



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

बोंगाइगॉव रिफाइनरी

डाकघर : घालीगॉव - 783 385

जिला : चिरांग (असम)

Indian Oil Corporation Limited

Bongaigaon Refinery

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

Phone : 03664-

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रिफाइनरी प्रभाग
Refineries Division

REF: IOC/BGR/ENV/REP/MoEF&CC/2018-19/02

Date: 20.06.2019

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 2018 to 31st March 2019) 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 2018 to 31st March 2019 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 2018 to 31st March 2019)**

**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
(IA-II Division)

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

May-29, 1991.
Time 3

MIN ENV & FORESTS
GOVT. OF INDIA
(PVT. SECT. DIV.)
Rec'd on 27.6.91
Diary No. 115

OFFICE MEMORANDUM

Subject:- Refinery expansion Debottlenecking the reformer and
LPG facilities:-Bongaigon 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

21/6/91

17/7/91

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 inorelia 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 'SS'

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. Dhalgaon, Distt. Bongaigaon, Assam-763 305.
2. Chairman, Assam State Pollution Control Board, Bamuni Maidan, Guwahati-762 021.
3. Chairman, Central Pollution Control Board, Parivesh Bhavan, CBF-cum-office Complex, East Arjun Nagar, Shadara, Delhi-110023.
4. Chief Conservator of Forests (Central) Regional Office (North East Region) Upland Road, LOITUGHURAH, SHILLONG-793 001.
5. Adviser (Energy) Planning Commission Yojana Bhavan, New Delhi.
6. Adviser (P&N) 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, DHDTP 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 nominal quantity of effluent is being discharged through Eco park 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 ISO-14001 in environmentally friendly manner. 2. All hazardous wastes are handled and disposed off as per provisions of the Hazardous and other Waste (Management, Handling & 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'18- March'19, 2135.08 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 October'2018- March'2019, 84 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. Environment Clearance from MOEF & CC obtained for mounded bullet as per M.B. Lal committee Report. 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.
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 C.P.C.B. 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. Expenditure for the financial year 2018-19 was Rs.1066.6 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.	--

APPENDIX –A1STACK MONITORING DATA: (1st October 2018 to 31st March 2019)**A. SO₂ Emission (mg/Nm³):**

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 1700 For F.G. = 50	60	179	333
CDU-II		59	270	319
DCU-I		37	147	280
DCU-II		6	79	256
CPP		7	76	357
Reformer		6	27	144
HO-1/2		2	23	159
Isomerisation		6	24	265
DHDT		1	11	102
HGU		1	13	65
SRU		40	90	333
GTG		3	12	27

B. NO_x Emission (mg/Nm³):

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 450 For F.G. = 350	84	85	86
CDU-II		56	136	216
DCU-I		42	51	74
DCU-II		9	43	82
CPP		80	84	92
Reformer		6	37	71
HO-1/2		4	24	93
Isomerisation		11	55	79
DHDT		2	30	50
HGU		2	26	127
SRU		No Analyser		
GTG		10	89	154

C. PM Emission (mg/Nm³)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 100 For F.G. = 10	2.1	3.6	4.9
CDU-II		1.4	1.5	1.5
DCU-I		3.4	4.1	5.0
DCU-II		0.2	0.2	0.3
CPP		3.0	3.6	3.7
Reformer		0.2	1.1	11.3
HO-1/2		0.3	1.1	12.8
Isomerisation		0.3	2.8	6.1
DHDT		0.8	1.8	4.0
HGU		0.6	9.9	55.5
SRU				
GTG		2.53	3.85	6.71

STACK MONITORING DATA: (1st October 2018 to 31st March 2019)

D. CO Emission (mg/Nm³)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 200 For F.G. = 150	1.9	33.4	64.4
CDU-II		8.0	30.7	70.1
DCU-I		2.8	25.9	90.4
DCU-II		14.7	76.4	107.5
CPP		1.2	8.4	42.4
Reformer		0.7	24.8	77.3
HO-1/2		0.7	30.8	198.1
ISOMERISATION		0.7	21.1	33.0
DHDT		9.8	9.9	10.3
HGU		5.4	8.1	18.4
SRU		1.4	2.0	2.0
GTG		0.03	2.92	14.93

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 October 2018 to 31st March 2019)

