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

असम ऑयल डिवीजन
Assam Oil Division

Ref: HSE: 01 -714/25 **Dated: 15.10.2025**

To,

The Regional Officer,
Integrated Regional Office, Guwahati,
Ministry of Environment, Forest and Climate Change,
4thFloor, Housefed Building, G.S. Road, Rukminigaon,
Guwahati – 781022

Sub: Submission of the Half-Yearly Compliance Report for the period (1st Apr'25 to 30th Sep'25) on Environmental Stipulations pertaining to various units of Digboi Refinery.

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 '2025-September '2025)**.

Thanking you,

Yours sincerely,
For Indian Oil Corporation (AOD)

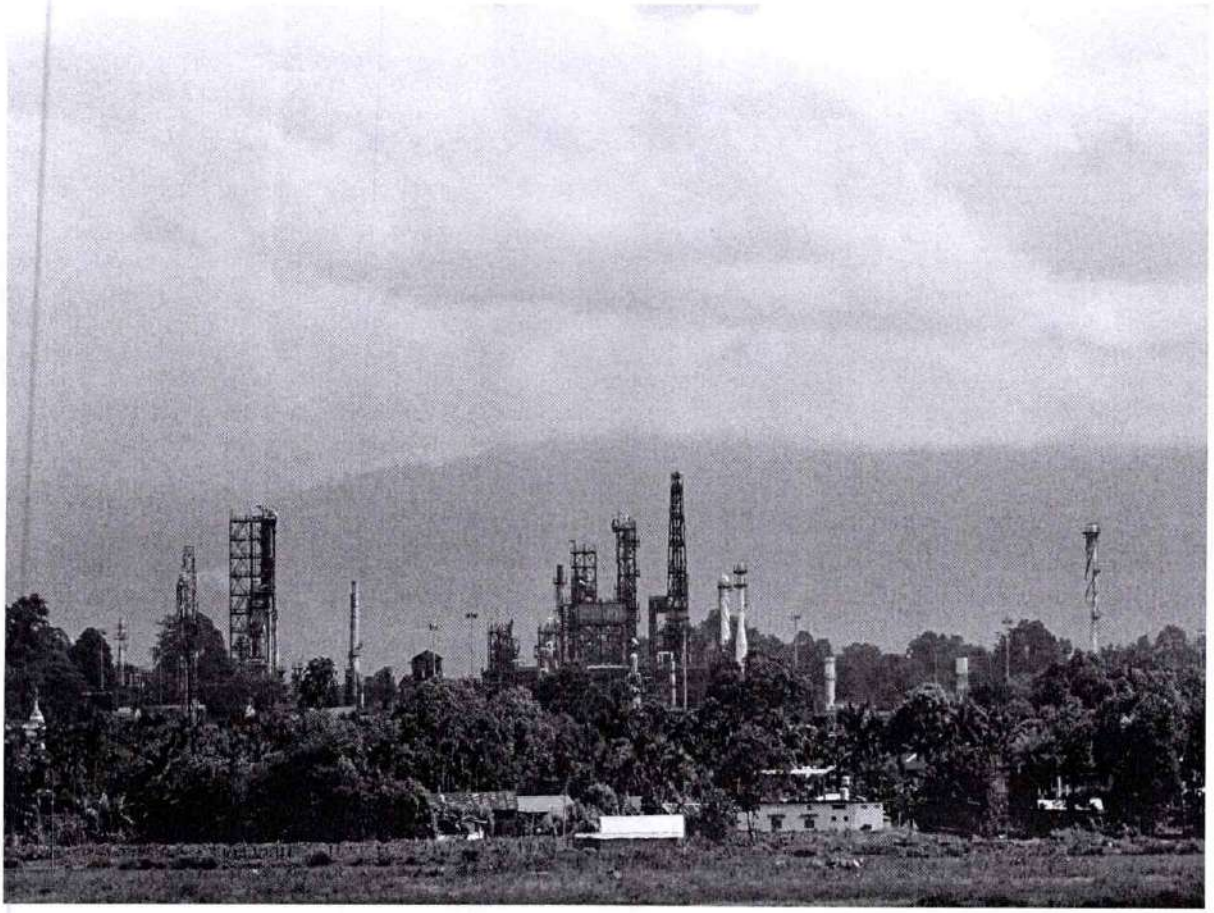
15/10/25

D. K. Barua
General Manager (TS & HSE)

Copy To:

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

HALF YEARLY COMPLIANCE REPORT OF ENVIRONMENTAL CLEARANCE DIGBOI REFINERY (1St April 2025 – 30th September2025)



INDEX

REPORTS ATTACHED

Report Name	Annexure list
Average six monthly 21 MINAS parameter of ETP Effluent(polishing pond outlet) Reports by External Agency Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India	Annexure-1
Six monthly River water body sample Report by QC Department of AOD	Annexure-2
Six monthly compliance Report on Quantum Limit (Kg/1000 MT Crude processed)	Annexure-3
Six month Stack emission Report by External Agency Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India	Annexure-4
Six month Ambient Air quality Monitoring Report by External Agency Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India	Annexure-5
Fugitive Monitoring (LDAR) Report	Annexure-6
Latest compliance status of the CREP	Annexure-7
Compliance Report to PCCF(Wildlife) & CWW, Assam on 03.04.2024	Annexure-8
Site specific conservation plan and wildlife management plan submitted to DFO, Digboi on 14.03.2023	Annexure-9
Advertisement in two local newspapers about EC granted for DR 1.0 FOR Capacity Augmentation of Digboi Refinery to 1 MMTPA	Annexure-10
Bio-monitoring of aquatic life in lotic and lentic water bodies in and around Digboi Refinery" by M/S A.B.N Scientific Services, Guwahati on April-September '24	Annexure-11

15.10.25

ENVIRONMENTAL CLEARANCE (J-11011/12/87-1A, dated – 19-10-1987) FOR DIGBOI REFINERY MODERNISATION PROJECT

SL. NO	STIPULATIONS	COMPLIANCE STATUS AS ON 30.09.2025
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 the 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 (Kg/1000 MT Crude processed) is attached in **Annexure-3.** Online effluent monitoring & connectivity to CPCB server was commissioned on 28th December 2015. WebSite: Online Emission and Effluent Monitoring System (cpcb.gov.in)
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 the Pollution Control Board, Assam. Monitoring of receiving water bodies is also carried out every month. Six monthly 21 MINAS parameter ETP effluent Reports (Polishing Pond outlet) by External Agency Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India is enclosed as **Annexure-1** Six monthly nearby river water sample by AOD QC Laboratories is enclosed as **Annexure-2.**
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^3 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	Four nos. of Ambient Air quality monitoring stations have

