



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

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रिफाइनरी प्रभाग  
Refineries Division

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

Date: 20.06.2019

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 1<sup>st</sup> October, 2018 to 31<sup>st</sup> March 2019 for  
MS Quality Improvement Project

Dear Sir,

With reference to above, we are enclosing the Six Monthly Report for the period of 1<sup>st</sup> October, 2018 to 31<sup>st</sup> March 2019 for your kind perusal. The reports are being sent as per EIA Rules, 2006 on the "Environmental Clearances" issued by MoEF&CC to Bongaigaon Refinery, (BGR) for "MS Quality Improvement Project".

Thanking you,

Yours faithfully,

(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 MS Quality Improvement Project**

**(1<sup>st</sup> October, 2018 to 31<sup>st</sup> March 2019)**



**Submitted by:**

**Indian Oil Corporation Limited**

**Bongaigaon Refinery**

**P.O: Dhaligaon District: Chirang. Assam**

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

Six Monthly Status Report for the period (1<sup>st</sup> October, 2018 to 31<sup>st</sup> March 2019)

Environmental Clearance for “MS Quality Improvement Project (Light Naphtha Isomerisation using existing Xylene Isomerisation unit)” at Dhaligaon, Chirang, Assam by M/s Bongaigaon Refinery & Petrochemicals Ltd. vide MoEF letter No. J.11011/1171/2007-IA-II (I) dated 5/02/2008.

**Project was commissioned in September, 2011**

### **INDEX:**

<b>Sl. No</b>	<b>Conditions</b>	<b>Status</b>
1.	General conditions and Compliance status of MS Quality improvement Project.	Annexure- A
2.	Six monthly Stack Monitoring/ Air Quality Data	Furnished in Appendix-A1
3.	Six monthly effluent discharged Quality	Furnished in Appendix-A2
4.	Tree Plantation Data	Furnished in Appendix-A3
5.	Additional Information	Furnished in Appendix-A4
6.	Fugitive Emission Data	Furnished in Appendix-A5
7.	Annual return of hazardous waste	Furnished in Appendix-A6(a)
8.	Authorization from PCBA under Hazardous Waste (Management, Handling and Transboundary Movement Rules 2008)	Furnished in Appendix-A6(b)
9.	Details of Waste water treatment and disposal system	Furnished in Appendix-A7
10.	Quarterly Noise Survey Report.	Furnished in Appendix-A8
11.	Status of Rainwater Harvesting	Furnished in Appendix-A9
12.	Screen Shot of IOCL Website upload of report	Furnished in Appendix-A10
13.	Organ gram of HSE Department	Furnished in Appendix-A11
14.	Gazette Notification of BGR Quality Control laboratory (QC Lab) approval under Environment (Protection) Act	Furnished in Appendix-A12
15.	Employees Occupational Health Check up Status	Furnished in Appendix-A13
16.	Flare system.	Furnished in Appendix-A14

