



REF: IOC/BGR/ENV/DHDT/MoEF&CC/2019-20/01

Date: 20.11.2019

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

**Subject: Half yearly Report for the period of (1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 2019) for Diesel Hydro Treatment Plant**

Dear Sir,

With reference to above, we are enclosing the Six Monthly Report for the period of **1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 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 "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 (1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 2019)**



**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: (1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 2019)**

### **INDEX:**

<b>Sl. No</b>	<b>Conditions</b>	<b>Status</b>
1.	Specific & General conditions Compliance status of Diesel Hydro treatment Project.	Annexure- A
2.	Six monthly Stack Monitoring/ Air Quality Data	Furnished in Appendix-A1
3.	Six monthly effluent discharged quantity, Quality	Furnished in Appendix-A2
4.	Tree Plantation Data	Furnished in Appendix-A3
5.	Additional Information	Furnished in Appendix-A4
6.	Quarterly Fugitive Emission Reports.	Furnished in Appendix-A5
7.	Annual return of hazardous waste	Furnished in Appendix-A6(a)
8.	Authorization from PCBA under Hazardous and Other Waste ( Management and Transboundary Movement) Rules 2016	Furnished in Appendix-A6(b)
9.	Details of Waste water treatment and disposal system	Furnished in Appendix-A7
10.	Quarterly Noise Survey Reports.	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.	Organogram of HSE Department	Furnished in Appendix-A11
14.	Gazette Notification of BGR Quality Control laboratory (QC Lab) approval under Environment (Protection) Act 1986.	Furnished in Appendix-A12
15.	Employees Occupational Health Check up Status	Furnished in Appendix-A13
16.	Flare system.	Furnished in Appendix-A14

## 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 3 <sup>rd</sup> 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 <b>1<sup>st</sup> April 2019 to 30<sup>th</sup> September, 2019, 3644 MT</b> 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 <b>1<sup>st</sup> April 2019 to 30<sup>th</sup> September, 2019, 216 MT</b> 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	<p><b>a.</b> Provision of double mechanical seal for the pumps handling H<sub>2</sub>S to reduce the frequency of failure</p> <p><b>b.</b> Provision of adequate no. of H<sub>2</sub>S 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.</p> <p><b>c.</b> Provision of emergency stop button for rich amine group in the control room to stop the pump.</p>	<p>Taken care off in design stage, installed &amp; commissioned.</p> <p>Following no. of H<sub>2</sub>S detectors along with HC/H<sub>2</sub> detectors provided in various process units under DHDT project as on 31<sup>st</sup> Dec'2018. DHDT : (HC = 7, H<sub>2</sub>S = 5, H<sub>2</sub> = 9) HGU : (HC = 10, CO = 4, H<sub>2</sub> = 4) ARU : (H<sub>2</sub>S = 7 &amp; HC=1) SWSU : (H<sub>2</sub>S=6 &amp; HC=1) SRU : (H<sub>2</sub>S=14, HC=3 &amp; H<sub>2</sub> =2) DHDT-Utility Area: (H<sub>2</sub>S=3, HC=8, H<sub>2</sub>= 3</p> <p>Taken care off in design stage, installed &amp; commissioned.</p>