	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	0.8	5.2	5.8	5.2	5.2	5.2
	Average	7.2	7.2	7.6	8.2	7.5	6.0
	Max	37.4	9.5	8.8	10.8	9.5	7.5
	No. of observation	Continuous	52	56	56	56	56
2	NO₂ (Std. 40/80 µg/m³)						
	Min	5.0	9.2	9.8	9.2	9.8	9.2
	Average	8.1	11.1	12.9	13.1	12.2	10.2
	Max	10.3	14.2	15.5	16.8	15.8	11.8
	No. of observation	Continuous	52	56	56	56	56
3	PM-10 (Std. 60/100 µg/m³)						
	Min	20.7	46.0	44.0	50.0	46.0	38.0
	Average	51.4	65.4	68.1	74.9	70.9	58.6
	Max	83.0	86.0	84.0	94.0	88.0	74.0
	No. of observation	Continuous	52	56	56	56	56
4	PM-2.5 (Std. 40/60 µg/m³)						
	Min	3.2	22.0	21.0	24.0	22.0	18.0
	Average	9.5	31.8	32.8	36.7	34.1	28.2
	Max	36.6	42.0	40.0	48.0	45.0	36.0
	No. of observation	Continuous	52	56	56	56	56
5	Ammonia (Std. 100/400 µg/m³)						
	Min	4.2	6.5	6.8	7.5	6.2	5.8
	Average	6.0	9.2	9.9	10.5	8.2	6.9
	Max	7.7	12.2	12.8	13.2	11.8	8.2
	No. of observation	Continuous	52	56	56	56	56
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		52	56	56	56	56

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		52	56	56	56	56
8	Ni (Std. 20 ng/m³)						
	Min		1.80	1.80	1.80	1.50	BDL
	Average		2.87	2.68	3.00	2.40	BDL
	Max		3.80	3.50	4.20	3.80	BDL
	No. of observation		52	56	56	56	56
9	CO (Std. 2/4 mg/m³)						
	Min	0.1	BDL	BDL	0.12	0.16	BDL
	Average	0.6	BDL	BDL	0.21	0.22	BDL
	Max	1.3	BDL	BDL	0.32	0.28	BDL
	No. of observation	Continuous	52	56	56	56	56
10	Ozone (Std.100/180 µg/m³ for 8 hrs/1 hr)						
	Min	30.9	8.0	8.0	8.0	8.0	8.0
	Average	45.1	12.6	12.7	13.0	12.9	11.9
	Max	68.9	20.0	20.0	20.0	20.0	18.0
	No. of observation	Continuous	52	55	55	55	55
11	Benzene (Std. 5 µg/m³)						
	Min	0.30	BDL	BDL	BDL	BDL	BDL
	Average	0.32	BDL	BDL	BDL	BDL	BDL
	Max	0.35	BDL	BDL	BDL	BDL	BDL
	No. of observation	Continuous	52	56	56	56	56
12	Benzo (a) Pyrene (Std. 1 ng/m³)						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		52	56	56	56	56

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	0.8	5.0	20.7	3.2	4.2	BDL	BDL	1.5	0.3	0.1	BDL	8.0
Average	7.3	11.3	64.9	28.8	8.4	BDL	BDL	2.7	0.3	0.3	BDL	18.0
Max	37.4	16.8	94.0	48.0	13.2	BDL	BDL	4.2	0.4	1.3	BDL	68.9

APPENDIX-A2

Effluent Discharged (Figure in M³/Hr): (1st October 2018 to 31st March 2019)

A	Industrial Effluent M³/Hr	201.9
B	Domestic Effluent from BGR Township M³/Hr	46.7
C	Total Effluent Treated (A + B) M³/Hr	248.6
D	Treated Effluent Reused M³/Hr	245.95
E	Effluent Discharged M³/Hr	2.7
F	M³ of Effluent discharged for 1000 tons of Crude processed	9.15

