

REF: IOC/BGR/ENV/DHDT/MoEF&CC/2020-21/01 Date: 10.12.2020

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

Subject: Half yearly Report for the period of (1st April, 2020 to 30th September, 2020) for Diesel Hydro Treatment Plant

Sir,

With reference to above, we are enclosing the Six Monthly Report for the period of 1st April, 2020 to 30th September, 2020 for your kind perusal. The reports are being sent as per EIA Rules'2006 on the "Environmental Clearances" issued by MoEF&CC to Bongaigaon Refinery (BGR), for "Diesel Hydro Treatment Project".

| Thanking you | u, |
|--------------|----|
|--------------|----|

Yours faithfully,

(P. Ramchiary) DGM (TS)

Copy to:

- 1. Member Secretary, Pollution Control Board, Assam Bamunimaidam, Guwahati 781 021
- Zonal Officer, Central Pollution Control Board Eastern Zonal Office, 'TUM-SIR', Lower Motinagar, Near Fire Brigade H.Q., Shillong – 793014



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

बोंगाइगाँव रिफाइनरी

डाकधर: धालीगाँव - 783 385 जिला: घिरांग (असम)

Indian Oil Corporation Limited

Bongaigaon Refinery

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

Phone : 03664-

E-mail: Website: www.loci.com FAX: 03664-



रिफाइनरी प्रभाग Refineries Division

REF: IOC/BGR/ENV/DHDT/MoEF&CC/2020-21/01

Date: 10.12.2020

The Chief Conservator of Forests
Regional Office, North East Region
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"Half yearly Report for "Diesel Hydro Treatment Plant"

For the period (1st April, 2020 to 30th September, 2020)



Submitted by:

Indian Oil Corporation Limited
Bongaigaon Refinery

PO: Dhaligaon. District: Chirang. Assam

Diesel Hydro-treatment Project,

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

Six Monthly Status Report for the period: (1st April, 2020 to 30th September, 2020)

INDEX:

| SI. No | Conditions | Status |
|--------|---|-----------------------------|
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| 4. | Tree Plantation Data | Furnished in Appendix-A3 |
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| 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 |
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| 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 Heath 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 | All conditions of the clearance are complied and verified by statutory agencies time to time. | | | |
| • | refinery expansion project expansion project vide Ministry's OM No. J-11011/24/90-IA II (I) dated 3 rd June 1991 | (Please Refer to compliance report of Refinery Expansion 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. | 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. | | | |
| ii | | 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. | | | |
| | 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. | AS on when required, third party is engaged for processing of the oily sludge & recovery of oil from the oily sludge stored in the sludge lagoon by mechanised processing. | | | |
| iii | | During 1 st April, 2020 to 30 th September, 2020, 0.00 MT of oily sludge has been processed by mechanised processing. | | | |
| | | A confined bio reactor was commissioned in July 2017 in association with IOCL R&D for bioremediation of residual oily sludge. | | | |
| | | During 1 st April, 2020 to 30 th September, 2020, 210 MT of oily sludge has been processed in the Bio-reactor. | | | |
| iv | The project proponent shall also comply with all the environmental protection measures to mitigate the risks including the following: | Environmental protection measures and safeguards recommended in the EMP and risk analysis reports are implemented & complied. | | | |
| | a. Provision of double mechanical seal for the pumps handling H2S to reduce the frequency of failure | Taken care off in design stage, installed & commissioned. | | | |
| | b. Provision of adequate no. of H ₂ S detector (s) in appropriate locations of the plant for early detection of the leak so that the release | Following no. of H ₂ S detectors along with HC/H ₂ detectors provided in various process units under DHDT project as on 31 st Dec'2018. | | | |
| v | duration and hence the hazardous consequence is reduced. | DHDT : (HC = 7, H ₂ S = 5, H ₂ = 9) HGU : (HC = 10, CO = 4, H ₂ = 4) | | | |
| | | ARU: $(H_2S = 7 \& HC=1)$ SWSU: $(H_2S=6 \& HC=1)$ | | | |
| | | SRU : (H ₂ S=14, HC=3 & H ₂ =2) | | | |
| | c. Provision of emergency stop button for rich amine group in the control room to stop the pump. | DHDT-Utility Area: (H ₂ S=3, HC=8, H ₂ = 3 Taken care off in design stage, installed & commissioned. | | | |

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

| SL. | General Conditions | Compliance Status |
|-----|---|--|
| | The project authority must adhere to the | Complied. |
| i | stipulations made by Assam State Pollution Control Board and State Government. | Stipulations made in the environmental clearance of the project are taken care during detailed engineering and implemented. |
| | No expansion or modification of the plant | Complied. |
| ii | should be carried out without prior approval 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 th Apr'2017. |
| | | The project aims to enhance expansion of Crude processing from 2.35 to 2.7 MMTP, other associated projects, e.g. DHDT capacity from 1.2 to 1.8 MMTP, HGU from 25 KTPA to 30 KTPA, CRU-MSQ revamp and SDS (SRU) unit. |
| | Handling, manufacturing, storage and | Complied. |
| iii | 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 | Authorization under Hazardous and Other Waste (Management, and Transboundary Movement) Rules 2016 obtained from PCBA and valid up to 5th August, 2022. |
| | obtained. | Copy attached as Appendix A6(b). |
| iv | Hazardous wastes, if any, must be handled and disposed as per Hazardous waste (Management and handling) Rules, 2008. Authorization from State Pollution Control Board in this regard must be obtained. | Complied. Authorization under Hazardous and Other Waste (Management, and Transboundary Movement) Rules 2016 obtained from PCBA and valid up to 5 th August, 2022. |
| | | Copy attached as Appendix A6 (b). |