15.10.25

	should be monitored at least at four monitoring stations for SPM, SOx, NOx, Hydrocarbons and H_2S.	been installed around Digboi Refinery-(I) Bazar Gate (II) Wax Sector Cooling Tower (III) New Tank Farm (IV) Effluent treatment Plant. One no. of Continuous Ambient Air Quality Monitoring Station installed and commissioned in September 2012 at Welfare center which is connected with CPCB and PCBA server. Ambient air quality monitoring is carried out monthly by external agency. Six-month Ambient Air Quality Monitoring Report by External Agency Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India is attached as **Annexure-5**
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 a portable monitoring kit. Fixed on-line analyzers are also installed in AVU, DCU, CPP HRSG's, CRU, SDU, HDT, HGU and MSQU and monitoring through RTDBMS. Online connectivity established with CPCB Server and PCBA for Furnaces having heat capacity of more than 10mkcl/hr (HGU & HRSG's Stacks). Apart from own monitoring, external agencies Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India is also employed to conduct stack emission analysis on regular basis. 6 Months (Quarterly Report) Stack emission Reports by External Agency Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India are enclosed as **Annexure-4.**
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 detectors in plant & offsite areas by an external CPCB approved agency. Leak detection and repair (LDAR) report for the Q 1 and Q2 of FY 2025-26 is attached as **Annexure-6.**
8.0	Land filling, if any, must be done with fill material only from within battery limits of the Refinery.	It is being followed accordingly.
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 the south and southwest side, which acts as a natural Green Belt. The green belt is developed with regular tree plantation around Refinery premises and township area. Since 2002, Digboi Refinery has planted around **319980** trees till September'25 in and around Digboi Refinery achieving a green belt coverage of 52.86% of the total IOCL area.

15.10.25

ENVIRONMENTAL CLEARANCE (J-13011/3/1987-1A dated - 18-06-1987) FOR CAPTIVE POWER PLANT

SL. NO	STIPULATIONS	COMPLIANCE STATUS AS ON 30.09.2025
1.0	Only sweet natural gas will be used as feed stock.	Digboi Refinery uses only sweet Natural Gas.
2.0	Under the envisaged modernization programme for the refinery, Sulphur recovery units to be provided to reduce emission of SO_2. Efforts should also be made to reduce the emissions of NOx. The existing sulphuric acid plant should be scrapped.	Digboi Refinery processes only indigenous sweet Assam crude with Sulphur content less than 0.25 wt%. 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, the 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	Green belt around the power plant should be raised.	Digboi Refinery is surrounded by the Upper Dehing Reserve Forest on the south and southwest side, which acts as a natural Green Belt. The green belt is developed with regular tree plantation around Refinery premises and township area. Since 2002, Digboi Refinery has been planted around 319980 trees till September'2025 in and around Digboi Refinery achieving a green belt coverage of 52.86% of the total IOCL area.
6.0	Adequate precautionary measures for preventing and controlling fire and explosion hazards should be taken up, especially 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.

15.10.25

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

<table>
<tr><th>SL. NO</th><th>STIPULATIONS</th><th>COMPLIANCE STATUS AS ON 30.09.2025</th></tr>
<tr><td>1.0</td><td>The project authority must strictly adhere to the stipulations made by State govt. and the State Pollution Control Board.</td><td>The stipulations made by the State Govt. and the State Pollution Control Board are strictly followed regarding effluent and emission norms.
The existing CTO has been renewed till 31st March 2028.
Digboi Refinery meets all parameters of effluent as per revised CPCB guideline.</td></tr>
<tr><td>2.0</td><td>The project authority will not increase the throughput capacity of the refinery from the existing level.</td><td>Crude processing capacity of Digboi Refinery was based on neat Assam crude. The actual crude throughput is based on Govt MoU maintaining all the environmental parameters within the stipulated norm.</td></tr>
<tr><td>3.0</td><td>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.</td><td>Complied.</td></tr>
<tr><td>4.0</td><td>Gaseous emissions of SO2, Hydrocarbons and oxides of Nitrogen should not exceed the prescribed standard stipulated by Central/State Pollution Control Board. At no time should the emission level 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.</td><td>Complied.

The reported gaseous emission of SOx and NOx by External Agency Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India are: -
<table>
<tr><th></th><th>CRU-HDT(SOx) mg/Nm3</th><th>CRU-HDT(NOx) mg/Nm3</th><th>CRU-OBSG(SOx) mg/Nm3</th><th>CRU-OBSG(NOx) mg/Nm3</th></tr>
<tr><td>April'25</td><td>12</td><td>34</td><td>5</td><td>42</td></tr>
<tr><td>July'25</td><td>10.0</td><td>30.0</td><td>9</td><td>52</td></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>5.0</td><td>The project authority must explore the possibility of maximum recycling of effluent either as process water or for aforestation.</td><td>Treated effluent from ETP is recycled to refinery as make up for Fire water tank, Coke Cutting water at delayed coking unit, Wax Sector Cooling Tower, cleaning and gardening purposes.
During April'25 – September'25, 100 % of treated effluent was reused.</td></tr>
<tr><td>6.0</td><td>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.</td><td>Effluent is meeting MINAS specifications both in quality and quantity before being discharged.
Six monthly compliance Report on Quantum Limit (Kg/1000 MT Crude processed) is attached in Annexure-3.</td></tr>
</table>

15.10.25

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.	4 (Four) numbers of Ambient Air quality monitoring stations have been installed around Digboi Refinery-(i)Bazar Gate (ii)Wax Sector Cooling Tower (iii)New Tank Farm (iv) Effluent treatment Plant. Ambient air quality monitoring is being carried out on a monthly basis. 1(One) number of Continuous Ambient Air Quality Monitoring Station installed and commissioned in September 2012 at Welfare centre. Online CAAQMS parameters are being monitored regularly through https://aicpl.glensserver.com/#/login Six-month Ambient Air quality Monitoring Report by External Agency Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India attached as **Annexure-5** Fixed on-line analyzers are also installed in AVU, DCU, CPP HRSG's, CRU, SDU, HDT, HGU and MSQU and being monitored regularly through RTDBMS. Online connectivity established with CPCB Server and PCBA server for Furnaces having heat capacity of more than 10mkcl/hr (HGU & HRSG's Stacks). Apart from own monitoring, external agencies are also employed to conduct stack emission analysis on a regular basis. Online stack monitoring regularly done through Website http://www.envsaindia.com/cpcb/login.php
8.0	The liquid effluent quality must be ensured on a 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.	Water quality monitoring stations were set up:- one near ETP, three at Digboi Nullah and one at oily sludge area. Liquid effluent quality from ETP outlet is monitored regularly daily. 1. 8(eight) parameters daily basis by QC (AOD) 2. 21(twenty-one) parameters monthly tested by SPCB approved outside agency. 3. In addition to the above four parameters, BOD, COD, TSS & pH being monitored through online analyzers connected with CPCB Server, 4. Sample from Digboi River and Dihing River are being collected and analyzed by QC (AOD) on monthly basis.
9.0	The project authority must monitor aquatic life (like fish, tortoise etc.) and report should be submitted to the Ministry once in six months.	Digboi Refinery has carried out study on **"Biomonitoring of aquatic life in lotic and lentic water bodies in and around Digboi Refinery"** by M/S A.B.N Scientific Services, Guwahati on April'25-September'25. The report has been enclosed as **Annexure-11**.