## Annexure- A

SI No	Specific Conditions	Compliance Status
i	The company shall comply with new standards/norms that are being proposed by the CPCB for petrochemical plants and refineries.	Basic Design Engineering Package / Process Package have been prepared in line with the revised standards / norms for Oil Refinery and implemented in the project.
ii	The company shall comply with all the stipulations of environmental clearance issued vide File No. – 11011/375/2006-IA.II (I) dated 22 <sup>nd</sup> March, 2007.	BGR had advertised “Public Notice” in three local news papers that are widely circulated in the region namely “The Assam Tribune” English daily, “Asomiya Pratidin” an Assamese daily & “Sanseyari Bodosa” a Bodo daily on 26 <sup>th</sup> February, 2008.
iii	The process emissions (SO <sub>2</sub> , NO <sub>x</sub> , HC, VOCs and Benzene) from various units shall conform to the standards prescribed by the Assam State Pollution Control Board from time to time. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	Detailed Engineering for the project was carried out considering the revised standards / norms for Oil Refinery and conditions /guidelines issued by SPCB.  Environment Monitoring and control facilities are installed to achieve the stipulated standards.
iv	The improvement project shall be through the retrofitting of existing Xylene fractionation, Isomerisation and Parex units and within the existing land.	The improvement project is only through the retrofitting of existing Xylene Fractionation, Isomerisation and Parex units and within the existing land.
v	Quarterly monitoring of fugitive emissions shall be carried out as per the guidelines of CPCB by fugitive emission detectors (GMI Leak Surveyor) and reports shall be submitted to the Ministry’s regional office at Shillong.	Quarterly monitoring of fugitive emissions is carried out. The quarterly reports for the period of <b>1<sup>st</sup> October, 2018 to 31<sup>st</sup> March 2019</b> are attached as <b><u>Appendix-A5.</u></b>
vi	For control of fugitive emission all unsaturated hydro carbon will be routed to the flare system and the flare system shall be designed for smoke less burning.	Taken care during implementation of the project.
vii	The company shall strictly follow all the recommendation mentioned in the charter on corporate responsibility for environmental protection (CREP)	The company followed all the recommendation mentioned in the charter on Corporate Responsibility for Environmental Protection (CREP) prior to coming of the Revised Standards applicable to refinery for Environment Protection.
viii	Occupational health surveillance of worker shall be done on a regular basis and records maintained as per the Factory Act.	Already in compliance.  The reports for the period of <b>1<sup>st</sup> March, 2018 to 31<sup>st</sup> March 2019</b> are attached as <b><u>Appendix-A13.</u></b>

Sl. No.	Specific Conditions	Compliance Status
ix	Greenbelt shall be developed to mitigate the effect of fugitive emission all around the plant in a minimum 30% plant area in consultation with DFO as per CPCB guidelines.	Greenbelt is already existed. More than 33% of plant area is having green cover.  Tree Census has been carried out through DFO Chirang District in 2013 where 84545 Nos. of grown up trees were enumerated.  <b>In the financial year 2018-19, BGR has planted 30062 nos. of trees in and around the complex.</b>
x	The Company shall make the suitable arrangement for disposal of catalyst waste and alumina balls. The report of waste disposal shall be submitted to Ministry's Regional Office at Shillong.	Complied.  Please refer <b><u>Appendix-A6(a)</u></b> .
xi	The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring, the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during flaring.	Complied.  Necessary measures are in place to prevent fire hazards, containment of oil spill.
xii	To prevent fire and explosion at Oil and Gas facility, potential ignition sources should be kept to a minimum and adequate separation distance between potential ignition sources and flammable material shall be in place.	All necessary precautions are in place as per OISD Guidelines.

## B. General Conditions

S. No.	General Conditions	Compliance status
i	The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government and any other statutory body.	Taken care during implementation of the project.
ii	No further expansion or modification in the project shall be carried without prior approval of the Ministry of Environment and Forests. In case of deviations or alternations in the project proposal from those submitted to the Ministry for clearance, a fresh reference shall be made to the Ministry.	Noted. EC was granted by MoEF&CC to BGR for IndMax & BS-VI projects vide letter <b>F. no.J11011/48/2016-IA-II (I), Dated 19<sup>th</sup> Apr'2017.</b>  <b>The project aims to enhance expansion of Crude processing from 2.35 to 2.7 MMTP, DHDT capacity from 1.2 to 1.8 MMTP, HGU from 25 KTPA to 30 KTPA, CRU-MSQ revamp and SDS/SRU unit.</b>
iii	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system, the respective well site should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved. Provision of adequate height of stack attached to DG sets & flare is to be done.	Taken care during implementation of the project. Emission data for the period of <b>1<sup>st</sup> October, 2018 to 31<sup>st</sup> March 2019</b> are attached as <b><u>Appendix - A1</u></b> .  No DG set was installed for the project.
iv	Wastewater shall be properly collected and treated so as to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the relevant SPCB.	Waste water treatment and disposal system is designed to conform to this norm. Detail of Waste water treatment and disposal system is attached as <b><u>Appendix-A7</u></b> . Treated Effluent and discharge water quality from refinery is attached as <b><u>Appendix-A2</u></b> .