| SL. | General Conditions | Compliance Status |
|----------|--|--|
| | Adequate provisions for infrastructure facilities such as water supply, fuel, | Complied. |
| V | sanitation etc. should be ensured for construction workers during the construction phase so as to avoid | Infrastructure facilities like water supply, canteen facility, sanitation were provided during the project construction period to the workers. |
| | felling of trees and pollution of water and the surrounding. | |
| vi | The overall noise levels in and around the plant area should be kept well | Complied. |
| | 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). | a) Taken care off in the design stage, installed & commissioned. b) Precautionary measures were taken during construction period to control the noise level & present activities do not generate noise of high db. c) Quarterly Noise Survey is being carried out regularly to check noise level. Quarterly Noise survey report for the period of 1st April, 2020 to 30th September, 2020, is attached as |
| vii | Occupational health Surveillance of the | Appendix A8. |
| V | workers should be done on a regular basis and records maintained. | Complied. Attached as Appendix A13. |
| viii | A separate environmental management | Complied. |
| | cell with full fledged laboratory facilities to carry out various management and monitoring functions should be set up under the control of Senior Executive. | BGR is having a separate environmental management cell of HSE department and full-fledged laboratory to carry-out environment management and monitoring functions. |
| | | Organogram of HSE Department is attached as Appendix A11 . |
| | | BGR Environment Laboratory is accredited by NABL and recognized by CPCB as under Section 12&13 of Environment (Protection) Act 1986 and notified in the Govt. of India Gazette no. 439 dated November 4, 2018 vide notification number Legal 42(3)/ 87 dated 3 rd October 2018. |
| | | (Copy attached as <u>Appendix A12</u>) |
| ix | The funds earmarked for the | Complied. |
| | environmental protection measures should be reported to this Ministry and SPCB. | Funds were made available for implementing all recommendations |
| | | Expenditure for the financial year 2018-19 was Rs.1066.6 Lacks and in the financial year 2019-20 was Rs. 503.84 Lacks |
| | Six monthly status reports on the | Complied. |
| X | project vis-a-vis Implementation of environmental measures should be submitted to this Ministry (Regional Office, Shillong/ CPCB/ SPCB). | Soft copy of last six monthly compliance reports was submitted vide, document no. IOC/BGR/ENV/DHDT/MoEF&CC/2019-20/02, Dtd: 20.06.2020. |
| | | The six monthly compliance reports were also displayed on the Website of the Company. Screen shot attached as Appendix A10 . |

| SL. | General Conditions | Compliance Status |
|-----|---|--|
| xi | The project proponent should advertise in at least two local newspapers widely circulated in the region around the project, one of which shall be in the vernacular language of the locality concerned informing that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with State Pollution Control Board/Committee and may also be seen at Website of the Ministry and Forests at http://envfor.nic.in The advertisement should be made within 7 days from the date of issue of the clearance letter and a copy of the same should forwarded to Ministry's Regional Office at Shillong. | Complied. |
| xii | The Project Authorities should inform the Regional Office as well as the Ministry the date of financial closer and final approval of the project by the concerned authorities and the date of land development work. | Board of Directors of the Company has approved revised cost estimate of Rs.1701.52 Crore. Last capitalization date is 06.06.2015. The initial capitalization date is 13.08.2011 (Original approved cost is Rs. 1431.91 crore) for this project on 28th May, 2008. Financial closure of DHDT Project is not yet complete because of some pending issues of GTG package, which is part of DHDT Project. |

| Sr. No | CONDITIONS (As given in concurrence to cha | anges in Env. Clearance dated May 1, 2006) |
|-----------|---|---|
| i | The total SO ₂ emission level from the unit after the proposed up gradation shall not exceed 40 kg/MT of the feed. | |
| ii | The company shall comply with the revised standards of NO_X emission. | Taken care in design stage itself. |
| iii | The total effluent generation shall not exceed 7.9 m³/hr The fresh water consumption shall not exceed 275 m³/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 th Apr'2017. |
| | | The project aims to enhance expansion of Crude processing from 2.35 to 2.7 MMTP, other associated projects, e.g. DHDT capacity from 1.2 to 1.8 MMTP, HGU from 25 KTPA to 30 KTPA, CRU-MSQ revamp and SDS(SRU) unit. |
| v | The company shall comply with the conditions stipulated in the clearance order of even no. dated 25 th June, 2002. | Complied. |
| | The company shall carry out a comprehensive | Complied. |
| | risk assessment study and a copy submitted to the Ministry before commissioning of the Diesel Hydro Treatment Project. | 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. |
| vi | 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. | BRPL/ENV/MS-MAX/06-07/03 dated 08.11.2006. 2. Comprehensive Risk Assessment was conducted by M/s Chilworth Technology Pvt. Ltd. was submitted on 11.10.2010. |
| | | 3. Post commissioning, fresh CRA was carried out by M/S CGC Converse Technologies in 2016. |
| | | |

Status of Diesel Hydro-Treatment Project

(1st April, 2020 to 30th September, 2020)

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

Status:

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

1. Renewal of "Environment Clearance" from the Ministry of Environment & Forests:

The Ministry of Environment & Forests had conveyed its 'No Objection' to the proposed revised Diesel up gradation project at Indian Oil - Bongaigaon Refinery vide their letter No.J-II0II/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) H₂ unloading & Storage facility along with H₂ 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.

