



एक कदम स्वच्छता की ओर

रिफाइनरी प्रभाग
Refineries Division

इंडियन ऑयल कॉर्पोरेशन लिमिटेड

बोंगाइगाँव रिफाइनरी

डाकघर : धालीगाँव - 783 385

जिला : चिरांग (असम)

Indian Oil Corporation Limited
Bongaigaon Refinery

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REF: IOC/BGR/ENV/INDMAX ETC./MoEF&CC/2020-21/02

Date: 19/06/2021

To

The Regional Officer,
Ministry of Environment, Forest and Climate Change,
Integrated Regional Office, Guwahati,
4th Floor, Housefed Building, GS Road,
Rukminigaon Guwahati-781022

Subject: Half yearly Report for the period of (1st October, 2020 to 31st March, 2021) for
BGR INDMAX & BS-VI Projects:

Dear Sir,

With reference to above, we are enclosing the Six Monthly Report for the period of 1st October, 2020 to 31st March, 2021 for your kind perusal. The reports are being sent as per EIA Rules'2006 for the EC conditions contemplated in the Environment Clearance issued to Bongaigaon Refinery for IndMax and BS-VI etc. Projects by MoEF&CC vide letter No.: J-11011/48/2016-IA-II(I), Dt. 19/04/2017..

Thanking you,

Yours faithfully,

(Biman Gogoi)
CM (HSE)
Ph: 9435122647

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 BGR INDMAX & BS-VI Project (1st October, 2020 to 31st March, 2021)

INDMAX PROJECT



BS-VI PROJECT



Submitted by:

**Indian Oil Corporation Limited
Bongaigaon Refinery**

PO: Dhaligaon. District: Chirang. Assam

INTRODUCTION

IOCL, the energy of India is contributing the nation in its development by means of employment generation and through CSR activity. For the development of the nation as well as the company and for Environment protection, IOCL is adding new plant for environment friendly and value added product. IOCL, Bongaigaon Refinery has established a new unit, INDMAX for LPG maximization and BS-VI project for cleaner fuel.

To establish the new unit, EIA study was done by M/s ABC TECHNO LABS INDIA PVT. LTD, Chennai.

Based on the EIA study, IOCL, BGR applied for EC to MoEF&CC on 31/05/2015.

Going through all the process and formalities, MoEF&CC granted EC No. J-11011/48/216-IA-II (I), Dated: 19th April 2017 to IOCL, BGR to establish following projects:

SL	Units	Date of commissioning
1.	Refinery capacity enhancement from 2.35 MMTPA to 2.70 MMTPA	30.04.2021 (after commissioning of NHT Unit under BS-VI Project)
2.	INDMAX FCC Unit, 740 TMTA	07.11.2020
3.	Prime- G+/ BS-VI projects (Including SRU, SDS/ARU)	Prime G+ : 05.12.2020 ARU : 30.10.2020 SDS : 30.04.2021 SRU : under implementation
4.	DHDT capacity enhancement from 1.2 MMTPA to 1.8 MMTPA	15.03.2020
5.	HGU Revamp (Capacity enhancement from 25 TMTA to 30 TMTA)	12.03.2020
6.	CRU-MSQ Revamp	With the commissioning of Prime- G+/ BS-VI projects

Compliance/ progress report for the above projects are listed below:

BGR INDMAX & BS-VI PROJECTS: EC CONDITIONS, COMPLIANCE STATUS.
EC Reference: J-11011/48/2016-IA-II (I) Dt. 19.04.2017

Special Conditions:

EC SI No	Condition	Compliance Status
(i)	<p>All pollution control and monitoring equipments shall be installed, tested and interlocked with the process.</p> <p>SPCB shall grant 'Consent to Operate' after ensuring that all the mentioned pollution control equipments, construction of storm water drain, rain water harvesting structure, Greenbelt, uploading of compliance report on the website etc have been implemented.</p>	<p>Complied</p> <p>Total 19 nos of SO_x, NO_x, CO and PM analyzers have been installed in all 5 stacks of -</p> <ol style="list-style-type: none"> 1. ATF Splitter re boiler 2. New NHT furnace 3. New SRU furnace 4. INDMAX Flue Gas Boiler 5. PrimeG+ two new furnace, <p>Consent to Established Certificate issued by Pollution Control Board, Assam vide no. WB/BONG/T-2266/PT-I/08-09/40/936, Dated: 12th Jan 2018.</p> <p>Validity of CTE extended upto 11/01/2023, vide letter reference, no. WB/BONG/T-2266/PT-I/08-09/43/2237.</p> <p>'Consent to operate' for the projects issued by PCBA vide letter no. WB/BONG/T-266/pt-I/08-09/51/580, dated: 15/10/2020</p> <p>Construction of storm water drains in the project area completed.</p> <p>Two roof top RWH scheme commissioned in the new project and One more RWH scheme commissioned in Admn. Building during current FY(2020-21)</p> <p>Details of setting up of green belt in different phases. (Phase-I & II) Phase-1: 10000 saplings planted in newly developed green belt area (Old debris yard area) during May-July 2017. Photograph of the green belt attached as <u>Appendix-I</u>. <u>Details of plantation done in and around the complex, since 2017-18</u></p> <p>Year 2017-18: 29600 nos of Sapling Year 2018-19: 30060 nos. of sapling Year 2019-20: 14340 nos. of sapling Year 2020-21: 25606 nos. of sapling Phase-2: After completion of the project, plantation will be continued in the following areas: (a) North/west side of the complex, in between LPG bottling plant and newly developed green belt area (b) Surrounding of PSF Building area (c) Downward direction and along road side of new project area.</p> <p>Uploading of EC compliance status report on the website is in practice.</p>

