREEN BELT. Planted in July'17, GROWTH as on 04.10.19

Tree Plantation 2017-18



Birhangaon State Dispensary Plantation, 10,000 nos. Sapling Planted by Miyawaki Method in the month of August,2017. Growth as on 30.06.2020

Tree Plantation 2017-18



IOCL, BGR TOWNSHIP PLANTATION. Planted on April'17 Growth as on 14.10.2020

Tree Plantation 2018-19



BGR TOWNSHIP PLANTATION, Planted Van mahotsav 2018, Growth as on 14.10.2020

Tree Plantation 2019-20



North Bongaigaon High School, 5250 Sapling Planted by Miyawaki Method in the month of September,2019

Tree Plantation 2019-20



Birhangaon State Dispensary Plantation, 5375 nos. Sapling Planted by Miyawaki Method in the month of September,2019 Growth as on 14.10.2020.

Tree Plantation 2020-21



On WED'2020, 3740 nos. of sapling planted in BGR Township.



4810 nos of sapling Planted in the month of August'2020 at Hatipota Brahma Mandir.



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

APPENDIX – A 4

Additional Information

(1st April, 2020 to 30th September, 2020)

Effluent reused during the period was around **99.06%** 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, 2020 to 30th September, 2020, 2020, 18194** potential leaky points checked and **148** Leaky points detected and rectified. By following LDAR programme in true spirit, the company could not only avoid potential loss of 152.7 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, 2020 to 30th September, 2020**, Noise Survey for the two quarters of **2019-20** 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 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 and at present per batch approximately 35 m³ of oily sludge is being processed. From **1st April, 2020 to 30th September, 2020, 210 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 in the FY 2020-21.

APPENDIX –A5

Quarterly Fugitive emission Data
(1st April, 2020 to 30th September, 2020)



**FUG EMISSION DATA
1ST QTR 20-21.doc**



**FUG EMISSION DATA
2ND QTR 20-21.doc**

8.0

APPENDIX-A6 (a)



Haz Waste Return
FORM-4 (2019-20).doc

9.0

Annexure –A6 (b)

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



HW Authorisation
2019.pdf

APPENDIX-A7

Detail of Waste water treatment and disposal system.



ETP Description.pdf

ANNEXURE-A8

Quarterly Noise Survey Data

(1st April, 2020 to 30th September, 2020)

HSE (ENVIRONMENT) DEPARTMENT



NOISE SURVEY DATA
1st QTR 20-21.docx



NOISE SURVEY DATA
2ND QTR 2020-21.do

ANNEXURE-A9
Rain Water Harvesting Data

BGR: Rain Water Harvesting till Sept 2020

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	1586		
4	Rainwater Harvesting at Parivesh Udyan Pond	5775	16817		
5	Rainwater Harvesting at Eco-Park Pond	20000	58240	14697	In operation
6	Mandir Complex	833	2274		
7	Manas Guest House	639	1744		
8	BGR HS School, BGR Township	1361	3716		
9	DPS Block-I	704	1922		
10	DPS Block-II	1810	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	825	2252		
16	CISF Conference Hall & Barack	1050	2867	4641	In operation
17	BGR Community Centre	650	1775		
18	Foot Ball Stadium gallery	988	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
	TOTAL	54,152	153821	153821	


 18/11/2020
 R. Ramchiamy
 DGM (TS)

ANNEXURE-A10
Screen Shot of IOCL Website upload of report
Link: <https://iocl.com/Talktous/SNotices.aspx>