<u>APPENDIX -A1</u> STACK MONITORING DATA: (1st April, 2020 to 30th September, 2020) A. SO₂ Emission (mg/Nm³):

| Otable | Foots store Otal | Observed value | | | |
|---------------|------------------|----------------|------|-------|--|
| Stacks | Emission Std. | Min | Avg. | Max | |
| CDU-I | | 8.3 | 46.0 | 143 | |
| CDU-II | | 20.2 | 22.5 | 270 | |
| DCU-I | | I/M | I/M | I/M | |
| DCU-II | | 15.4 | 27.4 | 71.2 | |
| СРР | 1700 | 17 | 178 | 453 | |
| Reformer | | 8.3 | 11.4 | 22.8 | |
| HO-1 | | 5.0 | 10.7 | 21.8 | |
| HO-2 | | Shut Down | | | |
| Isomerisation | For F | 0.8 | 16.8 | 59.3 | |
| DHDT | | 8.3 | 13.6 | 127.2 | |
| HGU | | 9.1 | 10.1 | 13.0 | |
| SRU | | 90.2 | 90.4 | 90.4 | |
| GTG | | 8.0 | 10.2 | 25.9 | |

B. NO_x Emission (mg/Nm³)

| Stacks | Emission Ctd | Observed value | | | |
|---------------|---------------|----------------|------|------|--|
| | Emission Std. | Min | Avg. | Max | |
| CDU-I | | 80 | 81 | 82 | |
| CDU-II | | 55 | 56 | 255 | |
| DCU-I | | 0.6 | 1.4 | 12.5 | |
| DCU-II | | 28.3 | 87.5 | 206 | |
| CPP | 450 350 | 9.7 | 48.5 | 52.1 | |
| Reformer | # # # % | 2.3 | 38.4 | 47.8 | |
| HO-1 | | 11.5 | 37.8 | 50.6 | |
| HO-2 | 0.0 | Shut Down | | | |
| Isomerisation | For | 0.7 | 56.6 | 101 | |
| DHDT | | 0.4 | 42.6 | 47.1 | |
| HGU | | 12.3 | 13.1 | 15.3 | |
| SRU | | No Analyser | | | |
| GTG | | 35.6 | 35.9 | 36.0 | |

C. PM Emission (mg/Nm³)

| Stacks | Emission Ctd | Observed value | | |
|---------------|---------------|----------------|-----------|------|
| | Emission Std. | Min | Avg. | Max |
| CDU-I | | 0.40 | 0.59 | 10.4 |
| CDU-II | | 2.29 | 2.81 | 10.2 |
| DCU-I | | 0.11 | 3.17 | 27.3 |
| DCU-II | | 0.94 | 1.01 | 1.07 |
| CPP | | 0.07 | 0.82 | 65.5 |
| Reformer | 100 = 10 | 0.89 | 0.90 | 0.93 |
| HO-1 | ". 45 | 2.21 | 5.49 | 17.0 |
| HO-2 Shut D | | | Shut Down | |
| Isomerisation | For I | 0.30 | 0.31 | 0.31 |
| DHDT | | 1.23 | 1.26 | 1.47 |
| HGU | | 4.06 | 4.48 | 6.91 |
| SRU | | 5.31 | 8.34 | 13.6 |
| GTG | | 16.8 | 20.7 | 32.1 |

STACK MONITORING DATA: (1st April, 2020 to 30th September, 2020)

D. CO Emission (mg/Nm³)

| | Emission | Observed value | | | |
|---------------|-----------|----------------|----------|-------|--|
| Stacks | Std. | Min | Avg. | Max | |
| CDU-I | | 20.5 | 21.9 | 25.6 | |
| CDU-II | | 12.4 | 27.6 | 190.1 | |
| DCU-I | | 2.70 | 21.9 | 37.0 | |
| DCU-II | | 1.49 | 1.63 | 1.76 | |
| СРР | | 0.22 | 15.2 | 86.3 | |
| Reformer | = 200 | 0.01 | 11.7 | 109.7 | |
| HO-1 | 0. 0. | 0.62 | 13.1 | 78.7 | |
| HO-2 | For F | | Shut Dow | n | |
| ISOMERISATION | | 14.8 | 18.5 | 31.4 | |
| DHDT | | 0.99 | 5.10 | 10.5 | |
| HGU | - | 8.42 | 17.7 | 22.9 | |
| SRU | | 14.9 | 15.0 | 17.5 | |
| GTG | | 1.78 | 9.11 | 27.9 | |

E. Ni + V Emission (mg/Nm³):

| | Emission | Observed value | | | |
|---------------|----------|----------------|------|-----|--|
| Stacks | Std. | Min | Avg. | Max | |
| CDU-I | | BDL | BDL | BDL | |
| CDU-II | | BDL | BDL | BDL | |
| DCU-I | | BDL | BDL | BDL | |
| DCU-II | | BDL | BDL | BDL | |
| СРР | S. | BDL | BDL | BDL | |
| Reformer | | BDL | BDL | BDL | |
| HO-1/2 | For F.O. | BDL | BDL | BDL | |
| ISOMERISATION | <u> </u> | 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 April, 2020 to 30th September, 2020)