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) LPG connection has been provided by IOC Marketing Division, under 'Prime Minister's Ujjwala Yujana' in the villages mentioned ii) BGR has planted around 3000 tree saplings near Rabhapara in Kakoijana Golden Langur Reserve Forest iii) Awareness program was also arranged by IOCL, BGR, among the 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 19 <sup>th</sup> Apr'2017.  <b>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.</b>
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 5 <sup>th</sup> August, 2022.  Copy attached as <b>Appendix A6(b)</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 5 <sup>th</sup> August, 2022.  Copy attached as <b>Appendix A6 (b)</b> .
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).	<p>Complied.</p> <p>a) Taken care off in the design stage, installed &amp; commissioned.</p> <p>b) Precautionary measures were taken during construction period to control the noise level &amp; present activities do not generate noise of high db.</p> <p>c) Quarterly Noise Survey is being carried out regularly to check noise level.</p> <p>Quarterly Noise survey report for the period of 1st April, 2019 to 30th September, 2019 is attached as <b><u>Appendix A8.</u></b></p>
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Sr.No.	General Conditions	Compliance Status
vii	Occupational health Surveillance of the workers should be done on a regular basis and records maintained.	<p>Complied.</p> <p>Attached as <b><u>Appendix A13.</u></b></p>
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.	<p>Complied.</p> <p>BGR is having a separate environmental management cell of HSE department and full-fledged laboratory to carry-out environment management and monitoring functions.</p> <p>Organogram of HSE Department is attached as <b><u>Appendix A11.</u></b></p> <p>BGR Environment Laboratory is accredited by NABL and recognized by CPCB as under Section 12&amp;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. <b>(Copy attached as <u>Appendix A12</u>)</b></p>
ix	The funds earmarked for the environmental protection measures should be reported to this Ministry and SPCB.	<p>Complied.</p> <p>Funds were made available for implementing all recommendations</p> <p>Expenditure for the financial year 2018-19 was Rs.1066.6 Lacks and in the 1<sup>st</sup> half of current financial year was Rs. 323.43 Lacks</p>
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).	<p>Complied.</p> <p>Last six monthly compliance reports along with soft copy was submitted vide, document no. IOC/BGR/ENV/DHDT/MoEF&amp;CC/2018-19/02, Dtd.: 20.06.2019.</p> <p>The six monthly compliance reports were also displayed on the Website of the Company.</p> <p>Screen shot attached as <b><u>Appendix A10.</u></b></p>

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 <a href="http://envfor.nic.in">http://envfor.nic.in</a> The advertisement should be made within 7 days from the date of issue of the clearance letter and a copy of the same should be 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 <sub>2</sub> 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 <sub>x</sub> emission.	
iii	The total effluent generation shall not exceed 7.9 m <sup>3</sup> /hr The fresh water consumption shall not exceed 275 m <sup>3</sup> /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 19 <sup>th</sup> Apr'2017.  <b>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.</b>  <b>Around 90 % jobs of the project is completed.</b>
v	The company shall comply with the conditions stipulated in the clearance order of even no. dated 25 <sup>th</sup> 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**

**(1<sup>st</sup> April 2019 to 30<sup>th</sup> September 201)**

**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-II01/78 /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<sub>2</sub> unloading & Storage facility along with H<sub>2</sub> 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.



**APPENDIX –A1**STACK MONITORING DATA: (1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 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	47	153	467
CDU-II		14	22	65
DCU-I		13	97	220
DCU-II		3	50	446
CPP		17	114	292
Reformer		7	12	37
HO-1		13	28	73
HO-2		15	30	43
Isomerisation		5	20	39
DHDT		1	11	54
HGU		4	19	46
SRU		23	89	253
GTG		2	7	17

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	83	84	86
CDU-II		5	13	78
DCU-I		21	44	67
DCU-II		26	61	341
CPP		74	82	90
Reformer		8	19	22
HO-1		106	150	192
HO-2		12	16	18
Isomerisation		35	76	106
DHDT		14	22	50
HGU		0.1	12	82
SRU		No Analyser		
GTG		4	34	310

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	2.2	5.3	62.4
CDU-II		1.5	1.8	2.9
DCU-I		0.5	5.3	30.3
DCU-II		0.2	2.0	12.4
CPP		0.4	3.0	29.6
Reformer		0.1	1.1	10.4
HO-1		0.3	2.2	14.3
HO-2		0.9	4.0	13.5
Isomerisation		1.0	3.6	6.7
DHDT		1.0	1.7	3.9
HGU		0.8	5.3	47.1
SRU		4.5	8.2	12.4
GTG		2.6	15.4	21.9

**STACK MONITORING DATA: (1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 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	11.2	36.7	50.7
CDU-II		4.0	26.5	62.8
DCU-I		2.7	28.4	170.4
DCU-II		1.4	7.7	109.6
CPP		1.2	16.2	85.6
Reformer		15.1	19.3	43.4
HO-1		0.1	9.5	63.8
HO-2		0.6	16.1	144.9
ISOMERISATION		25.1	25.3	25.8
DHDT		1.0	8.0	10.5
HGU		2.2	13.5	67.4
SRU		1.4	1.6	2.0
GTG		0.03	20.0	28.9

