



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

बोंगाइगाँव रिफाइनरी

ककरपर : धालगाँव - 781 385

जिला : विशाख (असम)

Indian Oil Corporation Limited

Bongaigaon Refinery

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रिफाइनरी प्रभाग
Refineries Division

REF: IOC/BGR/ENV/DHDT/MoEF&CC/2022-23/01

Date: 30/12/2022

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

Subject: Half yearly Report for the period of (1st April, 2022 to 30th September, 2022) for
Diesel Hydro Treatment Plant

Sir,

With reference to above, we are enclosing the Six Monthly Report for the period of 1st April, 2022 to 30 September, 2022 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,

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“Half yearly Report for “Diesel Hydro Treatment Plant”
For the period (1st April, 2022 to 30th September, 2022)



Submitted by:

Indian Oil Corporation Limited

Bongaigaon Refinery

PO: Dhaligaon. District: Chirang. Assam

1.0

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, 2022 to 30th September, 2022)

INDEX:

| Sl. No | Conditions | Status |
|--------|---|-----------------------------|
| 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. | NABL certificate of QC Lab of Bongaigaon Refinery | Furnished in Appendix-A11 |
| 14. | Employees Occupational Health Check up Status | Furnished in Appendix-A12 |
| 15. | Flare system. | Furnished in Appendix-A13 |

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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 vide Ministry's OM No. J-11011/24/90-IA II (I) dated 3 rd June 1991 | All conditions of the environmental clearance are complied and verified by statutory agencies time to time. (Please Refer to compliance report of Refinery Expansion Project and other compliance report against EC granted to BGR.) |
| 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 and M/s Environmental Technical Service Ltd. In 2021. |
| 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. | BGR has engaged authorized third party for processing of the oily sludge & recovery of oil from the oily sludge stored in the sludge lagoon by mechanized centrifuge processing. Melting pit facility is also available for recovering oil from oily sludge. During 1st April, 2022 to 30th September, 2022, 4212.8 MT of oily sludge has been processed by mechanised processing. A confined bio reactor was commissioned in July 2017 in association with IOCL R&D for bio-remediation of residual oily sludge. During 1st April, 2022 to 30th September, 2022, 30.5 MT of oily sludge has been processed in the Bio-reactor. |
| iv | The project proponent shall also comply with all the environmental protection measures and safeguards recommended in the EMP and risk analysis report prior to commissioning of the project. | Environmental protection measures and safeguards recommended in the EMP and risk analysis reports are implemented & complied. |
| v | Company must take additional measures to mitigate the risks including the following: | - |
| | a. Provision of double mechanical seal for the pumps handling H ₂ S 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 duration and hence the hazardous consequence is reduced. | Following no. of H ₂ S detectors along with HC/H ₂ detectors provided in various process units under DHDT project as on 30 th Sep'2021 after new addition. DHDT : (HC = 35, H ₂ S = 5, H ₂ = 9) HGU : (HC = 15, H ₂ S = 4, CO = 4, H ₂ = 4) ARU : (HC=1 & H ₂ S = 6) SWSU : (HC=1 & H ₂ S=7) SRU : (H ₂ S=15, HC=3 & H ₂ =2) DHDT-Utility Area: (H ₂ S=12, HC=8, H ₂ = 4 |
| | c. Provision of emergency stop button for rich amine group in the control room to stop the pump. | Taken care off in design stage, installed & commissioned. |

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

| 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 any stipulations made by Assam State Pollution Control Board and State Government 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 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. All the units of the Projects are commissioned successfully. |
| 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. The rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 1989 is complied. |
| 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 31 st March, 2027. Copy attached as Appendix A6 (b) . |