| | Station | Continuous Monitoring Station | Near Tube Well No.14 | Near LPG Bottling plant | Rural Health Centre | Bartala Rail Gate | Near TW No.7 in Township |
|---|----------------------------------|-------------------------------------|----------------------------|-------------------------------|---------------------------|----------------------|--------------------------------|
| 1 | SO ₂ (Std. 50/80 μg/m | 3) | | | | | |
| | Min | 4.28 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| | Average | 4.30 | 6.11 | 5.65 | 7.14 | 6.76 | 5.29 |
| | Max | 4.85 | 10.60 | 8.80 | 13.50 | 12.40 | 10.20 |
| | No. of observation | Continuous | 27 | 27 | 28 | 28 | 28 |
| 2 | NO ₂ (Std. 40/80 μg/m | 1 ³) | | | | | |
| | Min | 3.91 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| | Average | 6.19 | 10.64 | 10.34 | 11.20 | 11.16 | 10.17 |
| | Max | 6.20 | 14.70 | 14.10 | 16.60 | 16.90 | 19.80 |
| | No. of observation | Continuous | 27 | 27 | 28 | 28 | 28 |
| 3 | PM-10 (Std. 60/100 μ | g/m³) | | | | | |
| | Min | 5.26 | 28.00 | 28.00 | 32.00 | 28.00 | 24.00 |
| | Average | 6.04 | 50.16 | 50.13 | 56.58 | 53.04 | 45.34 |
| | Max | 8.74 | 75.80 | 76.50 | 83.40 | 82.40 | 71.90 |
| | No. of observation | Continuous | 27 | 27 | 28 | 28 | 28 |
| 4 | PM-2.5 (Std. 40/60 μς | g/m³) | | | | | |
| | Min | 1.32 | 12.00 | 12.00 | 15.00 | 14.00 | 12.00 |
| | Average | 1.76 | 24.42 | 23.89 | 27.75 | 25.64 | 22.18 |
| | Max | 5.41 | 38.10 | 37.50 | 43.10 | 43.50 | 40.80 |
| | No. of observation | Continuous | 27 | 27 | 28 | 28 | 28 |
| 5 | Ammonia (Std. 100/4 | l00 μg/m³) | | | | | |
| | Min | 4.64 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| | Average | 7.40 | 8.06 | 7.45 | 8.43 | 7.45 | 6.59 |
| | Max | 7.42 | 15.10 | 12.20 | 16.20 | 12.50 | 15.10 |
| | No. of observation | Continuous | 27 | 27 | 28 | 28 | 28 |
| 6 | Pb (Std. 0.5/1.0 μg/m | 1 ³) | | | | П | |
| | Min | | BDL | BDL | BDL | BDL | BDL |
| | Average | | BDL | BDL | BDL | BDL | BDL |
| | Max | | BDL | BDL | BDL | BDL | BDL |
| | No. of observation | | 27 | 27 | 28 | 28 | 28 |
| 7 | Arsenic (As) (Std. 6 | ng/m3) | | | | 1 | • |
| | Min | | BDL | BDL | BDL | BDL | BDL |
| | Average | | BDL | BDL | BDL | BDL | BDL |
| | Max | | BDL | BDL | BDL | BDL | BDL |
| | No. of observation | | 27 | 27 | 28 | 28 | 28 |

| | | Statio | n | Contin Monito Stat | oring ^I | Near Tube No.14 | _ | Near LF Bottlin plant | g | Rural Health Centre | Bartala R Gate | | Near TW No.7 in Township |
|-----|--------------|-----------------|-----------------|--------------------------|----------------------|--------------------|-------------|-----------------------------|-----------|---------------------------|-------------------|------------------|--------------------------------|
| 8 | Ni (S | Std. 20 | ng/m3) | • | • | | | | • | | | • | |
| | Min | | | | | 1.50 | | 1.20 | | 0.80 | 0.8 | 0 | 0.70 |
| | Avera | nge | | | | 1.81 | | 2.09 | | 1.87 | 2.0 | 5 | 0.93 |
| | Max | | | | | 2.30 | | 2.80 | | 2.50 | 2.6 | 0 | 1.50 |
| | No. o | of rvation | | | | 27 | | 27 | | 28 | 28 | 1 | 28 |
| 9 | CO (S | Std. 2/4 | 4 mg/m | 13 | | • | , | | • | | | | |
| | Min | | | 0.0 | 0 | 0.22 | | BDL | | 0.16 | 0.3 | 3 | 0.29 |
| | Avera | age | | 0.1 | 4 | 0.22 | | BDL | | 0.24 | 0.3 | 3 | 0.29 |
| | Max | <u> </u> | | 0.4 | -6 | 0.22 | | BDL | | 0.31 | 0.3 | 3 | 0.29 |
| | No. o | of rvation | | Contin | uous | 27 | | 27 | | 28 | 28 | | 28 |
| 10 | Ozon | e (Std. | 100/180 | μg/m³ fo | or 8 hrs | /1 hr) | | | | | | | |
| | Min | | | 33. | 22 | 5.00 | | 5.00 | | 5.00 | 5.0 | 0 | 5.00 |
| | Avera | nge | | 37. | 75 | 11.72 | 2 | 7.37 | | 10.07 | 9.9 | 5 | 7.36 |
| | Max | | | 46. | 46 | 26.40 |) | 20.00 |) | 21.20 | 23.5 | 50 | 22.10 |
| | No. o | of rvation | | Contin | uous | 27 | | 27 | | 28 | 28 | i | 28 |
| 11 | † | | td. 5 μg | g/m³) | | I | <u> </u> | | L | | -1 | | |
| | Min | | | 0.2 | 24 | BDL | | BDL | | BDL | BD | L | BDL |
| | Avera | nae | | 0.2 | 27 | BDL | | BDL | | BDL | BD | L | BDL |
| | Max | <u> </u> | | 0.3 | 0 | BDL | | BDL | | BDL | BD | L | BDL |
| | No. o | of rvation | | Contin | uous | 27 | | 27 | | 28 | 28 | | 28 |
| 12 | † | | I | Std. 1 ng | /m³) | <u> </u> | | | I | | | | |
| | Min | | | _ | | BDL | | BDL | | BDL | BD | L | BDL |
| | Avera | ige | | | | BDL | | BDL | | BDL | BD | L | BDL |
| | Max | | | | | BDL | | BDL | | BDL | BD | L | BDL |
| | No. o | of rvation | | | | 27 | | 27 | | 28 | 28 | | 28 |
| | | | | | , | Average | of Six | Stations | S | | • | | |
| | mete r | SO ₂ | NO ₂ | PM- 10 | PM- 2.5 | NH ₃ | Pb | As | Ni | Benzo (a) Pyrene | со | C ₆ H | 6 O ₃ |
| U | Init | | | ua | /m³ | | | | ng/r | | mg/m³ | L | ıg/m³ |
| N/ | AAQ | EO! | 401 | | | 400/ | 0.51 | Mex | | | | | |
| | std. 009 | 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 |
| N | / lin | 4.00 | 3.91 | 5.26 | 1.32 | 4.64 | BDL | BDL | 0.70 | BDL | 0.00 | 0.26 | 5.00 |
| Ave | erage | 5.88 | 9.95 | 43.55 | 20.94 | 7.56 | BDL | BDL | 1.75 | BDL | 0.24 | 0.28 | 14.04 |
| N | lax | 13.5 | 19.8 | 83.40 | 43.50 | 16.20 | BDL | BDL | 2.80 | BDL | 0.46 | 0.28 | 46.46 |