EC Sl. No	Special Condition	Compliance Status
(ii)	<p>Ambient air quality data shall be collected as per NAAQS standards notified by the Ministry vide G.S.R. No. 826(E) dated 16th September, 2009. The levels of PM10, PM2.5, SO2, NOx, VOC and CO shall be monitored in the ambient air and emissions from the stacks and displayed at a convenient location near the main gate of the company or at important public places.</p> <p>The company shall upload the results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MOEF&CC, the respective Zonal office of CPCB and the state Pollution Control Board (SPCB).</p>	<p>Ambient air quality data & Stack emission monitoring data of the existing units are displayed at BGR Main gate. Configuration done for IndMax and Prime G in existing system at main gate and online data are displayed at BGR main gate.</p> <p>The results of monitored data are uploaded on IOCL website.</p> <p>Also half yearly status reports for the running units are submitted in the month of December and June to the Regional office of MoEF&CC, the Zonal office of CPCB and the State Pollution Control Board (SPCB).</p>
(iii)	<p>In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals/ materials, multi cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emissions. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored. The emissions shall conform to the limits stipulated by the SPCB.</p>	<p>Fugitive emissions are monitored from all vulnerable sources (i.e. Glands, flanges etc) and rectification is carried out if leakage is observed.</p> <p>Quarterly fugitive emissions Survey is being carried out regularly in the work zone environment, product, raw materials storage area etc. and confirm the emission limits stipulated by as per SPCB norms.</p> <p>The quarterly reports for the period of 1st October, 2020 to 31st March, 2021 are attached as Appendix-A5.</p> <p>All liquid and gaseous products and chemicals are handled in the closed system.</p> <p>Water sprinkling system is being taken care off at loading area to control dust emission.</p>
(iv)	<p>The project proponent shall take due care and adopt best practices to ensure that there is no oil spill. However, to meet with any unforeseen situation and combat the oil spill, the PP shall prepare the Oil Spill Disaster Contingency Plan in line with the provisions of the National Oil Spill Disaster Contingency Plan. Regular mock drills shall also be conducted.</p>	<p>Emergency Response & Disaster Management Plan (ERDMP) is in place at BGR and mock drills conducted quarterly on various emergency scenarios.</p> <p>Last Off-site mock drill was conducted on 09/02/2021 in coordination with District Administration.</p>

EC SI No	Special Condition	Compliance Status
(v)	The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.	<p>Complied The gaseous emission from DG set is dispersed through adequate stack height (3.0 Mtrs as per CPCB standards).</p> <p>However, DG set not available for new projects.</p>
(vi)	Total fresh water requirement from existing source shall not exceed 370m ³ /hr and prior permission shall be obtained from the Competent Authority. No ground water shall be used without permission.	NOC for ground water extraction for Fresh water requirement (ground water) from CGWA applied. Application No : 21-4/ 1306 /AS / IND/2021, dated: 21/04/2021
(vii)	Waste water shall be treated in ETP. The treated effluent water shall be reused as make up water for cooling tower and green belt development. No Effluent shall be discharged outside the plant premises.	<p>a. Waste water is treated in ETP.</p> <p>b. The treated effluent water is reused as make up water for cooling tower, Fire water network and house keeping</p> <p>c. Excess treated effluent is routed to Eco-pond for recharge of ground water and evaporation losses in the eco-pond and green belt development.</p>
(viii)	Automatic / online monitoring system (24 x 7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB and in the Company's website.	Online Continuous Effluent monitoring system for flow measurement and relevant pollutants in the treatment system is available. On-line data is made available to CPCB and SPCB.
(ix)	Adequate odour management plan and its mitigation measure to be implemented on priority.	Adequate odour management plan and its mitigation measure had been implemented along with the project.
(x)	Regular VOC monitoring to be done at vulnerable points.	Occupational Health section is monitoring the VOC at different vulnerable areas in the Refinery on monthly basis.
(xi)	The oily sludge shall be subjected to melting pit for oil recovery and the residue shall be bio-remediated. The sludge shall be stored in HDPE lined pit.	The oily sludge is processed in melting pit for oil recovery and stored in brick lined sludge lagoon. Oily sludge from lagoon is processed for recovery of oil regularly. A new 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, 2020 to 31st March, 2021, 2655.00 MT of oily sludge has been processed by mechanised processing. The leftover residue is further bio-remediated before disposal.
(xii)	Comprehensive water audit to be conducted on annual basis and report to the concerned Regional Office of MoEF&CC. Outcome from the report to be implemented for conservation scheme.	M/s EIL conducted a comprehensive water audit & final report submitted. Copy of the Report will be submitted to the Regional Office of MoEF&CC after completion. Action plan formulated for implemented of short & long term conservation schemes.

EC SI No	Special Condition	Compliance Status
(xiii)	Oil catchers/oil traps shall be provided at all possible locations in rain/ storm water drainage system inside the factory premises.	Complied Oil catchers/ oil traps are already there in the existing storm water channel and have been installed in rain/ storm water drainage system in the new project. One additional oil catcher/oil trap system provided in rain/storm water drain along with project
(xiv)	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc.	Complied Hazardous chemicals are stored in tanks and drums.
	Flame arresters shall be provided on tank farm.	Complied Flame arrestors are installed as per design of tanks in tank farm.
	Solvent transfer shall be by pumps.	Installation of transfer pumps is completed.
(xv)	The by-products which fall under the purview of the Hazardous Waste Rules, be handled as per the provisions of the said Rules and necessary permissions shall be obtained.	Poly Ammonium Sulfide (PAS) dosing facility has been implemented in INDMAX FCCU for mitigation of Cyanide in effluent water generated from INDMAX. Regular testing for Cyanide in effluent is being done. If required, the same will be further treated in upcoming effluent pre-treatment facility in future.
(xvi)	The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 as amended time to time. All Transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	The rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 is complied.
		Transportation of Hazardous Chemicals is followed as per the Motor Vehicle Act (MVA), 1989.
xvii)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms	Gas detectors, Hooters installed and commissioned in DHDT Revamp, HGU Revamp, INDMAX FCCU, Prime G+, NHT and ARU.
		Gas detectors installed and under commissioning in SRU.
		Fire fighting system installed as per OISD-STD-116 and commissioned.
(xviii)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Complied. Occupational health surveillance of the workers are done on a regular basis and records maintained as per the Factories Act. Complied. Details attached as Appendix-A13 .