SL. No.	General Conditions	Compliance status
v	The overall noise levels in and around the premises shall be limited within the prescribed standards (75 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Taken care during implementation of the project. Quarterly Noise Survey is being carried out regularly. Quarterly Reports for the period of <b>1<sup>st</sup> October, 2018 to 31<sup>st</sup> March 2019</b> are attached as <b><u>Appendix-A9</u></b> .
vi	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2008 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission of the expansion project, if required. Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.	Complied.
vii	Disposal of hazardous wastes shall be as per the Hazardous Wastes (Management and Handling) Rules, 2008. Authorization from the State Pollution Control Board must be obtained for collections / treatment/storage/ disposal of hazardous wastes.	Authorization under Hazardous Waste (Management, Handling and Transboundary Movement Rules 2008) obtained from PCBA and valid up to 28 <sup>th</sup> February 2019. Copy attached as <b><u>Appendix-A6(b)</u></b> . Application for renewal of authorisation is submitted to PCBA on 29.12.2018. Authorisation certificate is awaited from PCBA.
viii	The project authorities will provide adequate funds as non-recurring and recurring expenditure to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	Sufficient fund is being made available at the time of implementation and operational phase of the project.
ix	The company shall develop rain water harvesting structures to harvest the runoff water for recharge of ground water.	20 nos. of Rainwater Harvesting Projects has been implemented covering roof area of 18568 SQM and surface area of 32900 SQM, having potential rainwater harvesting volume of 51468 M <sup>3</sup> . The harvested rainwater for ground water recharge is through recharge pits and recharge trench on the basis of technical details and guidelines from Central Ground Water Board, North Eastern Region, and Guwahati. Details attached as <b><u>Appendix-A9</u></b> .
x	The stipulated conditions will be monitored by the concerned Regional Office of this Ministry /Central Pollution Control Board/State Pollution Control Board. A six monthly compliance report and the monitored data should be submitted to them regularly. It will also be displayed on the Website of the Company.	Complied.

Sr. No.	General Conditions	Compliance status
xi	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment & Forests at <a href="http://www.envfor.nic.in">http://www.envfor.nic.in</a> . This should be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the concerned Regional office of this Ministry.	BGR had advertised "Public Notice" in three local news papers that are widely circulated in the region namely "The Assam Tribune" English daily, "Asomiya Pratidin" an Assamese daily & "Sanseyari Bodosa" a Bodo daily on 26th February, 2008.  The information is already submitted to statutory agencies.
xii	A separate environment management cell with full fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.	BGR is having a separate environmental management cell of HSE department and fully fledged laboratory to carry-out environment management and monitoring functions.  Organogram of HSE Department is attached as <b>Appendix-A11</b> .  BGR Environment Laboratory is accredited by NABL and recognized by <b>C.P.C.B.</b> 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 3 <sup>rd</sup> October 2018. (Copy attached as <b>Appendix-A12</b> ).
xiii	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project	Last capitalization date was 08/01/2015.

## 3.0

**APPENDIX –A1**STACK MONITORING DATA: (1<sup>st</sup> October 2018 to 31<sup>st</sup> March 2019)A. SO<sub>2</sub> Emission (mg/Nm<sup>3</sup>):

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<sub>x</sub> Emission (mg/Nm<sup>3</sup>):

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/Nm<sup>3</sup>)

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: (1<sup>st</sup> October 2018 to 31<sup>st</sup> March 2019)**

**D. CO Emission (mg/Nm<sup>3</sup>)**

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/Nm<sup>3</sup>):**

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)**  
**(1<sup>st</sup> October 2018 to 31<sup>st</sup> 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
<b>1</b>	<b>SO<sub>2</sub> (Std. 50/80 µg/m<sup>3</sup>)</b>						
	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
<b>2</b>	<b>NO<sub>2</sub> (Std. 40/80 µg/m<sup>3</sup>)</b>						
	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
<b>3</b>	<b>PM-10 (Std. 60/100 µg/m<sup>3</sup>)</b>						
	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
<b>4</b>	<b>PM-2.5 (Std. 40/60 µg/m<sup>3</sup>)</b>						
	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
<b>5</b>	<b>Ammonia (Std. 100/400 µg/m<sup>3</sup>)</b>						
	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
<b>6</b>	<b>Pb (Std. 0.5/1.0 µg/m<sup>3</sup>)</b>						
	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