**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> April, 2019 to 30<sup>th</sup> September, 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	0.60	5.20	5.20	4.80	4.80	5.20
	Average	5.61	7.48	7.48	9.00	7.40	6.25
	Max	65.53	9.80	9.80	11.80	8.80	7.20
	No. of observation	Continuous	56	56	56	56	56
<b>2</b>	<b>NO<sub>2</sub> (Std. 40/80 µg/m<sup>3</sup>)</b>						
	Min	5.94	9.20	9.20	9.20	9.20	9.20
	Average	6.12	12.00	11.44	13.61	12.47	10.48
	Max	9.63	15.20	13.80	18.20	15.80	11.80
	No. of observation	Continuous	56	56	56	56	56
<b>3</b>	<b>PM-10 (Std. 60/100 µg/m<sup>3</sup>)</b>						
	Min	3.59	38.00	35.00	38.00	35.00	20.00
	Average	16.83	66.79	66.09	71.82	67.07	55.00
	Max	49.41	86.00	84.00	94.00	86.00	72.00
	No. of observation	Continuous	56	56	56	56	56
<b>4</b>	<b>PM-2.5 (Std. 40/60 µg/m<sup>3</sup>)</b>						
	Min	2.04	15.00	16.00	15.00	15.00	14.00
	Average	4.63	32.21	31.96	35.00	32.11	25.18
	Max	10.17	43.00	44.00	48.00	44.00	35.00
	No. of observation	Continuous	56	56	56	56	56
<b>5</b>	<b>Ammonia (Std. 100/400 µg/m<sup>3</sup>)</b>						
	Min	7.21	6.20	6.80	6.20	6.20	5.20
	Average	7.46	10.41	9.69	11.11	9.57	7.00
	Max	14.79	14.20	12.50	15.20	14.20	8.20
	No. of observation	Continuous	56	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		56	56	56	56	56

	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>7</b>	<b>Arsenic (As) (Std. 6 ng/m3)</b>						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		56	56	56	56	56
<b>8</b>	<b>Ni (Std. 20 ng/m3)</b>						
	Min		1.20	1.50	1.60	1.50	BDL
	Average		2.65	2.49	3.08	2.73	BDL
	Max		3.80	3.50	4.50	4.20	BDL
	No. of observation		56	56	56	56	56
<b>9</b>	<b>CO (Std. 2/4 mg/m3)</b>						
	Min	0.01	BDL	BDL	0.15	0.12	BDL
	Average	0.34	BDL	BDL	0.26	0.20	BDL
	Max	1.72	BDL	BDL	0.38	0.28	BDL
	No. of observation	Continuous	56	56	56	56	56
<b>10</b>	<b>Ozone (Std.100/180 µg/m<sup>3</sup> for 8 hrs/1 hr)</b>						
	Min	32.28	10.00	10.00	10.00	10.00	10.00
	Average	40.90	19.06	18.47	19.21	18.23	17.26
	Max	63.25	28.00	26.00	26.00	24.00	22.00
	No. of observation	Continuous	56	56	56	56	56
<b>11</b>	<b>Benzene (Std. 5 µg/m<sup>3</sup>)</b>						
	Min	0.24	BDL	BDL	BDL	BDL	BDL
	Average	0.38	BDL	BDL	BDL	BDL	BDL
	Max	2.31	BDL	BDL	BDL	BDL	BDL
	No. of observation	Continuous	56	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		56	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	0.60	5.9	3.6	2.0	5.2	BDL	BDL	1.2	BDL	0.01	0.24	10.0
Average	7.21	11.0	57.3	26.8	9.2	BDL	BDL	2.7	BDL	0.26	0.4	22.2
Max	65.53	18.2	94.0	48.0	15.2	BDL	BDL	4.5	BDL	1.72	2.3	63.3

**APPENDIX-A2****Effluent Discharged (Figure in M<sup>3</sup>/Hr): (1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 2019)**

<b>A</b>	<b>Industrial Effluent M<sup>3</sup>/Hr</b>	<b>188.7</b>
<b>B</b>	<b>Domestic Effluent from BGR Township M<sup>3</sup>/Hr</b>	<b>37.86</b>
<b>C</b>	<b>Total Effluent Treated (A + B) M<sup>3</sup>/Hr</b>	<b>226.56</b>
<b>D</b>	<b>Treated Effluent Reused M<sup>3</sup>/Hr</b>	<b>223.83</b>
<b>E</b>	<b>Effluent Discharged M<sup>3</sup>/Hr</b>	<b>2.75</b>
<b>F</b>	<b>M<sup>3</sup> of Effluent discharged for 1000 tons of Crude processed</b>	<b>9.99</b>