1. Treated Effluent Quality**(1st October 2018 to 31st March 2019)**

Sl. No	Parameter	Std,2008	Min	Avg.	Max
1	p ^H value	6.0 - 8.5	7.0	7.4	8.5
2	Oil and Grease, mg/l	5.0	1.2	2.6	5.0
3	Bio-Chemical Oxygen Demand (3 Day at 27°C), mg/l	15.0	1.2	6.9	15.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	10.8	51.1	125.0
5	Suspended solids, mg/l	20.0	3.0	13.1	20.0
6	Phenolic compounds (as C ₆ H ₅ OH), mg/l	0.35	0.010	0.084	0.350
7	Sulphide (as S), mg/l	0.50	0.02	0.10	0.50
8	CN mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N, mg/l	15.0	1.05	1.19	1.28
10	TKN, mg/l	40.0	1.24	3.81	4.80
11	P, mg/l	3.0	0.22	1.09	4.50
12	Cr (Hexavalent), mg/l	0.10	0.25	0.250	0.250
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	0.2	0.25	0.28
17	Ni, mg/l	1.0	0.24	0.24	0.24
18	Cu, mg/l	1.0	0.03	0.04	0.06
19	V, mg/l	0.20	0.05	0.05	0.05
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 2018 to 31st March 2019)

Sl. No.	Parameter	Std 2008	Min	Avg.	Max
1	p ^H value	6.0 - 8.5	6.50	7.11	8.00
2	Oil and Grease, mg/l	5.0	1.40	2.93	3.80
3	Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l	15.0	3.00	7.2	11.60
4	Chemical Oxygen Demand (COD), mg/l	125.0	35.00	52.4	76.80
5	Suspended Solids, mg/l	20.0	4.000	10.5	18.00
6	Phenolic compounds (as C ₆ H ₅ OH), mg/l	0.35	0.020	0.075	0.28
7	Sulphide (as S), mg/l	0.50	0.060	0.117	0.30
8	CN, mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N , mg/l	15.0	1.90	2.52	2.80
10	TKN, mg/l	40.0	3.80	4.72	5.20
11	P, mg/l	3.0	0.15	0.17	0.20
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	0.22	0.284	0.34
17	Ni, mg/l	1.0	-	BDL	-
18	Cu, mg/l	1.0	0.02	0.034	0.04
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 2018 to 31st March 2019)

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, 1st October 2018 to 31st March 2019 BGR has planted 15555 nos. of trees



COMPLEX OLD DEBRIS YARD DEVELOPED INTO GREEN BELT. Planted in July'17, GROWTH as on 15.06.19



IOCL, BGR TOWNSHIP PLANTATION. Planted on April'17 Growth as on 03.06.2019

Tree Plantation 2018-19



BGR TOWNSHIP PLANTATION, Planted Van mahotsav 2018, Growth as on 15.06.19



J N V, BIJNI PLANTATION, 3500 SAPLING PLANTED in the month of October,2018

APPENDIX – A 4

Additional Information

(1st October 2018 to 31st March 2019)

Effluent reused during the period was around **98.64 %** 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 2018 to 31st March 2019**, **23158** potential leaky points checked and **157** Leaky points detected and rectified. By following LDAR programme in true spirit, the company could not only avoid potential loss of **44.184** 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 2018 to 31st March 2019**, Noise Survey for the two quarters of 2018 -19 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 **October'18 to March'19**, **84 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 BGR Township have been implemented during 2016-17.

APPENDIX –A5

Quarterly Fugitive emission Data (1st October 2018 to 31st March 2019)



FUG EMISSION DATA
3RD QTR 18-19.pdf



FUG EMISSION DATA
4TH QTR 18-19.pdf

8.0

APPENDIX-A6 (a)



Haz Waste Return
FORM-4 (2017-18).doc

9.0

Annexure –A6 (b)

**Authorization from PCBA for Hazardous Waste
(Management, Handling and Transboundary Movement Rules 2008)**



Consent under HW
Rules 2008.pdf

APPENDIX-A7
Detail of Waste water treatment and disposal system.



ETP Description.pdf

ANNEXURE-A8

Quarterly Noise Survey Data

(1st October 2018 to 31st March 2019)