EC SI No	Special Condition	Compliance Status
(xviii)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Complied. Occupational health surveillance of the workers are done on a regular basis and records maintained as per the Factories Act. Complied. Details attached as Appendix-A13 .
(xix)	At least 2.5 % of the total cost of the project shall be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and action plan with financial and physical breakup /details shall be prepared and submitted to the Ministry's Regional Office. Implementation of such program shall be ensured accordingly in a time bound manner.	As per MoEFCC guideline dtd. 1 st May 2018, ESC has been replaced with CER (Corporate Environment Responsibility). Expenditure incurred under CSR for the year: 2016-17: 304.84 lakhs 2017-18: 740.95 lakhs 2018-19: 960.00 lakhs 2019-20: 916.08 lakhs 2020-21: 184.66 lakhs Expenditure incurred under CER for the year: 2020-21: Rs 466.41 lakhs and 716.31 Lacks till date against the project
(xx)	A regular Environment Manager, having post graduate qualification in environmental sciences/ environmental engineering, to be appointed for looking after the environmental management practices in the plant.	One executive from HSE Dep't has completed one year PG Diploma course on Env. Management from Tezpur University. He has been entrusted to look after the environmental management practices in the plant.
(xxi)	As proposed, green belt over 33% shall be developed within plant premises with at least 10 meter wide green belt (perennial trees) on all sides along the periphery of the project area, in downward direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.	Details of setting up of green belt in different phases. (Phase-I & II) Phase-1: 10000 saplings planted in newly developed green belt area (Old debris yard area) during May-July 2017. Photograph of the green belt attached as Appendix-I . <u>Details of plantation done in and around the complex, since 2017-18</u> Year 2017-18: 29600 nos of sapling Year 2018-19: 30060 nos of sapling Year 2019-20: 14340 nos of sapling Year 2020-21: 25606 nos. of sapling Phase-2: After completion of the project, plantation will be continued in the following areas: (a) North/west side of the complex, in between LPG bottling plant and newly developed green belt area (b) Surrounding of PSF Building area (c) Downward direction and along road side of new project area.

EC GENERAL CONDITIONS:

EC SI No	Condition	Compliance Status
(i)	The project authorities must strictly adhere to the stipulations made by the State Pollution Control Board (SPCB) State Government and any other statutory authority.	Noted. Strict adherence to stipulations made by Statutory authorities will be complied along with project implementation.
(ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Noted.
(iii)	The location of ambient air quality monitoring stations shall be decided in consultation with the State Pollution Control Board (SPCB) and it shall be ensured that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	Already four manual ambient air quality monitoring stations are there inside the complex and one in Town ship. One more continuous monitoring station is in BGR Township. Data from the same is being transmitted directly to CPCB/PCBA
(iv)	The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16 th November, 2009 shall be followed.	NAAQS issued by the Ministry is being followed & complied.
(v)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise level shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Complied. Taken care during implementation of the project. Quarterly Noise Survey is being carried out regularly. Quarterly Reports for the period of 1st October, 2020 to 31st March, 2021 are attached as Appendix-A8..
(vi)	The Company shall harvest rainwater from the roof tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.	Two roof top RWH scheme commissioned in the new project and One more RWH scheme commissioned in Admn. Building during current FY(2020-21)
(vii)	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.	Training on safe handling of chemicals is imparted to all employees. Pre-employment and routine periodical medical examinations for all employees are undertaken on regular basis.

EC Sl. No	General Condition	Compliance Status
(viii)	The company shall also comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.	Environmental protection measures and safeguards as recommended in EIA has been complied and implemented along with commissioning of the project.
(ix)	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CSR activities shall be undertaken by involving local villages and administration.	Measures for improving the socio-economic condition of the surrounding area is undertaken under CSR.
(x)	The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	Measures are being undertaken in the nearby villages of the project area under CSR & CER..
(xi)	A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	Already exists.
(xii)	The company shall earmark sufficient funds towards capital cost and recurring cost per annum 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 earmarked for environment management/pollution control measures shall not be diverted for any other purposes.	Dedicated fund is earmarked for environment management and pollution control measures.
(xiii)	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zila Parisad/Municipal Corporation, Urban local body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.	Not Applicable. However, the clearance dated 19.04.2017 has been published in local dailies, "The Sentinel" and "Amar Asom" on 27.04.2017.
(xiv)	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and concerned SPCB. A copy of Environmental Clearance and six monthly compliance status reports shall be posted on the website of the company.	Noted and is being complied.

EC Sl. No	General Condition	Action
(xv)	The environmental statement for each financial year ending 31 st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.	Noted and is being complied.
(xvi)	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http://moef.nic.in . This shall 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 shall be forwarded to the concerned Regional Office of the Ministry.	Complied. The granting of Environment clearance dated 19.04.2017 has been published in "The Sentinel" and "Amar Asom" on 27.04.2017. The copy of the publication of EC forwarded to the Regional office of MoEF&CC, Shillong and SPCB office on 08.05.2017.
(xvii)	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.	Complied. Date of final approval and the date of start of the project was informed to the Regional office as well as Ministry.

1.0

APPENDIX –A1STACK MONITORING DATA: (1st October, 2020 to 31st March, 2021)**A. SO₂ Emission (mg/Nm³)**

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 1700 For F.G. = 50	8.99	46.8	133
CDU-II		13.1	16.1	220
DCU-I		4.06	26.3	217
DCU-II		4.43	46.7	199
CPP		0.16	119.5	456
Reformer		5.39	17.7	85.3
HO-1		6.94	24.8	128
HO-2		Shut Down		
Isomerisation		2.52	26.1	136
DHDT		0.61	10.3	54.8
HGU		0.75	9.84	26.3
SRU		90.2	90.3	90.4
GTG		0.41	15.7	40.6

B. NO_x Emission (mg/Nm³)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 450 For F.G. = 350	11.1	34.3	81
CDU-II		3.62	7.25	55
DCU-I		0.26	1.52	5.1
DCU-II		4.67	48.7	120
CPP		16.3	31.5	41
Reformer		7.19	56.6	102
HO-1		14.7	77.5	161
HO-2		Shut Down		
Isomerisation		1.44	40.3	74
DHDT		0.44	13.7	30
HGU		9.74	14.5	26
SRU		No Analyser		
GTG		26.0	35	63

C. PM Emission (mg/Nm³)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 100 For F.G. = 10	0.30	1.97	13.2
CDU-II		0.25	7.70	15.9
DCU-I		1.07	6.82	32.3
DCU-II		0.36	0.56	1.02
CPP		0.07	0.11	0.17
Reformer		0.89	0.89	0.91
HO-1		2.80	6.14	23.7
HO-2		Shut Down		
Isomerisation		0.30	0.31	0.31
DHDT		1.20	1.27	1.37
HGU		6.48	6.71	12.6
SRU		5.64	15.5	85.8
GTG		19.1	20.2	21.3

