



असम ऑयल डिवीजन  
Assam Oil Division

इंडियन ऑयल कॉर्पोरेशन लिमिटेड

एओडि - डिगबोई रिफाइनरी

पो.ओ. डिगबोई, पिन-786171, असम

Indian Oil Corporation Limited

AOD - Digboi Refinery

P. O. Digboi, PIN: 786171, Assam

Tel. : 03751-262000

Fax : 03751-269015

E-mail : aoddigboi@indianoil.in

Website : www.iocl.com



**Ref. No: HSE: 01 -714/22**

**Date:-07-12-2022**

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

**Sub.: Submission of the Half-Yearly Compliance Report for the period ( 1<sup>st</sup> April ,2022 to 31<sup>st</sup> Sep,2022) on Environmental Stipulations pertaining to Projects at Digboi Refinery**

**Ref :**

Environmental Clearance No. J-11011/12/87-1A, dated 19-10-1987  
Environmental Clearance No. J-13011/3/87-1A dated 18-06-1987  
Environmental Clearance No. J-11011/8/89-1A dated 26-07-1989  
Environmental Clearance No. J-11011/41/97-1AII(I) dated 05-03-1998  
Environmental Clearance No. J-11013/71/99-1A(II) dated 13-05-1999  
Environmental Clearance No. J-11011/482/2007-IA II (I) dated 18-03-2008

Dear Sir,

Please find enclosed herewith the six monthly compliance status of Digboi Refinery on the Environmental Clearance Stipulations of the Environmental Clearance letters referred to above for the period (April 2022-September-22).

Thanking you.

Yours sincerely,

(D Nandi)

General Manager (TS & HSE)  
Indian Oil Corporation (AOD)  
For CGM and Refinery Head, AOD

- CC:
1. The Member Secretary, Pollution Control Board, Assam, Guwahati-21.
  2. The Environmental Engineer, North Eastern Zonal Office, CPCB, Shillong-14
  3. The Regional Executive Engineer, PCBA Dibrugarh-786001

**ENVIRONMENTAL CLEARANCE (J-11011/12/87-1A, dated – 19-10-1987) FOR DIGBOI  
REFINERY MODERNISATION PROJECT  
(STATUS AS ON 31<sup>st</sup> SEPTEMBER, 2022)**

SL. NO	STIPULATIONS	STATUS
1.0	The concentration levels of all the parameters of the effluent (gaseous & liquids) discharged must comply with MINAS and in the light of MINAS, the Assam oil, Digboi must review the entire effluent generation, routing, treatment and disposal system.	The concentration levels of all the parameters of effluent after treatment at ETP meets MINAS specification.  As per revised CPCB guideline, Digboi Refinery meets the stipulations for all 21 parameters of effluent. Six monthly compliance Report on Quantum Limit in Kg/1000 MT Crude processed is attached in <b>Annexure-2</b>  Online effluent monitoring & connectivity to CPCB server was commissioned on 28 <sup>th</sup> December 2015. WebSite: <a href="http://Online Emission and Effluent Monitoring System (cpcb.gov.in)"><u>Online Emission and Effluent Monitoring System (cpcb.gov.in)</u></a>
2.0	Monitoring with respect to physical, chemical and biological parameters must be carried out for effluent discharged as well as for the samples of river waters where effluents are discharged.	These tests are carried out regularly and reports submitted to Pollution Control Board, Assam. Monitoring of receiving water bodies is also carried out every month, report submitted to Pollution Control Board, Assam. ETP effluent Reports and River water sample are enclosed as <b>Annexure-1 and Annexure-1A respectively</b> .
3.0	The sludge drains must be properly covered to avoid land and water pollution during incessant rains.	All OWS systems at DRMP are completely covered.
4.0	The sludge dumping area should be made impervious so that ground water is not affected due to leaching and seepage of associated water containing pollutants.	One HDPE lining concrete oily sludge storage tank of 400m <sup>3</sup> capacity was constructed in 2014 to prevent leaching and seepage of oil to ground water. Another storage pit bottom is made up of concrete to avoid leaching.
5.0	The ambient air around Refinery should be monitored at least at four monitoring stations for SPM, SO <sub>x</sub> , NO <sub>x</sub> , Hydrocarbons and H <sub>2</sub> S.	Four nos. of Ambient Air quality monitoring stations have been installed around Digboi Refinery. Ambient air quality monitoring is being carried out on regular basis and reports submitted to Pollution Control Board, Assam. One no. of Continuous Ambient Air Quality Monitoring Station installed and commissioned in September 2012 Six monthly report attached herewith as <b>Annexure-4(A) &amp; 4(B) respectively</b>
6.0	The stack emission from processes, power generating units and Boilers must be regularly monitored and proper type of stack monitoring/instruments must be procured and installed.	Monitoring of stack emissions is carried out with the help of portable monitoring kit. Fixed on-line analyzers are also installed in AVU, DCU, CPP, CRU,SDU, HDT, HGU and MSQU and monitoring through RTDBMS. Furnaces with heat capacity of 10mkel/hr (HGU) online connectivity established to CPCB Server. Apart from own monitoring, external agencies are also employed to conduct stack emission analysis on regular basis. <b>Annexure-3</b>
7.0	Fugitive emissions arising during handling and storage of low boiling petroleum fractions and from effluent treatment plant, leakage through valves and flanges must also be monitored regularly.	Regular monitoring of Hydrocarbons is done with GMI Gas surveyor and as well as with VOC detector in plant & offsite areas by an external CPCB approved agency. Report submitted to CPCB every six month. <b>Annexure-5</b>
8.0	Land filling, if any, must be done with fill	Complied with.

*Rahul Sonu*  
07/12/22

*Rahul Sonu*  
7/12/22

8.0	Land filling, if any, must be done with fill material only from within battery limits of the Refinery.	Complied with.
9.0	The Assam Oil Division must take up development of green belt as proposed.	Digboi Refinery is surrounded by the Upper Dehing Reserve Forest on south and south west side, which acts as a natural Green Belt. Green belt developed with regular tree plantation around Refinery premises and township area. Till September, 2022 around 1,09,459 trees were planted in and around Digboi Refinery.

**ENVIRONMENTAL CLEARANCE (J-13011/3/1987-1A dated -18-06-1987) FOR  
CAPTIVE POWER PLANT  
(STATUS AS ON 31<sup>ST</sup> SEPTEMBER, 2022)**

SL. NO	STIPULATIONS	STATUS
1.0	Only sweet natural gas will be used as feed stock.	Complied with.
2.0	Under the envisaged modernization programme for the refinery, Sulphur recovery units to be provided to reduce emission of SO <sub>2</sub> . Efforts should also be made to reduce the emissions of NOx. The existing sulphuric acid plant should be scrapped.	Digboi Refinery processes only sweet crude having average sulphur content of 1.6 ppm. A Sulphur Recovery Unit (SRU) has been installed and commissioned in 2004 as a part of Hydrotreater Project.  Since the refinery is using natural gas, formation of NOx is very low and always remains within the prescribed limit. Further, low NOx burners are also fitted in all the new units viz. Solvent De-waxing Unit, Hydro-treater Unit, Delayed Coking Unit and MSQ Unit.
3.0	The liquid effluent emanating from the captive power plant and the existing refinery should be treated as per the standards prescribed by the State Pollution Control Board.	Liquid effluent generated from the power plant is negligible which is also routed to ETP for further treatment.
4.0	The height of the stack should not be less than 50 meters.	Complied.
5.0	<u>Green belt around the power plant should be raised.</u>	Complied.
6.0	Adequate precautionary measures for preventing and controlling fire and explosion hazards should be taken up specially in the gas storage area.	Natural gas used in the plants is transported through pipeline ex M/s OIL India Ltd. There is no storage of natural gas in the Refinery. Fire fighting facilities are provided at CPP, all process plants and tank farm area for controlling fire and explosion hazards.