<b>7</b>	<b>Arsenic (As) (Std. 6 ng/m<sup>3</sup>)</b>						
	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
<b>8</b>	<b>Ni (Std. 20 ng/m<sup>3</sup>)</b>						
	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
<b>9</b>	<b>CO (Std. 2/4 mg/m<sup>3</sup>)</b>						
	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
<b>10</b>	<b>Ozone (Std.100/180 µg/m<sup>3</sup> for 8 hrs/1 hr)</b>						
	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
<b>11</b>	<b>Benzene (Std. 5 µg/m<sup>3</sup>)</b>						
	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
<b>12</b>	<b>Benzo (a) Pyrene (Std. 1 ng/m<sup>3</sup>)</b>						
	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 <sub>2</sub>	NO <sub>2</sub>	PM-10	PM-2.5	NH <sub>3</sub>	Pb	As	Ni	Benzo (a) Pyrene	CO	C <sub>6</sub> H <sub>6</sub>	O <sub>3</sub>
Unit	µg/m <sup>3</sup>					ng/m <sup>3</sup>			mg/m <sup>3</sup>	µg/m <sup>3</sup>		
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 M<sup>3</sup>/Hr):( 1<sup>st</sup> October 2018 to 31<sup>st</sup> March 2019)**

A	Industrial Effluent M <sup>3</sup> /Hr	201.9
B	Domestic Effluent from BGR Township M <sup>3</sup> /Hr	46.7
C	Total Effluent Treated (A + B) M <sup>3</sup> /Hr	248.6
D	Treated Effluent Reused M <sup>3</sup> /Hr	245.95
E	Effluent Discharged M <sup>3</sup> /Hr	2.7
F	M <sup>3</sup> of Effluent discharged for 1000 tons of Crude processed	9.15

**1. Treated Effluent Quality**(1<sup>st</sup> October 2018 to 31<sup>st</sup> March 2019)

Sl. No	Parameter	Std,2008	Min	Avg.	Max
1	p <sup>H</sup> 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 <sub>6</sub> H <sub>5</sub> 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

(1<sup>st</sup> October 2018 to 31<sup>st</sup> March 2019)

Sl. No.	Parameter	Std 2008	Min	Avg.	Max
1	p <sup>H</sup> 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 <sub>6</sub> H <sub>5</sub> 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	-

**Tree Plantation  
(1<sup>st</sup> October 2018 to 31<sup>st</sup> 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, 1<sup>st</sup> October 2018 to 31<sup>st</sup> 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 Oct'2018**



## APPENDIX – A 4

### Additional Information

**(1<sup>st</sup> October 2018 to 31<sup>st</sup> 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 **1<sup>st</sup> October 2018 to 31<sup>st</sup> 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 **1<sup>st</sup> October 2018 to 31<sup>st</sup> 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 (1<sup>st</sup> October 2018 to 31<sup>st</sup> 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

**Annexure –A6 (b)**

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



Consent under HW  
Rules 2008.pdf

10.0

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



ETP Description.pdf

**ANNEXURE-A8**

**Quarterly Noise Survey Data**

(1<sup>st</sup> October 2018 to 31<sup>st</sup> March 2019)

HSE (ENVIRONMENT) DEPARTMENT



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



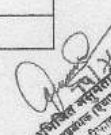
**NOISE SURVEY DATA  
4TH QTR 18-19.pdf**

## ANNEXURE-A9

### Rain Water Harvesting Data

Rain Water Harvesting Schemes implemented: BGR Status

Sl.No.	RWH systems	Area In M <sup>2</sup>	Recharging Capacity M3/Yr	Total Recharging Capacity M3/Yr	Status
1	Rainwater Harvesting at Mandir Complex	7125	19950	95642.4	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		
13	Champa Club (Officers Club)	1100	3080	10304	Implemented
14	Refinery Club cum Community Centre	2580	7224		
15	Employee Union Conference Hall Building	275	770	3080	Implemented
16	CISF Quarter Guards Building	825	2310		
17	CISF Conference Hall & Barack	1050	2940	4760	Implemented
18	BGR Community Centre	650	1820		
19	Foot Ball Stadium gallery	988	2766.4	2766	Implemented
20	Volleyball Stadium Gallery				
<b>TOTAL</b>		<b>51,468</b>	<b>144110.4</b>	<b>144,110</b>	