| SL. | General Conditions | Compliance Status |
|------|--|--|
| v | Adequate provisions for infrastructure facilities such as water supply, fuel, sanitation etc. should be ensured for construction workers during the construction phase so as to avoid felling of trees and pollution of water and the surrounding. | Complied. Infrastructure facilities like water supply, canteen facility, sanitation were provided during the project construction period to the workers. |
| vi | The overall noise levels in and around the plant area should be kept well within the standards (85 dBA) by providing noise control measures including acoustic hoods, silencers, enclosures etc, on all sources of noise generation. The ambient noise levels should conform to the standards prescribed under EPA Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time). | Complied. a) Taken care off in the design stage, installed & commissioned. b) Precautionary measures were taken during construction period to control the noise level & present activities do not generate noise of high db. c) Quarterly Noise Survey is being carried out regularly to check noise level. Quarterly Noise survey report for the period of 1st April, 2022 to 30th September, 2022 , is attached as Appendix A8 . |
| vii | Occupational health Surveillance of the workers should be done on a regular basis and records maintained. | Complied. Report Attached as Appendix A12 |
| viii | A separate environmental management cell with full fledged laboratory facilities to carry out various management and monitoring functions should be set up under the control of Senior Executive. | Complied. Already exists. BGR is having a separate environmental monitoring dept. (HSE dept.) and a full-fledged Quality control laboratory to carry-out environment management and monitoring functions. BGR Environment Laboratory is accredited by NABL (Copy attached as Appendix A11) |
| ix | The funds earmarked for the environmental protection measures should be reported to this Ministry and SPCB. | Complied. Funds were made available for implementing all recommendations Expenditure under CER/CSR for the financial year 2018-19 was Rs.1066.6 Lacks, financial year 2019-20 was Rs. 503.84 Lacks, financial year 2020-21 was Rs. 455.74 Lacks, in FY 2021-22 was 726.76 Lacks and in FY 2022-23, 1 st half is 137.77 Lacks. |
| x | Six monthly status reports on the project vis-a-vis Implementation of environmental measures should be submitted to this Ministry (Regional Office, Shillong/ CPCB/ SPCB). | Complied. Soft copy of last six monthly compliance reports was submitted vide, document no. IOC/BGR/ENV/DHDT/MoEF&CC/2021-22/02 Date: 13.07.2022 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 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 yet complete because of some pending issues of GTG package, which is part of DHDT Project. |

| Sr. No | CONDITIONS (As given in concurrence to changes in Env. Clearance dated May 1, 2006) | |
|--------|---|--|
| i | The total SO ₂ emission level from the unit after the proposed up gradation shall not exceed 40 kg/MT of the feed. | Taken care in design stage itself. |
| ii | The company shall comply with the revised standards of NO _x emission. | |
| iii | The total effluent generation shall not exceed 7.9 m ³ /hr The fresh water consumption shall not exceed 275 m ³ /hr. | |
| iv | No further modernization of project shall be carried out without prior permission of this Ministry. | EC was granted by MoEF& CC to BGR for IndMax & BS-VI projects vide letter F. no.J11011/48/2016-IA-II (I), Dated 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. All the units of the Projects are commissioned successfully. |
| v | The company shall comply with the conditions stipulated in the clearance order of even no. dated 25 th 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 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 and M/s Environmental Technical Service Ltd. In 2021. |

Status of Diesel Hydro-Treatment Project

(1st April, 2022 to 30th September, 2022,)

**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-1101/78 /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.
- j) HGU Revamp (Capacity enhancement from 25 TMTPA to 30 TMTPA) in March.2020.
- k) DHDT capacity enhancement from 1.2 MMTPA to 1.8 MMTPA in March, 2020.

APPENDIX –A1STACK MONITORING DATA: (1st April, 2022 to 30th September, 2022)**A. SO₂ Emission (mg/Nm³):**

| Stacks | Emission Std. | Observed value | | |
|---------------|----------------------------------|----------------|-------|-------|
| | | Min | Avg. | Max |
| CDU-I | For F.O. = 1700 For F.G. = 50 | 5.00 | 96.6 | 425.3 |
| CDU-II | | 2.17 | 13.0 | 19.5 |
| DCU-I | | 0.75 | 21.0 | 85.9 |
| DCU-II | | 3.63 | 7.91 | 15.2 |
| CPP | | 86.5 | 151.6 | 240.5 |
| Reformer | | 2.58 | 17.2 | 70.0 |
| HO-1 | | 7.90 | 62.0 | 382.4 |
| HO-2 | | Shut Down | | |
| Isomerisation | | 0.52 | 23.2 | 102.6 |
| DHDT | | 0.03 | 30.8 | 712.7 |
| HGU | | 8.95 | 13.8 | 20.0 |
| SRU | | 160.0 | 174.7 | 197.4 |
| GTG | | 2.17 | 8.60 | 17.2 |