*Signature*  
07/12/22

*Signature*  
31/12/22

**ENVIRONMENTAL CLEARANCE (J-11011/8/89-1A dated 26-07-1989) FOR  
CATALYTIC REFORMER UNIT**

**(STATUS AS ON 31<sup>st</sup> SEPTEMBER, 2022)**

SL. NO	STIPULATIONS	STATUS
1.0	The project authority must strictly adhere to the stipulations made by State govt. and the State Pollution Control Board.	The stipulations made by the State Govt. and the State Pollution Control Board are strictly followed with regard to effluent and emission norms. Dissolved Air Flotation system at ETP installed and commissioned on 30-05-09. As per revised CPCB guideline, Digboi Refinery meets all parameters of effluent.
2.0	The project authority will not increase the throughput capacity of the refinery from the existing level.	Complied.
3.0	The project authority must submit a rapid EIA report within a month and a comprehensive EIA report within 15 months to the Ministry for review.	Complied.
4.0	Gaseous emissions of SO <sub>2</sub> , Hydrocarbons and oxides of Nitrogen should not exceed the prescribed standard stipulated by Central/State Pollution Control Board. At no time the emission level should be beyond the stipulated standard. In the event of failure of any pollution control system adopted by the unit, the respective unit should be put out of operation immediately and should not be restarted until the control systems are rectified to achieve the desired efficiency.	Complied.
5.0	The project authority must explore the possibility of maximum recycling of effluent either as a process water or for aforestation.	Treated effluent from ETP is recycled to refinery as Fire water tank make up, cleaning and gardening purposes at ETP. Treated effluent is reused as make up for Coke Cutting water at delayed coking unit, Wax Sector Cooling Tower & Fire Water Network. During April 2022 – Sep 2022, 100 % of treated effluent was reused.
6.0	The entire quantity of liquid effluent coming out of the complex should strictly confirm to MINAS both in terms of quantity and quality before discharge in to the drainage system. The process plant effluent should be discharged through pipeline/closed channel.	Effluent is meeting MINAS specification both in quality and quantity. The process plant effluent is discharged through pipeline/closed OWS channels.  Six monthly compliance Report on Quantum Limit in Kg/1000MT of Crude Processed is attached in <b>Annexure-2</b>

*Handwritten signature and date: 02/10/22*

*Handwritten signature and date: 21/12/22*

SL. NO	STIPULATIONS	STATUS
7.0	The project authorities must set up minimum of four air quality monitoring stations at different location of the plant and in the nearby areas. The air quality will be monitored as per standard procedure. The monitoring of gaseous emissions should also include oxides of nitrogen and hydrocarbons. All the stacks of the plant must be provided with continuous automatic air quality monitoring equipment and stacks emission levels must be recorded. Reports should be submitted to Pollution Control Board once in three months and to this Ministry once in six months.	Four nos. of air quality monitoring stations have been installed around Digboi Refinery. Ambient air quality monitoring is being carried out on regular basis and reports submitted to Pollution Control Board, Assam.  One no. of Continuous Ambient Air Quality Monitoring Station, installed and commissioned in September 2012.  Monitoring of stack emissions is carried out with the help of portable monitoring kit. Fixed on-line monitors are also installed in all process units and Power Plant Stacks. Apart from own monitoring, external agencies are also employed to conduct stack emission analysis on regular basis. Online stack monitoring regularly done through <a href="http://www.envsaindia.com/cpcb/login.php">Website http://www.envsaindia.com/cpcb/login.php</a>
8.0	The liquid effluent quality must be ensured on daily basis. At least five water quality monitoring stations must be set up in consultation with the State Pollution Control Board. This should include the monitoring of oil content in the river. If the effluent quality exceeds the standard prescribed at any time, the corresponding units of the plant which are contributing to the excessive pollutant load shall be immediately stopped from operation till the quality of effluent discharged from the units are brought down to the required level.	Liquid effluent quality from ETP outlet is monitored regularly on daily basis. <ol style="list-style-type: none"><li>1. 8(eight) parameters daily basis by QC (AOD)</li><li>2. 21(twenty-one) parameters on monthly basis tested by SPCB approved outside agency.</li><li>3. In addition to above four parameters, BOD, COD, TSS &amp; pH being monitored through online analyzers connected with CPCB Server,</li><li>4. Test of samples from five spots of receiving water bodies has been carrying out regularly by QC.</li></ol>
9.0	The project authority must monitor the aquatic life(like fish, tortoise etc.) and report should be submitted to the Ministry once in six months.	Study on aquatic life was covered in the EIA. Study on aquatic life has been carried out in 2007 by M/s KLG-ESS. A fresh EIA Study report submitted by M/S Hubut on 30-03-2021 with base case of T'Put 0.65MMTPA and assessed the environment impact for enhanced the capacity 0.695 MMTPA
10.	The project must start construction only after the approval of the Chief Controller of Explosives and a copy of the consent letter should be made available to this Ministry.	Complied.
11.	The project authority must provide oil separator in the nullah and the effluents should be discharged through covered drains.	Complied.

*Rohini*  
07/12/22

*S. M. S.*  
07.12.22

SL. NO	STIPULATIONS	STATUS
12.	No change of stack should be made without the prior approval of the State Pollution Control Board. Alternate pollution control system and/or proper design (steam injection system) of the stacks should be made to minimize hydrocarbon emission due to failure in the flare system in the plant.	Complied.
13.	The project authority must submit the Disaster Management Plan incorporating worst accident scenario and its probable consequence duly approved by the nodal agency of the State Govt. within 3 months.	Disaster Management Plan duly certified by PNGRB empanelled party. Copy of plan submitted to CIF Guwahati & DC, Tinsukia. Offsite drills are carried out regularly, once in a year, along with District Administration, Mutual Aid Partners & NGOs. Onsite Disaster Mock drills are carried out once in a quarter with different scenarios. Emergency response & Disaster Management Plan (ERDMP) of Digboi refinery as per guidelines of PNGRB has been drawn up and certified by M/S Sanmarg Engineering Validation and Assessment Pvt. Ltd. Last onsite Disaster drill was carried out on 24th August, 2022 on scenario of "Profuse H2S leakage ex SRU"
14.	The Project authority must ensure that the effluent plant fully operational within the next 3 months.	ETP is fully operational since its inception in 1989.
15.	The project authority must set up laboratory facilities in the existing premises for testing and analyzing gaseous emissions and water quality.	Already exists.
16.	The project authority must provide necessary infrastructural facilities to the construction workers during construction.	Provided as per requirement.
17.	The project must submit a revised green belt design for the plant and township to this Ministry within three months for approval. The green belt should have minimum tree density of 1000 trees per acres.	Complied.
18.	Additional area under the control of project which is not being used for the plant utilities should be afforested and fund for this should be suitably provided.	Complied.
19.	A separate environmental management cell with suitably qualified people to carry out various functions related to environmental management should be set up under the control of a senior technical person who will directly report to the head of the organization.	Environmental cell headed by Chief General Manager CGM(TS & HSE) , General Manager GM (TS & HSE), CM(HSE) and AM(HSE) qualified officers already exists and functioning.
20.	Adequate fund provision (capital and recurring expenditure) so provided for environmental control measure should not be diverted to any other purpose. The implementation schedule for environmental measure must be strictly adhered to.	Complied.