  
 General Manager (PS)  
 Office of the General Manager  
 P.O. - Chingapuri - 785385  
 Assam

13.0

## ANNEXURE-A10

Screen Shot of IOCL Website upload of report

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

The image displays two screenshots of the IOCL website's 'Statutory Notices' page. The top screenshot shows a list of notices for the Gujarat Refinery, including half-yearly EC compliance reports and environment clearances. The bottom screenshot shows a list of notices for the Bongaon Refinery, including half-yearly compliance reports and ECs for various projects. A black arrow points from the bottom-left corner of the image to the fourth item in the Bongaon Refinery list.

**Statutory Notices**

**Gujarat Refinery**

- Half yearly EC compliance report of Gujarat Refinery 01.06.2018
- Half yearly EC compliance report of Gujarat Refinery 01.12.2017
- Half yearly EC compliance report of Gujarat Refinery 01.06.2018
- Half yearly EC compliance report of Gujarat Refinery 01.12.2018
- Environment Clearance of SS IV-VI of Gujarat Refinery 26.03.2017
- Correction in Environment Clearance of SS IV-VI of Gujarat Refinery 29.01.2018
- Environment Clearance of GT-6 of Gujarat Refinery 22.06.2015
- Environment Clearance of RUP of Gujarat Refinery 27.04.2006
- Environment Clearance of SS IV-VI of Gujarat Refinery 26.03.2017

**Bongaon Refinery**

- Half yearly Compliance Report on Environmental Stipulations pertaining to Projects at DNgd Refinery
- Half yearly Report for the period of 1st April 2018 to 30th September 2018 for MS Quality Improvement Project - Bongaon Refinery
- Half yearly Report for the period of 1st April 2018 to 30th September 2018 for "Refinery Expansion, De-bottlenecking of Refinery and LPG facility" - Bongaon Refinery
- Half yearly Report for the period of 1st April 2018 to 30th September 2018 for Diesel Hydro Treatment Plant
- Half yearly Report for the period of 1st April 2018 to 30th September 2018, for "WII Maximisation Project"
- Compliance of EC for MSO project (Apr'18-Sept'18) - Bongaon Refinery
- Compliance of EC for Aggregation of Crude Processing Capacity (Apr'18-Sept'18) - Bongaon Refinery
- Compliance of EC for IS-IV MS & HSD quality upgradation (Apr'18-Sept'18) - Bongaon Refinery
- Compliance of EC for DXP (Apr'18-Sept'18) - Bongaon Refinery
- Compliance of EC for CRU project (Apr'18-Sept'18) - Bongaon Refinery
- CRZ Clearance for "Laying of common corridor pipeline (R-LNG spur) pipeline from Ennore to Marudhabathi - Thiruvallur, Tamil Nadu"
- Six-Monthly Environmental Compliance Report (October, 2017 to March, 2018) for 2 X 600 MT rounded storage vessels at Indane LPG Bottling Plant, Near Mahanaga Sparga, CSDD, Siligra Phase-I, District Rajpur, Chhattisgarh
- Notice: Parallel Marketing System of LPG (issued in public interest by Ministry of Petroleum and Natural Gas, Government of India)
- Latest Environmental Statement - Bongaon Refinery
- Half Yearly Compliance Report of Environmental Stipulations pertaining to Digital Marketing Terminal Project of Gdnl



## APPENDIX-A11

### HSE Organogram of IOCL-BGR

MANPOWER SUMMARY, 31st APR 2023			
GRADE	ASSIGNED	ACT.	SHORT / EXCESS
F	8	3	(-5)
SA	2	1	0
A/B/C	4	3	(-1)
TOTAL	14	7	(-7)