B. NO_x Emission (mg/Nm³)

| Stacks | Emission Std. | Observed value | | |
|---------------|----------------------------------|----------------|------|-------|
| | | Min | Avg. | Max |
| CDU-I | For F.O. = 450 For F.G. = 350 | 13.1 | 21.4 | 37.7 |
| CDU-II | | 3.62 | 12.3 | 78.3 |
| DCU-I | | 5.00 | 9.88 | 25.0 |
| DCU-II | | 4.39 | 10.3 | 16.0 |
| CPP | | 14.3 | 21.6 | 34.0 |
| Reformer | | 13.1 | 47.1 | 59.1 |
| HO-1 | | 74.2 | 99.5 | 151.3 |
| HO-2 | | Shut Down | | |
| Isomerisation | | 11.2 | 35.7 | 51.7 |
| DHDT | | 4.09 | 6.73 | 11.8 |
| HGU | | 6.89 | 9.73 | 21.4 |
| SRU | | No Analyser | | |
| GTG | | 3.37 | 11.7 | 20.5 |

C. PM Emission (mg/Nm³)

| Stacks | Emission Std. | Observed value | | |
|---------------|---------------------------------|----------------|------|------|
| | | Min | Avg. | Max |
| CDU-I | For F.O. = 100 For F.G. = 10 | 0.51 | 6.64 | 20.7 |
| CDU-II | | 1.87 | 9.49 | 28.1 |
| DCU-I | | 0.19 | 3.52 | 7.04 |
| DCU-II | | 1.58 | 14.9 | 40.4 |
| CPP | | 5.81 | 10.3 | 14.9 |
| Reformer | | 1.78 | 5.28 | 10.7 |
| HO-1 | | 1.69 | 4.38 | 10.7 |
| HO-2 | | Shut Down | | |
| Isomerisation | | 1.02 | 5.34 | 9.30 |
| DHDT | | 0.04 | 0.49 | 3.60 |
| HGU | | 0.10 | 0.87 | 12.0 |
| SRU | | 4.24 | 30.4 | 103 |
| GTG | | 1.93 | 6.47 | 11.0 |

STACK MONITORING DATA: (1st April, 2022 to 30th September, 2022)

D. CO Emission (mg/Nm³)

| Stacks | Emission Std. | Observed value | | |
|---------------|----------------------------------|----------------|------|------|
| | | Min | Avg. | Max |
| CDU-I | For F.O. = 200 For F.G. = 150 | 0.47 | 8.4 | 15.2 |
| CDU-II | | 1.10 | 5.2 | 11.8 |
| DCU-I | | 3.48 | 8.6 | 18.7 |
| DCU-II | | 2.36 | 6.3 | 13.9 |
| CPP | | 9.98 | 14.3 | 24.3 |
| Reformer | | 3.19 | 7.8 | 10.5 |
| HO-1 | | 5.60 | 12.5 | 16.4 |
| HO-2 | | Shut Down | | |
| ISOMERISATION | | 0.29 | 9.3 | 21.5 |
| DHDT | | 0.01 | 7.4 | 57.9 |
| HGU | | 3.11 | 10.5 | 16.6 |
| SRU | | 0.53 | 9.9 | 15.5 |
| GTG | | 1.68 | 24.3 | 62.2 |

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 April, 2022 to 30th September, 2022)

| | 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 | 0.00 | 8.39 | 9.00 | 8.63 | 8.00 | 8.18 |
| | Average | 4.56 | 14.2 | 14.1 | 14.2 | 13.4 | 13.4 |
| | Max | 13.6 | 22.0 | 20.9 | 20.7 | 18.4 | 19.8 |
| | No. of observation | Continuous | 52 | 52 | 52 | 52 | 52 |
| 2 | NO₂ (Std. 40/80 µg/m³) | | | | | | |
| | Min | 0.06 | 10.8 | 15.4 | 15.7 | 14.4 | 15.4 |
| | Average | 0.86 | 21.0 | 21.9 | 22.8 | 21.3 | 21.3 |
| | Max | 6.01 | 27.2 | 28.1 | 30.9 | 26.7 | 27.9 |
| | No. of observation | Continuous | 52 | 52 | 52 | 52 | 52 |
| 3 | PM-10 (Std. 60/100 µg/m³) | | | | | | |
| | Min | 20.0 | 62.5 | 61.7 | 63.1 | 62.7 | 62.1 |
| | Average | 37.1 | 71.3 | 70.1 | 72.5 | 72.2 | 71.6 |
| | Max | 50.7 | 81.2 | 80.4 | 85.2 | 84.3 | 82.7 |
| | No. of observation | Continuous | 52 | 52 | 52 | 52 | 52 |
| 4 | PM-2.5 (Std. 40/60 µg/m³) | | | | | | |
| | Min | 10.0 | 22.1 | 20.8 | 21.7 | 21.7 | 22.7 |
| | Average | 13.6 | 32.5 | 31.6 | 33.0 | 32.8 | 31.8 |
| | Max | 16.2 | 45.8 | 43.5 | 43.3 | 46.7 | 42.5 |
| | No. of observation | Continuous | 52 | 52 | 52 | 52 | 52 |
| 5 | Ammonia (Std. 100/400 µg/m³) | | | | | | |
| | Min | 0.00 | 11.2 | 9.90 | 9.05 | 11.6 | 22.7 |
| | Average | 2.52 | 16.6 | 15.1 | 15.2 | 16.9 | 31.8 |
| | Max | 5.58 | 23.3 | 22.0 | 21.2 | 24.6 | 42.5 |
| | No. of observation | Continuous | 52 | 52 | 52 | 52 | 52 |
| 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 | | 52 | 52 | 52 | 52 | 52 |
| 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 | | 52 | 52 | 52 | 52 | 52 |