**1. Treated Effluent Quality****(1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 2019)**

<b>Sl. No</b>	<b>Parameter</b>	<b>Std,2008</b>	<b>Min</b>	<b>Avg.</b>	<b>Max</b>
1	p <sup>H</sup> value	6.0 - 8.5	6.0	7.3	8.5
2	Oil and Grease, mg/l	5.0	1.4	2.7	5.0
3	Bio-Chemical Oxygen Demand (3 Day at 27°C), mg/l	15.0	0.8	5.2	15.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	10.0	37.8	99.2
5	Suspended solids, mg/l	20.0	4.0	11.6	20.0
6	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l	0.35	0.01	0.10	0.35
7	Sulphide (as S), mg/l	0.50	0.03	0.10	0.32
8	CN mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N, mg/l	15.0	0.78	0.83	0.92
10	TKN, mg/l	40.0	2.50	2.87	3.80
11	P, mg/l	3.0	0.18	0.22	0.25
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	0.26	0.32
17	Ni, mg/l	1.0	-	BDL	-
18	Cu, mg/l	1.0	0.02	0.04	0.05
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

(1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 2019)

Sl. No.	Parameter	Std 2008	Min	Avg.	Max
1	p <sup>H</sup> value	6.0 - 8.5	6.50	7.35	8.50
2	Oil and Grease, mg/l	5.0	1.00	2.54	4.80
3	Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l	15.0	1.00	5.5	14.90
4	Chemical Oxygen Demand (COD), mg/l	125.0	19.84	33.8	90.00
5	Suspended Solids, mg/l	20.0	4.00	10.4	20.00
6	Phenolic compounds (as C <sub>6</sub> H <sub>5</sub> OH), mg/l	0.35	0.01	0.124	0.35
7	Sulphide (as S), mg/l	0.50	0.03	0.144	0.49
8	CN, mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N , mg/l	15.0	0.78	1.00	1.20
10	TKN, mg/l	40.0	2.60	3.02	3.50
11	P, mg/l	3.0	0.18	0.22	0.26
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	0.0018	0.0027	0.0035
17	Ni, mg/l	1.0	-	BDL	-
18	Cu, mg/l	1.0	0.0004	0.0006	0.0008
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

(1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 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> April, 2019 to 30<sup>th</sup> September, 2019 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 04.10.19**



**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

**(1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 2019)**

Effluent reused during the period was around **98.8 %** 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> April, 2019 to 30<sup>th</sup> September, 2019, 23291** potential leaky points checked and **184** Leaky points detected and rectified. By following LDAR programme in true spirit, the company could not only avoid potential loss of **62.22 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> April, 2019 to 30<sup>th</sup> September, 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 m<sup>3</sup> of oily sludge is being processed. From **1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 2019, 216 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> April, 2019 to 30<sup>th</sup> September, 2019)



**FUG EMISSION DATA  
1ST QTR 19-20.pdf**



**FUG EMISSION DATA  
2ND QTR 19-20.pdf**

8.0

**APPENDIX-A6 (a)**



HW Return  
2018-19.pdf

9.0

**Annexure –A6 (b)**

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



HW Authorisation  
2019.pdf

**APPENDIX-A7**

**Detail of Waste water treatment and disposal system.**



ETP Description.pdf

**ANNEXURE-A8**

**Quarterly Noise Survey Data**

(1<sup>st</sup> April, 2019 to 30<sup>th</sup> September, 2019)

HSE (ENVIRONMENT) DEPARTMENT



NOISE SURVEY DATA  
1ST QTR 19-20.pdf




NOISE SURVEY DATA  
2ND QTR 19-20.pdf

## ANNEXURE-A9

### Rain Water Harvesting Data

#### BGR: Rain Water Harvesting till Mar 2019

Sl.No.	RWH systems	Area In m <sup>2</sup>	Recharging, m <sup>3</sup> /Yr	Total Recharging, m <sup>3</sup> /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	4641	In operation
16	CISF Conference Hall & Barrack	1050	2867		
17	BGR Community Centre	650	1775		
18	Foot Ball Stadium gallery	988	2697	2697	In operation
19	Vollyball Stadium Gallery				
<b>TOTAL</b>		<b>50,107</b>	<b>142780</b>	<b>1,42,780</b>	