1. Inspection of collected data required for generation & submission of reports & applications (Statutory, RHQ & Internal)
2. Coordinating with different departments relating to compliance of the stipulated environmental standards.
3. Preparation of Monthly MIS to RHQ, Monthly internal detailed MIS on Environment, Quarterly Performance Report other statutory reports etc.
4. Supervising the up-plant activities under regular contract, making of Service Entry Sheets- and also intimating HR about different contractual information.
5. Coordinating with Auditors during different audits.
6. Coordination of WED activities.
7. Environment related trainings.
8. Attending PLSDHC meetings.
9. Making events carbon neutral.
10. Collection of data required for Statutory Reports like Monthly Water Return, Six monthly Bottery Return, Six monthly Compliance Report, Yearly Environment Statement, Application for Consent & Authorization, Bio-Medical Wastes etc.
11. Supervision of Parvash Udyan, Eco Park & Herbal garden.
12. NOR updation.
13. Monitoring of Environmental facilities.
14. Updating and liaisoning of Statutory bodies.
15. Half yearly EC compliance report to Regional office, CPCB, SPCB.
16. ESARSDISA coordination & compliance reports to RHQ.
17. PSPH List of Critical parameters, SOL excursion reports to RHQ.
18. System Audit coordination & reports to RHQ.
19. N-Pu Newsletters reporting to RHQ.
20. Reply to RTI queries of external bodies.

- K Chakrabarti, AM (HSE)**  
**Environment**
1. Collection of Environmental data required for Monthly, Quarterly, Half yearly, annually internal MIS, Statutory Reports and compiling up.
  2. Demonstration of sites during VIP visits in Herbal Garden.
  3. Coordination of WED activities.
  4. Compilation of data from Environmental facilities.
  5. Monitoring of Environmental facilities and generation & submission of internal & external daily MIS.
  6. Supervision of Parvash Udyan, Eco park & Herbal Garden.
  7. Preparation of bills for contractual jobs and supervising contractual activities.
  8. Application for various awards.
  9. Tree Plantation in plant, Township and neighbouring areas.
  10. Co-ordination with CPO and other statutory body.
  11. Half yearly EC compliance report compilation & submission.
  12. Environmental related trainings in house.
  13. Attend PLSDHC meetings.
  14. Monitoring of Environmental facilities.
  15. Renewal of applications from Statutory bodies.
  16. Reply to queries of RTI to external statutory agencies.
  17. Awareness program on environment in neighbouring areas.
  18. Facilitate visits of officials from various Statutory bodies.

- D Verma, Officer, AM (HSE)**  
**Environment**
1. Daily monitoring of Environment parameters & generating daily MIS (Monitoring of all Oil Traps, Storm Water channel, Fossil outlet, Stack Stations etc).
  2. Correspondence with concerned dept. for information and corrective action as and when required.
  3. Monitoring of Stack & Ambient air Stations, LED Display Boards including Maintenance and up-plant of Stack Station & related instruments like AC.
  4. Quarterly, SO, Carbon foot print report compilation & submission to RHQ.
  5. Monthly MIS submission to RHQ.
  6. Environmental expenditure compilation & submission to RHQ.
  7. Fire water consumption study.
  8. ETP performance Study.
  9. Fugitive emission & Noise survey study, compilation of Quarterly report.
  10. Quarterly Environment performance report to RHQ.
  11. Works related with Celebration of World Environment Day.
  12. Attend PLSDHC meetings.
  13. Facilitate visits of officials from Statutory bodies.
  14. Monitoring of ambient air, stack & effluent parameters - generation of DCR.
  15. Monitoring of excursions of various environmental parameters & action for its control.

NOTE: After supersession of Sr A Sathya, AM (HSE) in Mar'18, shortage of total manpower is 1.

Prepared by <b>SM (HSE)</b>	Checked by <b>SM (TS &amp; HSE)</b>	Approved by <b>DGM (TS &amp; HSE)</b>	For needful w.r.t. Assignment as per organogram
<i>[Signature]</i>	<i>[Signature]</i>	<i>[Signature]</i>	by HR

## 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-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 181<sup>st</sup> 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.