*Handwritten signature*  
07/12/22

*Handwritten signature*  
21/12/22

**ENVIRONMENTAL CLEARANCE (J-11011/482/2007-IA II (I), DATED – 18-03-2008) FOR M S  
QUALITY IMPROVEMENT PROJECT AT DIGBOI REFINERY.**

**(STATUS AS ON 31<sup>st</sup> SEPTEMBER, 2022)**

SN	Stipulations	Status
1	The company shall comply with new standards/norms that are being proposed by the CPCB for petrochemical plants and refineries.	Being complied.
2	The process emissions (SO <sub>2</sub> , NO <sub>x</sub> , HC, VOCs and Benzene) from various units shall conform to the standards prescribed by the Assam State Pollution Control Board from time to time. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system(s) adopted by the unit the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	Emission standards meets the norms as prescribed by MOEF & PCBA. Emission from Refinery & HRSGs submitted to Assam State Pollution Control Board on monthly basis. The emission standards are within prescribed limit.
3	Ambient air quality monitoring stations. [SPM, SO <sub>2</sub> , NO <sub>x</sub> and NMHC, Benzene] shall be set up in the Refinery complex in consultation with SPCB based on occurrence of maximum ground level concentration and down-wind direction of wind. The monitoring network must be decided based on modeling exercise to represent short term GLCs Continuous on-line stack monitoring equipment should be installed for measurement of SO <sub>2</sub> and NO <sub>x</sub> .	5(Five) nos of Ambient Air Quality monitoring stations are already in operation in the Refinery premises as per direction of Pollution Control Board, Assam.  Out of five stations one Continuous Ambient Air Quality Monitoring Station is connected with CPCB server.  On line stack monitoring equipment already installed in AVU, CRU, DCU, HDT, HGU, SDU and also at the stacks of the Captive Power Plant (CPP) of Digboi Refinery for monitoring stack emissions.
4	Quarterly monitoring of fugitive emissions shall be carried out as per the guidelines of CPCB by fugitive emission detectors and reports shall be submitted to the Ministry's regional office at Shillong. For control of fugitive emission all unsaturated hydro carbon will be routed to the flare system and the flare system shall be designed for smoke less burning.	Quarterly monitoring of fugitive emission is being carried out regularly. Report is submitted regularly to the office of MoEF & CC with six monthly compliance reports. (Annexure-5)  Complied

*07/12/22*

*21/12/22*

SN	Stipulations	Status
5	Fugitive emissions of HC from product storage tank yards etc must be regularly monitored. Sensors for detecting HC leakage shall also be provided at strategic locations. The company shall use low sulphur fuel to minimize SO2 emission.	<p>Quarterly monitoring of fugitive emission is being carried regularly.</p> <p>HC detectors are already provided at the strategic locations at plants and tank farm areas. HC detectors are maintained by the vendors on quarterly basis. HC detector also provided at MS Quality up gradation unit.</p> <p>Digboi Refinery is using sweet natural gas which contains sulphur level below 2 ppm.</p>
6	The company shall strictly follow all the recommendation mentioned In the charter on corporate responsibility for environmental protection (CREP).	Being followed strictly.
7	The Company shall take necessary measures to prevent fire hazards, containing oil spill and soil remediation as needed. At place of ground flaring. the overhead flaring stack with knockout drums shall be installed to minimize gaseous emissions during flaring.	<p>Modern fire fighting system and hydrant network system has been provided and it meets OISD – 116 standards. Fire fighting facility at MSQ project is as per OISD-116. Remote HVL R System has been commissioned in October 2013. Installation of Rim Seal Fire Protection System of Fire Water network commissioned for Tank nos. 001, 607, 560 &amp; 452.</p> <p>At Digboi Refinery, flaring is done at the height of 108 meters through flare stack. Knockout drums are provided in the flare system.</p>
8.	To prevent fire and explosion at oil & gas facility, potential ignition should be kept to a minimum and adequate separation distance between potential ignition sources and flammable materials shall be in place.	Separation distance between potential ignition sources and flammable materials are maintained as per OISD – STD-118.
9.	Occupational Health surveillance of worker shall be done on a regular basis and records maintained as per the Factory Act.	Occupational Health surveillance for employees is being carried out as per Factory Act and records maintained at Occupational Health Centre of AOD hospital.
10.	Green belt shall be developed to mitigate the effect of fugitive emission all around the plant in a minimum 30 % plant area in consultation with DFO and as per CPCB guidelines.	<p>Digboi Refinery is surrounded by the Upper Dehing Reserve Forest on south and south west side, which acts as a natural Green Belt.</p> <p>Green belt developed with regular tree plantation around Refinery premises and township area.</p> <p>Till September,2022 around 1,09,459 trees were planted in and around Digboi Refinery</p>

*Signature*  
07/12/22

*Signature*  
21/12/22



**ENVIRONMENTAL CLEARANCE (J-11011/41/97-1A.II(I) dated -05-3-1998)**  
**FOR SOLVENT DEWAXING UNIT**

(STATUS AS ON 31<sup>st</sup> SEPTEMBER, 2022)

SL. NO	STIPULATIONS	STATUS
1.0	The project authority should submit a Risk Analysis Report within a period of six months and submit the same to the Ministry.	Risk analysis has been carried out by M/s KLG-TNO in 1999 covering all the new units and report submitted to Ministry. A fresh round of Quantitative Risk Analysis (QRA) was carried out by M/s Alfa Project Services Pvt. Ltd, Vadodara in 2005. All the recommendations have already been implemented. Another Quantitative Risk Analysis study for all the units, including MSQU, completed in March, 2012 and various recommendations for further risk reduction are under study for implementation. A fresh Quantitative Risk Assessment for Wax Palletisation Unit completed on August 2013 by ZEEPINE SYSTEM INDIA Pvt. Ltd

**ENVIRONMENTAL CLEARANCE (J-11013/71/99-1A(II) dated -13-05-1999)**  
**FOR HYDROTREATER UNIT**

(STATUS AS ON 31<sup>st</sup> SEPTEMBER, 2022)

SL. NO	STIPULATIONS	STATUS
1.0	The project authority should submit a Risk Analysis Report within a period of six months and submit the same to the Ministry.	Risk analysis has been carried out by M/s KLG-TNO in 1999 covering all the new units and report submitted to Ministry. A fresh round of Quantitative Risk Analysis (QRA) was carried out by M/s Alfa Project Services Pvt. Ltd, Vadodara in 2005. All the recommendations already implemented. Another Quantitative Risk Analysis study for all the units, including MSQU, completed in March, 2012 and various recommendations for further risk reduction are under study for implementation.