STACK MONITORING DATA: (1st October, 2020 to 31st March, 2021)

D. CO Emission (mg/Nm³)

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 200 For F.G. = 150	12.9	24.6	25.9
CDU-II		12.1	34.5	85.4
DCU-I		1.23	14.3	231.1
DCU-II		1.62	3.03	18.3
CPP		0.02	14.6	59.7
Reformer		0.21	4.60	12.8
HO-1		0.43	28.1	98.1
HO-2		Shut Down		
ISOMERISATION		15.2	19.6	31.4
DHDT		0.99	6.40	9.91
HGU		0.14	10.3	21.9
SRU		14.9	14.9	14.9
GTG		3.07	20.2	45.8

E. Ni + V Emission (mg/Nm³):

Stacks	Emission Std.	Observed value		
		Min	Avg.	Max
CDU-I	For F.O. = 5	BDL	BDL	BDL
CDU-II		BDL	BDL	BDL
DCU-I		BDL	BDL	BDL
DCU-II		BDL	BDL	BDL
CPP		BDL	BDL	BDL
Reformer		BDL	BDL	BDL
HO-1/2		BDL	BDL	BDL
ISOMERISATION		BDL	BDL	BDL
DHDT		BDL	BDL	BDL
HGU		BDL	BDL	BDL
SRU		BDL	BDL	BDL
GTG		BDL	BDL	BDL

AMBIENT AIR QUALITY AROUND BGR COMPLEX

(Average of monthly sample Schedule – VII)

(1st October, 2020 to 31st March, 2021)

	Station	Continuous Monitoring Station	Near Tube Well No.14	Near LPG Bottling plant	Rural Health Centre	Bartala Rail Gate	Near TW No.7 in Township
1	SO₂ (Std. 50/80 µg/m³)						
	Min	4.15	7.9	7.9	10.2	8.9	8.9
	Average	4.30	12.8	12.8	13.6	14.1	14.1
	Max	4.33	21.0	21.0	18.0	19.4	19.4
	No. of observation	Continuous	51	51	51	51	51
2	NO₂ (Std. 40/80 µg/m³)						
	Min	5.94	11.2	10.8	10.7	12.8	11.4
	Average	7.52	17.0	17.0	18.2	17.6	16.4
	Max	9.00	24.1	24.8	26.0	24.4	23.0
	No. of observation	Continuous	51	51	51	51	51
3	PM-10 (Std. 60/100 µg/m³)						
	Min	3.75	62.7	63.3	65.3	67.7	62.5
	Average	21.44	73.8	74.4	75.6	75.3	72.1
	Max	66.79	86.1	86.0	86.4	87.3	85.0
	No. of observation	Continuous	51	51	51	51	51
4	PM-2.5 (Std. 40/60 µg/m³)						
	Min	5.21	30.5	30.2	30.4	30.2	29.7
	Average	13.40	39.0	39.1	39.9	38.7	36.2
	Max	37.69	47.6	49.9	49.4	48.2	43.2
	No. of observation	Continuous	51	51	51	51	51
5	Ammonia (Std. 100/400 µg/m³)						
	Min	6.19	11.3	11.5	11.6	9.6	10.1
	Average	7.29	15.4	15.2	15.9	15.9	14.8
	Max	7.42	21.0	19.2	22.7	22.0	21.0
	No. of observation	Continuous	51	51	51	51	51
6	Pb (Std. 0.5/1.0 µg/m³)						
	Min		BDL	BDL	BDL	BDL	BDL
	Average		BDL	BDL	BDL	BDL	BDL
	Max		BDL	BDL	BDL	BDL	BDL
	No. of observation		51	51	51	51	51
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		51	51	51	51	51

	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					
8	Ni (Std. 20 ng/m ³)											
	Min		1.10	1.30	1.10	1.10	0.70					
	Average		1.69	2.02	2.02	1.90	1.30					
	Max		2.50	2.70	2.80	2.80	2.00					
	No. of observation		51	51	51	51	51					
9	CO (Std. 2/4 mg/m ³)											
	Min	0.01	BDL	BDL	BDL	BDL	BDL					
	Average	0.15	BDL	BDL	BDL	BDL	BDL					
	Max	0.94	BDL	BDL	BDL	BDL	BDL					
	No. of observation	Continuous	51	51	51	51	51					
10	Ozone (Std.100/180 µg/m ³ for 8 hrs/1 hr)											
	Min	35.93	17.60	20.00	18.30	18.30	20.20					
	Average	46.65	22.43	23.39	22.41	22.69	22.74					
	Max	72.70	26.90	29.10	26.20	28.00	27.40					
	No. of observation	Continuous	51	51	51	51	51					
11	Benzene (Std. 5 µg/m ³)											
	Min	0.25	BDL	BDL	BDL	BDL	BDL					
	Average	0.29	BDL	BDL	BDL	BDL	BDL					
	Max	0.33	BDL	BDL	BDL	BDL	BDL					
	No. of observation	Continuous	51	51	51	51	51					
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		51	51	51	51	51					
Average of Six Stations												
Parameter	SO ₂	NO ₂	PM-10	PM-2.5	NH ₃	Pb	As	Ni	Benzo (a) Pyrene	CO	C ₆ H ₆	O ₃
Unit	µg/m ³					ng/m ³			mg/m ³	µg/m ³		
NAAQ Std. 2009	50/80	40/80	60/100	40/60	100/400	0.5/1.0	Max 6	Max 20	Max 1	2/4	Max 5	100/180
Min	4.15	5.94	3.75	5.21	6.19	BDL	BDL	0.70	BDL	0.01	0.25	17.6
Average	11.6	15.6	65.5	34.4	14.1	BDL	BDL	1.79	BDL	0.15	0.29	26.7
Max	21.0	26.0	87.3	49.9	22.7	BDL	BDL	2.80	BDL	0.94	0.33	72.7

APPENDIX-A2**Effluent Discharged (Figure in M³/Hr): (1st October, 2020 to 31st Mach, 2021)**

A	Industrial Effluent M ³ /Hr 215.3	173.12
B	Domestic Effluent from BGR Township M ³ /Hr	42.18
C	Total Effluent Treated (A + B) M ³ /Hr	215.3
D	Treated Effluent Reused M ³ /Hr	215.07
E	Effluent Discharged M ³ /Hr	0.22
F	M ³ of Effluent discharged for 1000 tons of Crude processed	7.51

