REF: IOC/BGR/ENV/REP/MoEF&CC/2019-20/02 **Date: 20.06.2020**

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

Subject: Half Yearly Report for the period of (1st October, 2019 to 31st March, 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 October, 2019 to 31st March, 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,

(A.Basumatary)
DGM (HSE)

Copy to:

1. Member Secretary, Pollution Control Board, Assam
   Bamunimaidam, Guwahati - 781 021

2. Zonal Officer, Central Pollution Control Board
   Eastern Zonal Office, 'TUM-SIR', Lower Motinagar,
   Near Fire Brigade H.Q., Shillong – 793014

"Half Yearly Report for "Refinery Expansion Project"

(1st October, 2019 to 31st March, 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

1.0

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

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

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

May-29, 1991.
June 3

MIN ENV & FORESTS
(ENVT) ... (G)
Rec'd on 21.6.91
Diary No. 115

OFFICE MEMORANDUM

Subject:- Refinery expansion Debottlenecking the reformer and LPG facilities:-Bongaigaon Refineries and Petrochemics 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 stipulatic made by the State Pollution Control Board and the State Governmer 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 subm itted 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.

conted.....2/-

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

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

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

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

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

(R.ANANDAKUMAR)
SCIENTIST 'SF'

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

Copy to:-

1. Chairman and Managing Director, Bongaigaon Refineries, & Petrochemicals Ltd,P.O. Dhaligaon, Distt. Bongaigaon, Assam-783 385.
2. Chairman,Assam State Pollution Control Board, Bamuni Maidam Guwahati-782 021.
3. Chairman, Central Pollution Control Board, Parivesh Bhavan, CBI-cum-office Complex, East Arjun Nagar, Shahdara, Delhi-3
4. Chief Conservator of Forests(Central) Regional Office (North East Region) Upland Road, LOITUMKHRAH, SHILLONG-793
5. Adviser(Energy) Planning Commission Yojana Bhavan, New Delhi
6. Adviser (PAD) 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.	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.**
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.	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.	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, NOx, 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.	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 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.	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.	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 third party is engaged for processing of the oily sludge & recovery of oil from the oily sludge stored in the sludge lagoon. During **Oct'19 and Mar'20**, **670** 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 **Oct'19 and Mar'20**, **165** 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.	Risk Analysis for LPG Storage was prepared and submitted to MOEF in 1992. Environment Clearance from MOEF & CC obtained for mounded bullet as per M.B. Lal committee Report. The project is under progress
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.	Detailed risk analysis was prepared and the report was submitted to MoEF&CC. 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 **Appendix A -13**.
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 3rd October 2018. **(Copy attached as Appendix-A12)**
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 **Appendix - A11**.
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. Expenditure for the financial year 2018-19 was **Rs.1066.6** Lacks and in the financial year 2019-20 was **Rs. 503.84** Lacks.
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.	--

3.0

APPENDIX –A1

STACK MONITORING DATA: (1st October, 2019 to 31st March, 2020)

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	18	121	328
CDU-II		14	21	21
DCU-I		1.1	114	188
DCU-II		1.1	29	103
CPP		18	57	329
Reformer		4.8	16	114
HO-1		0.8	19	97
HO-2		Shut Down		
Isomerisation		2.0	10	39
DHDT		8.4	14	115
HGU		7.1	12	20
SRU		10	51	131
GTG		3.1	11	20

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	81	85	86
CDU-II		4.8	4.9	5.3
DCU-I		0.6	56	70
DCU-II		29	48	115
CPP		51	68	84
Reformer		10	31	56
HO-1		11	113	228
HO-2		Shut Down		
Isomerisation		2.7	65	91
DHDT		27	30	46
HGU		1.0	7.8	92
SRU		No Analyser		
GTG		33	36	36

C. PM Emission (mg/Nm^3)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 100 For F.G. = 10	0.32	1.1	2.3
CDU-II		1.8	1.9	1.9
DCU-I		2.3	2.3	2.4
DCU-II		0.35	0.7	1.8
CPP		0.34	0.8	1.4
Reformer		0.17	1.1	2.3
HO-1		1.0	2.8	31.3
HO-2		Shut Down		
Isomerisation		0.31	1.2	5.4
DHDT		1.3	1.4	2.2
HGU		6.5	6.7	7.2
SRU		6.0	8.3	9.9
GTG		1.1	13.7	21.8