| | 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 | | BDL | BDL | BDL | BDL | BDL | | | | | |
| | Average | | BDL | BDL | BDL | BDL | BDL | | | | | |
| | Max | | BDL | BDL | BDL | BDL | BDL | | | | | |
| | No. of observation | | 52 | 52 | 52 | 52 | 52 | | | | | |
| 9 | CO (Std. 2/4 mg/m ³) | | | | | | | | | | | |
| | Min | 0.14 | 0.02 | 0.020 | 0.02 | 0.02 | 0.02 | | | | | |
| | Average | 0.27 | 0.03 | 0.036 | 0.04 | 0.03 | 0.04 | | | | | |
| | Max | 0.52 | 0.05 | 0.057 | 0.06 | 0.06 | 0.06 | | | | | |
| | No. of observation | Continuous | 52 | 52 | 52 | 52 | 52 | | | | | |
| 10 | Ozone (Std.100/180 µg/m ³ for 8 hrs/1 hr) | | | | | | | | | | | |
| | Min | 31.7 | 12.8 | 2.8 | 13.7 | 12.8 | 13.4 | | | | | |
| | Average | 34.0 | 19.1 | 19.4 | 20.2 | 19.7 | 18.2 | | | | | |
| | Max | 38.1 | 31.7 | 27.6 | 30.8 | 30.5 | 28.2 | | | | | |
| | No. of observation | Continuous | 52 | 52 | 52 | 52 | 52 | | | | | |
| 11 | Benzene (Std. 5 µg/m ³) | | | | | | | | | | | |
| | Min | 0.06 | BDL | BDL | BDL | BDL | BDL | | | | | |
| | Average | 0.24 | BDL | BDL | BDL | BDL | BDL | | | | | |
| | Max | 0.68 | BDL | BDL | BDL | BDL | BDL | | | | | |
| | No. of observation | Continuous | 52 | 52 | 52 | 52 | 52 | | | | | |
| 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 | | 52 | 52 | 52 | 52 | 52 | | | | | |
| 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 | 0.00 | 0.06 | 20.0 | 10.0 | 0.00 | BDL | BDL | BDL | BDL | 0.02 | 0.23 | 2.83 |
| Average | 12.3 | 18.2 | 65.8 | 29.2 | 13.6 | BDL | BDL | BDL | BDL | 0.08 | 0.36 | 21.8 |
| Max | 22.0 | 30.9 | 85.2 | 46.7 | 24.6 | BDL | BDL | BDL | BDL | 0.52 | 0.47 | 38.1 |

4.0

APPENDIX-A2

Effluent Discharged (Figure in M³/Hr): (1st April, 2022 to 30th September, 2022)

| | | |
|---|--|-------|
| A | Industrial Effluent M ³ /Hr | 151.0 |
| B | Domestic Effluent from BGR Township M ³ /Hr | 42.3 |
| C | Total Effluent Treated (A + B) M ³ /Hr | 193.3 |
| D | Treated Effluent Reused M ³ /Hr | 193.3 |
| E | Effluent Discharged M ³ /Hr | 0.00 |
| F | M ³ of Effluent discharged for 1000 tons of Crude processed | 0.00 |