1. Treated Effluent Quality(1st October, 2020 to 31st Mach, 2021)

Sl. No	Parameter	Std,2008	Min	Avg.	Max
1	p ^H value	6.0 - 8.5	6.5	7.1	7.6
2	Oil and Grease, mg/l	5.0	0.4	3.2	5.0
3	Bio-Chemical Oxygen Demand (3 Day at 27°C), mg/l	15.0	0.3	9.9	15.0
4	Chemical Oxygen Demand (COD), mg/l	125.0	9.3	20.9	76.8
5	Suspended solids, mg/l	20.0	6.0	13.6	20.0
6	Phenolic compounds (as C ₆ H ₅ OH), mg/l	0.35	0.03	0.24	0.35
7	Sulphide (as S), mg/l	0.50	0.04	0.26	0.50
8	CN mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N, mg/l	15.0	1.80	2.37	3.70
10	TKN, mg/l	40.0	3.50	4.68	6.80
11	P, mg/l	3.0	0.19	0.28	0.52
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	0.29	0.36	0.41
17	Ni, mg/l	1.0	-	BDL	-
18	Cu, mg/l	1.0	0.11	0.18	0.26
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, 2020 to 31st March, 2021)

Sl. No.	Parameter	Std 2008	Min	Avg.	Max
1	p ^H value	6.0 - 8.5	6.50	6.87	7.50
2	Oil and Grease, mg/l	5.0	0.20	2.97	5.00
3	Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l	15.0	4.00	8.1	14.00
4	Chemical Oxygen Demand (COD), mg/l	125.0	9.30	14.2	60.00
5	Suspended Solids, mg/l	20.0	0.200	9.6	18.00
6	Phenolic compounds (as C ₆ H ₅ OH), mg/l	0.35	0.040	0.180	0.35
7	Sulphide (as S), mg/l	0.50	0.040	0.208	0.48
8	CN, mg/l	0.20	BDL	BDL	BDL
9	Ammonia as N , mg/l	15.0	2.70	2.80	2.90
10	TKN, mg/l	40.0	3.90	4.00	4.10
11	P, mg/l	3.0	0.26	0.27	0.28
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	0.19	0.205	0.22
17	Ni, mg/l	1.0	0.11	0.13	0.15
18	Cu, mg/l	1.0	0.16	0.175	0.19
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

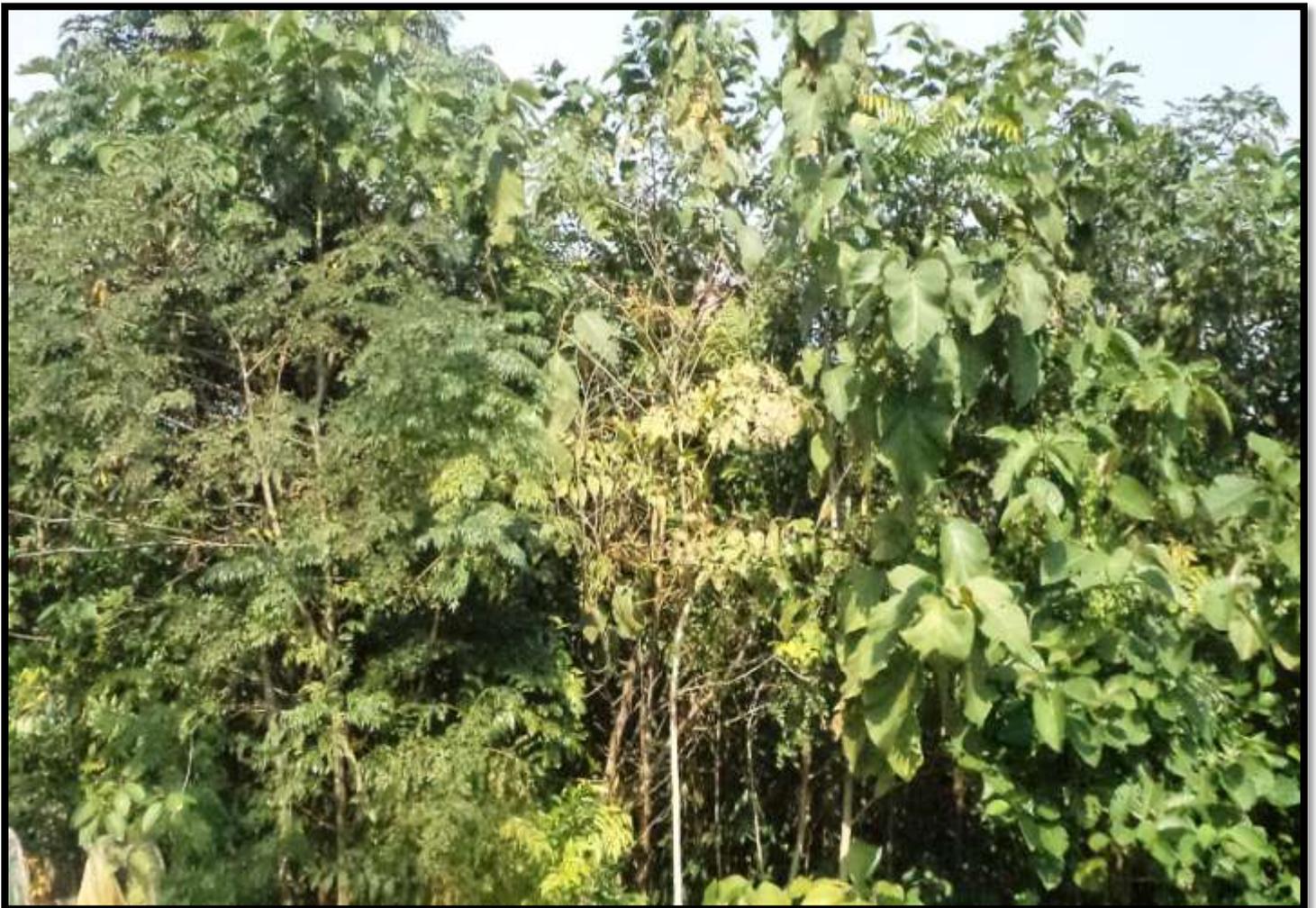
Tree Plantation (1st October, 2020 to 31st March, 2021)

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

BGR has planted 29600 nos of saplings in the FY 2017-18, in FY 2018-19, 30,062 nos and in FY 2019-20 14340 nos. of saplings planted in and around the complex

During, 1st April, 2020 to 31st March, 2021 BGR has planted 25606 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**

Tree Plantation 2017-18



Birhangaon State Dispensary Plantation, 10,000 nos. Sapling Planted by Miyawaki Method in the month of August,2017. Growth as on 30.06.2020

Tree Plantation 2018-19



BGR TOWNSHIP PLANTATION, Planted Van mahotsav 2018, Growth as on 14.10.2020

Tree Plantation 2019-20



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

Tree Plantation 2019-20



Birhangaon State Dispensary Plantation, 5375 nos. Sapling Planted by Miyawaki Method in the month of September,2019 Growth as on 10.03.2021.