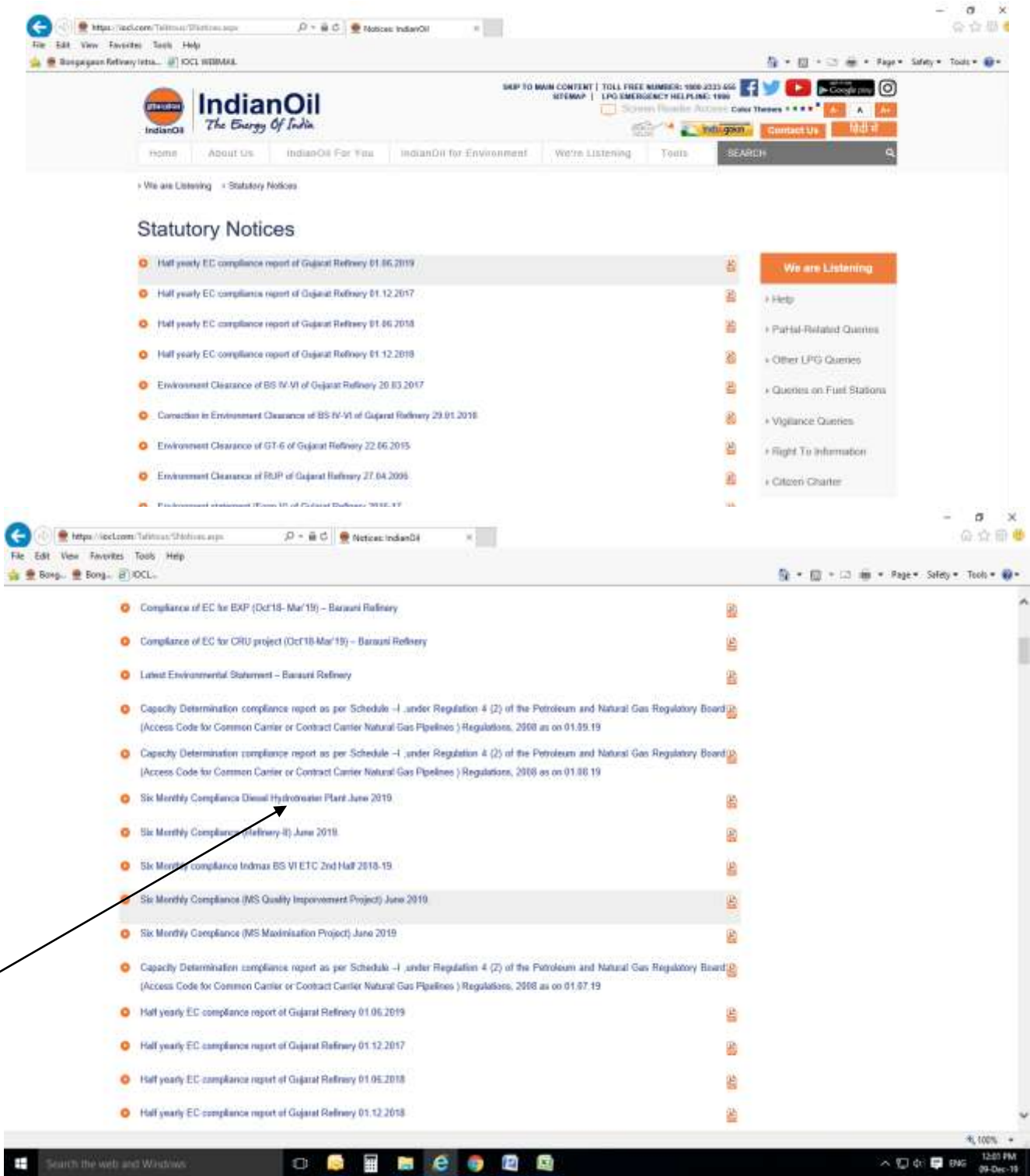
  
 अभिशेक बसुमती / Abhishek Basumatary  
 जनरल म्यानेजर (HSE) / General Manager (HSE)  
 बंगपेण रीफाइनरी, इंडियन ऑइल कॉर्पोरेशन लिमिटेड  
 Bongaigaon Refinery, Indian Oil Corporation Limited  
 सुनारी, धुबरी जिला, P.O. : Dhalgaon - 783365  
 बिहार : पार्थ (असम) Dist. : Chirang (Assam)