1. Treated Effluent Quality

(1st April, 2022 to 30th September, 2022)

| Sl. No | Parameter | Std,2008 | Min | Avg. | Max |
|--------|--|-----------|------|------|-------|
| 1 | p ^H value | 6.0 - 8.5 | 6.50 | 7.1 | 8.00 |
| 2 | Oil and Grease, mg/l | 5.0 | 2.00 | 4.1 | 5.00 |
| 3 | Bio-Chemical Oxygen Demand (3 Day at 27°C), mg/l | 15.0 | 4.00 | 8.0 | 15.0 |
| 4 | Chemical Oxygen Demand (COD), mg/l | 125.0 | 20.0 | 49.3 | 115.0 |
| 5 | Suspended solids, mg/l | 20.0 | 12.0 | 15.7 | 20.0 |
| 6 | Phenolic compounds (as C ₆ H ₅ OH), mg/l | 0.35 | 0.02 | 0.29 | 0.35 |
| 7 | Sulphide (as S), mg/l | 0.50 | 0.29 | 0.36 | 0.49 |
| 8 | CN mg/l | 0.20 | 0.02 | 0.03 | 0.04 |
| 9 | Ammonia as N, mg/l | 15.0 | 3.64 | 4.08 | 5.04 |
| 10 | TKN, mg/l | 40.0 | 7.98 | 9.15 | 10.36 |
| 11 | P, mg/l | 3.0 | 0.52 | 0.64 | 0.75 |
| 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 | 0.16 | 0.35 | 0.58 |
| 17 | Ni, mg/l | 1.0 | - | BDL | - |
| 18 | Cu, mg/l | 1.0 | 0.29 | 0.38 | 0.48 |
| 19 | V, mg/l | 0.20 | - | BDL | - |
| 20 | Benzene, mg/l | 0.10 | - | BDL | - |
| 21 | Benzo (a) pyrene, mg/l | 0.20 | - | BDL | - |

2. Final Outlet (From the Complex) storm water channel Quality

(1st April, 2022 to 30th September, 2022)

| Sl. No. | Parameter | Std 2008 | Min | Avg. | Max |
|---------|--|-----------|------|------|-------|
| 1 | p ^H value | 6.0 - 8.5 | 6.50 | 7.48 | 8.50 |
| 2 | Oil and Grease, mg/l | 5.0 | 2.60 | 4.16 | 4.80 |
| 3 | Bio-Chemical Oxygen Demand (3 Days at 27° C), mg/l | 15.0 | 4.00 | 10.5 | 15.00 |
| 4 | Chemical Oxygen Demand (COD), mg/l | 125.0 | 30.0 | 69.5 | 122.0 |
| 5 | Suspended Solids, mg/l | 20.0 | 12.0 | 17.0 | 20.0 |
| 6 | Phenolic compounds (as C ₆ H ₅ OH), mg/l | 0.35 | 0.28 | 0.33 | 0.35 |
| 7 | Sulphide (as S), mg/l | 0.50 | 0.32 | 0.44 | 0.50 |
| 8 | CN, mg/l | 0.20 | BDL | BDL | BDL |
| 9 | Ammonia as N , mg/l | 15.0 | 3.23 | 3.64 | 4.20 |
| 10 | TKN, mg/l | 40.0 | 10.6 | 12.2 | 14.8 |
| 11 | P, mg/l | 3.0 | 0.54 | 0.64 | 0.71 |
| 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 | 0.48 | 0.52 | 0.56 |
| 17 | Ni, mg/l | 1.0 | BDL | BDL | BDL |
| 18 | Cu, mg/l | 1.0 | 0.34 | 0.41 | 0.52 |
| 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 April, 2022 to 30th September, 2022)

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 as well as in BGR Township 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

To comply IndMax BS-VI EC conditions, BGR has planted 29600 nos of saplings in the FY 2017-18, in FY 2018-19, 30,062 nos, in FY 2019-20 14340 nos, in FY 2020-21 25606 nos. and in FY 2021-22 BGR has planted 1,00,000 nos of saplings planted in and around the complex

During the FY 2022-23 BGR has planted 25610 nos. of tree saplings till September.

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 May,2022

Tree Plantation 2018-19



BGR TOWNSHIP PLANTATION, Planted Van mahotsav 2018, Growth as on April'2022

Tree Plantation 2019-20



Birhangaon State Dispensary Plantation, 5375 nos. Sapling Planted by Miyawaki Method in the month of September,2019 Growth as on Nov,2022.