Tree Plantation 2020-21



On WED'2020, 3740 nos. of sapling planted in BGR Township, Growth as on April,2021.



4810 nos of sapling Planted in the month of August'2020 at Hatipota Brahma Mandir.

Tree Plantation 2020-21



4000 nos of sapling planted at Kashikotra Model Hospital in Nov'2020



5500 nos of sapling planted at Bengtol Community Health Centre in the Month of August,2020

APPENDIX – A 4

Additional Information

(1st October, 2020 to 31st March, 2021)

Effluent reused during the period was around **99.88%** 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, 2020 to 31st March, 2021**, **34839** potential leaky points checked and **125** Leaky points detected and rectified. By following LDAR programme in true spirit, the company could not only avoid potential loss of **133.26** 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, 2020 to 31st March, 2021**, Noise Survey for two quarters of **2020-21** 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 in ETP, 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, 2020 to 31st March, 2021**, **226 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 and one more in the FY 2020-21 in Admn. Building.

6.0

APPENDIX –A5

Quarterly Fugitive emission Data
(1st October, 2020 to 31st March, 2021)



**FUG EMISSION DATA
3RD QTR 20-21.doc**



**FUG EMISSION DATA
4TH QTR 20-21.doc**

8.0

APPENDIX-A6 (a)



Haz Waste Return
FORM-4 (2020-21).doc

9.0

Annexure –A6 (b)

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

No. WB/BONG/T-748/19-20/109

3.9



HW Authorisation
2019.pdf

10.0

APPENDIX-A7

Detail of Waste water treatment and disposal system.



ETP Description.pdf

ANNEXURE-A8

Quarterly Noise Survey Data

(1st October, 2020 to 31st March, 2021)

HSE (ENVIRONMENT) DEPARTMENT



NOISE SURVEY DATA
3RD QTR 2020-21.do



NOISE SURVEY DATA
4TH QTR 2020-21.do

ANNEXURE-A9
Rain Water Harvesting Data

BGR: Rain Water Harvesting till Sept 2020

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	14697	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				
20	Control Room – BS-VI	1372.5	3747	3747	Commissioned in June'2020
21	Substation – BS-VI	942	2572	2572	
22	Admin. Block-B	1730	4723	4723	Commissioned in Aug'2020
	TOTAL	54,152	153821	153821	


 18/11/2020
 P. Ramchiamy
 DGM (TS)

13.0

ANNEXURE-A10
Screen Shot of IOCL Website upload of report
Link: <https://iocl.com/Talktous/SNotices.aspx>

The screenshot shows the IOCL website interface. At the top, there is a navigation bar with the IOCL logo and tagline 'The Energy Of India'. To the right of the logo, there are social media icons (Facebook, YouTube, Instagram, LinkedIn), a toll-free number (1800-2333-555), a sitemap link, and an LPG emergency helpline (1906). Below the navigation bar, there are several menu items: Home, About Us, IndianOil For You, IndianOil for Environment, We're Listening, and Tools. A search bar is also present.

The main content area is titled 'Statutory Notices'. It features a list of links, each preceded by a small orange circle icon. A black arrow points to the link: 'Six Monthly Compliance Indraprastha BS VI etc. 1st half, 2020-21'. Other links in the list include 'Six monthly compliances reports of Bongaigaon Refinery', 'Six Monthly Compliance (MS Maximisation project) 1st half, 2020-21', 'Six Monthly Compliance (DHDT project) 1st half, 2020-21', 'Six Monthly Compliance (Refinery-II) 1st half, 2020-21', 'Six Monthly Compliance (MS Quality improvement project) 1st half, 2020-21', 'Half Yearly Compliance Report of ECs issued to IOCL, Paradip Refinery', and 'Statutory clearances and compliance status of Haldia Refinery'. Below the 'Statutory clearances and compliance status of Haldia Refinery' link, there are several sub-links: 'HR_BS VI-2017_EC', 'HR_Corrected EC for DYP and CDU expansion corrigendum 20.03.2017', 'HR_EC DYP, FPU & CDU capacity 7.5 to 8.0 MMTPA 2016', 'HR_EC for DCU previous -2009', 'HR_EC for DHDS and CDU 4.6 MMTPA', and 'HR_EC for Expansion of RFCC from 0.7 to 1.0 MMTPA'.

On the right side of the page, there is a vertical sidebar titled 'We are Listening'. It contains several links: 'Help', 'Pa-Hal-Related Queries', 'Other LPG Queries', 'Queries on Fuel Stations', 'Vigilance Queries', 'Right To Information', and 'Citizen Charter'. Each link is preceded by a small orange circle icon.