HSE (ENVIRONMENT) DEPARTMENT



**NOISE SURVEY DATA
3RD QTR 18-19.pdf**



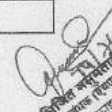
**NOISE SURVEY DATA
4TH QTR 18-19.pdf**

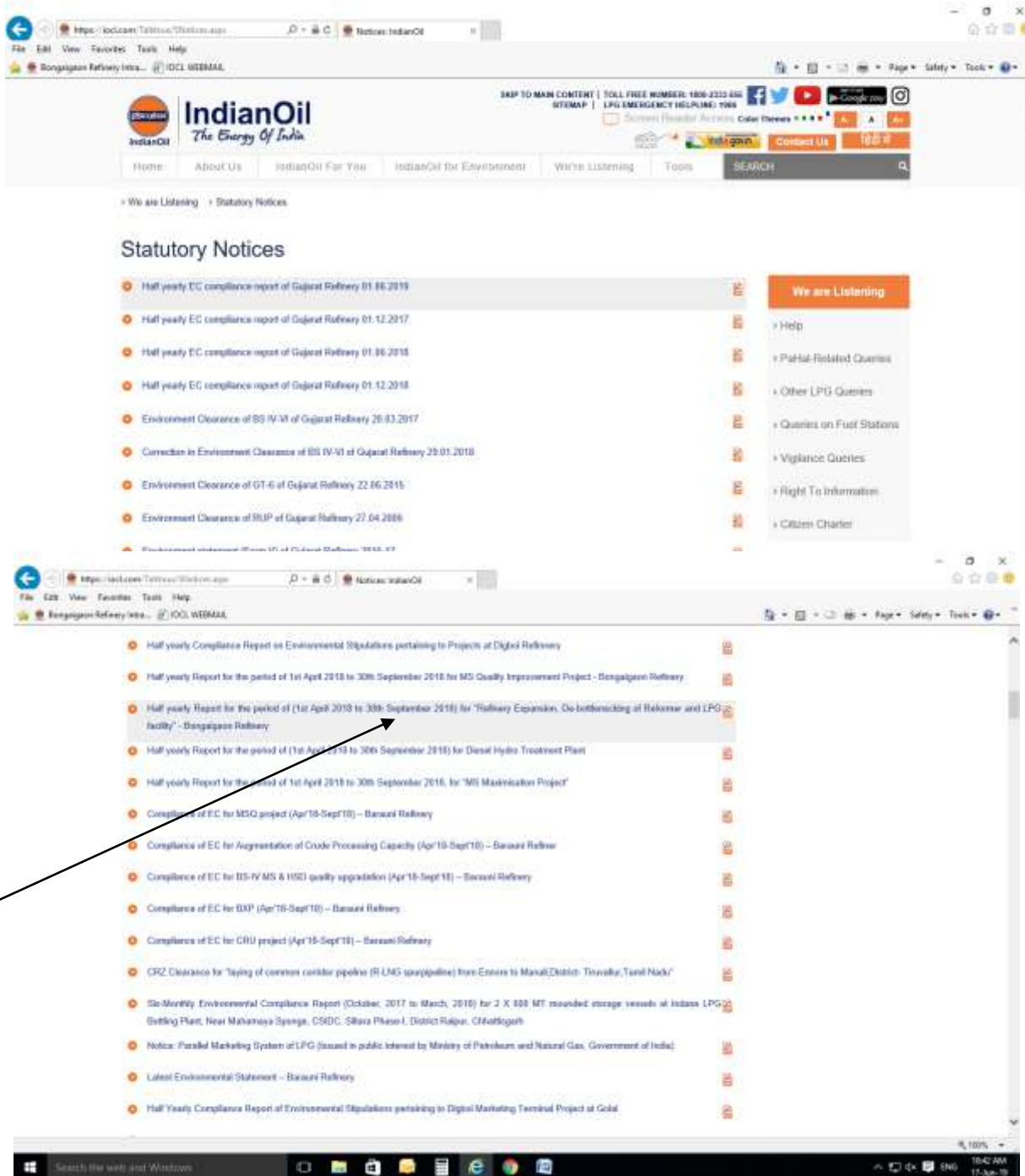
ANNEXURE-A9

Rain Water Harvesting Data

Rain Water Harvesting Schemes implemented: BGR Status

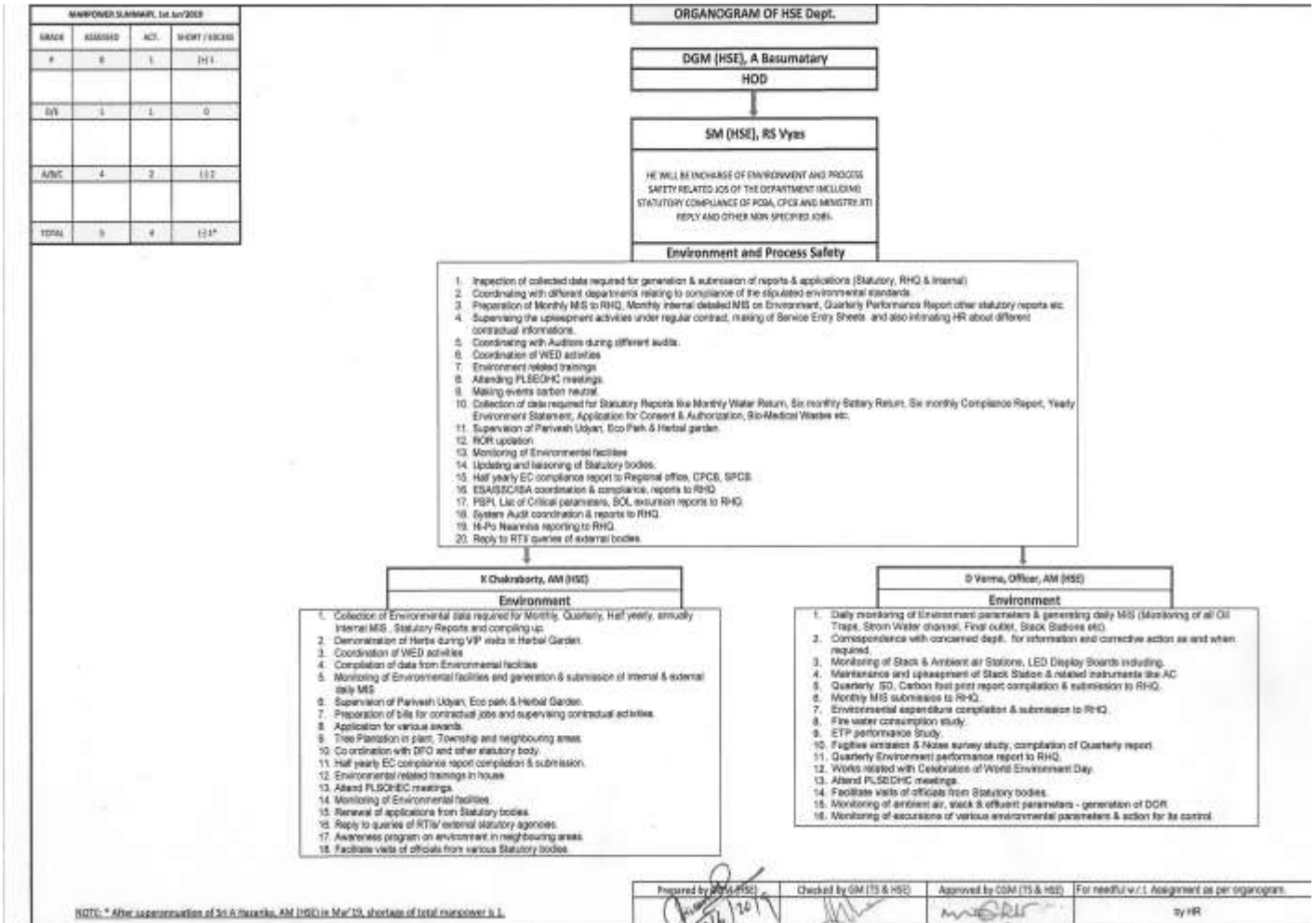
Sl.No.	RWH systems	Area In M ²	Recharging Capacity M3/Yr	Total Recharging Capacity M3/Yr	Status
1	Rainwater Harvesting at Mandir Complex	7125	19950	96642.4	Implemented
2	Rainwater Harvesting at Manjeera Guest House	677	1895.6		
3	Rainwater Harvesting at Deoshri Guest House	581	1626.8		
4	Rainwater Harvesting at Parivesh Udyan	5775	16170		
5	Rainwater Harvesting at Eco-Park Pond	20000	56000		
6	Mandir Complex	833	2332.4	14972	Implemented
7	Manas Guest House	639	1789.2		
8	BRPL Vidyalaya	1361	3810.8		
9	DPS Block-I	704	1971.2		
10	DPS Block-II	1810	5068	12586	Implemented
11	BGR HS School, BGR Township	1361	3810.8		
12	BGR Canteen, CISF Office & Scooter Shed	3134	8775.2	10304	Implemented
13	Champa Club (Officers Club)	1100	3080		
14	Refinery Club cum Community Centre	2580	7224	3080	Implemented
15	Employee Union Conference Hall Building	275	770		
16	CISF Quarter Guards Building	825	2310	4760	Implemented
17	CISF Conference Hall & Barack	1050	2940		
18	BGR Community Centre	650	1820	2766	Implemented
19	Foot Ball Stadium gallery	988	2766.4		
20	Volleyball Stadium Gallery				
TOTAL		51,468	144110.4	144,110	