*Payal Soni*  
07/12/22

*Bank*  
7/12/22

## Annexure-1

## Effluent Parameters Test Report

From April 2022, to September, 2022

Parameters	Limits	April	May	June	July	August	September	Average
pH	6.0 - 8.5	7.06	7.17	6.89	7.26	7.20	7.37	7.158
Oil & Grease	5.0	4.28	4.33	4.28	3.96	4.22	4.01	4.180
BOD	15.0	9.90	10.06	10.10	9.84	10.06	9.77	9.955
COD	125.0	69.93	67.32	65.67	61.87	66.55	69.97	66.885
TSS	20.0	14.80	15.45	14.80	13.68	16.39	15.93	15.175
Phenols	0.35	0.25	0.25	0.24	0.21	0.24	0.24	0.238
Sulphides	0.5	0.21	0.21	0.21	0.19	0.15	0.17	0.190
CN	0.20	0.020	0.020	0.020	0.020	0.02	0.01	0.018

From April 2022, to September, 2022 (Source-External Agency)



Parameters	Limits	April	May	June	July	August	September	Average
pH	6.0 - 8.5	6.92	6.94	6.89	6.92	6.89	6.92	6.912
Oil & Grease	5.0	4.90	4.80	4.60	4.90	4.70	4.90	4.780
BOD	15.0	13.00	15.00	13.00	12.00	13.00	14.00	13.400
COD	125.0	55.00	60.00	55.00	50.00	53.00	61.00	55.800
TSS	20.0	10.00	13.00	15.00	13.00	12.00	13.00	13.200
Phenols	0.35	0.21	0.23	0.26	0.22	0.25	0.24	0.240
Sulphides	0.5	0.21	0.21	0.22	0.20	0.15	0.17	0.190
CN	0.20	0.020	0.020	0.020	0.020	0.020	0.010	0.018
Ammonia as N	15.0	6.30	5.20	7.30	0.10	2.40	0.10	3.020
TKN	40.0	7.20	7.40	8.00	0.30	6.30	1.40	4.680
P	3.0	0.38	1.00	1.00	0.43	0.29	0.48	0.640
Cr (Hexavalent)	0.1	0.01	0.010	0.010	0.02	0.020	0.010	0.01
Cr (Total)	2.0	0.05	0.05	0.05	0.01	0.01	0.01	0.05
Pb	0.1	0.05	0.05	0.06	0.01	0.01	0.01	0.025
Hg	0.01	0.01	0.010	0.010	0.00	0.001	0.001	0.007
Zn	5.0	2.50	1.00	2.00	0.02	0.02	0.02	0.612
Ni	1.0	0.10	0.100	0.100	0.02	0.020	0.020	0.060
Cu	1.0	0.05	0.05	0.05	0.02	0.02	0.02	0.050
V	0.2	0.10	0.10	0.10	0.02	0.02	0.02	0.100
Benzene	0.1	0.01	0.01	0.01	0.05	0.05	0.05	0.010
Benzo (a) -Pyrene	0.2	0.10	0.10	0.10	0.00	0.00	0.00	0.100

Checked by:-



Prepared by:



 IndianOil	<b>QUALITY CONTROL DEPARTMENT INDIAN OIL CORPORATION LIMITED (ASSAM OIL DIVISION) DIGBOI REFINERY, ASSAM</b>	 Assam Oil
--	--	--

Report No DR:QC/126.2/30

Dated 22.04.2022


TEST REPORT OF WATER SAMPLES COLLECTED FROM DIGBOI RIVER AND DIHING RIVER ON 11.04.2022 FOR THE MONTH OF April-2022.



SAMPLE SOURCE	pH	Oil & Grease,mg/L	BOD,mg/L	COD,mg/L	Phenol,mg/L	Sulphide,mg/L
Digboi River Water in Kenduguri Area	6.5	3.2	14	78.0	0.14	0.12
Digboi River Water (15 KM away from Digboi Refinery on Digboi-Duliajan Road)	6.6	2.6	10.4	56.0	0.11	0.10
Digboi River Water (26 KM away from Digboi Refinery on Digboi-Duliajan Road)	6.5	2.8	14	68.0	0.12	0.10
Dihing River Water before confluence with Digboi River	7.7	1.2	6.8	52.0	0.08	BDL
River Water (mixed) where Dihing River confluences with Digboi River	7.6	1.8	8.5	60.0	0.08	BDL
Specifications as per MINAS norms	6.0 to 8.5	5.0 max	15.0 max	250.0 max	0.35 max	0.50 max

\*BDL=Below Detection Limit

**ANALYSIS & REPORTED BY -**

P Borgohain, Asst. Chemist  
D.Rajkhowa, JQCA

  
22.04.2022  
R.P. Mandal  
(QCM)  
(QUALITY CONTROL)

 <b>IndianOil</b>	<b>INDIAN OIL CORPORATION LIMITED</b> <b>(ASSAM OIL DIVISION)</b> <b>DIGBOI REFINERY ASSAM</b> <b>QUALITY CONTROL DEPARTMENT</b>	 <b>Assam Oil</b>
---	---	---

Report No.: DR: QC/126.2/30

Date:01-06-2022

**TEST REPORT OF WATER SAMPLES**

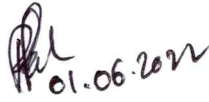
Source: Digboi and Dihing River

Date of Collection: 13-05-2022

Sample Source	pH	Oil & Grease, mg/L	BOD, mg/L	COD, mg/L	Phenol, mg/L	Sulfide, mg/L
Digboi River Water in Kenduguri Area	6.7	0.16	3.5	0.14	12.0	75
Digboi River Water (15 km away from Digboi Refinery on Digboi Duliajan Road)	6.7	0.13	3.0	0.10	10.0	68
Digboi River Water (26 km away from Digboi Refinery on Digboi Duliajan Road)	6.6	0.12	2.4	0.10	10.0	65
Dihing River Water before confluence with Digboi River	7.4	0.08	0.8	BDL	6.0	46
Dihing River Water before confluence with Digboi River	6.8	0.10	1.2	BDL	7.0	58
Specifications as per MINAS norms	6-0-8.5	5.0(max)	15.0(max)	250(max)	0.35(max)	0.50(max)

\*\*BDL= Below Detection Limit

ANALYSIS & REPORTED BY  
P Borgohain, Asst. Chemist  
D Rajkhowa, JQCA

  
01.06.2022  
R Paul, AM(QC)  
For CQCM



इंडियन ऑयल कॉर्पोरेशन/INDIAN OIL CORPORATION LIMITED  
(असम ऑयल डिवीजन/ASSAM OIL DIVISION)  
गुणवत्ता नियंत्रण प्रयोगशाला/QUALITY CONTROL DEPARTMENT