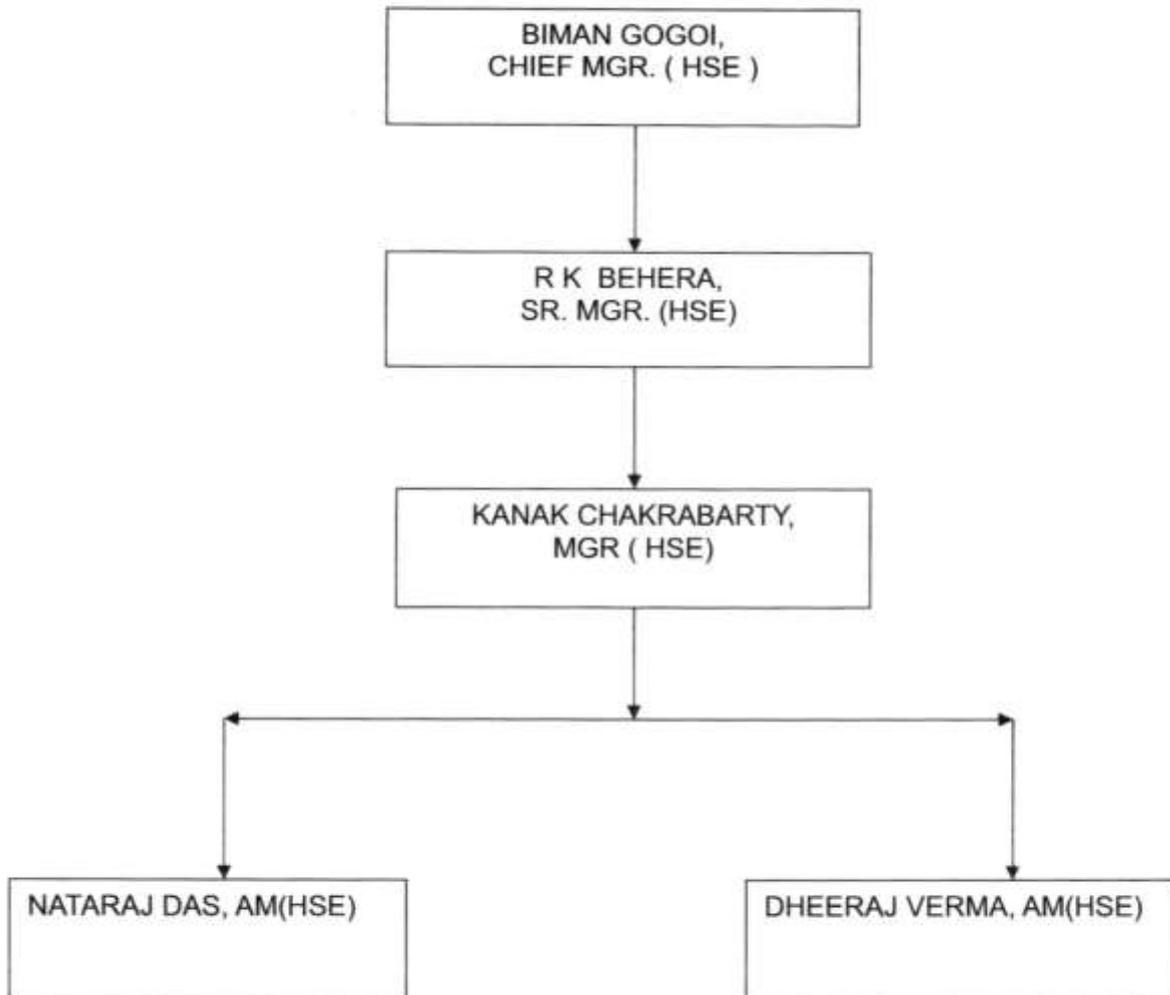
At the bottom of the page, there is a Windows taskbar with the search bar, taskbar icons, and system tray showing the time (8:57 AM) and date (24-Dec-20).

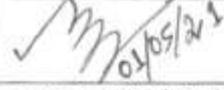
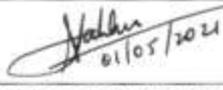
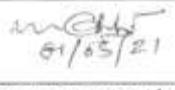
APPENDIX-A11

HSE Organogram of IOCL-BGR

ORGANOGRAM OF HEALTH, SAFETY & ENVIRONMENT (HSE) DEPARTMENT (2021-22)

IOCL BONGAIGAON REFINERY



			
B. Gogoi, CM(HSE) HOD	S.S. Bag, GM(TS&HSE)	S B Lahkar, CGM(TS&HSE)	M M CHETRI, CGM I/C (TS & HSE)

एस.बी. लाहकर / S.B. Lahkar
 मुख्य महासंचालक (टीएस&ई) / Chief General Manager (TS, HS & E)
 बोंगाईगाँव रिफाइनरी, इंडियन ऑयल कॉर्पोरेशन लिमिटेड
 Bongaigaon Refinery, Indian Oil Corporation Limited
 डाकघर : धालीगाँव P.O. : Dhaligaon - 783385
 जिला : चिरांग (असम) Distt. : Chirang (Assam)

एमएम चेत्री / M M Chetri
 मुख्य महासंचालक, जंठ (टीएस&ई) / CGM I/c (TS, HS & E)
 बोंगाईगाँव रिफाइनरी, इंडियन ऑयल कॉर्पोरेशन लिमिटेड
 Bongaigaon Refinery, Indian Oil Corporation Limited
 डाकघर : धालीगाँव P.O. : Dhaligaon - 783385
 जिला : चिरांग (असम) Distt. : Chirang (Assam)

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-11012/90/1986-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-11012/90/1986 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.