15.10.25

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.** Present PESO License **P/HQ/AS/15/880** is valid till 31.12.2026.
11.	The project authority must provide oil separators in the nullah and the effluents should be discharged through covered drains.	At present an oil separator is being provided and the effluents are discharged through covered drain.
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 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 SafeNet Industrial solutions PLL.** Last Offsite Disaster drill was carried out on 13.12.2024 at 12:30 hrs. on scenario of ""Fire in Refinery open drain and escape of Oil to Nullah outside Refinery, caused by leakage of oil from slop oil line at pipe rack located north of AVU/DCU".". Last Odd hours onsite Disaster drill was carried out on 12/03/2025 at 23:00 Hrs. on scenario of "Thundering at Crude tank (T-001) roof leading to full surface fire"." Last L2 level onsite Disaster drill was carried out on 08/09/2025 at 10:55 Hrs. "Profuse H_2S leakage from the downstream body flange gasket of Acid gas K.O. drum SRU-11-VV-00-001"
14.	The Project authority must ensure that the effluent plant fully operational within the next 3 months.	ETP has been 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.	Digboi Refinery has set up its own state of art Quality Control Laboratories inside the Refinery premises with NABL Accreditation **ISO/IEC 17025:2017**

15.10.25

16.	The project authority must provide necessary infrastructural facilities to the construction workers during construction.	**Complied.** 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.	Digboi Refinery is surrounded by the Upper Dehing Reserve Forest on the south and southwest side, which acts as a natural Green Belt. The green belt is developed with regular tree plantation around Refinery premises and township area. Since 2002, Digboi Refinery has planted around **319980** trees till September'2025 in and around Digboi Refinery achieving a green belt coverage of 52.86% of the total IOCL area.
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.	It is followed as part of IOCL's green belt development.
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.	Digboi Refinery has a full-fledged Health, Safety and Environment (HSE) unit functioning under Chief General Manager with direct reporting to Head of Organization.HSE Department team consists of General Manager, Chief Manager and Assistant Managers. The HSE team regularly monitors and reviews the effectiveness of the EMP implementation.
20.	Adequate fund provision (capital and recurring expenditure) so provided for environmental control measures should not be diverted to any other purpose. The implementation schedule for environmental measure must be strictly adhered to.	The HSE department is supported with budgetary Allocation. The allocation for the last three years are as follows: ➢ 2020-21: Rs 7.74 Cr. ➢ 2021-22: Rs 7.78 Cr. ➢ 2022-23: Rs 8.83 Cr. ➢ 2023-24: Rs 3.51 Cr ➢ 2024-25: Rs. 7.00 Cr. ➢ 2025-26: Rs. 4.00 Cr.

15.10.25

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

SL. NO	STIPULATIONS	COMPLIANCE STATUS AS ON 30.09.2025
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. Quantitative Risk Analysis study for all the units, including MSQU, was carried out in March 2012 & in Aug' 2013 post installation of Wax Palletization Unit. Further Quantitative Risk Analysis (QRA) study for all the units of DR was carried out in 2019 by M/s Techniche Engineering Private Limited, Pune and final report received in February 2020. The QRA study report was submitted to the office of IRO-Guwahati, MoEF & CC during Dec'2022 EC Compliance inspection Monitoring. The latest QRA study with all existing DR units and including facilities for capacity augmentation of Digboi refinery to 1 MMTPA was carried out by M/s Techniche Engineering Private Limited, Pune in the month of June'25.

15.10.25

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

SL. NO	STIPULATIONS	COMPLIANCE STATUS AS ON 30.09.2025
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. Quantitative Risk Analysis study for all the units, including MSQU, was carried out in March, 2012 & in Aug' 2013 post installation of Wax Pelletisation Unit. Further Quantitative Risk Analysis (QRA) study for all the units of DR was carried out in 2019 by M/s Techniche Engineering Private Limited, Pune and final report received in February 2020. The QRA study report was submitted to the office of IRO-Guwahati, MoEF & CC during Dec'2022 EC Compliance inspection Monitoring. The latest QRA study with all existing DR units and including facilities for capacity augmentation of Digboi refinery to 1 MMTPA was carried out by M/s Techniche Engineering Private Limited, Pune in the month of June'25.

15.10.25

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

A	Specific Conditions	
SL. NO	STIPULATIONS	COMPLIANCE STATUS AS ON 30.09.2025
1	The company shall comply with new standards/norms that are being proposed by the CPCB for petrochemical plants and refineries.	Digboi Refinery strictly complies with all the norms and parameters of effluent and gaseous emission as per revised CPCB guideline.
2	The process emissions (SO_2, NOx, 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.	The various process Emissions are within the prescribed limits and meets the norms as prescribed by MoEF & CC and Assam State Pollution Control Board as mentioned in the CTO. The various Emission reports from Refinery are submitted to Assam State Pollution Control Board and MoEF & CC on a regular basis.
3	Ambient air quality monitoring stations. [SPM, SO_2, NOx 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_2 and NOx.	5(Five) no's 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. Furnaces having a heat capacity of more than 10MMkcal/hr. (HGU & HRSG's Stacks) are continuously connected with CPCB Server and PCBA server. Online stack monitoring analyzers are already installed for monitoring stack emissions. Apart from own monitoring, external agencies are also employed to conduct stack emission analysis on regular basis as per CPCB guideline.

15.10.25

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 hydrocarbon will be routed to the flare system and the flare system shall be designed for smoke less burning.	Quarterly monitoring of fugitive emission (VOC) is being carried out regularly by external agency. The report is submitted regularly to the office of MoEF & CC with six monthly compliance reports. For control of fugitive emissions, dual seals have been installed in all light oil pumps with provision of venting to Flare system. Leak detection and repair (LDAR) report for the Q 1 and Q 2 of FY 2025-26 is attached as **Annexure-6.**
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 S02 emission.	Fugitive emissions of HC from product storage tank yards etc. are being monitored quarterly by an external agency. HC detectors are already provided at strategic locations at plants and tank farm areas. HC detectors are maintained by the vendors on a quarterly basis. HC detectors also provided at MS Quality up gradation unit. Digboi Refinery uses sweet natural gas with average sulphur content of ~ 2.5 ppm.
6	The company shall strictly follow all the recommendation mentioned In the charter on corporate responsibility for environmental protection (CREP).	The latest compliance status of CREP is enclosed as **Annexure -7.** Also, Digboi Refinery has carried out various CSR activities in and around Digboi with a total CSR budget of Rs 50.20 Cr during last three fiscal years. FY-2022-23:11.95 Cr FY-2023-24:15.66 Cr FY-2024-25:22.59 Cr The major activities include empowering underprivileged young girls by enrolling 60 students each year in Nursing course (BSc & GNM), empowering 45 students from economically underprivileged section with Medical & Engineering coaching, skill development of local women, provision of Drinking water facility in schools, water supply to non IOCL consumers in and around Digboi etc.
7	The Company shall take necessary measures to prevent fire hazards, containing oil spills 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.	At Digboi Refinery, flaring is done at the height of 108 meters through flare stack. Knockout drums are provided in the flare system Further, 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 HVLR 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 & 452.