Tree Plantation 2020-21



On WED'2020, 3740 nos. of sapling planted in BGR Township, Growth as on Nov,2022.

Tree Plantation 2020-21



4810 nos of sapling Planted in the month of August'2020 at Hatipota Brahma Mandir, Growth as on Nov,2022.

Tree Plantation 2021-22 (One Lacks sapling planted during FY 2021-22)



Part of Plantation at Amguri Forest Range, Koila Moila, In collaboration with DFO Chirang

Tree Plantation 2021-22(One Lacks sapling planted during FY 2021-22)



Planted on WED'2021, in BGR Township, Growth as on Nov,2022

Tree Plantation 2021-22(One Lacks sapling planted during FY 2021-22)



Planted on Aug,2021, in the complex, North side of new project(IndMax & BS-VI), Growth as on Nov,2022

Tree Plantation 2022-23



Planted on WED'2022, in BGR Township, Growth as on Nov,2022

APPENDIX – A 4

Additional Information

(1st October, 2021 to 31st March, 2022)

Effluent reused during the period is **100%** 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, 2022 to 30th September, 2022**, all potential leaky points checked and few Leaky points detected and rectified. By following LDAR programme in true spirit, the company could not only avoid potential loss of **0.05316** MT/D (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, 2022 to 30th September, 2022**, Noise Survey for two quarters of **2022-23(Q-1 & Q-2)** 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. From **1st April, 2022 to 30th September, 2022**, **30.5** 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 Two more implemented in the FY 2020-21 in Admn. building and BGR Township temple complex.

7.0

APPENDIX –A5

Quarterly Fugitive emission Data (LDAR)
(1st April, 2022 to 30th September, 2022)



Fugitive Emission 2nd
qtr 2022-23_R.pdf

Note:Q-1 Survey could not be done due to some technical problem

8.0

APPENDIX-A6 (a)



Haz waste Return
Form-4(2021-22).pdf

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 Auth. Certificate
22-27.pdf

10.0

APPENDIX-A7

Detail of Waste water treatment and disposal system.



ETP Description.pdf

11.0

ANNEXURE-A8

Quarterly Noise Survey Data

(1st April, 2022 to 30th September, 2022)

HSE (ENVIRONMENT) DEPARTMENT



Noise Survey Report
Q-1 of 2022-23.pdf



Noise Survey report
Q-2 of 2022-23.pdf

12.0

ANNEXURE-A9
Rain Water Harvesting Data

BGR: Rain Water Harvesting till March 2021

| 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 | 98239.14 | 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 | 3718 | | |
| 9 | DPS Block-I | 704 | 1922 | | |
| 10 | DPS Block-II | 1010 | 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 | 4541 | In operation |
| 17 | BGR Community Centre | 650 | 1775 | | |
| 18 | Foot Ball Stadium gallery | 960 | 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 |
| 23 | Temple Complex(NEW) | 1015.1 | 2771 | 2771 | Commissioned in March'2021 |
| | TOTAL | 55,167 | 156593 | 156592 | |

✓
16/12/21
CMLHS(E)

13.0

ANNEXURE-A10

Screen Shot of IOCL Website upload of report

Link: <https://iocl.com/statutory-notice>

Statutory Notices: IndianOil x +

← → ↻ iocl.com/statutory-notice

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Home > We are Listening > Statutory Notices

Statutory Notices

- > Six monthly compliances reports(2nd half FY 2021-22) of Bongaigaon Refinery
 - > Six Monthly Compliance (IndMax&BS-VI) 2nd half, 2021-22 📄
 - > Six Monthly Compliance (DHDT) 2nd half, 2021-22 📄
 - > Six Monthly Compliance (MS Maximasitation) 2nd half, 2021-22 📄
 - > Six Monthly Compliance (MS Quality Improvement) 2nd half, 2021-22 📄
 - > Six Monthly Compliance (Refinery-II) 2nd half, 2021-22 📄

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28°C Light rain 9:03 AM 14-Jul-22