# ANNEXURE-A10

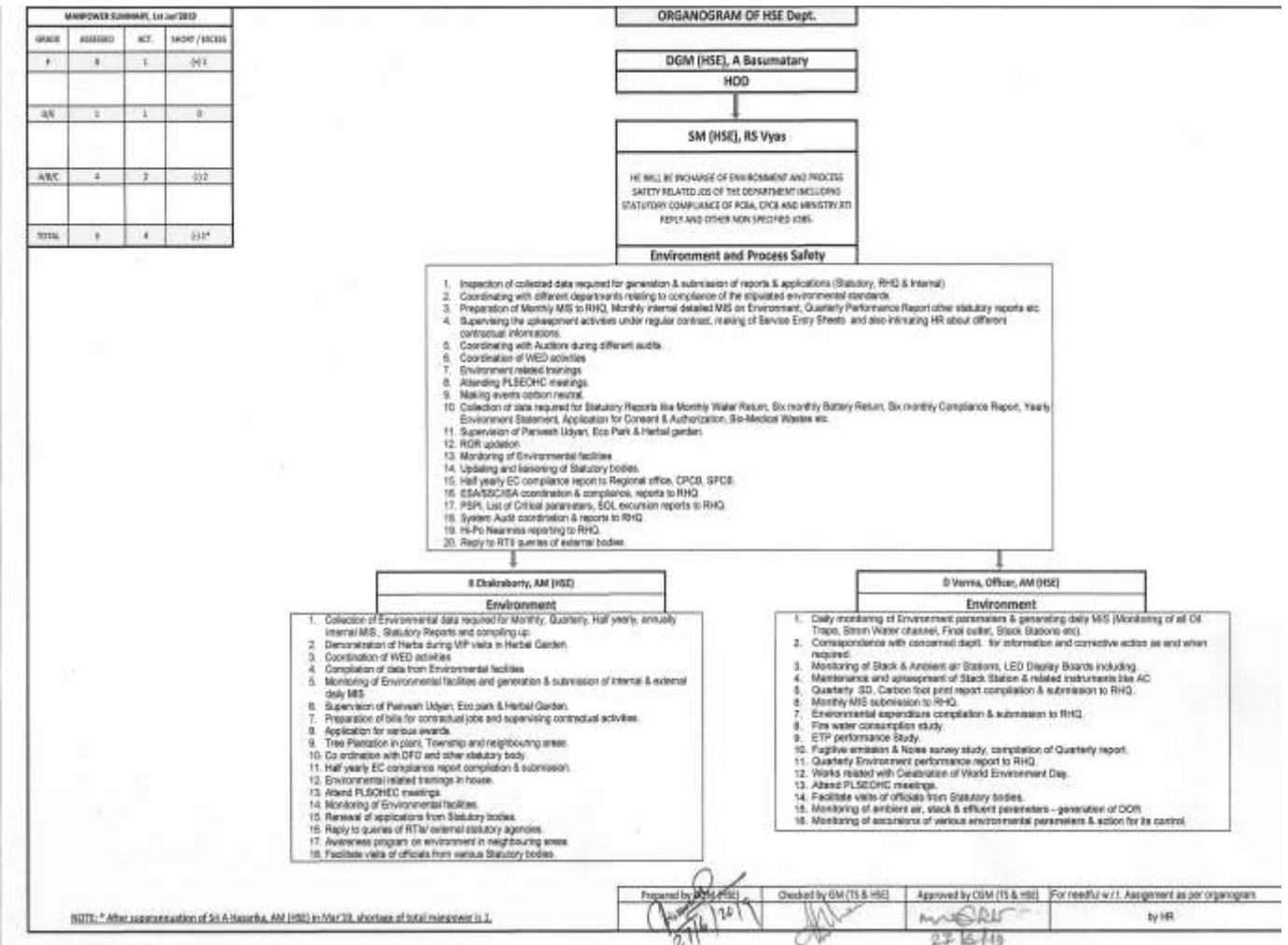
Screen Shot of IOCL Website upload of report

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



## 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 181<sup>st</sup> 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)/8/ dated October 3, 2018. The copy of Gazette Notification is enclosed herewith for your reference and record please.