APPENDIX-A2

Effluent Discharged (Figure in M³/Hr): (1st April, 2020 to 30th September, 2020)

| Α | Industrial Effluent M³/Hr | 169.16 |
|---|--|--------|
| В | Domestic Effluent from BGR Township M³/Hr | 45.6 |
| С | Total Effluent Treated (A + B) M³/Hr | 214.8 |
| D | Treated Effluent Reused M³/Hr | 212.8 |
| Е | Effluent Discharged M³/Hr | 2.02 |
| F | M ³ of Effluent discharged for 1000 tons of Crude processed | 7.51 |

1. Treated Effluent Quality

(1st April, 2020 to 30th September, 2020)

| SI. No | Parameter | Std,2008 | Min | Avg. | Max |
|--------|--|-----------|-------|-------|-------|
| 1 | p ^H value | 6.0 - 8.5 | 6.5 | 6.9 | 7.5 |
| 2 | Oil and Grease, mg/l | 5.0 | 1.2 | 3.6 | 5.0 |
| 3 | Bio-Chemical Oxygen Demand (3 Day at 27°C), mg/l | 15.0 | 2.0 | 7.0 | 14.0 |
| 4 | Chemical Oxygen Demand (COD), mg/l | 125.0 | 4.0 | 29.4 | 123.0 |
| 5 | Suspended solids, mg/l | 20.0 | 8.0 | 14.4 | 20.0 |
| 6 | Phenolic compounds (as C6H5OH), mg/l | 0.35 | 0.04 | 0.15 | 0.35 |
| 7 | Sulphide (as S), mg/l | 0.50 | 0.04 | 0.21 | 0.50 |
| 8 | CN mg/l | 0.20 | 0.10 | 0.10 | 0.10 |
| 9 | Ammonia as N, mg/l | 15.0 | 1.12 | 1.43 | 1.70 |
| 10 | TKN, mg/l | 40.0 | 4.50 | 4.84 | 5.30 |
| 11 | P, mg/l | 3.0 | 0.21 | 0.28 | 0.42 |
| 12 | Cr (Hexavalent), mg/l | 0.10 | 0.05 | 0.05 | 0.050 |
| 13 | Cr (Total), mg/l | 2.0 | 0.05 | 0.05 | 0.050 |
| 14 | Pb, mg/l | 0.10 | 0.02 | 0.04 | 0.06 |
| 15 | Hg, mg/l | 0.01 | 0.001 | 0.001 | 0.001 |
| 16 | Zn, mg/l | 5.0 | 0.24 | 0.39 | 0.52 |
| 17 | Ni, mg/l | 1.0 | 0.15 | 0.18 | 0.20 |
| 18 | Cu, mg/l | 1.0 | 0.12 | 0.16 | 0.18 |
| 19 | V, mg/l | 0.20 | 0.10 | 0.10 | 0.10 |
| 20 | Benzene, mg/l | 0.10 | 0.01 | 0.01 | 0.01 |
| 21 | Benzo (a) pyrene, mg/l | 0.20 | 0.01 | 0.01 | 0.01 |

EFFLUENT QUALITY

2. Final Outlet (From the Complex) Effluent Quality

(1st April, 2020 to 30th September, 2020)

| SI. No. | Parameter | Std 2008 | Min | Avg. | Max |
|------------|--|-----------|-------|-------|------------|
| 1 | p ^H value | 6.0 - 8.5 | 6.00 | 6.71 | 7.50 |
| 2 | Oil and Grease, mg/l | 5.0 | 0.60 | 3.59 | 5.00 |
| 3 | Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l | 15.0 | 2.00 | 6.2 | 14.00 |
| 4 | Chemical Oxygen Demand (COD), mg/l | 125.0 | 4.00 | 22.2 | 122.0 0 |
| 5 | Suspended Solids, mg/l | 20.0 | 4.00 | 12.4 | 20.00 |
| 6 | Phenolic compounds (as C ₆ H ₅ OH), mg/l | 0.35 | 0.03 | 0.13 | 0.35 |
| 7 | Sulphide (as S), mg/l | 0.50 | 0.04 | 0.16 | 0.45 |
| 8 | CN, mg/l | 0.20 | 0.01 | 0.01 | 0.01 |
| 9 | Ammonia as N , mg/I | 15.0 | 1.24 | 1.68 | 2.12 |
| 10 | TKN, mg/l | 40.0 | 3.50 | 4.78 | 5.80 |
| 11 | P, mg/l | 3.0 | 0.25 | 0.31 | 0.38 |
| 12 | Cr (Hexavalent), mg/l | 0.10 | 0.05 | 0.05 | 0.05 |
| 13 | Cr (Total), mg/l | 2.0 | 0.05 | 0.05 | 0.05 |
| 14 | Pb, mg/l | 0.10 | 0.01 | 0.035 | 0.06 |
| 15 | Hg, mg/l | 0.01 | 0.001 | 0.001 | 0.001 |
| 16 | Zn, mg/l | 5.0 | 0.28 | 0.350 | 0.45 |
| 17 | Ni, mg/l | 1.0 | 0.10 | 0.17 | 0.21 |
| 18 | Cu, mg/l | 1.0 | 0.14 | 0.166 | 0.2 |
| 19 | V, mg/l | 0.20 | 0.10 | 0.10 | 0.10 |
| 20 | Benzene, mg/l | 0.10 | 0.01 | 0.01 | 0.01 |
| 21 | Benzo (a) pyrene, mg/l | 0.20 | 0.01 | 0.01 | 0.01 |

