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

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 Diesel Hydro Treatment Plant

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 on the "Environmental Clearances" issued by MoEF&CC to Bongaigaon Refinery (BGR), for "Diesel Hydro Treatment 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 "Diesel Hydro Treatment Plant"

For the period (1st October, 2019 to 31st March, 2020)

Submitted by:

Indian Oil Corporation Limited

Bongaigaon Refinery

PO: Dhaligaon. District: Chirang. Assam

Diesel Hydro-treatment Project,

MoEF letter No. J.11011/78/2001-IA-II (I) dated 25/06/2002.
Renewal of "Environment Clearance" by MoEF on 01.05.2006

Six Monthly Status Report for the period: (1st October, 2019 to 31st March, 2020)

INDEX:

ANNEXURE-A:

Sr. No	Specific Conditions	Compliance Status
i	The company must comply with conditions and safeguards stipulated by the Ministry while granting environmental clearance to the refinery expansion project expansion project vide Ministry's OM No. J-11011/24/90-IA II (I) dated 3rd June 1991	All conditions of the clearance are complied and verified by statutory agencies time to time. (Please Refer to compliance report of Refinery Expansion Project.)
ii	A comprehensive risk assessment study for the complex must be undertaken and report submitted to the Ministry before commissioning of the Diesel hydro-treatment project.	1. Rapid Risk Analysis (RRA) was carried by M/s EIL in September'2006, and a copy of the report was also submitted to your good office vide our letter No. BRPL/ENV/MS-MAX/06-07/03 dated 08.11.2006. 2. Comprehensive Risk Assessment was conducted by M/s Chilworth Technology Pvt. Ltd. was submitted on 11.10.2010. 3. Post commissioning, fresh CRA was carried out by M/S CGC Converse Technologies in 2016.
iii	The company must formulate and firm up a scheme/action plan for handling the oily sludge which is presently being disposed off into the oil sludge lagoon. The firmed up plan must be submitted to the Ministry within one year.	A third party is engaged for processing of the oily sludge & recovery of oil from the oily sludge stored in the sludge lagoon. During **1st October, 2019 to 31st March, 2020**, **670 MT** of oily sludge has been processed by mechanised processing. A confined bio reactor was commissioned in July 2017 in association with IOCL R&D for bio-remediation of residual oily sludge. During **1st October, 2019 to 31st March, 2020**, **165 MT** of oily sludge has been processed in the Bio-reactor.
iv	The project proponent shall also comply with all the environmental protection measures to mitigate the risks including the following:	Environmental protection measures and safeguards recommended in the EMP and risk analysis reports are implemented & complied.
v	**a.** Provision of double mechanical seal for the pumps handling H2S to reduce the frequency of failure	Taken care off in design stage, installed & commissioned.
	b. Provision of adequate no. of H_2S detector (s) in appropriate locations of the plant for early detection of the leak so that the release duration and hence the hazardous consequence is reduced.	Following no. of H_2S detectors along with HC/H_2 detectors provided in various process units under DHDT project as on 31st Dec'2018. DHDT : (HC = 7, H_2S = 5, H_2 = 9) HGU : (HC = 10, CO = 4, H_2 = 4) ARU : (H_2S = 7 & HC=1) SWSU : (H_2S=6 & HC=1) SRU : (H_2S=14, HC=3 & H_2 =2) DHDT-Utility Area: (H_2S=3, HC=8, H_2= 3
	c. Provision of emergency stop button for rich amine group in the control room to stop the pump.	Taken care off in design stage, installed & commissioned.

Sr. No.	Specific Conditions	Compliance Status
vi	Government of Assam (Dept. of Forest and Wildlife), must prepare a contingency plan to mitigate the adverse impact of the increased human activities on the wildlife habitat around the refinery, mainly w.r.t. Golden Langur. Funds for implementing mitigation strategies should be provided by the company. The refinery should also arrange to provide free gas to the villagers residing within Kakoijana reserved forests as well as residents of Hapachara, Garegaon, Gorapara, Rabhapura and Chitkagaon, so that felling of trees for fuel wood is reduced .A comprehensive Action Taken Repot should be submitted within one year.	Complied. i) Free LPG connection under 'Prime Minister's 'Ujjwala Yujana' has been provided by IOC, (M D) , in the villages mentioned ii) BGR has planted around 3000 tree saplings in Rabhapara in Kakoijana Reserve Forest iii) Awareness program was also arranged by IOCL, BGR, among the adjoining villagers of Kakoijana Reserve Forest.