15.10.25

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.	Digboi Refinery is surrounded by the Upper Dehing Reserve Forest on the south and southwest side, which acts as a natural Green Belt. The green belt is developed with regular tree plantation around Refinery premises and township area. Since 2002, Digboi Refinery has planted around 319980 trees till September'2025 in and around Digboi Refinery achieving a green belt coverage of 52.86% of the total IOCL area.
B.	**General Conditions**	
1	The project authorities must strictly adhere to the stipulations made by the concerned State Pollution Control Board (SPCB) and the State Government and any other statuary body.	The stipulations made by the State Govt. and the State Pollution Control Board are strictly followed regarding effluent and emission norms. The existing CTO has been renewed till 31st March 2028. Digboi Refinery meets all parameters of effluent as per revised CPCB guideline.
2	No further expansion or modification in the project shall be carried without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to the Ministry for clearance, a fresh reference shall be made to the Ministry.	**Complied.**
3	At no time, the emissions should go beyond the prescribed standards. In the event of failure of any pollution control system, the respective well site should be immediately put out of operation and should not be restarted until the desired efficiency has been achieved. Provision of adequate height of stack attached to DG sets & flare is to be done.	Stack emission quality data of Sox and NOx are regularly monitored. Apart from own monitoring, external agencies are also employed to conduct stack emission analysis on a regular basis as per CPCB guideline.

15.10.25

4	Wastewater shall be properly collected and treated to conform to the standards prescribed under EP Act & Rules and mentioned in the Consents provided by the relevant SPCB.	Digboi Refinery had installed Effluent Treatment Plant (ETP) in the year 1989, for the treatment of process wastewater generated from various units of the refinery. Digboi Refinery meets all MINAS parameters related to effluent discharge as per revised CPCB guideline and CTO.
5	The overall noise levels in and around the premises shall be limited within the prescribed standards (75 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).	Acoustic hoods are available all over the refinery and silencers exist in all sensitive parts of the plant where noise is a major concern. Moreover, all vehicle/trucks speed is limited to 20 km/hr inside the refinery, which is also less than 75 DB. Quarterly Noise survey is also being carried out by Occupational Health Centre of AOD hospital.
6	The project authorities must strictly comply with the provisions made in Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2000 for handling of hazardous chemicals etc. Necessary approvals from Chief Controller of Explosives must be obtained before commission of the expansion project, if required, Requisite On-site and Off-site Disaster Management Plans will be prepared and implemented.	Digboi Refinery strictly follows the provisions made in the Manufacture, Storage and Import of Hazardous Chemicals Rules 1989 as amended in 2000 and later for handling of hazardous chemicals. Present PESO License **P/HQ/AS/15/880** is valid till 31.12.2026. 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 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 SafeNet Industrial Solution PLL.**
7	Disposal of hazardous wastes shall be as per the Hazardous Wastes. (Management and Handling) Rules, 2003 Authorization from the State Pollution Control Board must be obtained for collections / treatment /storage/disposal of hazardous wastes.	Digboi Refinery has been granted Hazardous Waste Authorization **WB/T-311/21-22/115/101** and is valid till 31-Mar-2027. Digboi Refinery annually files Hazardous Wastes Return to PCBA. Last Annual Hazardous Wastes Return for FY 2024-25 has been duly submitted to Pollution Control Board, Assam on 27.06.2025.

15.10.25

8	The project authorities will provide adequate funds as nonrecurring and recurring expenditure to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so provided should not be diverted for any other purposes.	The HSE department is supported with budgetary Allocation. The allocation for the last three years are as follows: ➢ 2020-21: Rs 7.74 Cr. ➢ 2021-22: Rs 7.78 Cr. ➢ 2022-23: Rs 8.83 Cr. ➢ 2023-24: Rs. 3.50 Cr. ➢ 2024-25: Rs. 7.00 Cr. ➢ 2025-26: Rs. 4.0 Cr.
9	The company shall develop rainwater harvesting structures to harvest the runoff water for recharge of ground water.	Storage Cum Percolation Pond (SCP) was commissioned in 2018 utilizing run-off water of 9 interlinked natural catchment areas around Digboi, first of its type in eastern Asia. The usage of rainwater has proven to be very cost effective and environmentally friendly to increase the water table in the Digboi area. During FY 2025-26, 69.0 % of industrial water requirements were met through harvested rainwater as Cooling Tower Make up, feed to DM plant, Service water and fire water make up. During April'2025 to September'2025.
10	The stipulated conditions will be monitored by the concerned Regional Office of this Ministry /Central Pollution Control Board/State Pollution Control Board. A six-monthly compliance report and the monitored data should be submitted to them regularly. It will also be displayed on the Website of the Company	Six-monthly EC compliance reports are duly submitted to IRO Guwahati. Last Report Submitted on 29 July 2025. Previous EC compliance reports of Digboi Refinery are uploaded on Indian Oil website. Link to the website is below. https://iocl.com/statutory-notices
11	The Project Proponent should inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the State Pollution Control Board/ Committee and may also be seen at Website of the Ministry of Environment and Forests at http://www.envfor.nic.in This should be advertised within seven days from the date of issue of the clearance letter at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same should be forwarded to the concerned Regional office of this Ministry	The advertisement in local newspapers was published.

15.10.25

12	A separate environment management cell with fully fledged laboratory facilities to carry out various management and monitoring functions shall be set up under the control of a Senior Executive.	Digboi Refinery has a full-fledged Health, Safety and Environment (HSE) unit functioning under Chief General Manager with direct reporting to Head of Organization.HSE Department team consists of General Manager, Chief Manager, Two Senior Managers and one Officer. The HSE team regularly monitors and reviews the effectiveness of the EMP implementation.
13	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	All the formalities for closure of project have been completed and project capitalized on 28.12.2010

15.10.25

ENVIRONMENTAL CLEARANCE (J-11011/482/2007-IA II (I) dated 01-01-2024) FOR Capacity Augmentation of Digboi Refinery to 1 MMTPA