APPENDIX - A3

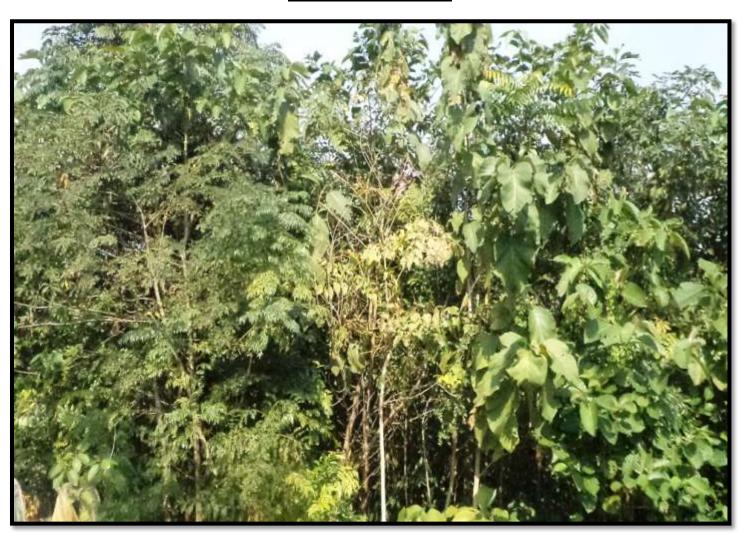
Tree Plantation (1st April, 2020 to 30th September, 2020)

The entire area inside BGR covered with greenery through massive plantation activities. Through massive plantation work and by giving protection to natural forest growth in side BGR premises, the entire area has become green. The entire plant area where processing plant facilities do not exist has a green cover. This helps in reduction of noise and air pollution level in one hand while on the other hand provides protection to ecological features of the area. The refinery has an excellent quality environment around its complex. Natural greenery can be seen all around the complex and in all seasons of the year. Tree Census was done by Divisional Forest Office, Chirang. As per census, 84545 numbers of plants which include trees including shrubs, ocular estimated 33000 numbers bamboos in 1150 no. bamboo culms and also trees planted by BGR during 2003 to 2012

In the financial year 2018-19, BGR has planted 30,062 nos and in FY 2019-20 14340 nos. of sapling in and around the complex

During, 1st April, 2020 to 30th September, 2020 BGR has planted 19406 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. Grouth as on 30.06.2020

Tree Plantation 2017-18



IOCL, BGR TOWNSHIP PLANTATION. Planted on April'17 Growth as on 14.10.2020

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



<u>Birhangaon State Dispensary Plantation, 5375 nos. Sapling Planted by Miyawaki Method in the month of September, 2019 Grouth as on 14.10.2020.</u>

Tree Plantation 2020-21



On WED'2020, 3740 nos. of sapling planted in BGR Township.



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



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

APPENDIX - A 4

Additional Information

(1st April, 2020 to 30th September, 2020)

Effluent reused during the period was around **99.06%** 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 April, 2020 to 30th September, 2020, 2020, 18194 potential leaky points checked and 148 Leaky points detected and rectified. By following LDAR programme in true spirit, the company could not only avoid potential loss of 152.7 MTA (approx.) of light Hydrocarbon to the atmosphere through fugitive sources but also able to keep healthy work environment in the plants.

To ensure work area quality and health of equipments, quarterly noise survey was conducted covering all the operating plants, control rooms and ambient surrounding the BGR. During 1st April, 2020 to 30th September, 2020, Noise Survey for the two quarters of 2019-20 has been completed and no abnormality was reported.

As a measure of Hazardous Waste Management, A third party has been engaged for processing tank bottom sludge through mechanized treatment. Another third party is engaged for processing of the oily sludge & recovery of oil from the oily sludge stored in the concrete lagoon. Melting pit facility is available for recovering oil from oily sludge.

One old slurry thickener from Petrochemical section was converted to confined space bio-remediation reactor to treat oily sludge with help from IOCL-R&D. The process of bio-remediation started from July 2017 and at present per batch approximately 35 m3 of oily sludge is being processed. From 1st April, 2020 to 30th September, 2020, 210 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.

APPENDIX -A5

Quarterly Fugitive emission Data (1st April, 2020 to 30th September, 2020)



FUG EMISSION DATA 1ST QTR 20-21.doc



FUG EMISSION DATA 2ND QTR 20-21.doc

APPENDIX-A6 (a)



Haz Waste Return FORM-4 (2019-20).dc

Annexure –A6 (b)

Authorization from PCBA for Hazardous Waste

(Management and Transboundary Movement) Rules 2016



Pollution Control Board:: Assam Bamunimaidam; Guwahati-21

(Department of Environment & Forests :: Government of A

Phone: 0361-2652774 & 2550258; Fax: 0361-2550259

Website: www.pcbassam.org

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

Dated Guwahati the, L

2019

FORM - 2 [See Rule 6(2)]

[Grant of Authorization under the Provision of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016]

Number of Authorisation and date of issue : No. WB/BONG/T-748/19-20/109 dtd.

Reference of application (No. and date) : UAIN: PCB/F34/CH/000056/12/2018

 M/s. IOCL BONGAIGAON REFINERY (A UNIT OF INDIAN OIL CORPORATION LIMITED), NH 31C, DHALIGAON, CHIRANG (Assam) is hereby granted an authorisation based on the enclosed signed inspection report for collection, reception, storage of hazardous or other wastes or both.