SL.	General Conditions	Compliance Status
i	The project authority must adhere to the stipulations made by Assam State Pollution Control Board and State Government.	Complied. Stipulations made in the environmental clearance of the project are taken care during detailed engineering and implemented.
ii	No expansion or modification of the plant should be carried out without prior approval of this Ministry.	Complied. EC was granted by MoEF&CC to BGR for IndMax & BS-VI projects vide letter F. no.J11011/48/2016-IA-II (I), Dated 19th Apr'2017. **The project aims to enhance expansion of Crude processing from 2.35 to 2.7 MMTP, other associated projects, e.g. DHDT capacity from 1.2 to 1.8 MMTP, HGU from 25 KTPA to 30 KTPA, CRU-MSQ revamp and SDS (SRU) unit.**
iii	Handling, manufacturing, storage and transportation of hazardous chemicals should be carried out in accordance with the Manufacturing, storage and transportation of hazardous chemicals Rules, 1989, as amended in 1991. Permission from State and Central nodal agencies in this regard must be obtained.	Complied. Authorization under Hazardous and Other Waste (Management, and Transboundary Movement) Rules 2016 obtained from PCBA and valid up to 5th August, 2022. Copy attached as **Appendix A6(b)**.
iv	Hazardous wastes, if any, must be handled and disposed as per Hazardous waste (Management and handling) Rules, 2008. Authorization from State Pollution Control Board in this regard must be obtained.	Complied. Authorization under Hazardous and Other Waste (Management, and Transboundary Movement) Rules 2016 obtained from PCBA and valid up to 5th August, 2022. Copy attached as **Appendix A6 (b)**.

SL.	General Conditions	Compliance Status
v	Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation etc. should be ensured for construction workers during the construction phase so as to avoid felling of trees and pollution of water and the surrounding**.**	Complied. Infrastructure facilities like water supply, canteen facility, sanitation were provided during the project construction period to the workers.
vi	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc, on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Complied. a) Taken care off in the design stage, installed & commissioned. b) Precautionary measures were taken during construction period to control the noise level & present activities do not generate noise of high db. c) Quarterly Noise Survey is being carried out regularly to check noise level. Quarterly Noise survey report for the period of **1st October, 2019 to 31st March, 2020**, **165 MT** is attached as **Appendix A8**.
vii	Occupational health Surveillance of the workers should be done on a regular basis and records maintained.	Complied. Attached as **Appendix A13**.
viii	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.	Complied. 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.** BGR Environment Laboratory is accredited by NABL and recognized by CPCB as under Section 12&13 of Environment (Protection) Act 1986 and notified in the Govt. of India Gazette no. 439 dated November 4, 2018 vide notification number Legal 42(3)/ 87 dated 3rd October 2018. **(Copy attached as Appendix A12)**
ix	The funds earmarked for the environmental protection measures should be reported to this Ministry and SPCB.	Complied. Funds were made available for implementing all recommendations Expenditure for the financial year 2018-19 was **Rs.1066.6** Lacks and in the financial year 2019-20 was **Rs. 503.84** Lacks

SL.	General Conditions	Compliance Status
x	Six monthly status reports on the project vis-a-vis Implementation of environmental measures should be submitted to this Ministry (Regional Office, Shillong/ CPCB/ SPCB).	Complied. Soft copy of last six monthly compliance reports was submitted vide, document no. IOC/BGR/ENV/DHDT/MoEF&CC/201-20/01, Dtd: 20.11.2019. The six monthly compliance reports were also displayed on the Website of the Company. Screen shot attached as **Appendix A10**.
xi	The project proponent should advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with State Pollution Control Board/Committee and may also be seen at Website of the Ministry and Forests at http://envfor.nic.in The advertisement should be made within 7 days from the date of issue of the clearance letter and a copy of the same should forwarded to Ministry's Regional Office at Shillong.	Complied.
xii	The Project Authorities should inform the Regional Office as well as the Ministry the date of financial closer and final approval of the project by the concerned authorities and the date of land development work.	Board of Directors of the Company has approved revised cost estimate of Rs.1701.52 Crore. Last capitalization date is 06.06.2015. The initial capitalization date is 13.08.2011 (Original approved cost is Rs. 1431.91 crore) for this project on 28th May, 2008. Financial closure of DHDT Project is not complete because of some pending issues of GTG package, which is part of DHDT Project, financial closure of DHDT Project is not yet completed.