A	Specific Conditions	
SL. NO	STIPULATIONS	COMPLIANCE STATUS AS ON 30.09.2025
1	Environmental clearance is subject to obtaining prior clearance from the wildlife angle, including clearance from the Standing Committee of the National Board for Wildlife, as applicable, as per the Ministry's OM dated 8th August, 2019. Grant of environmental clearance does not necessarily imply that Wildlife Clearance shall be granted to the project and that their proposal for Wildlife Clearance will be considered by the respective authorities on its merit and decision taken. PP shall also strictly follow the conditions mentioned in existing NBWL clearance.	NBWL Minutes was issued on 26.06.25 recommending the project with 4 conditions. Letter from PCCF to DR issued on 11.07.2025 with decision taken and conditions to be complied. Refinery submitted the compliance report to PCCF (Wildlife) & CWW, Assam on 16.07.2025 **(Enclosed as Annexure -8)**
2	The project proponent shall prepare a site-specific conservation plan and wildlife management plan in case of the presence of Schedule-1 species in the study area, as applicable to the project, and submit it to Chief Wildlife Warden for approval. The recommendations shall be implemented in consultation with the State Forest/Wildlife Department in a time bound manner.	Site specific conservation plan and wildlife management plan have been prepared and submitted to DFO, Digboi on 14.03.2023 for onward forwarding to Chief Wildlife Warden. DFO forwarded the same to PCCF vide letter dated 10.05.2023. **(Enclosed as Annexure -9)**
3	The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, and risk mitigation measures relating to the project shall be implemented.	Actions being initiated for strictly complying EIA/EMP and risk mitigation measures during designing & construction phase of Digboi Refinery Capacity Augmentation project to 1 MMTPA.
4	The effluent generation post expansion of the refinery shall not exceed 2352 m3/day which will be treated through Effluent Treatment Plant which shall be re-used inside refinery.	The effluent generation post expansion of the refinery has been considered within 2352 m3/day during engineering and shall be complied with post commissioning of the project. Treated effluent from ETP shall be recycled to refinery

15.10.25

		as make up for Fire water tank, Coke Cutting water at delayed coking unit, Wax Sector Cooling Tower, cleaning and gardening purposes.
5	The National Emission Standards for Petroleum Oil Refinery issued by the Ministry vide G.S.R. 186(E) dated 18th March, 2008 and G.S.R.595(E) dated 21st August, 2009 as amended from time to time, shall be followed.	Shall be complied
6	Volatile organic compounds (VOCs)/Fugitive emissions shall be controlled at 99.997% with effective chillers/modern technology. For emission control and management, use of FG/NG in heater as fuel, adequate stack height, use of Low NOX burners in heater & boiler, continuous stack monitoring, Sulphur recovery plant, etc. shall be installed/ensured.	Project has been conceived for implementation with state-of-the-art technology with equipment to ensure negligible VOC emission to comply EC norm. Currently Digboi refinery doesn't use any liquid fuel and Natural Gas & Fuel Gas (FG) is being used. No Liquid fuel burning has been considered under DR 1.0 project. Use of Low Nox burner, adequate stack height etc. has been considered in the engineering design. Currently, quarterly monitoring of fugitive emission (VOC) is being carried out regularly by CPB/MoEFCC approved external agency and shall also be continued post DR 1.0 project commissioning.
7	As proposed, the total SOx emission form post project shall not exceed 16.61 kg/hr (i.e. 0.398 TPD).	SOx emission from Stack shall be maintained within stipulated limit.
8.	All the commitments made to the public during public hearing/public consultation meeting held on 04.03.2023 shall be satisfactorily implemented and adequate budget provision shall be made accordingly.	DR has allocated Rs. 5.0 Crores towards Extended EMP (CER) which shall be spent as submitted in CER plan by involving local villages and administration. All the activities under CER shall be completed before the commissioning of the plant.

15.10.25

9.	Total freshwater requirement after proposed expansion shall not exceed 13032 KLPD which will be met from the existing pumping station at Nazirating. Necessary permission in this regard shall be obtained from the concerned regulatory authority.	No Objection Certificate to withdraw 14400 KLPD is obtained vide letter no. EE/WRD/DBR/2022-23/D-3/Pt IV/790 dated 15/03/2023 from Dibrugarh Water Resource Division. Total freshwater requirements shall be ensured within 13032 KLPD.
10.	The additional effluent generation shall not exceed 8 m3/hr from the proposed expansion i.e. the refinery (including DM Plant regeneration wastewater, process units, Cooling towers blowdown), which will be treated in the existing Effluent Treatment Plant (ETP). The existing ETP capacity is 375 m3/hr with present load of 90 m3/hr from refinery.	The present ETP load is around 90 m3/hr. & post DR 1.0 additional load is considered within 8 m3/hr.
11	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	Process and storm drains are separate systems and not allowed to mix. All process effluent is routed to ETP. Strom water channel is provided with hay filter and Oil boom to catch any accidental oil spillage prior to routing to Digboi Nallah.
12	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm, and solvent transfer to be done through pumps.	All hazardous chemicals shall be stored in tanks & drums. All solvent & chemical transfer shall be done through pumps, and manual transfer shall be avoided. Flame arrestor in tank farm shall be provided as per safe engineering practice.
13	Process organic residue and spent carbon, if any, shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF.	Process organic residues (ETP Bio sludge) are allowed to dry and weather in sludge drying beds at ETP. Bio-sludge is then transferred to secured land fill for bioremediation. After completion, the same is disposed of in the low lying non crop area. No evaporation salt is generated from ETP.

15.10.25

14	The company shall undertake waste minimization measures as below: Metering and control of quantities of active ingredients to minimize waste. Reuse of by-products from the process as raw materials or as raw material substitutes in other processes. Use of automated filling to minimize spillage. Use of Close Feed system into batch reactors. Venting equipment through vapour recovery system. Use of high pressure hoses for equipment clearing to reduce wastewater generation.	Slop oil generated if any is reprocessed as per prevailing practice. The process handles close loop systems without any provision for manual filling. Venting of equipment's through FG header/Flare has been considered. Use of high-pressure hoses for equipment cleaning (e.g exchanger) shall be ensured.
15	The green belt of 5-10 m width shall be developed in the total project area, mainly along the plant periphery, in downward wind direction, and along road sides etc. The project proponent shall ensure 33% greenbelt area vis-à-vis the project area through afforestation in the degraded area. The Selection of plant species shall be as per the CPCB guidelines in consultation with the State Forest Department	Green belt developed with regular tree plantation around Refinery premises and township area. Currently, Digboi refinery has 52.8 % greenbelt covers of the total refinery area and already achieved min. 33% greenbelt areas as per guidelines prescribed by MoEFCC.
16	PP proposed to allocate Rs. 5.0 Crores towards Extended EMP (CER) which shall be spent as submitted in CER plan. Further, all the proposed activities under CER shall be completed before the commissioning of the plant in consultation with District Administration.	Digboi Refinery has allocated 5.0 Crore towards extended EMP as per the proposed activities mentioned in the EIA report. Accordingly, preliminary activities have been started, and all the CER recommendations shall be completed before the commissioning of the plant.
17	For the DG sets, emission limits and the stack height shall be in conformity with the extant regulations and the CPCB guidelines. Acoustic enclosure shall be provided to DG set for controlling the noise pollution.	Shall be complied
18	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Firefighting system shall be as per the norms.	A comprehensive Fire protection system shall be installed and activated prior to commissioning of new facilities under DR 1.0 project. The same shall also be vetted through external audit like OISD & PESO.