 Dy. General Manager (BGR) / Dy. General Manager (BGR)
 Maharashtra Petroleum Corporation Limited
 Maharashtra Petroleum Corporation Ltd. Corporate Office
 Company Registration No. P.O. : Dhulegaon - 733303
 Regd. Office : Dhulegaon - 733303
 Dist. : Chhatisgarh (M.P.)



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,

Adropos 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. 438 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.

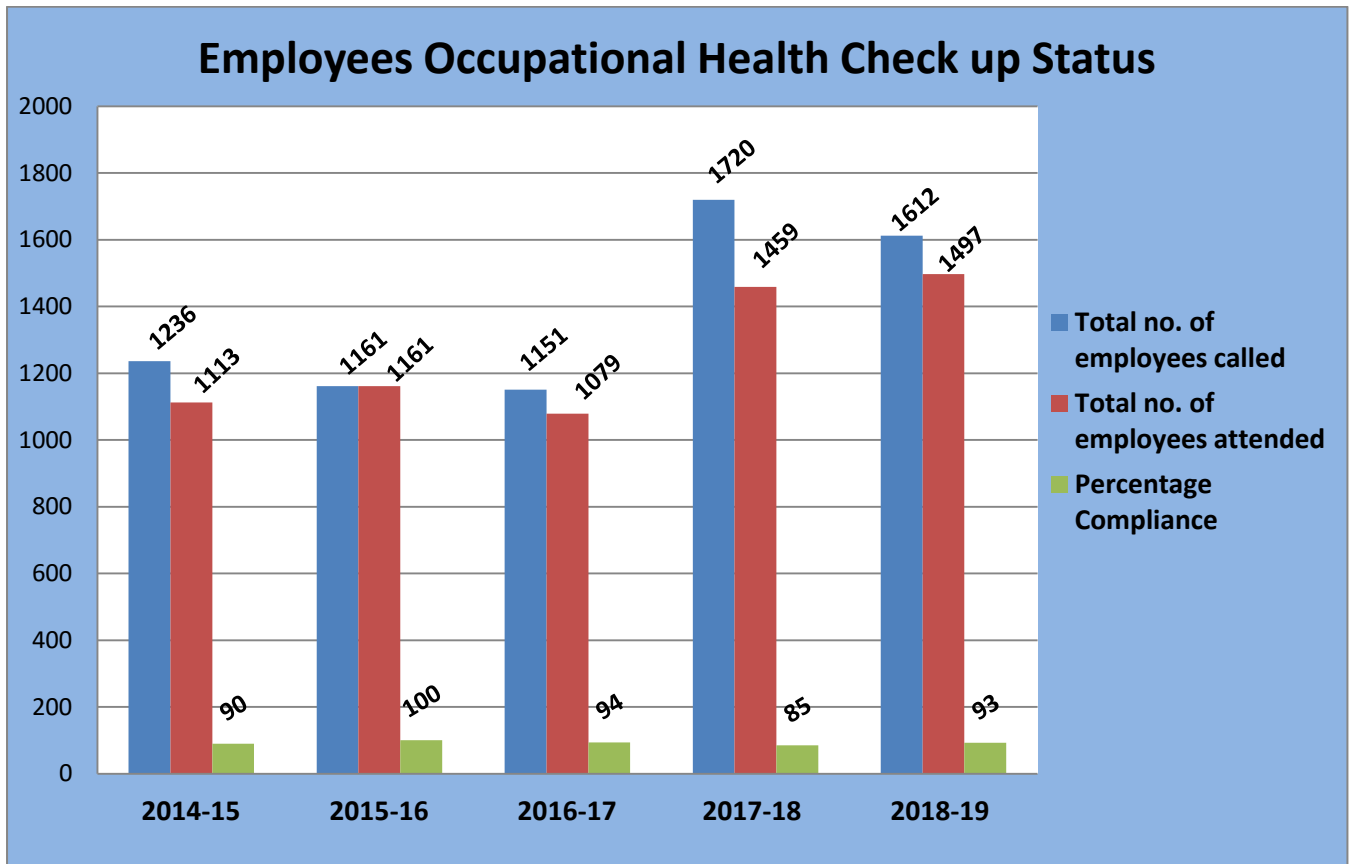
Yours Faithfully

(R.K. Jakhmola)