STACK MONITORING DATA: (1st October, 2019 to 31st March, 2020)

D. CO Emission (mg/Nm^3)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 200 For F.G. = 150	11.2	17.3	28.9
CDU-II		13.7	29.1	51.5
DCU-I		4.0	24.1	411.1
DCU-II		1.5	10.4	33.9
CPP		1.2	23.9	77.5
Reformer		1.7	20.4	44.9
HO-1		1.8	32.0	117.5
HO-2		Shut Down		
ISOMERISATION		1.0	15.9	32.9
DHDT		10.2	10.4	10.5
HGU		4.9	5.4	6.2
SRU		1.4	1.5	1.5
GTG		9.4	20.5	28.5

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 October, 2019 to 31st March, 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	SO_2 (Std. 50/80 µg/m^3)						
	Min	0.08	5.80	6.80	8.20	7.20	5.50
	Average	5.1	7.85	8.17	10.48	9.27	6.77
	Max	35.6	8.80	9.50	11.80	10.80	7.80
	No. of observation	Continuous	55	55	55	55	55
2	NO_2 (Std. 40/80 µg/m^3)						
	Min	6.0	10.80	11.2	11.80	11.20	9.00
	Average	6.3	13.07	13.5	14.26	13.63	10.62
	Max	8.1	14.80	14.8	16.50	15.80	12.20
	No. of observation	Continuous	55	55	55	55	55
3	PM-10 (Std. 60/100 µg/m^3)						
	Min	0.49	60.0	62.0	65.00	62.00	52.00
	Average	21.4	75.7	76.7	83.95	78.58	68.85
	Max	76.6	84.0	84.0	94.00	86.00	76.00
	No. of observation	Continuous	55	55	55	55	55
4	PM-2.5 (Std. 40/60 µg/m^3)						
	Min	1.4	26.0	24.0	26.00	28.00	24.00
	Average	3.6	37.4	37.7	42.09	39.38	33.55
	Max	15.6	44.0	44.0	48.00	45.00	40.00
	No. of observation	Continuous	55	55	55	55	55
5	Ammonia (Std. 100/400 µg/m^3)						
	Min	4.6	8.8	9.2	9.50	8.20	6.20
	Average	7.2	11.2	11.4	11.87	10.75	8.03
	Max	7.5	12.8	12.8	14.20	12.80	10.20
	No. of observation	Continuous	55	55	55	55	55
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		55	55	55	55	55

	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
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		55	55	55	55	55
8	Ni (Std. 20 ng/m3)						
	Min		1.20	2.00	2.20	1.60	1.50
	Average		2.53	2.81	3.57	2.89	1.81
	Max		3.50	3.50	4.50	3.80	2.20
	No. of observation		55	55	55	55	55
9	CO (Std. 2/4 mg/m3						
	Min	0.01	0.18	0.16	0.22	0.15	BDL
	Average	0.05	0.21	0.22	0.37	0.29	BDL
	Max	0.15	0.26	0.28	0.48	0.38	BDL
	No. of observation	Continuous	55	55	55	55	55
10	Ozone (Std.100/180 µg/m^3 for 8 hrs/1 hr)						
	Min	27.9	16.0	16.0	16.00	16.00	15.00
	Average	38.6	19.1	19.4	20.08	19.53	18.45
	Max	59.3	24.0	26.0	24.22	24.00	24.00
	No. of observation	Continuous	55	55	55	55	55
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	55	55	55	55	55
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		55	55	55	55	55

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	**0.08**	**6.00**	**0.49**	**1.40**	**4.64**	**BDL**	**BDL**	**1.20**	**BDL**	**0.01**	**0.24**	**15.00**
Average	**7.95**	**11.67**	**67.52**	**32.28**	**10.07**	**BDL**	**BDL**	**2.72**	**BDL**	**0.23**	**0.27**	**22.53**
Max	**35.59**	**16.50**	**94.00**	**48.00**	**14.20**	**BDL**	**BDL**	**4.50**	**BDL**	**0.48**	**0.30**	**59.33**

4.0

APPENDIX-A2

Effluent Discharged (Figure in M^3/Hr): (1st October, 2019 to 31st March, 2020)