Sr. No	CONDITIONS (As given in concurrence to changes in Env. Clearance dated May 1, 2006)	
i	The total SO_2 emission level from the unit after the proposed up gradation shall not exceed 40 kg/MT of the feed.	Taken care in design stage itself.
ii	The company shall comply with the revised standards of NO_X emission.	
iii	The total effluent generation shall not exceed 7.9 m^3/hr The fresh water consumption shall not exceed 275 m^3/hr.	
iv	No further modernization of project shall be carried out without prior permission 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.** **Overall physical progress for upcoming INDMAX project is 99.61% and for BS-VI project is 99.39%.**
v	The company shall comply with the conditions stipulated in the clearance order of even no. dated 25th June, 2002.	Complied.
vi	The company shall carry out a comprehensive risk assessment study and a copy submitted to the Ministry before commissioning of the Diesel Hydro Treatment Project. A comprehensive risk assessment study for the complex must be undertaken and report submitted to the Ministry before commissioning of the Diesel hydro-treatment project.	Complied. 1. Rapid Risk Analysis (RRA) was carried by M/s EIL in September'2006, and a copy of the report was also submitted to your good office vide our letter No. BRPL/ENV/MS-MAX/06-07/03 dated 08.11.2006. 2. Comprehensive Risk Assessment was conducted by M/s Chilworth Technology Pvt. Ltd. was submitted on 11.10.2010. 3. Post commissioning, fresh CRA was carried out by M/S CGC Converse Technologies in 2016.

Status of Diesel Hydro-Treatment Project

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

Environmental Clearance for Diesel Hydro-treatment Project, MoEF's Letter No. J.1101/78/ 2001- IA- II (I) dated 25/06/2002

Status:

Following are some of the important mile stones towards implementing of the project:

1. **Renewal of "Environment Clearance" from the Ministry of Environment & Forests:**
   The Ministry of Environment & Forests had conveyed its 'No Objection' to the proposed revised Diesel up gradation project at Indian Oil - Bongaigaon Refinery vide their letter No.J-ll0ll/78 /2001- IA 11(1) dated 01.05.2006.

2. **Renewal of "NOC" from State Pollution Control Board:**
   Pollution Control Board of Assam had renewed the NOC vide their letter No. WB/Z-II/T-1 345/2000-2001/138 Dated Guwahati, the 8th May, 2006

3. **Board approval for Project:**
   Board of Directors of IOCL has approved revised cost estimate of **Rs.1701.52** Crore (original approved cost is Rs. 1431.91 crore) for this project.

4. **Fresh REIA & RRA Study:**
   REIA & RRA study for the project was carried out by M/s EIL, New Delhi. Final report was submitted in September, 2006.

   Further, HAZOP study for DHDT unit (13.12.06 to 22.12.06), Sulfur Block (15.01.07 to 24.01.07), HGU (08.10.07 to 12.10.07) and OSBL Utilities & Off sites (16.10.07 to 17.10.07) completed and reports submitted by EIL on 04.01.07, 17.02.07, 27.10.07 & 31.10.07 respectively.

   Fresh HAZOP study completed by **Asia Pacific Risk Management Services Pvt. Ltd in February 2014**

   Further, Fresh EIA & RRA for New Projects conducted in 2015-16 by M/s ABC Techno Lab Pvt. Ltd, Chennai

1. **Commissioning of various units under DHDT project:**

   a) All the utilities & off sites viz. LP steam, MP steam, VHP steam, Service Water, DM water, Drinking water, Nitrogen, Process Air, Inst. Air, CK, Slop, GO, FG lines commissioned
   b) H_2 unloading & Storage facility along with H_2 unloading Compressor commissioned
   c) All the Seven Feed tanks commissioned
   d) Nitrogen Plant & Flare System commissioned
   e) Hydrogen Generation Unit (HGU) commissioned in March, 2011
   f) Diesel Hydro Treatment (DHDT) Unit has been commissioned in August, 2011.
   g) Amine Absorption Unit & Sour Water Stripping Unit commissioned
   h) Sulfur Recovery Unit (SRU) commissioned in December, 2012.
   i) Gas Turbine Generator (GTG) with Heat Recovery Steam Generator (HRSG) commissioned in May, 2013.