### ANALYSIS OF WATER SAMPLES

रिपोर्ट संख्या/ Report No.:DR/QC/126.2/30

दिनांक /Date: 27-06-2022

#### Sample Collection Details

Source: Dihing and Digboi Rivers  
Date of Collection: 15-06-2022

Sl. No.	Sample Details	pH	Phenol NTU	Oil & Grease mgL <sup>-1</sup>	Sulfide mgL <sup>-1</sup>	BOD mgL <sup>-1</sup>	COD mgL <sup>-1</sup>
1	Digboi River Water in Kenduguri Area	6.4	0.14	3	0.1	11	68
2	Digboi River Water (15 km away from Digboi Refinery on Digboi Duliajan Road)	6.4	0.17	3.1	0.1	8	65
3	Digboi River Water (26 km away from Digboi Refinery on Digboi Duliajan Road)	6.4	0.1	2.6	BDL	10	50
3	Dihing River water before confluence with Digboi river	7	0.09	1.9	BDL	8	51
3	Dihing River water after confluence with Digboi river	6.5	0.1	2	BDL	7	48
3	Specifications as per MINAS norms	6.0-8.5	≤5.0	≤15.0	≤250	≤0.35	≤0.50

\*\*\*BDL = Below Detection Limit

Analysis & Reported by

*Dipankar Rajkhowa*

D Rajkhowa  
JQCA

*R Paul*

R Paul  
AM(QC)



इंडियन ऑयल कॉर्पोरेशन/INDIAN OIL CORPORATION LIMITED  
(असम ऑयल डिवीजन/ASSAM OIL DIVISION)  
गुणवत्ता नियंत्रण प्रयोगशाला/QUALITY CONTROL DEPARTMENT



### ANALYSIS OF WATER SAMPLES

रिपोर्ट संख्या/ Report No.:DR/QC/126.2/30

दिनांक /Date: 25-07-2022

#### Sample Collection Details

Source: Dihing and Digboi Rivers  
Date of Collection: 16-07-2022

Sl. No.	Sample Details	pH	Phenol NTU	Oil & mgL <sup>-1</sup>	Sulfide mgL <sup>-1</sup>	BOD mgL <sup>-1</sup>	COD mgL <sup>-1</sup>
1	Digboi River Water in Kenduguri Area	6.5	0.1	2.7	0.12	8	42
2	Digboi River Water (15 km away from Digboi Refinery on Digboi)	6.5	0.11	2.1	0.09	7	38
3	Digboi River Water (26 km away from Digboi Refinery on Digboi)	6.7	0.09	1.9	BDL	6	45
3	Dihing River water before confluence with Digboi river	7.2	0.08	2	BDL	5	36
3	Dihing River water after confluence with Digboi river	6.7	0.1	1.5	BDL	5	41
3	Specifications as per MINAS norms	6.0-8.5	≤5.0	≤15.0	≤250	≤0.35	≤0.50

\*\*\*BDL = Below Detection Limit

Analysis & Reported by

*Dipankas Rajkhowa*

D Rajkhowa  
JQCA

*R Paul*

R Paul  
AM(QC)



इंडियन ऑयल कॉर्पोरेशन/INDIAN OIL CORPORATION LIMITED  
(असम ऑयल डिवीजन/ASSAM OIL DIVISION)  
गुणवत्ता नियंत्रण प्रयोगशाला/QUALITY CONTROL DEPARTMENT



### ANALYSIS OF WATER SAMPLES

रिपोर्ट संख्या/ Report No.:DR/QC/126.2/30

दिनांक /Date: 10-08-2022

#### Sample Collection Details

Source: Dihing and Digboi Rivers  
Date of Collection: 16-07-2022

Sl. No.	Sample Details	pH	Phenol NTU	Oil & mgL <sup>-1</sup>	Sulfide mgL <sup>-1</sup>	BOD mgL <sup>-1</sup>	COD mgL <sup>-1</sup>
1	Digboi River Water in Kenduguri Area	6.7	0.09	2	0.1	7	46
2	Digboi River Water (15 km away from Digboi Refinery on Digboi)	6.8	0.08	2.1	BDL	8	42
3	Digboi River Water (26 km away from Digboi Refinery on Digboi)	6.8	0.08	1.8	BDL	7	38
3	Dihing River water before confluence with Digboi river	7.3	0.09	1.6	BDL	6	40
3	Dihing River water after confluence with Digboi river	7.1	0.09	1.5	BDL	6	43
3	Specifications as per MINAS norms	6.0-8.5	≤0.35	≤5.0	≤0.5	≤15.0	≤125

\*\*\*BDL = Below Detection Limit

Analysis & Reported by

*Dipankar Rajkhowa*

D Rajkhowa  
JQCA

*R Paul*

R Paul  
AM(QC)



इंडियन ऑयल कॉर्पोरेशन/INDIAN OIL CORPORATION LIMITED  
(असम ऑयल डिवीजन/ASSAM OIL DIVISION)  
गुणवत्ता नियंत्रण प्रयोगशाला/QUALITY CONTROL DEPARTMENT



### ANALYSIS OF WATER SAMPLES

रिपोर्ट संख्या/ Report No.:DR/QC/126.2/30

दिनांक /Date: 22-09-2022

#### Sample Collection Details

Source: Dihing and Digboi Rivers  
Date of Collection: 10-09-2022

Sl. No.	Sample Details	pH	Phenol NTU	Oil & mgL <sup>-1</sup>	Sulfide mgL <sup>-1</sup>	BOD mgL <sup>-1</sup>	COD mgL <sup>-1</sup>
1	Digboi River Water in Kenduguri Area	6.6	0.08	2.4	0.1	6	38
2	Digboi River Water (15 km away from Digboi Refinery on Digboi)	6.7	0.07	2.2	BDL	8	40
3	Digboi River Water (26 km away from Digboi Refinery on Digboi)	6.8	0.05	1.6	BDL	7	41
4	Dihing River water before confluence with Digboi river	7.3	BDL	1.5	BDL	5	37
5	Dihing River water after confluence with Digboi river	7.1	BDL	1.5	BDL	6	40
6	Specifications as per MINAS norms	6.0-8.5	≤0.35	≤5.0	≤0.5	≤15.0	≤125

\*\*\*BDL = Below Detection Limit

Analysis & Reported by

*Dipankas Rajkhowa*

D Rajkhowa  
JQCA

*R Paul*

R Paul  
AM(QC)