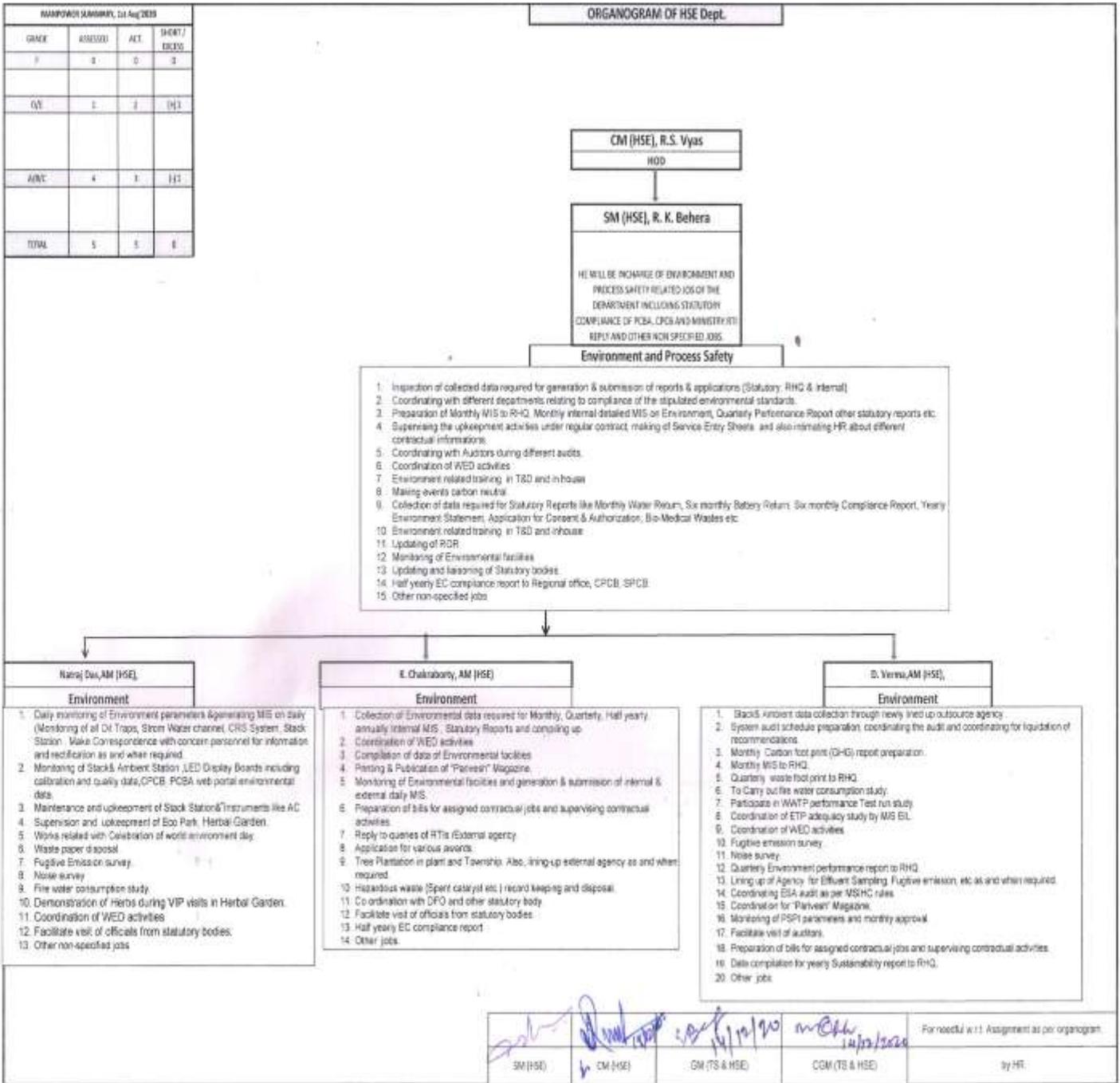
The screenshot shows the IOCL website's 'Statutory Notices' page. The page header includes the IOCL logo and navigation links. The main content area lists various notices, with the following items visible:

- Half Yearly Compliance Report of ECs issued to IOCL, Paradip Refinery **new!**
- Statutory clearances and compliance status of Haldia Refinery
 - HR_BS VI 2017_EC
 - HR_Corrected EC for DYP and CDU expansion corrigendum 20.03.2017
- Six Monthly Compliance Indmax BS VI etc 2nd half, 2019-20
- Six Monthly Compliance (Refinery-II) 2nd half, 2019-20
- Six Monthly Compliance (MS Maximisation) 2nd half 2019-20** (highlighted with a grey background and a black arrow pointing to it)
- Six Monthly Compliance (MS Quality improvement project) 2nd half, 2019-20
- Six Monthly Compliance (DHDT Project) 2nd half 2019-20
- Half yearly compliance report of conditions stipulated in all existing ECs of Haldia Refinery for the period of Oct'19 to Mar'20
- Half Yearly Compliance Reports (October'19 – March 20)
- Half Yearly Compliance Reports (April'19 – September 19)
- Capacity Determination compliance report as per Schedule -I, under Regulation 4 (2) of the Petroleum and Natural Gas Regulatory Board (Access Code for Common Carrier or Contract Carrier Natural Gas Pipelines) Regulations, 2008 as on 01.06.2020
- Capacity Determination compliance report as per Schedule -I, under Regulation 4 (2) of the Petroleum and Natural Gas Regulatory Board (Access Code for Common Carrier or Contract Carrier Natural Gas Pipelines) Regulations, 2008 as on 01.05.2020
- Capacity Determination compliance report as per Schedule -I, under Regulation 4 (2) of the Petroleum and Natural Gas Regulatory Board (Access Code for Common Carrier or Contract Carrier Natural Gas Pipelines) Regulations, 2008 as on 01.04.2020
- Environmental Clearance of projects at Dumad, Vadodara (Gujarat) dated 05.03.2020.
- Capacity Determination compliance report as per Schedule -I, under Regulation 4 (2) of the Petroleum and Natural Gas Regulatory Board (Access Code for Common Carrier or Contract Carrier Natural Gas Pipelines) Regulations, 2008 as on 01.03.2020
- Capacity Determination compliance report as per Schedule -I, under Regulation 4 (2) of the Petroleum and Natural Gas Regulatory Board

The page also features a 'We are Listening' sidebar with links for 'Help' and 'Pahal-Related Queries'. The footer includes a search bar and system tray information.

APPENDIX-A11

HSE Organogram of IOCL-BGR



ANNEXURE-A12**Gazette Notification of BGR Quality Control laboratory (QC Lab)
Approval under Environment (Protection) Act 1986**

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVT. OF INDIA

C-11012/90/1998-Tech/

13209

November 29, 2018

Speed Post

To

✓ Sh H.K.Sarma
Quality Control Manager
Quality Control Laboratory
Indian Oil Corporation Limited
Bangaigaon
P.O. Dhaligaon-783385
Dist. Chirang Assam

Sub: Notification of Government Analysts of Quality Control Laboratory of Indian Oil Corporation Limited Bangaigaon P.O. Dhaligaon-783385 Dist. Chirang Assam, in Govt. of India Gazette-rcg.

Ref: Your letter no. Dated 23.04.2018
Our letter no.: C-11012/90/1998 Tech/3256 Dated 20.07.2016

Sir,

Apropos above, it is to inform that the proposal of substitution of superannuated/transferred Government Analysts of Quality Control Laboratory of Indian Oil Corporation Limited Bangaigaon P.O. Dhaligaon-783385 Dist. Chirang Assam was approved in the 181st Board Meeting held on June 19, 2018 and afterward notified in the Govt. of India Gazette No. 439 Dated November 20, 2018 vide notification number Lega. 42(3)/87 dated October 3, 2018. The copy of Gazette Notification is enclosed herewith for your reference and record please.