1.0

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 04.10.19

Tree Plantation 2019-20

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

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	

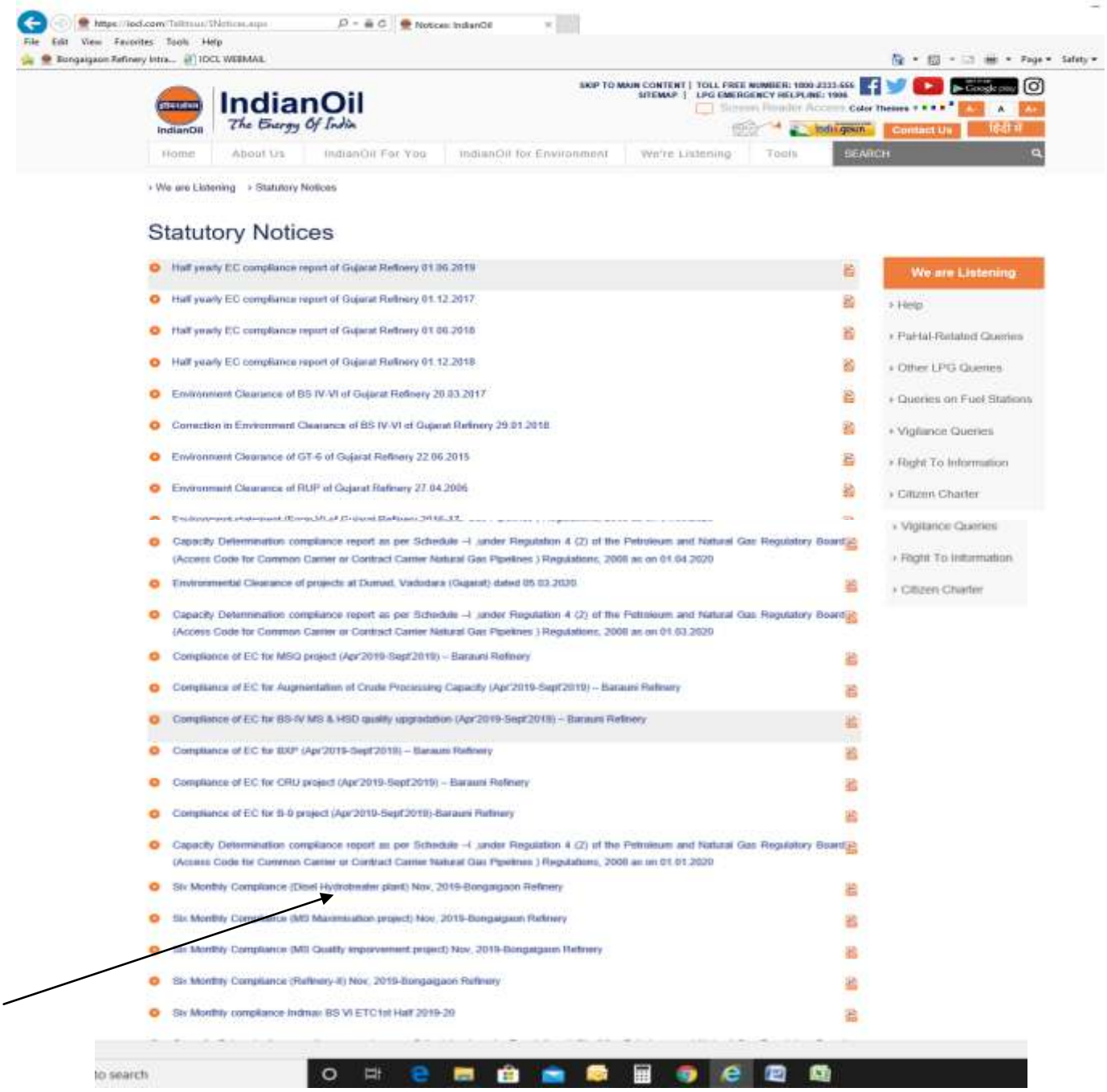
अभिजित बरुवातारी / Abhijeet Baruatary
उप महाप्रबंधक (एचएसई) / Dy. General Manager (HSE)
बोंगाईगाँव रिफाइनरी, इंडियन ऑयल कॉर्पोरेशन लिमिटेड
Bongaigaon Refinery, Indian Oil Corporation Limited
डाकघर : धालीगाँव P.O. : Dhaligaon - 783385
जिला : चिरांग (असम) Distt. : Chirang (Assam)