15.10.25

19	Continuous online (24x7) monitoring system for stack emissions shall be installed for measurement of flue gas discharge and the pollutants concentration, and the data to be transmitted to the CPCB and SPCB server. For online continuous monitoring of effluent, the unit shall install web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises. In case of the treated effluent to be utilized for irrigation/gardening, real time monitoring system shall be installed at the ETP outlet.	Online connectivity established with CPCB Server and PCBA for Furnaces having heat capacity of more than 10mkcal/hr (HGU & HRSG's Stacks) ETP is already installed with real time analyzers (pH, COD, BOD, TSS) and connected to CPCB and PCBA server. Online Oil & Grease analyser Commissioned in August'2025 at ETP effluent line. Installation of web camera with night vision capability in the channel/drain carrying effluent within the premises has been installed to monitor at 6 locations.
20	PP shall allocate at least Rs. 0.5 Crore/annum for Occupational Health Safety. Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	PME and WPME are being carried out as per Factories Act with. Budged provision of 0.5 Crore/Annum for Occupational Health Safety shall be ensured.
21	Process safety and risk assessment studies shall be further carried out using advanced models, and the mitigating measures shall be undertaken/implemented accordingly.	RRA study of DR 1.0 project has been carried out using PHAST by M/s EIL. All the RRA recommendations shall be considered and ensured implementation during DR 1.0 Project implementation along with HAZOP recommendations. The latest QRA study with all existing DR units and including facilities for capacity augmentation of Digboi refinery to 1 MMTPA was carried out by M/s Techniche Engineering Private Limited, Pune in the month of June'25.

15.10.25

22	The PP should improve the efficiency of ETP Plant and the water discharge should be as per prescribed CPCB Norms. They should also install 24x7 hours monitoring system (of the discharge) and the same should be connected to the server of SCPB/CPCB.	ETP is already installed with real time analyzers (pH, COD, BOD, TSS) and connected to CPCB and PCBA server. Further online Oil & Grease analyser commissioned August'25 at ETP effluent line. The effluent quality meets all the MINAS standard.
23	PP shall sensitize and create awareness among the people working within the project area as well as its surrounding area on the ban of Single Use Plastic in order to ensure the compliance of Notification published by MOEFCC on 12th August, 2021. A report along with photographs on the measures taken shall also be included in the six-monthly compliance report being submitted to concerned authority.	Under Mission LIFE campaign, awareness regarding ban of Single Use Plastic is already being carried out through distribution of leaflets, display of banners and posters and conducting Nukkad natak etc. World Environment Day 2025 was also observed at DR with various awareness programs and campaigns like waste segregation, carrying jute bags to market to avoid use of plastic bags etc.
B.	**General Conditions**	
1	No further expansion or modifications in the plant, other than mentioned in the EIA Notification, 2006 and its amendments, shall be carried out without prior approval of the Ministry of Environment, Forest and Climate Change/SEIAA, as applicable. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry/SEIAA, as applicable, to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	**Shall be complied**
2	The energy source for lighting purpose shall be preferably LED based, or advanced having preference in energy conservation and environment betterment.	LED based lighting is only used for lighting purpose
3	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Acoustic hoods are available all over the refinery and silencers exist in all sensitive parts of the plant where noise is a major concern. Moreover, all vehicle/trucks

15-10.25

		speed is limited to 20 km/hr inside the refinery. The ambient noise levels conform to the standards prescribed under the Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (daytime and 70 dBA (nighttime). A quarterly Noise survey is carried out by the Occupational Health Centre of Digboi Refinery hospital.
4	The company shall undertake all relevant measures for improving the socio-economic conditions of the surrounding area. CER activities shall be undertaken by involving local villages and administration and shall be implemented. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	DR has allocated Rs. 5.0 Crores towards Extended EMP (CER) which shall be spent as submitted in CER plan by involving local villages and administration. Actions have been already initiated and planned for compliance prior to commissioning of DR 1.0 project facilities.
5	The company shall earmark sufficient funds towards capital cost and recurring cost per annum to implement the conditions stipulated by the Ministry of Environment, Forest and Climate Change as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.	Shall be complied & ensured.
6	A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, Zilla Parishad/Municipal Corporation, Urban local Body and the local NGO, if any, from whom suggestions/ representations, if any, were received while processing the proposal.	Complied (No such suggestion / representations received from any bodies)
7	The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF&CC, the respective Zonal Office of CPCB and SPCB. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.	Shall be complied with current practice.
8	The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned State Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the respective Regional Offices of MoEF&CC by e-mail.	Shall be complied with current practice.

Sonu 15.10.25

9	The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry and at https://parivesh.nic.in/. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.	Complied **Attached As Annexure 10**
10	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Shall be ensured & complied
11	This Environmental clearance is granted subject to final outcome of Hon'ble Supreme Court of India, Hon'ble High Court, Hon'ble NGT and any other Court of Law, if any, as may be applicable to this project.	Shall be ensured & complied

15.10.25

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

ULR No. : TC148142500002164F
Test Report Date: 14/04/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	1 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	07/04/2025
Test Started On	:	07/04/2025
Test Completed On	:	12/04/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	03/04/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	pH	...	7.54	6.0-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	12	20	IS:3025 (P-17)
3	Oil & Grease (O&G)	mg/L	2	5	IS:3025 (P-39)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	10	15	IS:3025 (P-44)
5	COD	mg/L	60	125	IS:3025 (P-58)
6	Ammonical Nitrogen	mg/L	0.42	15	IS:3025 (P-34)
7	Total Kjeldhal Nitrogen	mg/L	0.84	40	IS:3025 (P-34)
8	Lead as Pb	mg/L	ND [DL-0.01]	2	APHA 23rd Ed.
9	Chromium Hexavalent as Cr^{+6}	mg/L	ND [DL-0.1]	0.1	APHA 23rd Ed.
10	Chromium as Cr	mg/L	ND [DL-0.05]	2.0	APHA 23rd Ed.
11	Copper as Cu	mg/L	0.03	1.0	APHA 23rd Ed.
12	Zinc as Zn	mg/L	ND [DL-0.05]	5.0	APHA 23rd Ed.
13	Sulphide as S^{2-}	mg/L	ND [DL-0.05]	2.0	IS:3025 (P-29)
14	Mercury as Hg	mg/L	ND [DL-0.05]	0.01	APHA 23rd Ed.
15	Phenolic Compounds(C_6H_5OH)	mg/L	ND [DL-1]	0.35	IS:3025 (P-43)
16	Nickel as Ni	mg/L	ND [DL-0.1]	1.0	APHA 23rd Ed.