Yours Faithfully


(R.K. Jakhmola)

Scientist-E & Divisional Head
Instrumentation Laboratory

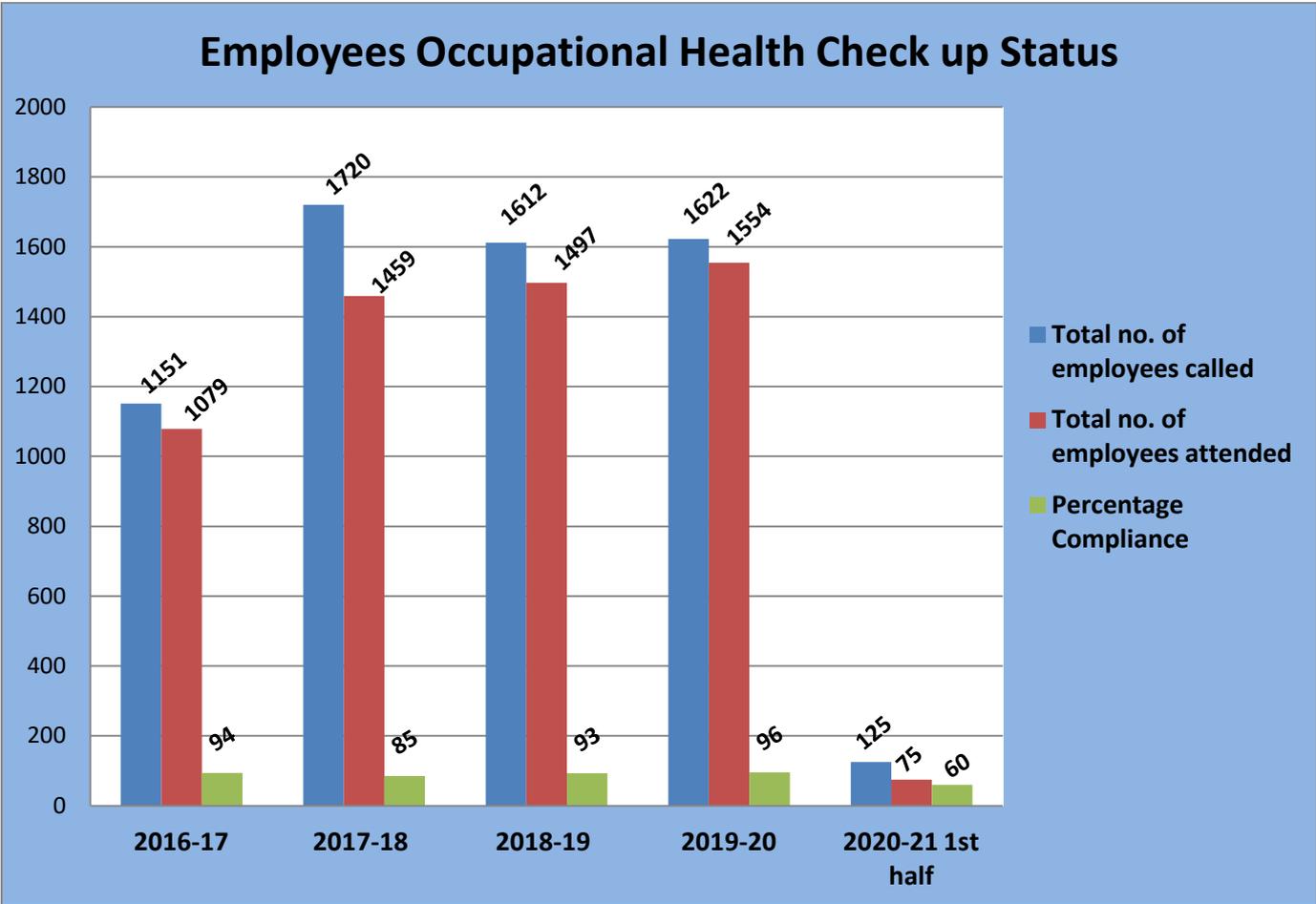
'परिवेश भवन' पूर्वी अजुन नगर, दिल्ली-110032