ANNEXURE-A11

NABL certificate of QC Lab of Bongaigaon Refinery



National Accreditation Board for
Testing and Calibration Laboratories

CERTIFICATE OF ACCREDITATION

**INDIAN OIL CORPORATION LIMITED, QC LABORATORY,
BONGAIGAON REFINERY**

has been assessed and accredited in accordance with the standard

ISO/IEC 17025:2017

**"General Requirements for the Competence of Testing &
Calibration Laboratories"**

for its facilities at

P.O. DHALIGAON, BONGAIGAON, CHIRANG, ASSAM, INDIA

in the field of

TESTING

Certificate Number: TC-6027

Issue Date: 29/04/2022

Valid Until: 28/04/2024

This certificate remains valid for the Scope of Accreditation as specified in the annexure subject to continued satisfactory compliance to the above standard & the relevant requirements of NABL.
(To see the scope of accreditation of this laboratory, you may also visit NABL website www.nabl-india.org)

Name of Legal Identity : Indian Oil Corporation Limited

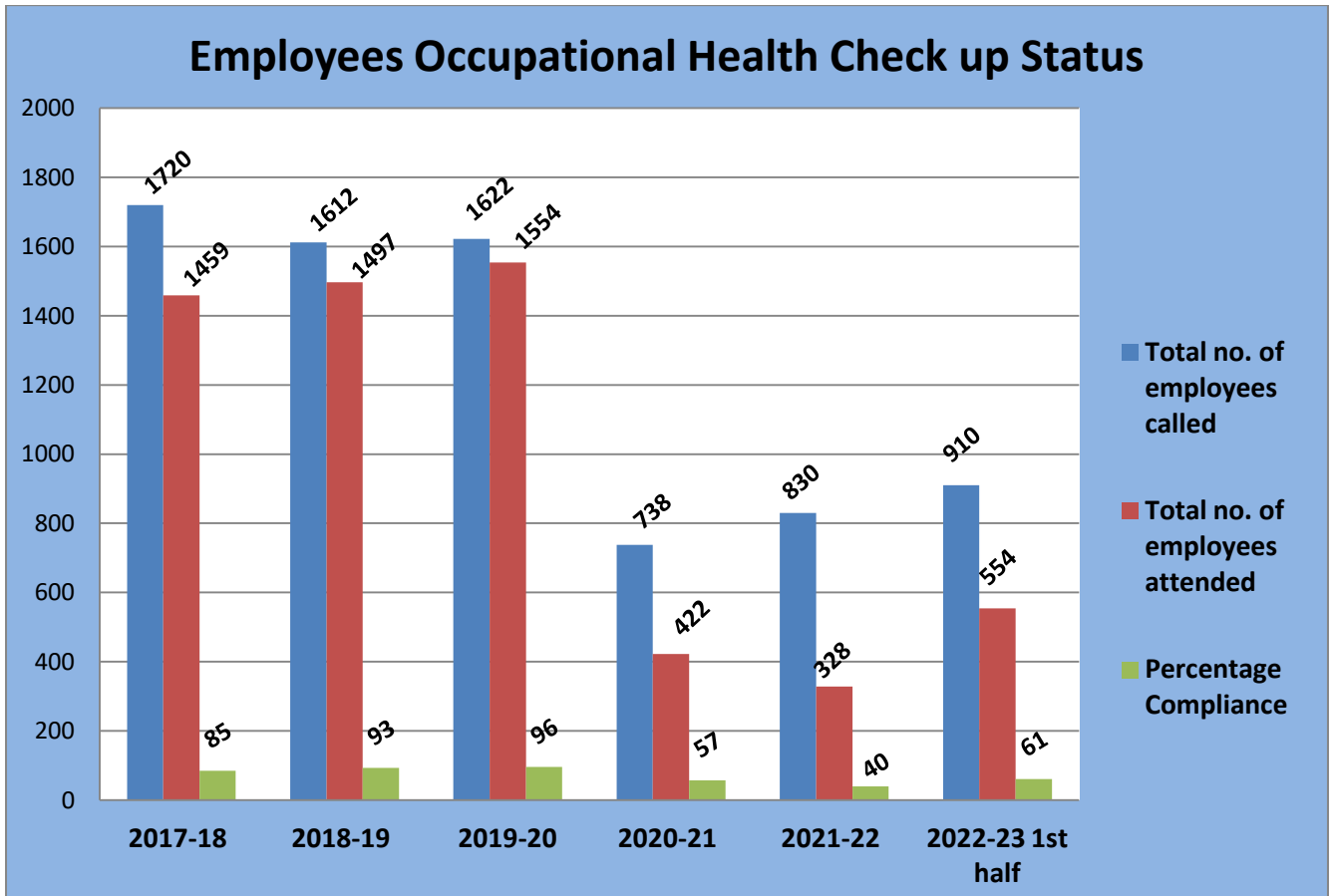
Signed for and on behalf of NABL



N. Venkateswaran
Chief Executive Officer

Appendix-A12

Employees Occupational Health Check up Status

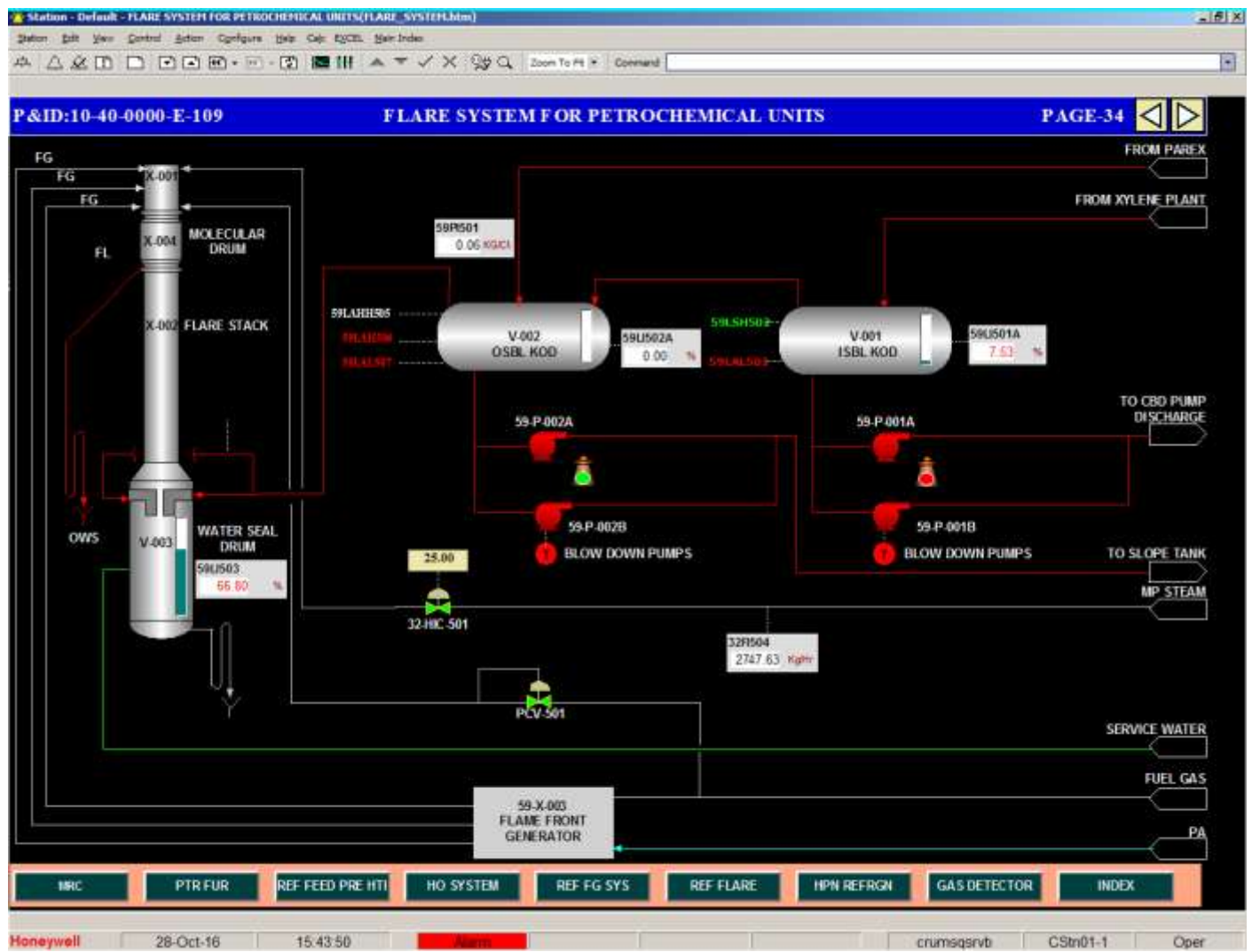


Note: Employees occupational health check up program affected in the year 2020-22, due to the COVID-2019 pandemic situation.

17.0

Appendix-A13

Flare system.



THANKS