DETAILS OF AUTHORISATION

| SI. No. | Category of Hazardous Waste as per the Schedules-I, II & III of these rules | Authorised mode of disposal or recycling or utilisation or co-processing, etc. | Quantity (ton/annum) |
|---------|---|---|-------------------------|
| 1 | Schedule-I, Sl. No. 3.3, Oily Sludge | Generation, Collection, Transportation and Storage | 67.25 Kl/month |
| 2 | Schedule-I, Sl. No. 1.6, Spent Catalyst | Generation, Collection, Transportation and Storage | 4.17 MT/month |
| 3 | Schedule-I, Sl. No. 1.7, Slop Oil | Generation, Collection, Transportation and Storage | 2205 MT/month |
| 4 | Schedule-I SI. No. 5.1, used or spent oil | Generation, Collection, Transportation and Storage | 0.50 MT/month |
| 5 | Schedule-I, Sl. No. 33.1, Empty Barrels, Containers, Liners, Drums (metal, glass, plastic) contaminated with hazardous chemicals | Generation, Collection, Transportation and Storage | 1.85 MT/month |

- 4. This authorisation shall be in force for the period of three years from the date of issue of this letter.
- The authorisation is subject to the following general and specific conditions (Please specify any conditions that need to be imposed over and above general conditions, if any):

A. GENERAL CONDITIONS OF AUTHORISATION:

- The authorised person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
- The authorisation or its renewal shall be produced for inspection at the request of an officer authorised by the State Pollution Control Board.
- The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorization.
- Any unauthorised change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorization.
- 5. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time
- 5. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time

APPENDIX-A7

Detail of Waste water treatment and disposal system.



ANNEXURE-A8

Quarterly Noise Survey Data (1st April, 2020 to 30th September, 2020)

HSE (ENVIRONMENT) DEPARTMENT



NOISE SURVEY DATA 1st QTR 20-21.docx



NOISE SURVEY DATA 2ND QTR 2020-21.do

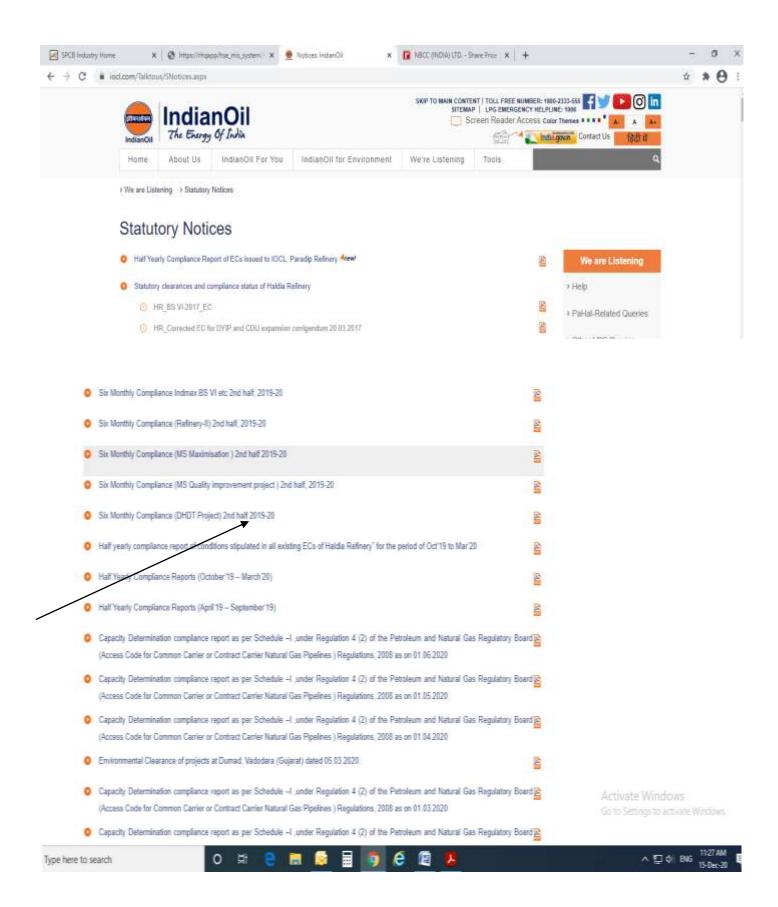
ANNEXURE-A9 Rain Water Harvesting Data

BGR: Rain Water Harvesting till Sept 2020

| SI.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 | | | |
| 2 | Manjeera Guest House | 677 | 1848 | | In operation | |
| 3 | Deoshri Guest House | 581 | 1586 | 99239.14 | | |
| 4 | Rainwater Harvesting at Parivesh Udyan Pond | 5775 | 16817 | | | |
| 5 | Rainwater Harvesting at Eco-Park Pond | 20000 | 58240 | | | |
| 6 | Mandir Complex | 833 | 2274 | | | |
| 7 | Manas Guest House | 639 | 1744 | | In operation | |
| 8 | BGR HS School, BGR Township | 1361 | 3716 | 14597 | | |
| 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 | 10046 | in operation | |
| 14 | Employee Union Conference Hall Building | 275 | 751 | 3003 | In operation | |
| 15 | CISF Quarter Guards Building | 825 | 2252 | | 7.8 | |
| 16 | CISF Conference Hall & Barack | 1050 | 2867 | 4641 | In operation | |
| 17 | BGR Community Centre | 650 | 1775 | 4041 | in operation | |
| 18 | Foot Ball Stadium gallery | 988 | 2697 | 2697 | In operation | |
| 19 | Vollyball Stadium Gallery | 900 | 2097 | 2097 | in operation | |
| 20 | Control Room – BS-VI | 1372.5 | 3747 | 3747 | Commissione | |
| 21 | Substation - BS-VI | 942 | 2572 | 2572 | in June'2020 | |
| 22 | Admin. Block-B | 1730 | 4723 | 4723 | Commissioned in Aug'2020 | |
| | TOTAL | 54,152 | 153821 | 153821 | | |