Scientist-E & Divisional Head
Instrumentation Laboratory

Appendix-A13

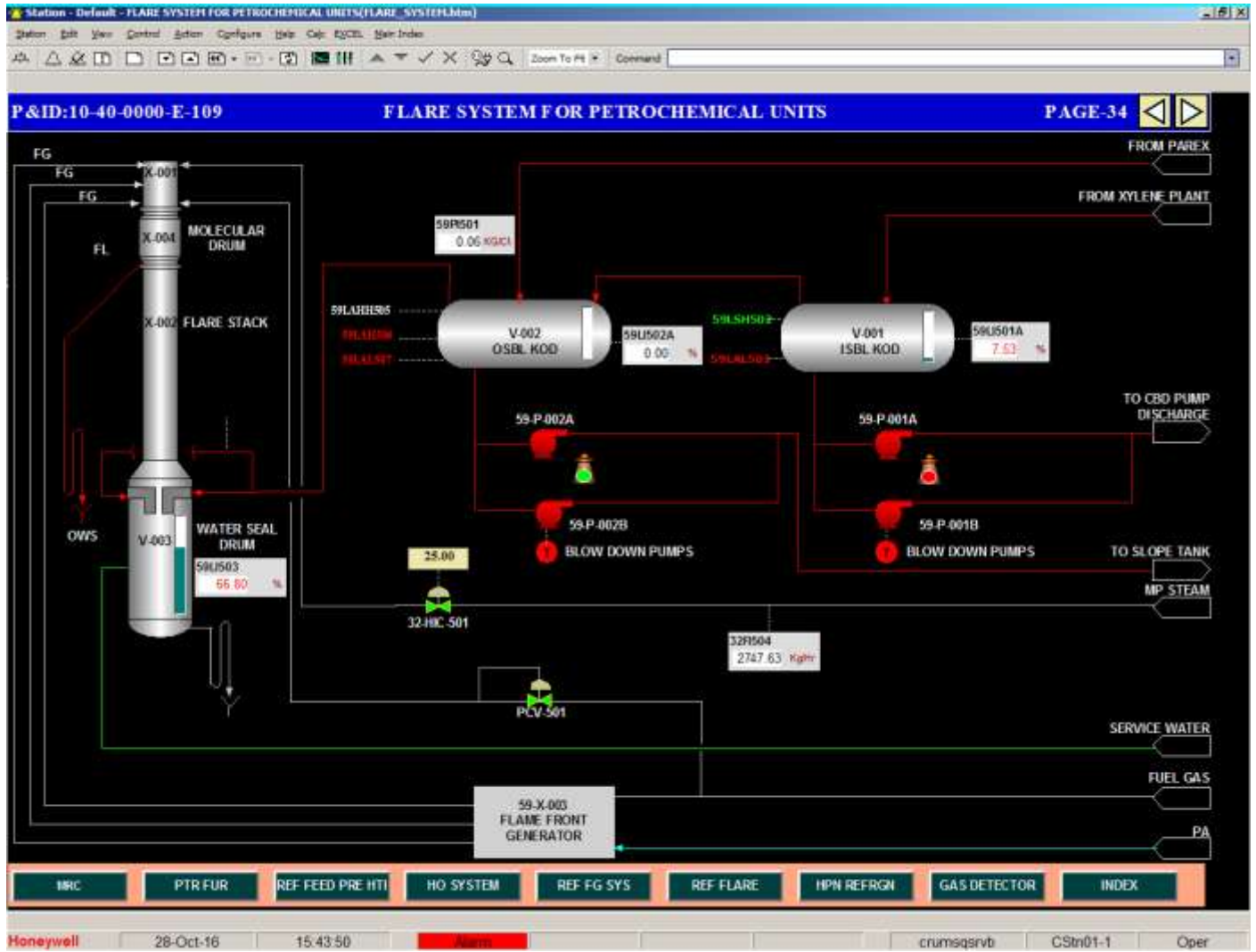
Employees Occupational Health Check up Status



17.0

Appendix-A14

Flare system.



THANKS