Parivesh Bhawan, East Arjun Nagar, Delhi-110032

दूरभाष: Tel: 43102030, 22305792, वेबसाइट/Website: www.cpcb.nic.in

Appendix-A13

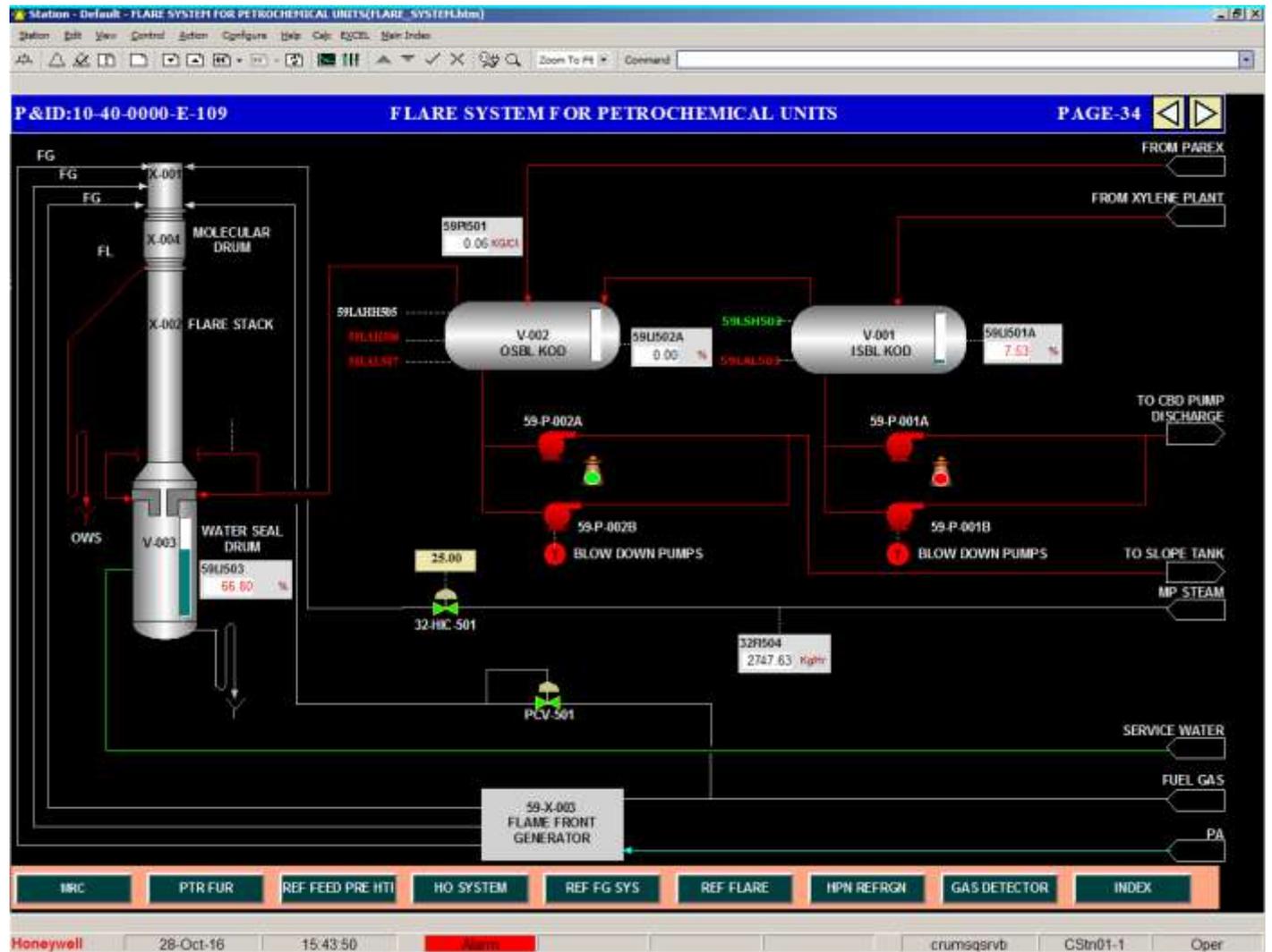
Employees Occupational Health Check up Status



17.0

Appendix-A14

Flare system.



THANKS