A	Industrial Effluent M^3/Hr	178.48
B	Domestic Effluent from BGR Township M^3/Hr	40.35
C	Total Effluent Treated (A + B) M^3/Hr	218.83
D	Treated Effluent Reused M^3/Hr	196.6
E	Effluent Discharged M^3/Hr	1.95
F	M^3 of Effluent discharged for 1000 tons of Crude processed	8.22

1. Treated Effluent Quality

(1st October, 2019 to 31st March, 2020)

Sl. No	Parameter	Std,2008	Min	Avg.	Max
1	p^H value	6.0 - 8.5	6.5	7.2	8.5
2	Oil and Grease, mg/l	5.0	1.0	3.2	5.0
3	Bio-Chemical Oxygen Demand (3 Day at 27°C), mg/l	15.0	1.0	6.4	15.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	10.0	63.5	125.0
5	Suspended solids, mg/l	20.0	4.0	12.7	20.0
6	Phenolic compounds (as C6H5OH), mg/l	0.35	0.03	0.17	0.34
7	Sulphide (as S), mg/l	0.50	0.03	0.22	0.50
8	CN mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N, mg/l	15.0	0.74	0.94	1.28
10	TKN, mg/l	40.0	2.50	3.40	4.50
11	P, mg/l	3.0	0.24	0.26	0.26
12	Cr (Hexavalent), mg/l	0.10	-	BDL	-
13	Cr (Total), mg/l	2.0	-	BDL	-
14	Pb, mg/l	0.10	0.04	0.045	0.050
15	Hg, mg/l	0.01	-	BDL	-
16	Zn, mg/l	5.0	0.22	0.29	0.35
17	Ni, mg/l	1.0	0.15	0.17	0.18
18	Cu, mg/l	1.0	0.06	0.10	0.14
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 October, 2019 to 31st March, 2020)

Sl. No.	Parameter	Std 2008	Min	Avg.	Max
1	p^H value	6.0 - 8.5	6.50	7.38	8.50
2	Oil and Grease, mg/l	5.0	1.00	2.74	5.00
3	Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l	15.0	1.20	5.1	14.40
4	Chemical Oxygen Demand (COD), mg/l	125.0	20.00	46.3	90.00
5	Suspended Solids, mg/l	20.0	4.000	11.2	18.00
6	Phenolic compounds (as C_6H_5OH), mg/l	0.35	0.030	0.116	0.31
7	Sulphide (as S), mg/l	0.50	0.040	0.164	0.35
8	CN, mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N , mg/l	15.0	0.76	1.48	3.50
10	TKN, mg/l	40.0	2.80	4.30	6.80
11	P, mg/l	3.0	0.22	0.26	0.32
12	Cr (Hexavalent), mg/l	0.10	-	BDL	-
13	Cr (Total), mg/l	2.0	-	BDL	-
14	Pb, mg/l	0.10	0.05	0.050	0.05
15	Hg, mg/l	0.01	-	BDL	-
16	Zn, mg/l	5.0	0.25	0.342	0.45
17	Ni, mg/l	1.0	-	BDL	-
18	Cu, mg/l	1.0	0.06	0.114	0.2
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 October, 2019 to 31st March, 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.

During, Financial year 2019-20 BGR has planted 14340 nos. of tree saplings

Tree Plantation 2017-18

COMPLEX OLD DEBRIS YARD DEVELOPED INTO GREEN BELT. Planted in July'17, GROWTH as on Dec'2020

IOCL, BGR TOWNSHIP PLANTATION. Planted on April'17 Growth as on 04.10.2019

Tree Plantation 2018-19

BGR TOWNSHIP PLANTATION, Planted Van mahotsav 2018, Growth as on April.2020

Tree Plantation 2019-20

Birhangaon State Dispensary Plantation, 5375 nos. Sapling Planted by Miyawaki Method in the month of September,2019. Grouth as on April, 2020

APPENDIX – A 4

Additional Information

(1st October, 2019 to 31st March, 2020)

Effluent reused during the period was around **99.11%** 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 October, 2019 to 31st March, 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 October, 2019 to 31st March, 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 October, 2019 to 31st March, 2020, 165 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.