13.0

ANNEXURE-A10

Screen Shot of IOCL Website upload of report

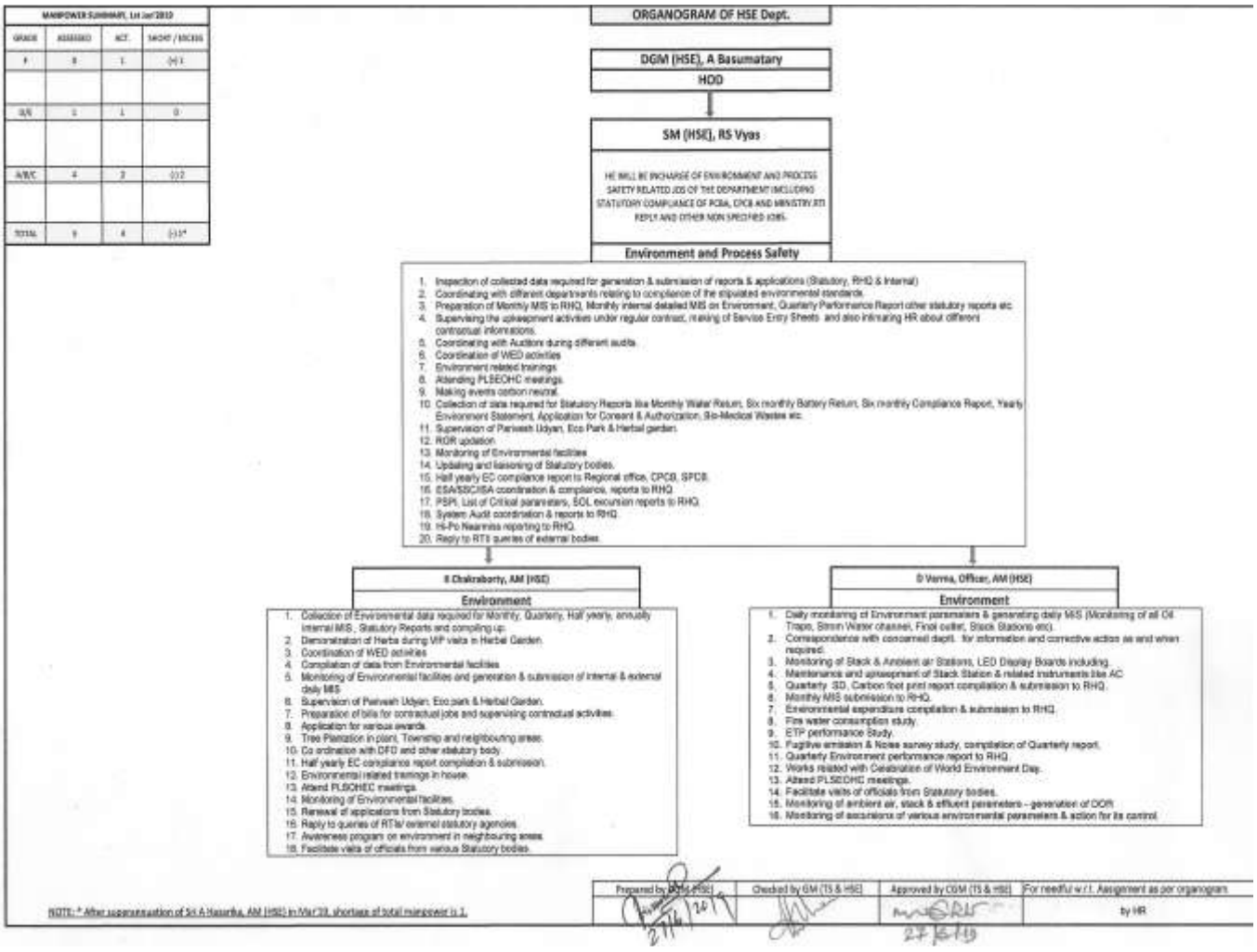
Link: https://iocl.com/Talktous/SNotices.aspx



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.