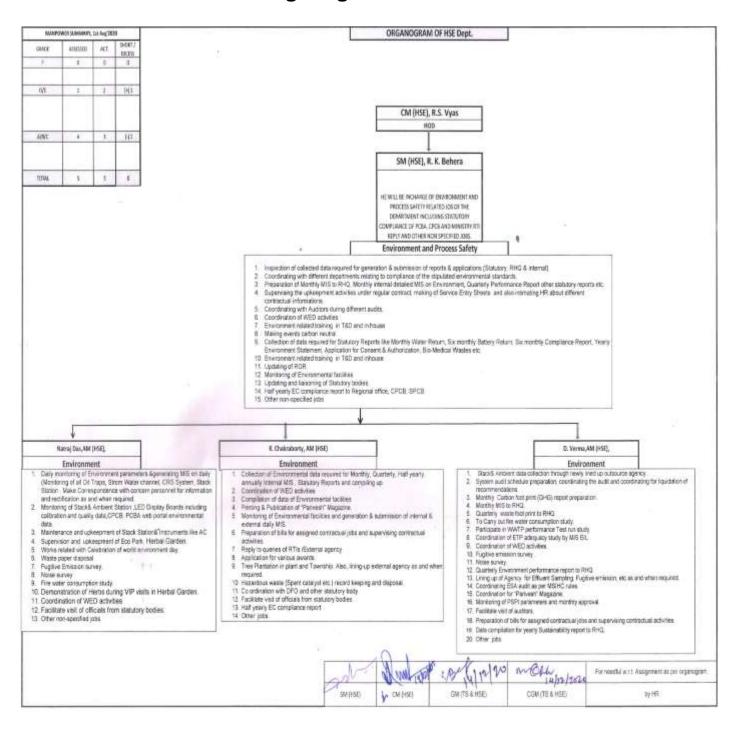
R. Parachiany

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 पर्योवरण, वन एवं जलवाब् परिवर्तन मंत्रालय भारत सरकार MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE GOVE OF INDIA

C-11012/90/1998-Tech/ 13209

November 29,2018.

Speed Post

To

Sh H.K.Sarma Quality Control Manager Quality Control Laboratory Indian Oil Corporation Limited Bangaigaon P.O. Dhaligaon-783385 Dist. Chirang Assam

Sub: Notification of Government Analysts of Quality Control Laboratory of Indian Oil Corporation Limited Bangaigaon P.O. Dhaligaon-783385Dist. Chirang Assam, in Govt. of India Gazette-reg.

Ref. Your letter no., Dated 23,04,2018

Our letter no.: C-11012/90/1998 Tech/3266 ()ated 20.07.2016

SIL.

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 Covt. of India Gazette No. 439 Dated November 20, 2018 vide notification number Legal 42(3)/87 dated Octobor 3, 2018. The copy of Gazette Notification is enclosed herewith for your reference and record please.

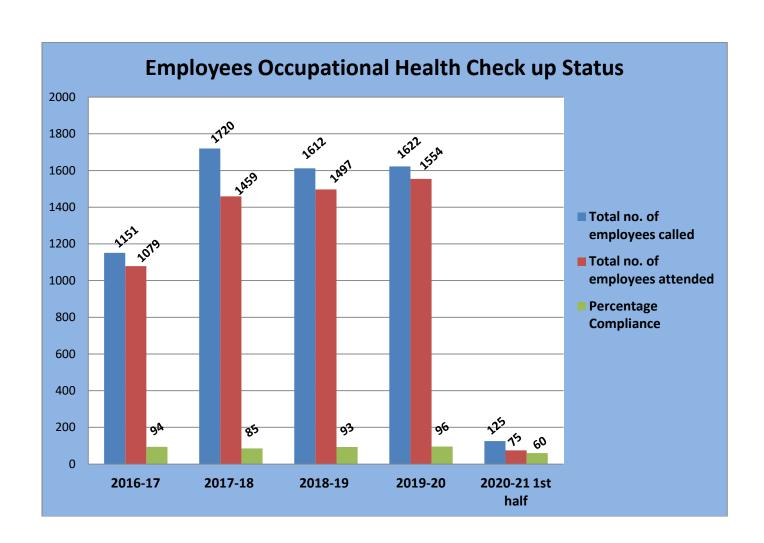
Yours Faithfully

(B.K. Jakhmola)

Scientist-E & Divisional Head Instrumentation Laboratory

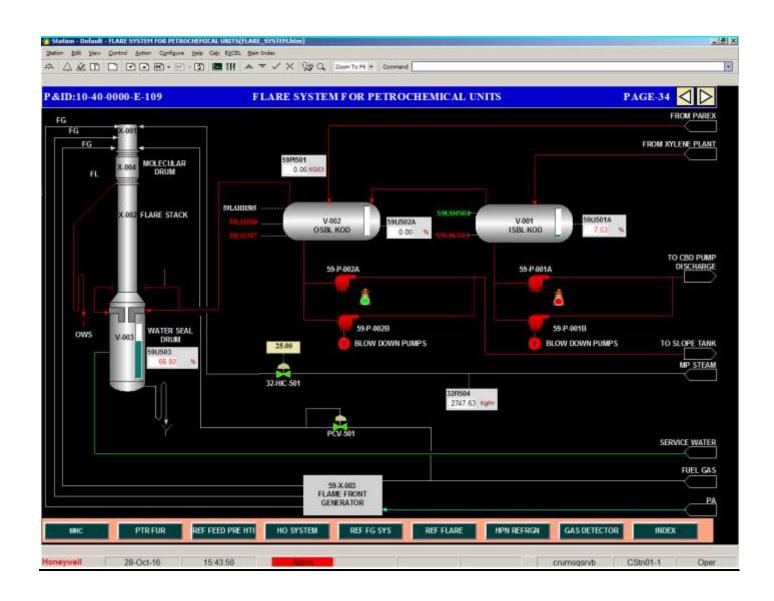
Appendix-A13

Employees Occupational Heath Check up Status



Appendix-A14

Flare system.



THANKS