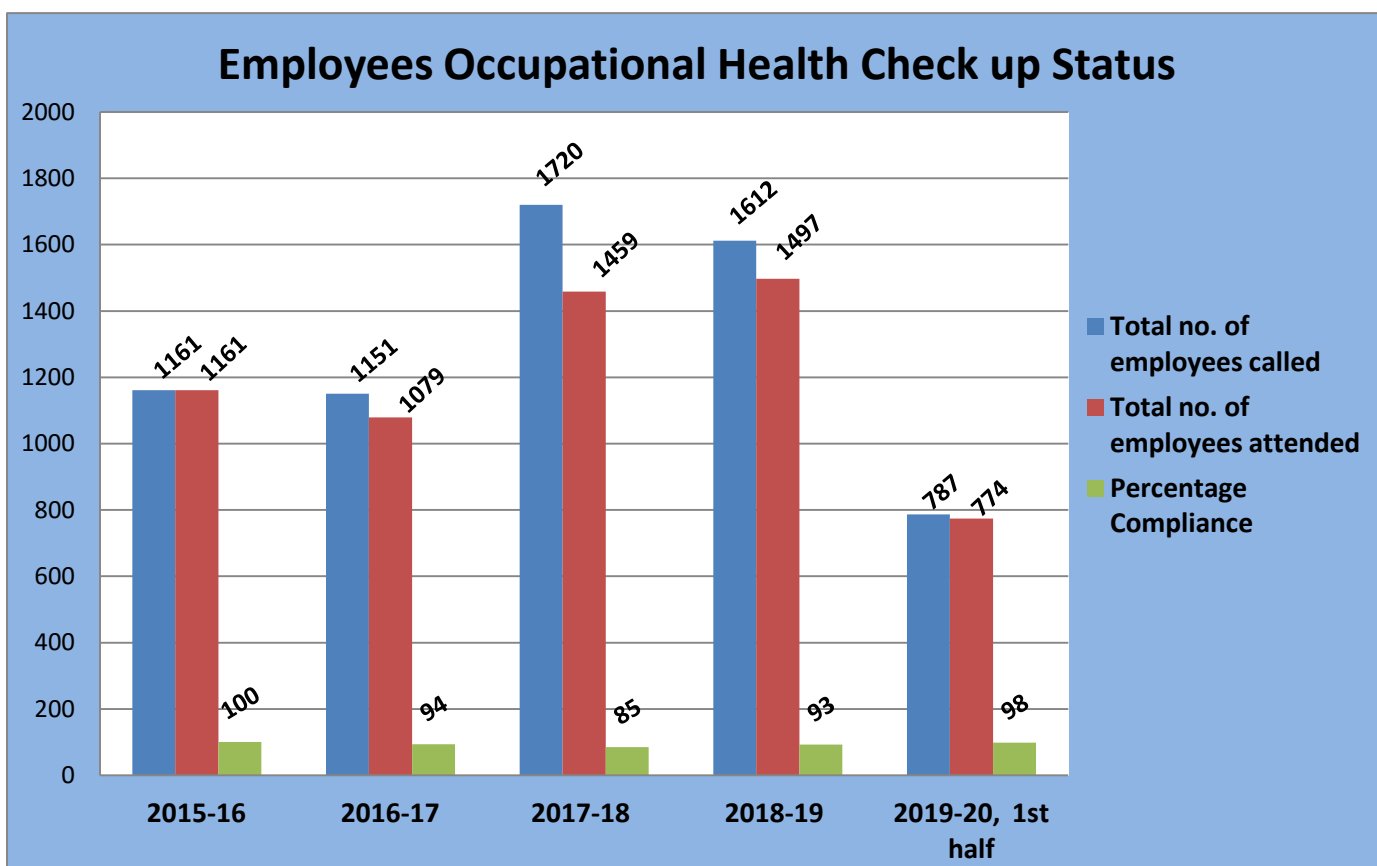
Yours Faithfully

(B.K. Jakhmola)