**ANNEXURE-2**  
**COMPLIANCE OF EFFLUENT STANDARDS (In Kg/TMT of Crude)**  
**(April'22 -September'22) Source-QC, AOD**

PARAMETER	LIMIT	(April'22 -September'22) Source-External agency							Average
		April	May	June	July	August	September		
pH	--								
Oil & Grease	2.0	0.07	0.07	0.04	0.000	0.225	0.326	0.122	
BOD	6.0	0.16	0.17	0.12	0.000	0.593	0.957	0.334	
COD	50	1.25	1.11	0.71	0.000	3.397	5.203	1.946	
TSS	8.0	0.3	0.31	0.20	0.000	0.997	1.409	0.533	
Phenols	0.14	0.01	0.01	0.003	0.000	0.015	0.022	0.008	
Sulphides	0.2	0.001	0.001	0.001	0.000	0.003	0.006	0.002	
CN	0.08	0.000	0.000	0.000	0.000	0.001	0.017	0.003	
<b>(April'22 -September'22) Source-External agency</b>									
PARAMETER	LIMIT	April	May	June	July	August	September	Average	
pH	--								
Oil & Grease	2.0	0.0814	0.0878	0.0570	0.0607	0.2696	0.4061	0.160	
BOD	6.0	0.2161	0.2745	0.1611	0.1487	0.7458	1.1602	0.451	
COD	50	0.9141	1.0980	0.6815	0.6195	3.0406	5.0551	1.901	
TSS	8.0	0.1662	0.2379	0.1859	0.1611	0.6884	1.0773	0.419	
Phenols	0.14	0.0035	0.0042	0.0032	0.0027	0.0143	0.0199	0.008	
Sulphides	0.2	0.0035	0.0038	0.0027	0.0025	0.0086	0.0141	0.006	
CN	0.08	0.0003	0.0004	0.0002	0.0002	0.0011	0.0008	0.001	
Ammonia as N	6.0	0.1047	0.0952	0.0904	0.0012	0.1377	0.0083	0.073	
TKN	16	0.1197	0.1354	0.0991	0.0037	0.3614	0.1160	0.139	
P	1.2	0.0063	0.0183	0.0124	0.0053	0.0166	0.0398	0.016	
Cr (Hexavalent)	0.04	0.0000	0.0000	0.0000	0.0002	0.000	0.000	0.000	
Cr (Total)	0.8	0.0000	0.0000	0.0000	0.0001	0.000	0.000	0.000	
Pb	0.04	0.0008	0.0009	0.0005	0.0001	0.000	0.000	0.000	
Hg	0.004	0.0000	0.0000	0.00	0.0000	0.000	0.000	0.000	
Zn	2.0	0.0416	0.0183	0.0248	0.0002	0.0011	0.0017	0.015	
Ni	0.4	0.0000	0.0000	0.00	0.0002	0.000	0.000	0.000	
Cu	0.4	0.0000	0.0000	0.0000	0.0002	0.000	0.000	0.000	
V	0.8	0.0000	0.0000	0.0000	0.0002	0.0000	0.0000	0.000	
Benzene	0.04	0.0000	0.0000	0.0000	0.0006	0.0000	0.0000	0.000	
Benzo (a) -Pyrene	0.08	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	

NB:- ND ; Not Done & BDL; Bellow Detection Level

Checked by:



Prepared by:



27/12/22

**Stack Emission (mg/Nm3) Data –NOx, 2021-22**

Month	HGU	CPP-HRSG1	CPP-HRSG2	CPP-HRSG3	CPP-HRSG4	CDU	VDU	DCU	HDT	SDU
April	32.80	0.36	20.01	0.00	56.63	0.43	2.99	0.16	1.96	8.27
May	32.24	0.32	18.55	0.00	55.53	0.40	2.37	0.99	1.94	8.26
June	34.25	0.36	16.76	0.00	60.91	0.72	2.99	2.30	6.85	8.27
July	34.58	0.19	13.34	0.00	98.07	1.31	3.21	6.48	0.76	8.26
Aug	27.65	0.15	15.39	0.00	16.04	1.48	3.61	3.45	14.76	8.27
Sept	8.70	1.33	19.91	0.12	55.86	2.25	0.51	4.04	3.22	8.28
Avg	28.37	0.45	17.33	0.02	57.17	1.10	2.61	2.90	4.92	8.27

**Stack Emission (mg/Nm3) Data –SOx, 2021-22**

Month	HGU	CPP-HRSG1	CPP-HRSG2	CPP-HRSG3	CPP-HRSG4	CDU	VDU	DCU	CRU OBSG	CRU HDT	HDT	SDU
April	3.77	0.00	3.28	0.00	1.88	1.72	2.71	10.03	40.11	34.36	12.69	0.72
May	3.76	0.00	0.73	0.00	3.06	5.69	1.20	15.78	23.17	25.65	18.36	0.79
June	3.52	0.00	1.08	0.00	5.09	5.12	0.54	14.89	24.95	26.34	9.83	0.77
July	4.68	0.00	3.67	0.00	2.95	3.97	2.08	15.26	11.55	12.00	6.45	0.72
Aug	5.58	0.00	21.46	0.00	4.13	3.85	2.39	15.49	8.49	10.41	3.72	0.72
Sept	6.21	0.11	21.37	0.01	1.76	2.79	0.00	6.95	5.64	5.65	5.72	0.69
Avg	4.59	0.02	8.60	0.00	3.14	3.86	1.49	13.07	18.98	19.07	9.46	0.74

Checked by:   
07/12/22

Prepared by:   
21/12/22

# The Above Stack emission data is prepared based on the monthly average value fetched from Real Time Data Base of the analyzers installed at the furnace.

Quarterly Stack Monitoring Report (External Agency) : S. K. Mitra Pvt. Ltd.

STACK CALCULATION FOR THE PERIOD OF MAY-2022.

UNIT	TEMP. T °C	DIA OF STACK	HEIGHT OF STACK	AREA OF STACK	GAS VEL. M/SEC	FLUE GAS VOLUME AT T.C		FLUE GAS VOLUME AT 25 .C		PARTICULATE MATTER	OXIDES OF SULPHUR	OXIDES OF NITROGEN	H2S	CARBON MONOXIDE				
						M3/SEC	M3/SEC	Nm3/HR	Nm3/SEC						kg/hr	mg/Nm <sup>3</sup>	kg/hr	mg/Nm <sup>3</sup>
HDTU	212.00	1.10	40.00	0.95	7.38	7.01	4.31	15516.00	5.20	0.08	29.10	0.45	75.40	1.17	75.40	150.0	< 5.0	< 0.2
CRU (HDT)	161.00	0.80	42.00	0.50	6.60	3.32	2.28	8208.00	4.90	0.04	27.50	0.23	73.80	0.61	73.80	150.0	< 5.0	< 0.2
CRU (OBSSG)	172.00	1.75	45.00	2.40	7.60	18.27	12.23	44028.00	5.90	0.26	32.10	1.41	69.50	3.06	69.50	150.0	< 5.0	< 0.2
AVU (SDU/VDU)	226.00	1.59	46.50	1.99	8.14	16.15	9.64	34704.00	6.20	0.22	38.10	1.32	75.30	2.61	75.30	150.0	< 5.0	< 0.2
DCU	189.00	1.69	58.00	2.23	7.19	16.04	10.35	37260.00	5.60	0.21	35.80	1.33	83.70	3.12	83.70	150.0	< 5.0	< 0.2
HGU	139.00	1.00	40.00	0.79	6.96	5.46	3.95	14220.00	4.30	0.06	27.40	0.39	70.80	1.01	70.80	150.0	< 5.0	< 0.2
SDU	192.00	1.38	40.00	1.50	7.21	10.78	6.91	24876.00	7.30	0.18	31.50	0.78	77.40	1.93	77.40	150.0	< 5.0	< 0.2
MSQU	201.00	1.10	40.00	0.95	7.26	6.90	4.34	15624.00	4.20	0.07	24.10	0.38	66.70	1.04	66.70	150.0	< 5.0	< 0.2
HRSG 2	145.00	2.00	50.00	3.14	7.29	22.89	16.32	58752.00	6.00	0.35	40.80	2.40	82.50	4.85	82.50	150.0	< 5.0	< 0.2
HRSG 4	136.00	3.00	60.00	7.07	6.68	47.19	34.38	123768.00	6.50	0.80	41.30	5.11	84.70	10.48	84.70	150.0	< 5.0	< 0.2
Total									2.3		13.8		29.9					