6.0

APPENDIX –A5

Quarterly Fugitive emission Data

(1st October, 2019 to 31st March, 2020)

FUG EMISSION DATA
3RD QTR 19-20.docx

FUG EMISSION DATA
4RD QTR 19-20.docx

8.0

APPENDIX-A6 (a)

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

9.0

Annexure –A6 (b)

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

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 October, 2019 to 31st March, 2020)

HSE (ENVIRONMENT) DEPARTMENT

NOISE SURVEY DATA
3RD QTR 19-20.docx

NOISE SURVEY DATA
4TH QTR 19-20 .docx

12.0

ANNEXURE-A9

Rain Water Harvesting Data

BGR: Rain Water Harvesting till Mar 2019

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		
6	Mandir Complex	833	2274	14597	In operation
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				
	TOTAL	50,107	142780	1,42,780	

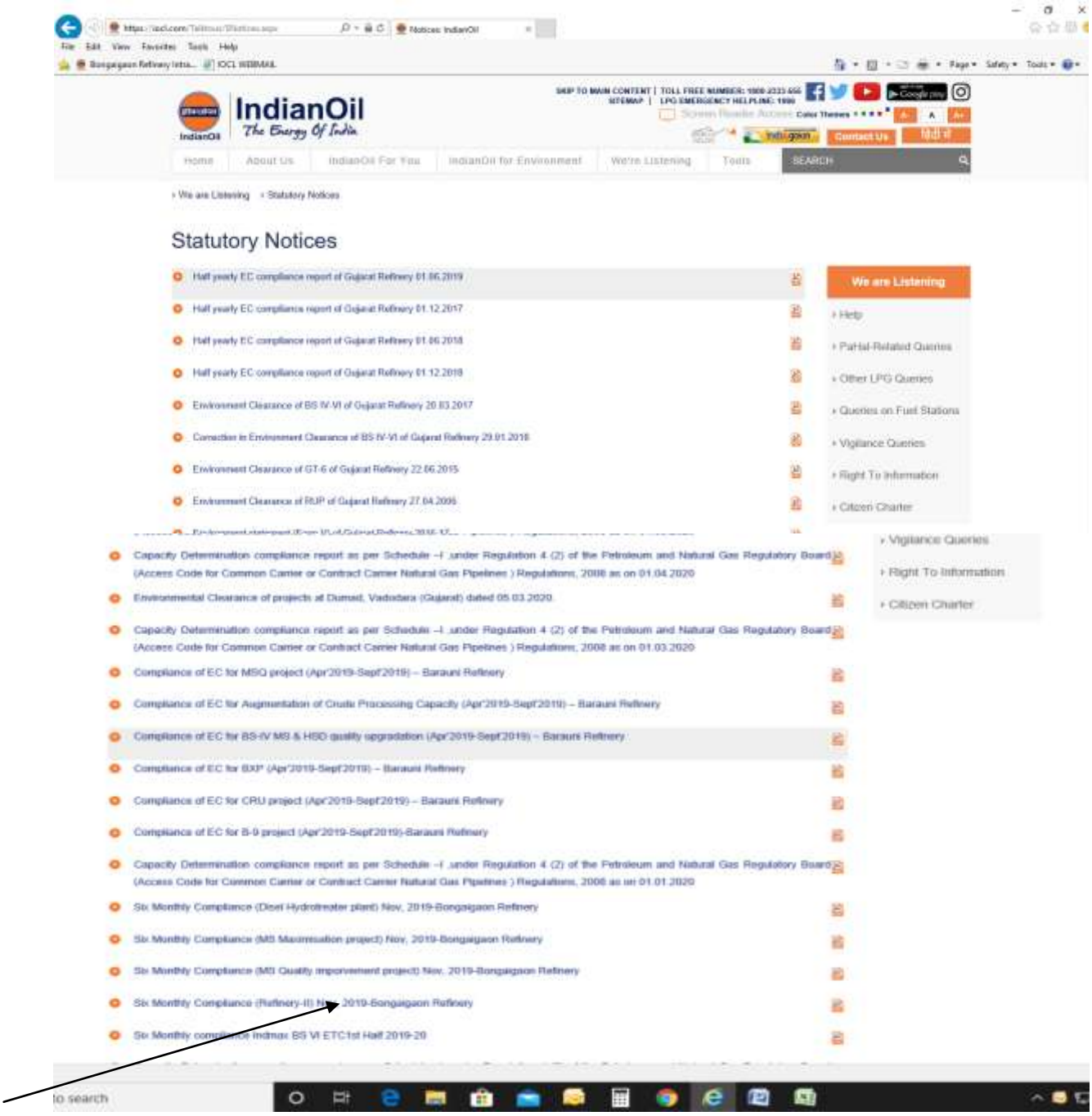
अभिजित बरुवातारी / Abhijeet Baruatary
उप महाप्रबंधक (एचएसई) / Dy. General Manager (HSE)
बोंगाईगाँव रिफाइनरी, इंडियन ऑयल कॉर्पोरेशन लिमिटेड
Bongaigaon Refinery, Indian Oil Corporation Limited
डाकघर : धालीगाँव P.O. : Dhaligaon - 783385
जिला : चिरांग (असम) Distt. : Chirang (Assam)