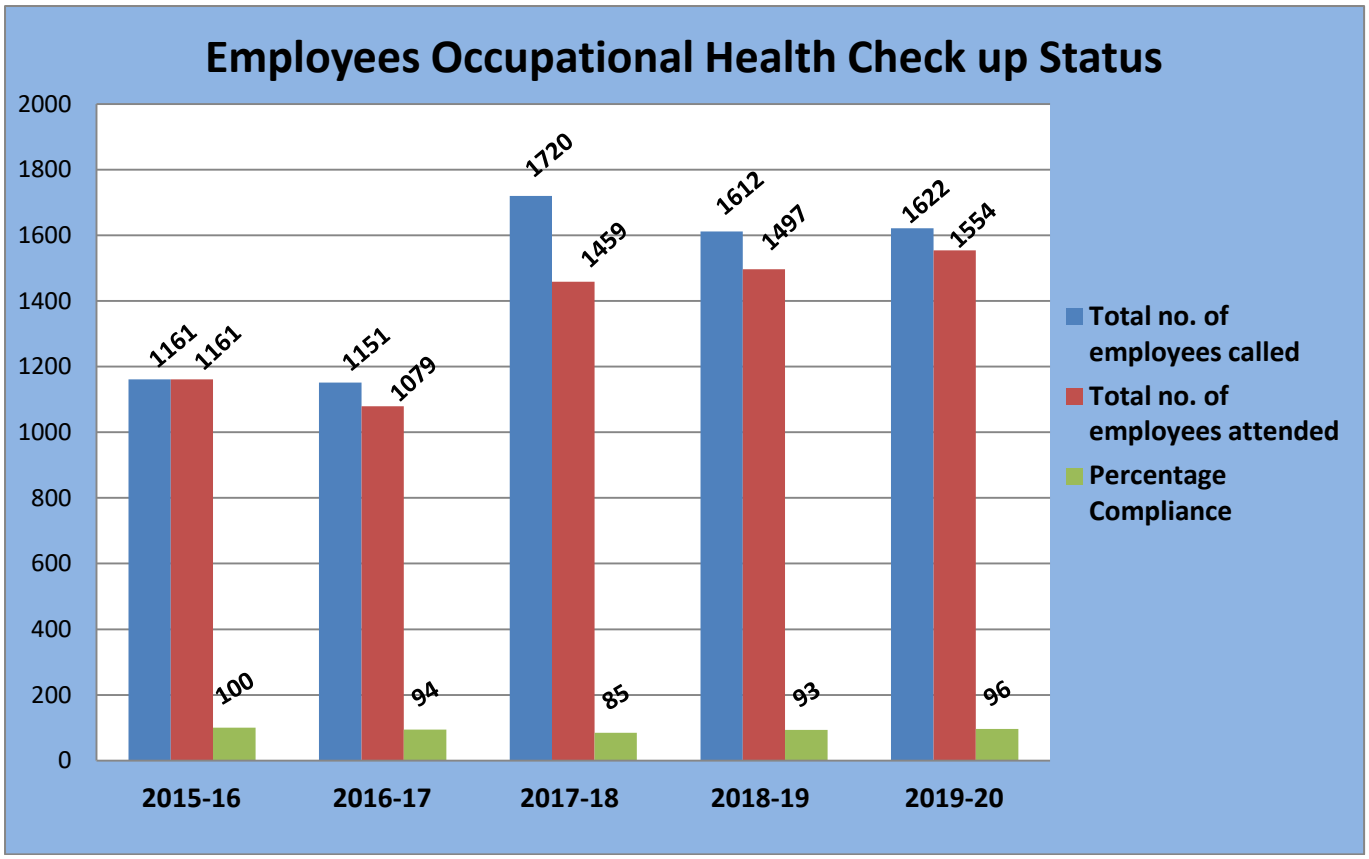
Yours Faithfully

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

16.0

Appendix-A13