Remark:
ND-Not Detected

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

Test Report No. : 202504030110
Test Report Date: 14/05/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	1 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	07/04/2025
Test Started On	:	07/04/2025
Test Completed On	:	12/04/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	03/04/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	Cyanide as CN	mg/L	ND [DL-0.01]	0.2	IS:3025 (P-27)
2	Total Phosphorous as P	mg/L	0.34	3	IS:3025 (P-31)
3	Vanadium as V	mg/L	ND [DL-0.01]	0.1	IS:3025 (P-56)
4	Benzene	mg/L	ND [DL-0.0001]	0.1	USEPA-8270C
5	Benzo (a) pyrene	mg/L	ND [DL-0.0001]	0.2	USEPA-8270C

Remark:
ND-Not Detected

NITYA LABORATORIES AUTHORISED

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

ULR No. : TC148142500002731F
Test Report Date: 12/05/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	2.5 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	05/05/2025
Test Started On	:	05/05/2025
Test Completed On	:	10/05/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	01/05/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	pH	...	7.69	6.0-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	16	20	IS:3025 (P-17)
3	Oil & Grease (O&G)	mg/L	ND	5	IS:3025 (P-39)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	13	15	IS:3025 (P-44)
5	COD	mg/L	74	125	IS:3025 (P-58)
6	Ammonical Nitrogen	mg/L	0.64	15	IS:3025 (P-34)
7	Total Kjeldhal Nitrogen	mg/L	1.00	40	IS:3025 (P-34)
8	Lead as Pb	mg/L	ND [DL-0.01]	2	APHA 23rd Ed.
9	Chromium Hexavalent as Cr^{+6}	mg/L	ND [DL-0.1]	0.1	APHA 23rd Ed.
10	Chromium as Cr	mg/L	ND [DL-0.05]	2.0	APHA 23rd Ed.
11	Copper as Cu	mg/L	0.02	1.0	APHA 23rd Ed.
12	Zinc as Zn	mg/L	ND [DL-0.05]	5.0	APHA 23rd Ed.
13	Sulphide as S^{2-}	mg/L	ND [DL-0.05]	2.0	IS:3025 (P-29)
14	Mercury as Hg	mg/L	ND [DL-0.05]	0.01	APHA 23rd Ed.
15	Phenolic Compounds(C_6H_5OH)	mg/L	ND [DL-1]	0.35	IS:3025 (P-43)
16	Nickel as Ni	mg/L	ND [DL-0.1]	1.0	APHA 23rd Ed.

Remark:
ND-Not Detected

TC-14814

NITYA LABORATORIES Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

Test Report No. : 202505010120
Test Report Date: 12/05/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	2.5 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	05/05/2025
Test Started On	:	05/05/2025
Test Completed On	:	10/05/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	01/05/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	Cyanide as CN	mg/L	ND [DL-0.01]	0.2	IS:3025 (P-27)
2	Total Phosphorous as P	mg/L	0.46	3	IS:3025 (P-31)
3	Vanadium as V	mg/L	ND [DL-0.01]	0.1	IS:3025 (P-56)
4	Benzene	mg/L	ND [DL-0.0001]	0.1	USEPA-8270C
5	Benzo (a) pyrene	mg/L	ND [DL-0.0001]	0.2	USEPA-8270C

Remark:
ND-Not Detected

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

ULR No. : TC148142500003408F
Test Report Date: 12/06/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	1 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	05/06/2025
Test Started On	:	05/06/2025
Test Completed On	:	11/06/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	02/06/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	pH	...	7.78	6.0-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	12	20	IS:3025 (P-17)
3	Oil & Grease (O&G)	mg/L	2	5	IS:3025 (P-39)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	10	15	IS:3025 (P-44)
5	COD	mg/L	60	125	IS:3025 (P-58)
6	Ammonical Nitrogen	mg/L	0.52	15	IS:3025 (P-34)
7	Total Kjeldhal Nitrogen	mg/L	0.84	40	IS:3025 (P-34)
8	Lead as Pb	mg/L	ND [DL-0.01]	2	APHA 23rd Ed.
9	Chromium Hexavalent as Cr^{+6}	mg/L	ND [DL-0.1]	0.1	APHA 23rd Ed.
10	Chromium as Cr	mg/L	ND [DL-0.05]	2.0	APHA 23rd Ed.
11	Copper as Cu	mg/L	0.03	1.0	APHA 23rd Ed.
12	Zinc as Zn	mg/L	ND [DL-0.05]	5.0	APHA 23rd Ed.
13	Sulphide as S^{2-}	mg/L	ND [DL-0.05]	2.0	IS:3025 (P-29)
14	Mercury as Hg	mg/L	ND [DL-0.05]	0.01	APHA 23rd Ed.
15	Phenolic Compounds(C_6H_5OH)	mg/L	ND [DL-1]	0.35	IS:3025 (P-43)
16	Nickel as Ni	mg/L	ND [DL-0.1]	1.0	APHA 23rd Ed.

Remark:
ND-Not Detected

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

Test Report No. : 202506020110
Test Report Date: 12/06/2025

Annexure-4

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	1 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	05/06/2025
Test Started On	:	05/06/2025
Test Completed On	:	11/06/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	02/06/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	Cyanide as CN	mg/L	ND [DL-0.01]	0.2	IS:3025 (P-27)
2	Total Phosphorous as P	mg/L	0.62	3	IS:3025 (P-31)
3	Vanadium as V	mg/L	ND [DL-0.01]	0.1	IS:3025 (P-56)
4	Benzene	mg/L	ND [DL-0.0001]	0.1	USEPA-8270C
5	Benzo (a) pyrene	mg/L	ND [DL-0.0001]	0.2	USEPA-8270C

Remark:
ND-Not Detected

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

ULR No. : TC148142500004113F
Test Report Date: 11/07/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	2.5 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	05/07/2025
Test Started On	:	05/07/2025
Test Completed On	:	10/07/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	02/07/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	pH	...	7.78	6.0-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	12	20	IS:3025 (P-17)
3	Oil & Grease (O&G)	mg/L	2	5	IS:3025 (P-39)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	14	15	IS:3025 (P-44)
5	COD	mg/L	82	125	IS:3025 (P-58)
6	Ammonical Nitrogen	mg/L	0.48	15	IS:3025 (P-34)
7	Total Kjeldhal Nitrogen	mg/L	0.84	40	IS:3025 (P-34)
8	Lead as Pb	mg/L	ND [DL-0.01]	2	APHA 23rd Ed.
9	Chromium Hexavalent as Cr^{+6}	mg/L	ND [DL-0.1]	0.1	APHA 23rd Ed.
10	Chromium as Cr	mg/L	ND [DL-0.05]	2.0	APHA 23rd Ed.
11	Copper as Cu	mg/L	0.02	1.0	APHA 23rd Ed.
12	Zinc as Zn	mg/L	ND [DL-0.05]	5.0	APHA 23rd Ed.
13	Sulphide as S^{2-}	mg/L	ND [DL-0.05]	2.0	IS:3025 (P-29)
14	Mercury as Hg	mg/L	ND [DL-0.05]	0.01	APHA 23rd Ed.
15	Phenolic Compounds(C_6H_5OH)	mg/L	ND [DL-1]	0.35	IS:3025 (P-43)
16	Nickel as Ni	mg/L	ND [DL-0.1]	1.0	APHA 23rd Ed.