13.0

ANNEXURE-A10

Screen Shot of IOCL Website upload of report

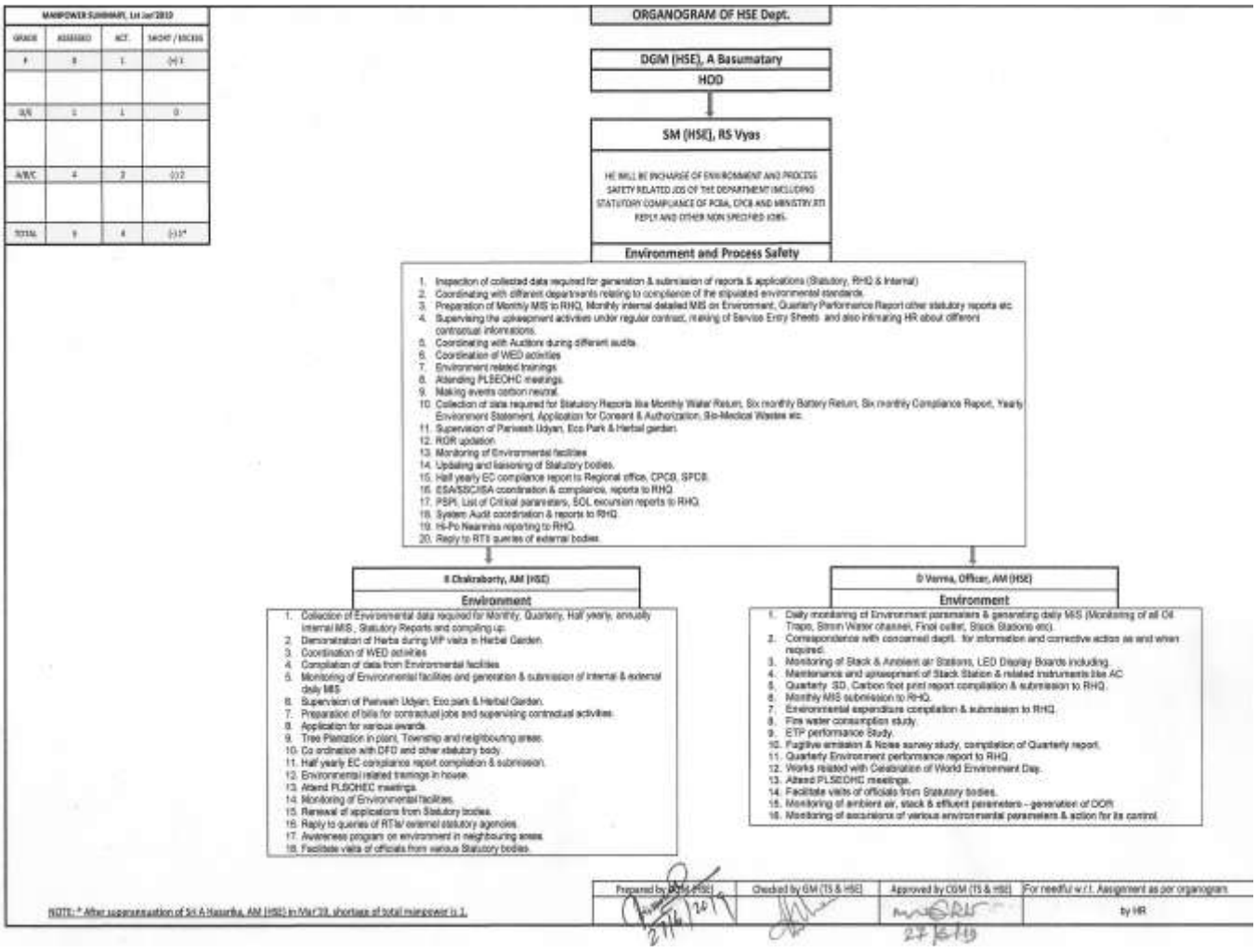
Link: https://iocl.com/Talktous/SNotices.aspx