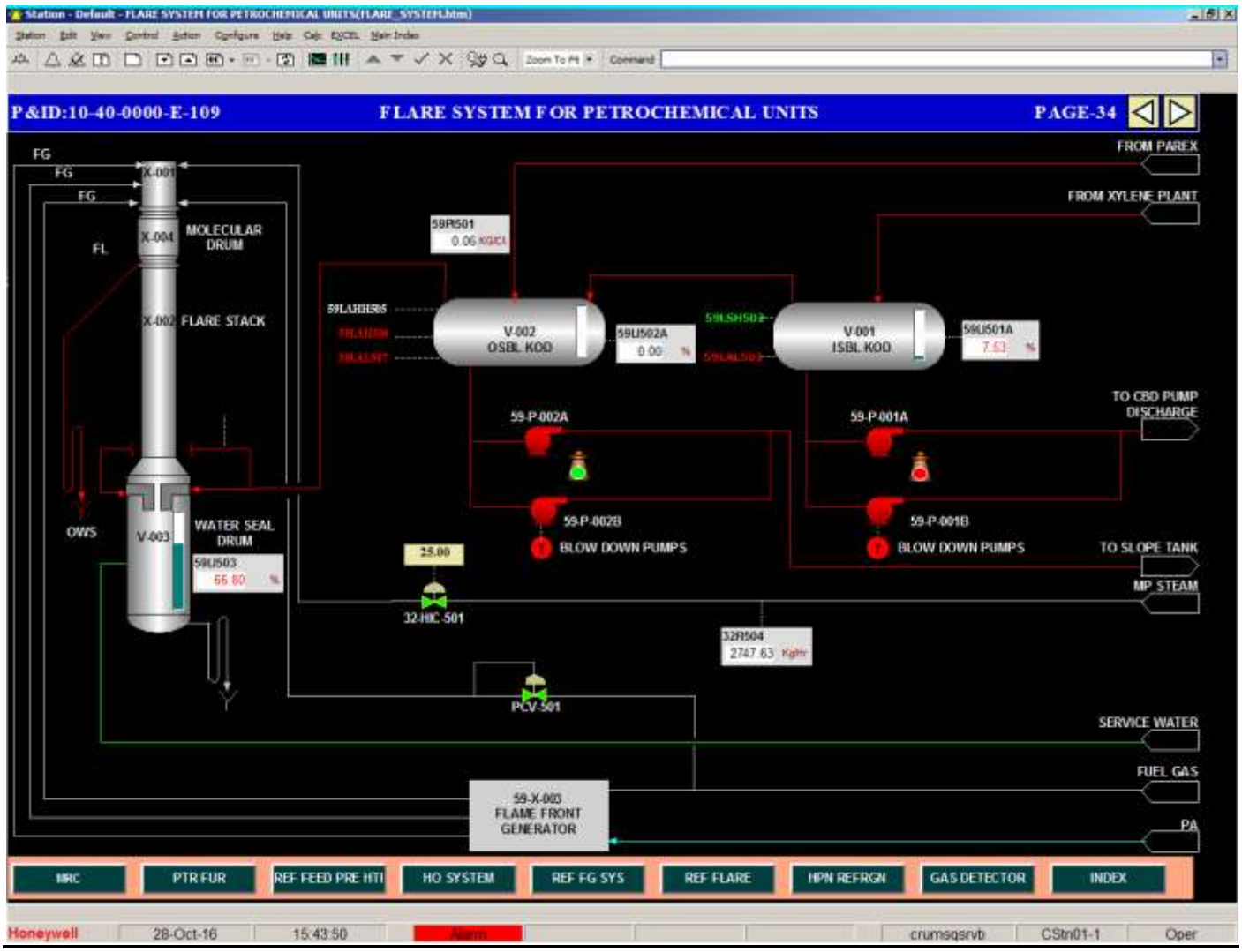
Employees Occupational Heath Check up Status



17.0

Appendix-A14

Flare system.



THANKS