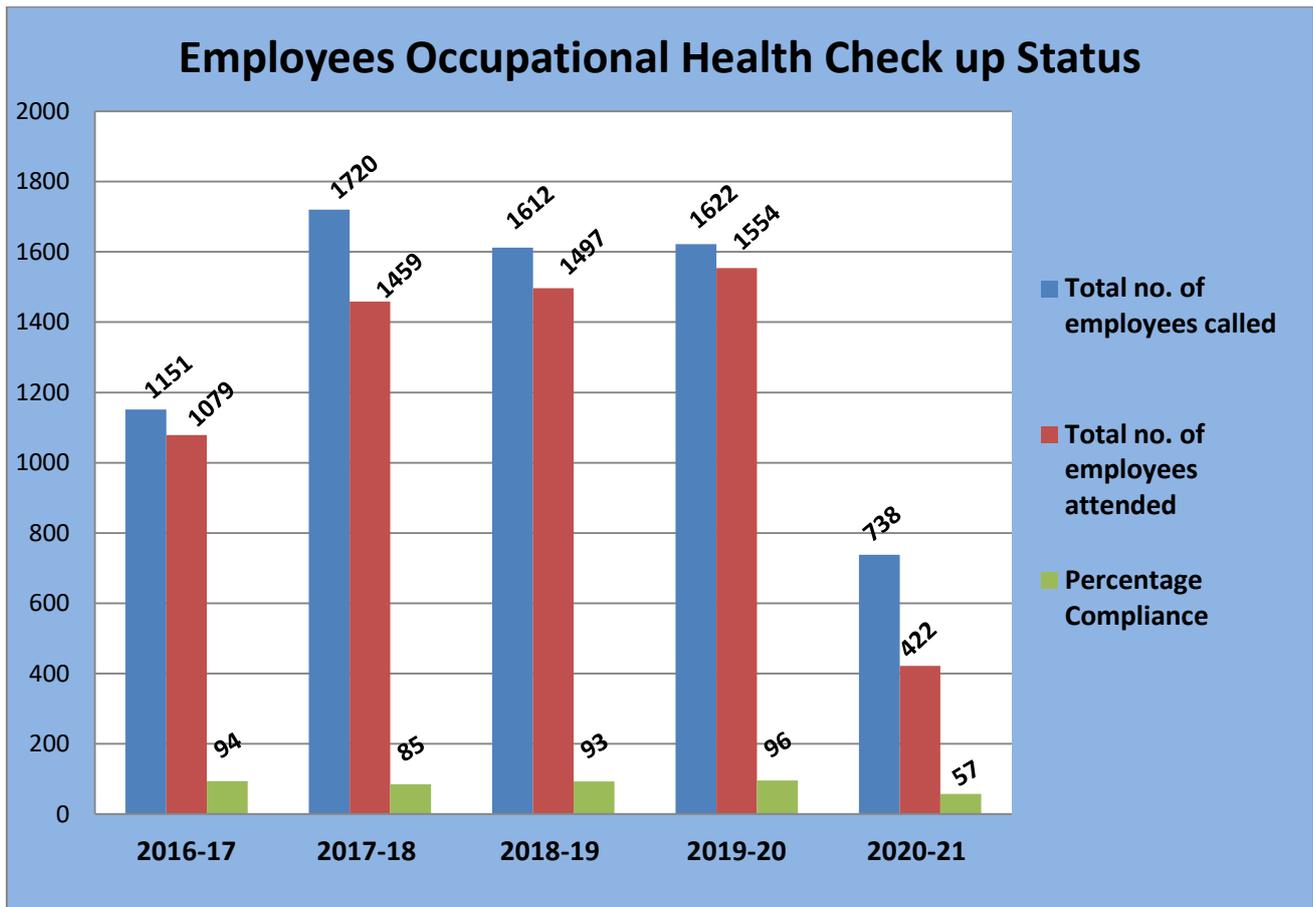
Yours Faithfully


(R.K. Jakhmola)

Scientist-E & Divisional Head
Instrumentation Laboratory

Appendix-A13

Employees Occupational Health Check up Status

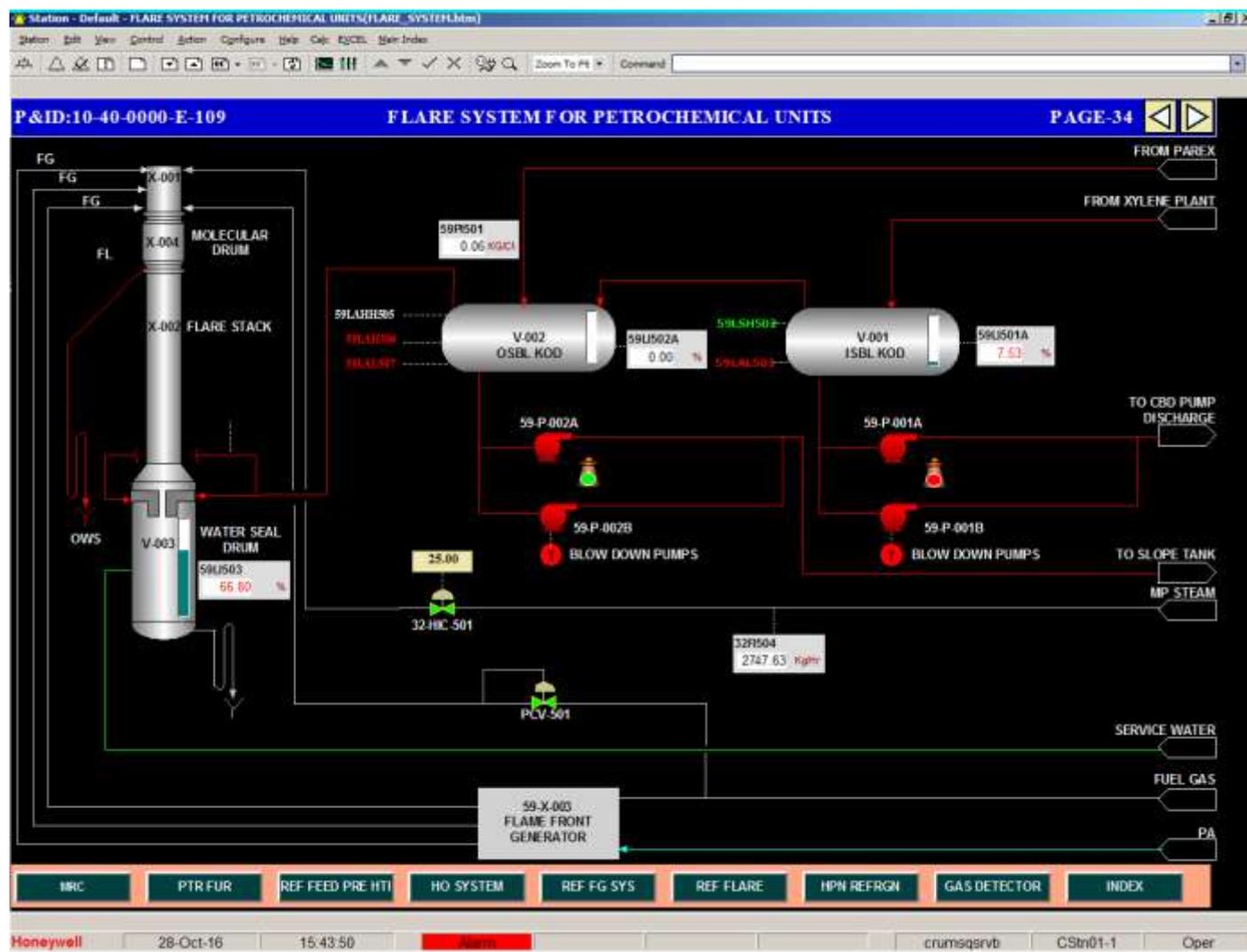


Note: Employees occupational health check up program effected, due to the COVID-2019 pandemic situation.

17.0

Appendix-A14

Flare system.



THANKS