14.0

APPENDIX-A11

HSE Organogram of IOCL-BGR



15.0

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-783385Dist. Chirang Assam, in Govt. of India Gazette-reg.

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.

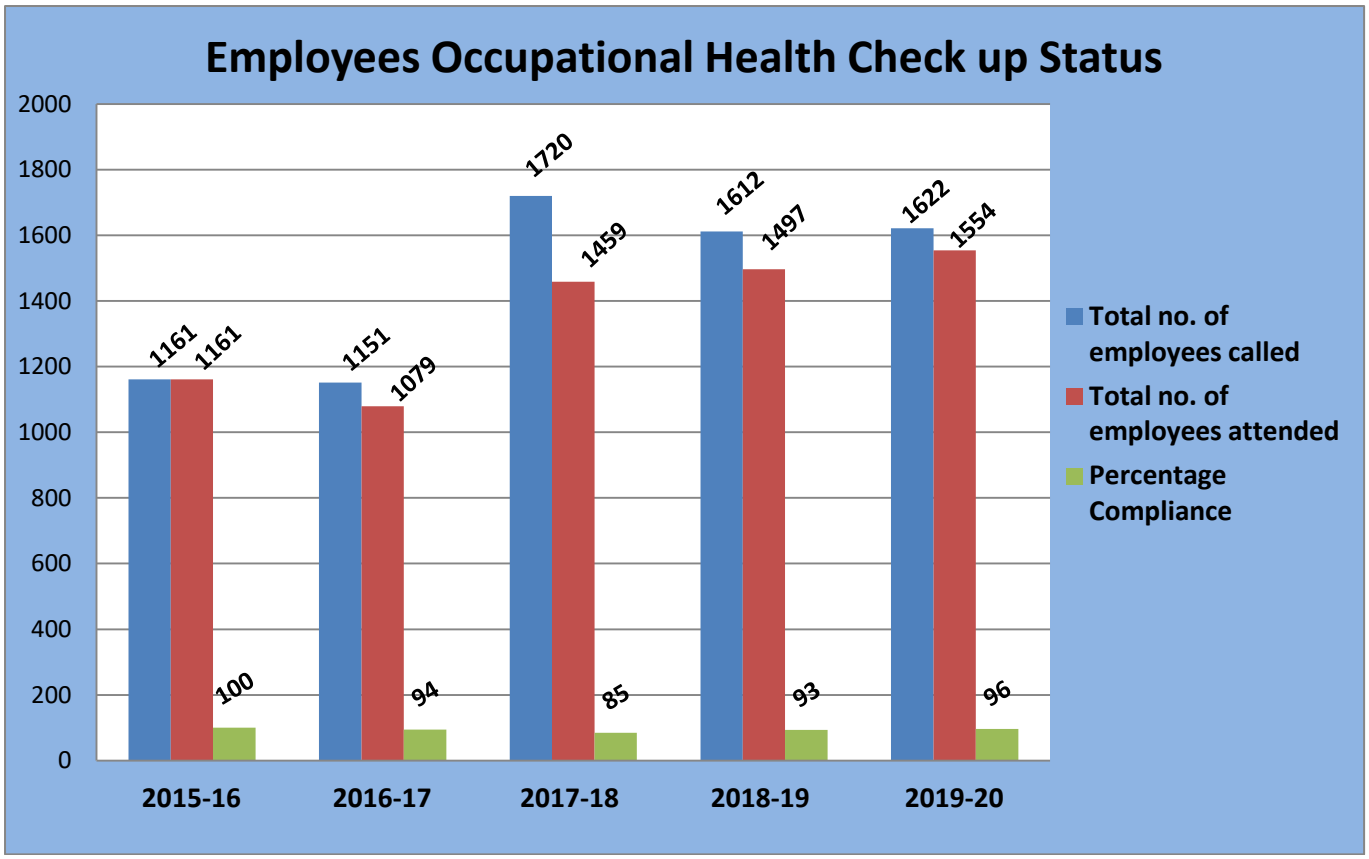