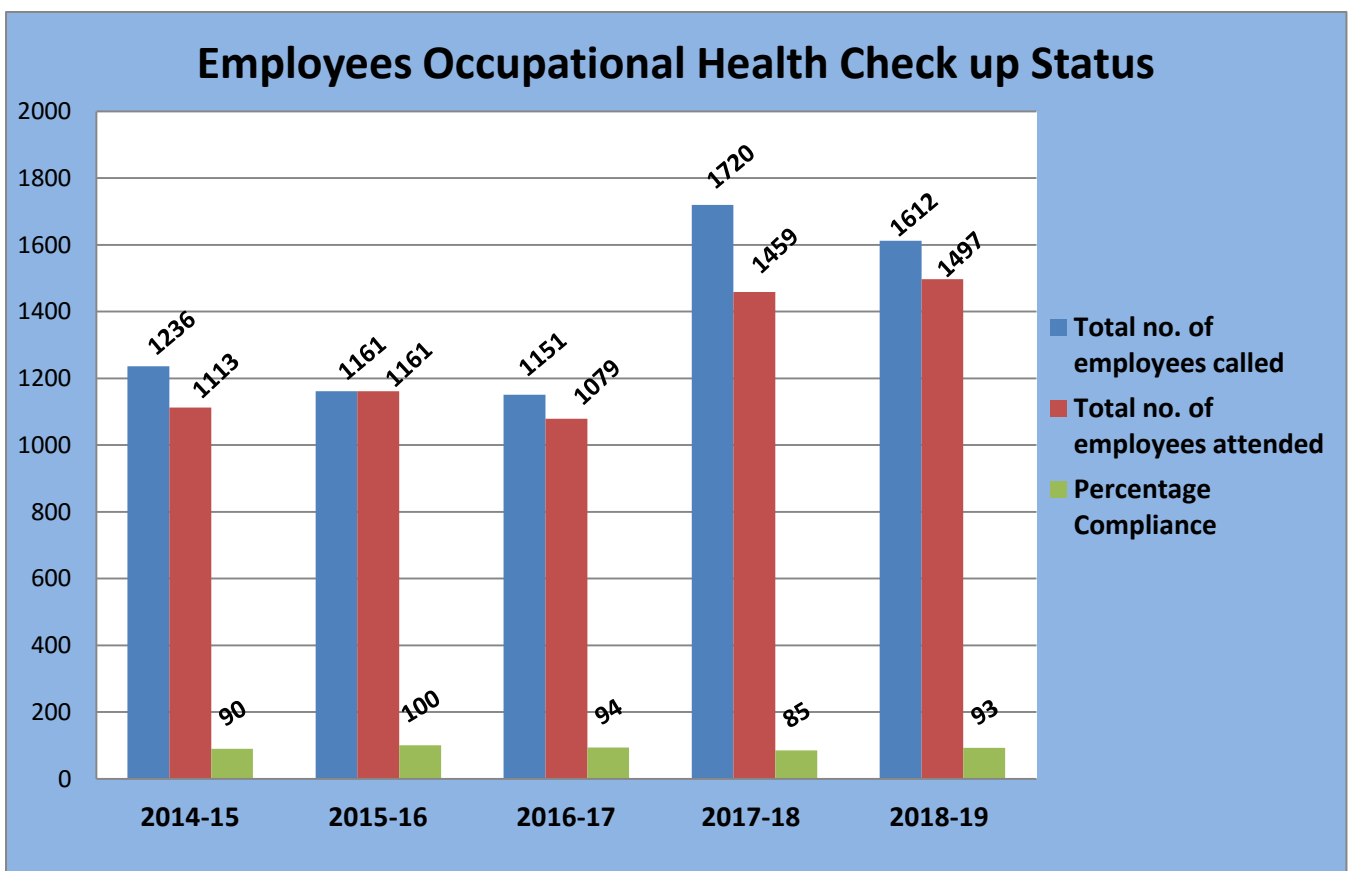
Yours Faithfully

(B.K. Jakhmola)