Scientist-E & Divisional Head  
Instrumentation Laboratory

Appendix-A13

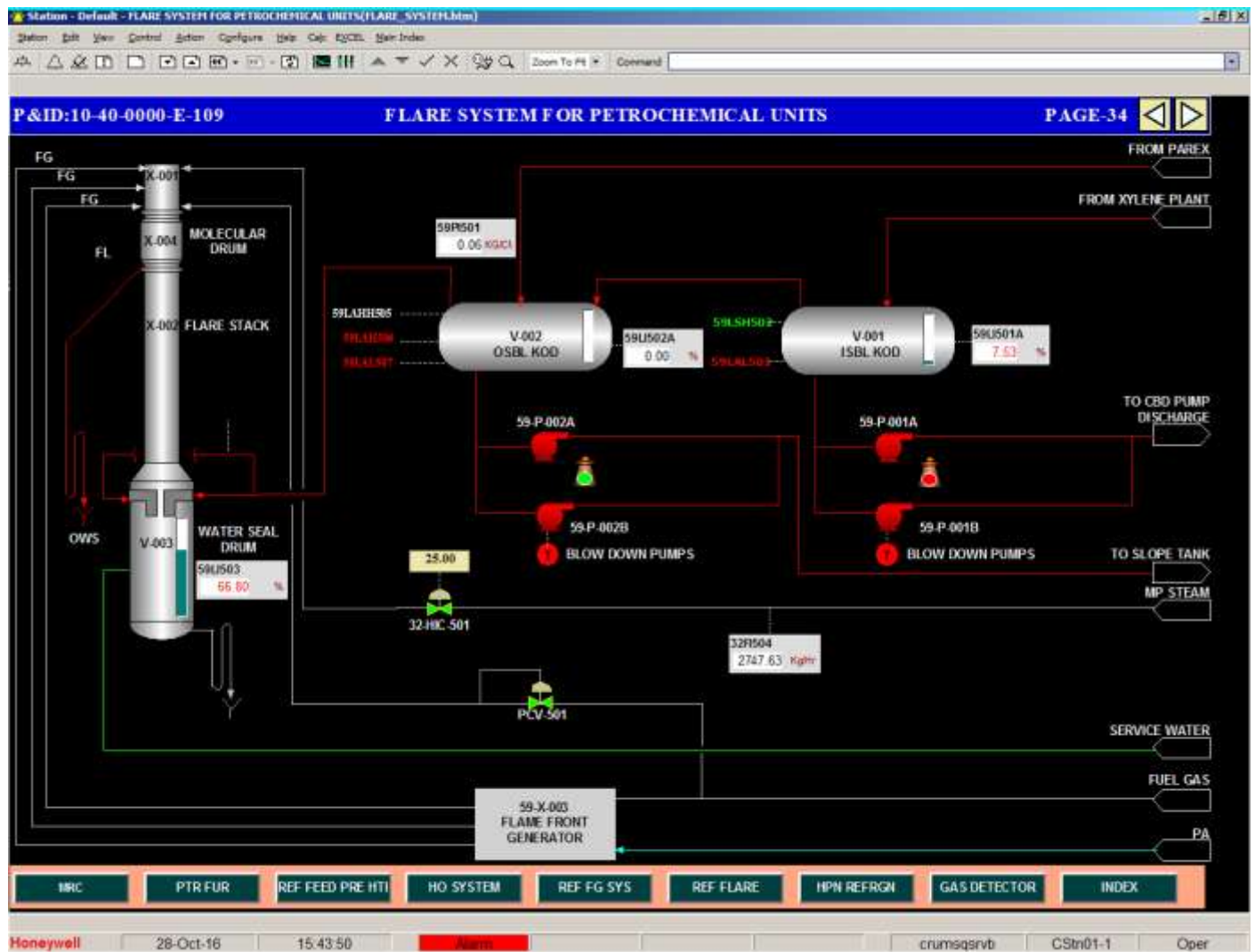
Employees Occupational Health Check up Status



17.0

# Appendix-A14

Flare system.



THANKS