Yours Faithfully

(R.K. Jakhmola)
Scientist-E & Divisional Head
Instrumentation Laboratory

16.0

Appendix-A13

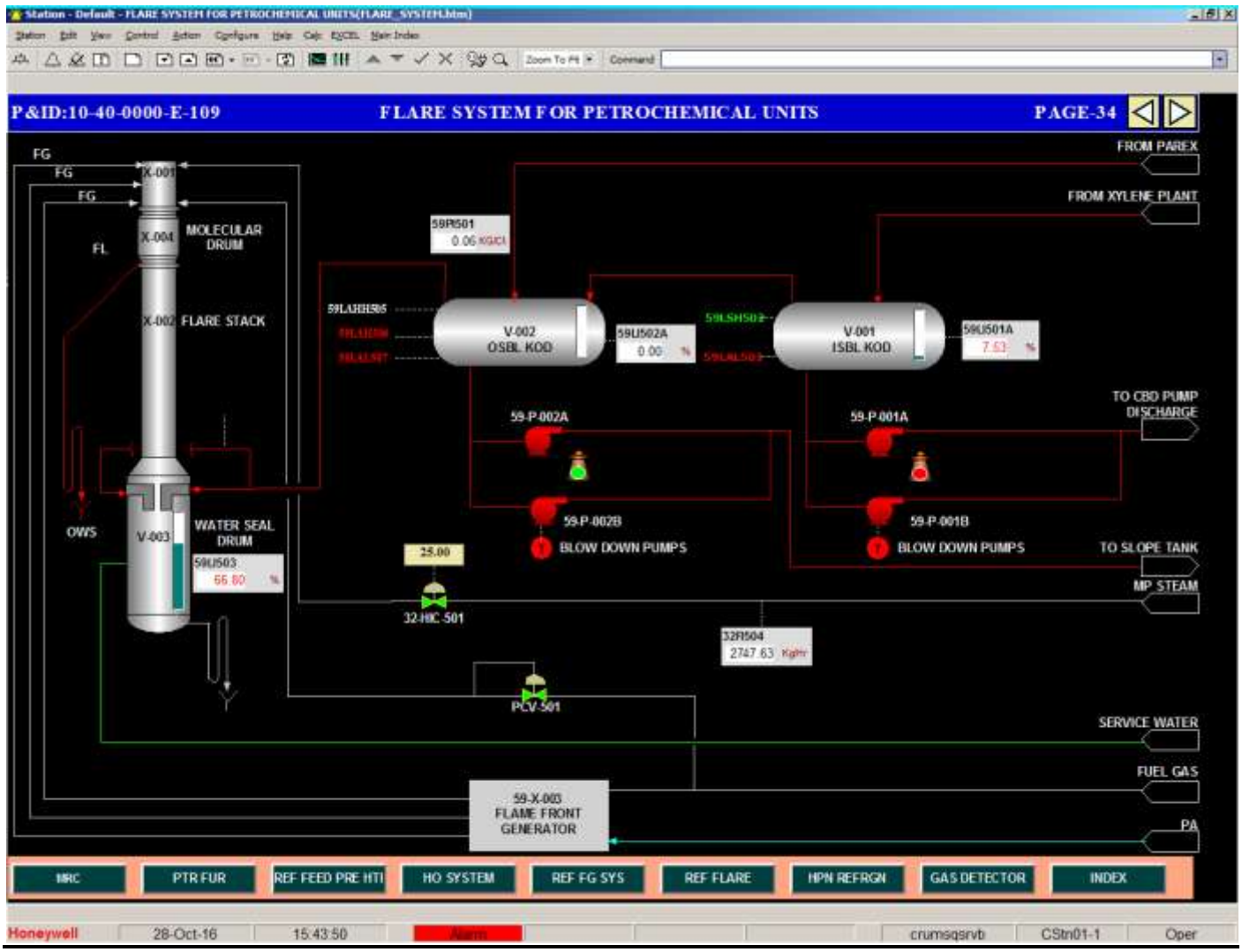
Employees Occupational Heath Check up Status



17.0

Appendix-A14

Flare system.



THANKS