Scientist-E & Divisional Head  
Instrumentation Laboratory

### Appendix-A13

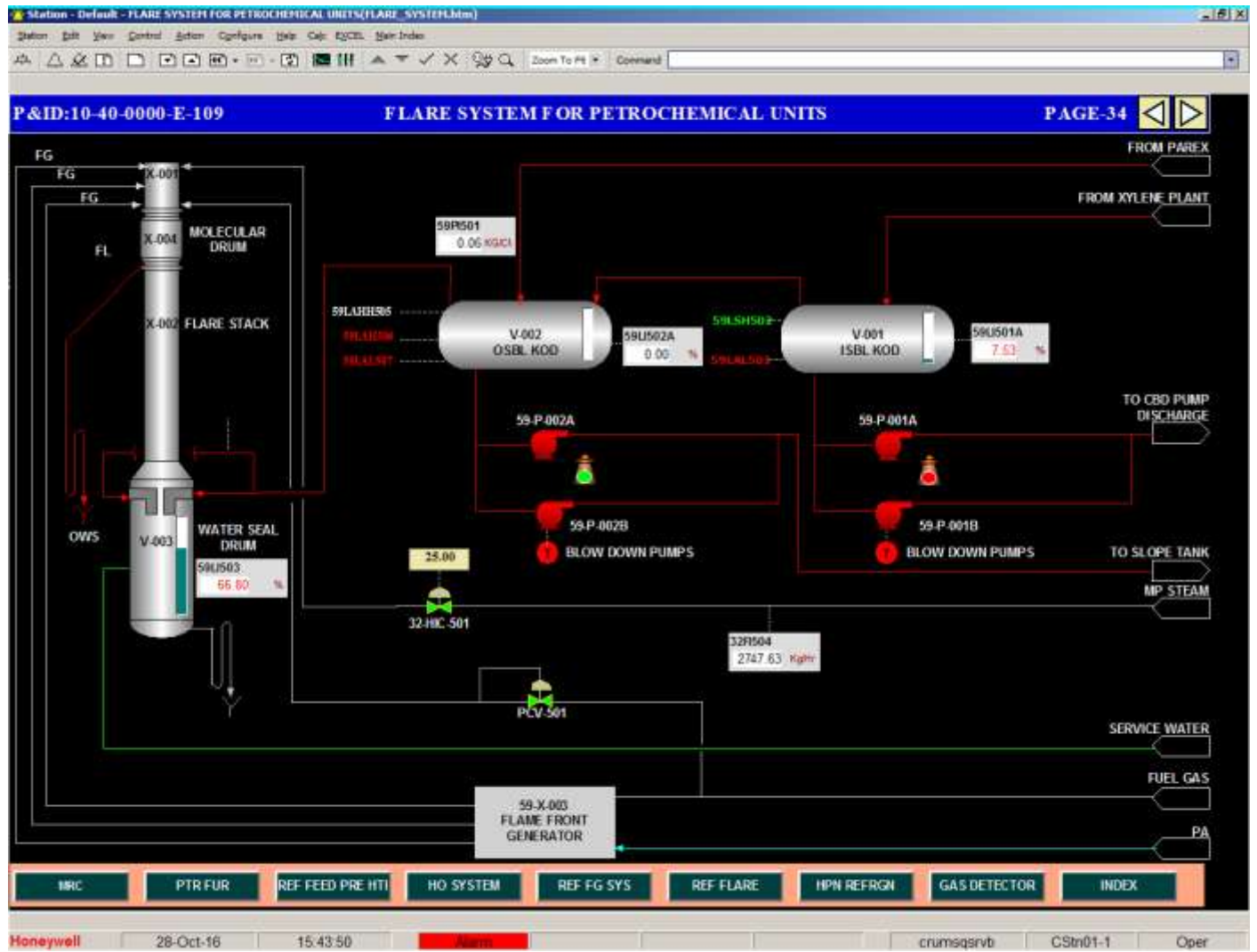
#### Employees Occupational Health Check up Status



17.0

# Appendix-A14

Flare system.



THANKS