Checked by: *[Signature]*  
07/02/22

Prepared by: *[Signature]*  
21/12/22

**Six Monthly Monitoring Result of Ambient Air Quality**  
**Period: April 2022 to September 2022**  
**Digboi Refinery**

Sl no.	Pollutants	Units	TWA	NAAQ Standard	Monthly Average Readings (Test By External Agency)						Average
					April	May	June	July	August	September	
1	SO <sub>2</sub>	µg/m <sup>3</sup>	24Hours	80	8.95	8.40	11.50	9.18	11.70	9.35	9.85
2	Nox	µg/m <sup>3</sup>	24Hours	80	17.03	15.88	27.00	18.00	24.00	19.25	20.19
3	PM <sub>10</sub>	µg/m <sup>3</sup>	24Hours	100	56.25	56.55	59.00	55.56	56.00	56.34	56.62
4	PM <sub>2.5</sub>	µg/m <sup>3</sup>	24Hours	60	25.80	25.98	25.00	26.23	27.00	26.60	26.10
5	CO	mg/m <sup>3</sup>	8Hours	100	1.37	1.41	1.52	1.30	1.47	1.35	1.40
6	NH <sub>3</sub>	µg/m <sup>3</sup>	24 Hours	400	11.98	10.83	11.02	11.88	12.03	12.26	11.67
7	O <sub>3</sub>	µg/m <sup>3</sup>	8Hours	100	23.72	24.85	25.02	23.49	22.06	24.43	23.93
8	Pb	µg/m <sup>3</sup>	24Hours	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL
9	As	ng/m <sup>3</sup>	Annual	6	BDL	BDL	BDL	BDL	BDL	BDL	BDL
10	Ni	ng/m <sup>3</sup>	Annual	20	BDL	BDL	BDL	BDL	BDL	BDL	BDL
11	C6H6	µg/m <sup>3</sup>	Annual	5	1.71	1.00	1.43	1.61	1.63	1.49	1.48
12	Benzo -a pyren	ng/m <sup>3</sup>	Annual	1	BDL	BDL	BDL	BDL	BDL	BDL	BDL

## Annexure-4(B)

Sl no.	Pollutants	Units	TWA	NAAQ Standard	Monthly Average Readings (CAAQMS)						Average
					April	May	June	July	August	September	
1	SO <sub>2</sub>	µg/m <sup>3</sup>	24Hours	80	2.97	2.56	2.85	2.57	2.56	2.55	2.68
2	Nox	µg/m <sup>3</sup>	24Hours	80	2.76	1.92	2.57	2.38	3.08	2.97	2.61
3	PM <sub>10</sub>	µg/m <sup>3</sup>	24Hours	100	19.31	7.71	0.27	0.00	0.00	0.00	4.55
4	PM <sub>2.5</sub>	µg/m <sup>3</sup>	24Hours	60	1.11	1.33	1.4	1.83	1.64	1.42	1.46
5	CO	mg/m <sup>3</sup>	8Hours	100	0.18	0.15	0.11	0.12	0.09	0.39	0.17
6	NH <sub>3</sub>	µg/m <sup>3</sup>	24 Hours	400	3.68	3.21	3.56	2.85	3.69	3.56	3.43
7	O <sub>3</sub>	µg/m <sup>3</sup>	8Hours	100	12.24	10.41	12.29	12.71	13.09	11.09	11.97
8	Pb	µg/m <sup>3</sup>	24Hours	1	Parameter not available at CAAQMS						PNA
9	As	ng/m <sup>3</sup>	Annual	6	Parameter not available at CAAQMS						PNA
10	Ni	ng/m <sup>3</sup>	Annual	20	Parameter not available at CAAQMS						PNA
11	C6H6	µg/m <sup>3</sup>	Annual	5	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Benzo -a pyren	ng/m <sup>3</sup>	Annual	1	Parameter not available at CAAQMS						PNA

*Sanjay 07/11/22*

*Sanjay 07/12/22*

Annexure-5

Fugitive Emission  
Digboi Refinery

VOC Emission	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
LDAR Report Generated Date	June Attached			
Name of the Agency	M/S Mitra S.K. Private Limited, Bhetapara Guwahati. WO No.27371982			Dated 19-11-2021

*Handwritten signature and date: 22/11/2021*

<b>LDAR PROGRAM at Digboi Refinery</b>	
<b>Leak points Detected in Phase = 7(F) UNIT: HDTU</b>	
<b>SUMMARY SHEET FOR HDTU AREA</b>	
<b>Total number of points covered</b>	<b>120</b>
<b>Date of Monitoring/Rechecking</b>	<b>09.06.2022 to 10.06.2022</b>
<b>Total number of Leak detected for VOC</b>	<b>NIL</b>
<b>Total number of Leak detected for Benzene</b>	<b>NIL</b>
<b>Total save in a year in (ton/year)</b>	<b>NIL</b>
<b>Pump/Compressor</b>	
<b>Total No Leak detected VOC</b>	<b>NIL</b>
<b>Total No Leak detected Benzene</b>	<b>NIL</b>
<b>Gland/Bonet/NRV</b>	
<b>Total Leak detected VOC</b>	<b>NIL</b>
<b>Total Leak detected Benzene</b>	<b>NIL</b>
<b>Flange/Joint</b>	
<b>Total Leak detected VOC</b>	<b>NIL</b>
<b>Total Leak detected Benzene</b>	<b>NIL</b>
<b>Leak points Detected in Phase = 7(F) UNIT: HGU</b>	
<b>SUMMARY SHEET FOR HGU AREA</b>	
<b>Total number of points covered</b>	<b>165</b>
<b>Date of Monitoring/Rechecking</b>	<b>08.06.2022</b>
<b>Total number of Leak detected for VOC</b>	<b>NIL</b>
<b>Total number of Leak detected for Benzene</b>	<b>NIL</b>
<b>Total save in a year in (ton/year)</b>	<b>NIL</b>
<b>Pump/Compressor</b>	
<b>Total No Leak detected VOC</b>	<b>NIL</b>
<b>Total No Leak detected Benzene</b>	<b>NIL</b>
<b>Gland/Bonet/NRV</b>	
<b>Total Leak detected VOC</b>	<b>NIL</b>
<b>Total Leak detected Benzene</b>	<b>NIL</b>
<b>Flange/Joint</b>	
<b>Total Leak detected VOC</b>	<b>NIL</b>
<b>Total Leak detected Benzene</b>	<b>NIL</b>
<b>Leak points Detected in Phase = 7(F) UNIT: CRU</b>	
<b>SUMMARY SHEET FOR CRU AREA</b>	
<b>Total number of points covered</b>	<b>262</b>
<b>Date of Monitoring/Rechecking</b>	<b>15.06.2022 to 16.06.2022</b>
<b>Total number of Leak detected for VOC</b>	<b>NIL</b>
<b>Total number of Leak detected for Benzene</b>	<b>NIL</b>
<b>Total save in a year in (ton/year)</b>	<b>NIL</b>
<b>Pump/Compressor</b>	
<b>Total No Leak detected VOC</b>	<b>NIL</b>
<b>Total No Leak detected Benzene</b>	<b>NIL</b>
<b>Gland/Bonet/NRV</b>	
<b>Total Leak detected VOC</b>	<b>NIL</b>
<b>Total Leak detected Benzene</b>	<b>NIL</b>
<b>Flange/Joint</b>	
<b>Total Leak detected VOC</b>	<b>NIL</b>
<b>Total Leak detected Benzene</b>	<b>NIL</b>
<b>Leak points Detected in Phase = 7(F) UNIT : O M &amp; S (Crude Oil Pump House)</b>	
<b>SUMMARY SHEET FOR O M &amp; S (Crude Oil Pump House) AREA</b>	
<b>Total number of points covered</b>	<b>10</b>
<b>Date of Monitoring/Rechecking</b>	<b>11.07.2022 to 12.07.2022</b>
<b>Total number of Leak detected for VOC</b>	<b>NIL</b>
<b>Total number of Leak detected for Benzene</b>	<b>NIL</b>
<b>Total save in a year in (ton/year)</b>	<b>NIL</b>
<b>Pump/Compressor</b>	

Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
Flange/Joint	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
Leak points Detected in Phase = 7(F) UNIT:O M & S (Production pump house)	
<b>SUMMARY SHEET FOR O M &amp; S (Production Pump House) AREA</b>	
Total number of points covered	192
Date of Monitoring/Rechecking	13.07.2022
Total number of Leak detected for VOC	NIL
Total number of Leak detected for Benzene	NIL
Total save in a year in (ton/year)	NIL
Pump/Compressor	
Total No Leak detected VOC	NIL
Total No Leak detected Benzene	NIL
Gland/Bonet/NRV	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
Flange/Joint	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
Leak points Detected in Phase=7(F) UNIT: O M & S (Circulation pump house)	
<b>SUMMARY SHEET FOR O M &amp; S (Circulation Pump house) AREA</b>	
Total number of points covered	98
Date of Monitoring/Rechecking	11.07.2022 to 12.07.2022
Total number of Leak detected for VOC	NIL
Total number of Leak detected for Benzene	NIL
Total save in a year in (ton/year)	NIL
Pump/Compressor	
Total No Leak detected VOC	NIL
Total No Leak detected Benzene	NIL
Gland/Bonet/NRV	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
Flange/Joint	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
Leak points Detected in Phase = 7(F) UNIT : O M & S (SDU off Side Pump House)	
<b>SUMMARY SHEET FOR O M &amp; S (SDU off Side Pump House) AREA</b>	
Total number of points covered	33
Date of Monitoring/Rechecking	04.07.2022 to 05.07.2022
Total number of Leak detected for VOC	NIL
Total number of Leak detected for Benzene	NIL
Total save in a year in (ton/year)	NIL
Pump/Compressor	
Total No Leak detected VOC	NIL
Total No Leak detected Benzene	NIL
Gland/Bonet/NRV	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
Flange/Joint	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
Leak points Detected in Phase=7(F) UNIT:O M & S (Liquid Transfer Pump House)	
<b>SUMMARY SHEET FOR O M &amp; S (Liquid Transfer Pump House) AREA</b>	
Total number of points covered	26
Date of Monitoring/Rechecking	7/11/2022
Total number of Leak detected for VOC	NIL
Total number of Leak detected for Benzene	NIL
Total save in a year in (ton/year)	NIL

<b>Pump/Compressor</b>	
Total No Leak detected VOC	NIL
Total No Leak detected Benzene	NIL
<b>Gland/Bonet/NRV</b>	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
<b>Flange/Joint</b>	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
<b>Leak points Detected in Phase = 7(F) UNIT : O M &amp; S (CRU Off Side Pump House)</b>	
<b>SUMMARY SHEET FOR O M &amp; S (CRU Off Side Pump House) AREA</b>	
Total number of points covered	126
Date of Monitoring/Rechecking	15.06.2022 to 16.06.2022
Total number of Leak detected for VOC	NIL
Total number of Leak detected for Benzene	NIL
Total save in a year in (ton/year)	NIL
<b>Pump/Compressor</b>	
Total No Leak detected VOC	NIL
Total No Leak detected Benzene	NIL
<b>Gland/Bonet/NRV</b>	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
<b>Flange/Joint</b>	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
<b>Leak points Detected in Phase = 7(F) UNIT: DCU</b>	
<b>SUMMARY SHEET FOR DCU AREA</b>	
Total number of points covered	1043
Date of Monitoring/Rechecking	27.06.2022 to 29.06.2022
Total number of Leak detected for VOC	NIL
Total number of Leak detected for Benzene	NIL
Total save in a year in (ton/year)	NIL
<b>Pump/Compressor</b>	
Total No Leak detected VOC	NIL
Total No Leak detected Benzene	NIL
<b>Gland/Bonet/NRV</b>	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
<b>Flange/Joint</b>	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
<b>Leak points Detected in Phase = 7(F) UNIT: MSQU</b>	
<b>SUMMARY SHEET FOR MSQU AREA</b>	
Total number of points covered	970
Date of Monitoring/Rechecking	20.10.2022 to 21.06.2022
Total number of Leak detected for VOC	NIL
Total number of Leak detected for Benzene	NIL
Total save in a year in (ton/year)	NIL
<b>Pump/Compressor</b>	
Total No Leak detected VOC	NIL
Total No Leak detected Benzene	NIL
<b>Gland/Bonet/NRV</b>	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
<b>Flange/Joint</b>	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
<b>Leak points Detected in Phase = 7(F) UNIT: AVU</b>	
<b>SUMMARY SHEET FOR AVU AREA</b>	



Total number of Leak detected for Benzene	NIL
Total save in a year in (ton/year)	NIL
Pump/Compressor	
Total No Leak detected VOC	NIL
Total No Leak detected Benzene	NIL
Gland/Bonnet/NRV	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL
Flange/Joint	
Total Leak detected VOC	NIL
Total Leak detected Benzene	NIL

Report Prepared By :

*S. Hazumdar*

For Mitra S. K. Private Limited



Authorised Signatory

The results relate only to the item(s) tested.

This Test Report shall not be reproduced except in full, without the permission of Mitra S.K. Private Limit.

~~Head Office: Shirach Centre (5th floor), 74B, A.J.C. Bose Road, Kolkata - 700 016. West Bengal, India.~~

~~Tel. : 91 33 40143000 / 22650006 / 22650007 Fax : 91 33 22650008~~

~~Email : info@mitrask.com. Website: www.mitrask.com~~