Remark.
ND-Not Detected

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

Test Report No. : 202507020110
Test Report Date: 11/07/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	2.5 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	05/07/2025
Test Started On	:	05/07/2025
Test Completed On	:	10/07/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	02/07/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	Cyanide as CN	mg/L	ND [DL-0.01]	0.2	IS:3025 (P-27)
2	Total Phosphorous as P	mg/L	0.32	3	IS:3025 (P-31)
3	Vanadium as V	mg/L	ND [DL-0.01]	0.1	IS:3025 (P-56)
4	Benzene	mg/L	ND [DL-0.0001]	0.1	USEPA-8270C
5	Benzo (a) pyrene	mg/L	ND [DL-0.0001]	0.2	USEPA-8270C

Remark:
ND-Not Detected

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43 Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

ULR No. : TC148142500005061F
Test Report Date: 13/08/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	1 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	07/08/2025
Test Started On	:	07/08/2025
Test Completed On	:	12/08/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	04/08/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	pH	...	7.64	6.0-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	12	20	IS:3025 (P-17)
3	Oil & Grease (O&G)	mg/L	2	5	IS:3025 (P-39)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	10	15	IS:3025 (P-44)
5	COD	mg/L	62	125	IS:3025 (P-58)
6	Ammonical Nitrogen	mg/L	0.52	15	IS:3025 (P-34)
7	Total Kjeldhal Nitrogen	mg/L	1.00	40	IS:3025 (P-34)
8	Lead as Pb	mg/L	ND [DL-0.01]	2	APHA 23rd Ed.
9	Chromium Hexavalent as Cr^{+6}	mg/L	ND [DL-0.1]	0.1	APHA 23rd Ed.
10	Chromium as Cr	mg/L	ND [DL-0.05]	2.0	APHA 23rd Ed.
11	Copper as Cu	mg/L	0.03	1.0	APHA 23rd Ed.
12	Zinc as Zn	mg/L	ND [DL-0.05]	5.0	APHA 23rd Ed.
13	Sulphide as S^{2-}	mg/L	ND [DL-0.05]	2.0	IS:3025 (P-29)
14	Mercury as Hg	mg/L	ND [DL-0.05]	0.01	APHA 23rd Ed.
15	Phenolic Compounds(C_6H_5OH)	mg/L	ND [DL-1]	0.35	IS:3025 (P-43)
16	Nickel as Ni	mg/L	ND [DL-0.1]	1.0	APHA 23rd Ed.

Remark:
ND-Not Detected

TC-14814

Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

CORPORATE OFFICE & CENTRAL LABORATORIES :-
PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY, BALLABHGARH, FARIDABAD - 121004, HARYANA, INDIA
+91-129-2241021 +91-9013591021, +91-9013552273 labsnitya@gmail.com www.nityalab.com

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Annexure-4

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

Test Report No. : 202508040110
Test Report Date: 13/08/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	1 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	07/08/2025
Test Started On	:	07/08/2025
Test Completed On	:	12/08/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	04/08/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	Cyanide as CN	mg/L	ND [DL-0.01]	0.2	IS:3025 (P-27)
2	Total Phosphorous as P	mg/L	0.54	3	IS:3025 (P-31)
3	Vanadium as V	mg/L	ND [DL-0.01]	0.1	IS:3025 (P-56)
4	Benzene	mg/L	ND [DL-0.0001]	0.1	USEPA-8270C
5	Benzo (a) pyrene	mg/L	ND [DL-0.0001]	0.2	USEPA-8270C

Remark:
ND-Not Detected

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

ULR No. : TC148142500005731F
Test Report Date: 13/09/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	1 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	06/09/2025
Test Started On	:	06/09/2025
Test Completed On	:	12/09/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	03/09/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	pH	...	7.33	6.0-8.5	IS:3025 (P-11)
2	Total Suspended Solids (TSS)	mg/L	8	20	IS:3025 (P-17)
3	Oil & Grease (O&G)	mg/L	3	5	IS:3025 (P-39)
4	Bio-Chemical Oxygen Demand (3 days at 27°C) (BOD)	mg/L	14	15	IS:3025 (P-44)
5	COD	mg/L	70	125	IS:3025 (P-58)
6	Ammonical Nitrogen	mg/L	0.02	15	IS:3025 (P-34)
7	Total Kjeldhal Nitrogen	mg/L	2.24	40	IS:3025 (P-34)
8	Lead as Pb	mg/L	ND [DL-0.01]	2	APHA 23rd Ed.
9	Chromium Hexavalent as Cr^{+6}	mg/L	ND [DL-0.1]	0.1	APHA 23rd Ed.
10	Chromium as Cr	mg/L	ND [DL-0.05]	2.0	APHA 23rd Ed.
11	Copper as Cu	mg/L	0.04	1.0	APHA 23rd Ed.
12	Zinc as Zn	mg/L	ND [DL-0.05]	5.0	APHA 23rd Ed.
13	Sulphide as S^{2-}	mg/L	ND [DL-0.05]	2.0	IS:3025 (P-29)
14	Mercury as Hg	mg/L	ND [DL-0.05]	0.01	APHA 23rd Ed.
15	Phenolic Compounds(C_6H_5OH)	mg/L	ND [DL-1]	0.35	IS:3025 (P-43)
16	Nickel as Ni	mg/L	ND [DL-0.1]	1.0	APHA 23rd Ed.

Remark:
ND-Not Detected

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
AOD, Digboi, Dist. Tinsukia, Assam, INDIA

Test Report No. : 202509030110
Test Report Date: 13/09/2025

Sample Particulars

Nature of the Sample	:	**Treated Effluent**
Sample Quantity & Packaging	:	1 L HDPE Can+150 ml Sterile Container
Sample Received at Lab	:	06/09/2025
Test Started On	:	06/09/2025
Test Completed On	:	12/09/2025
Method of Sampling	:	SOP/B/D-3
Date of Sampling	:	03/09/2025
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Location	:	ETP Polishing Pond-Outlet

Test Report

Sr. No.	Parameter	Unit	Result	Permissible Limit	Protocol
1	Cyanide as CN	mg/L	ND [DL-0.01]	0.2	IS:3025 (P-27)
2	Total Phosphorous as P	mg/L	0.56	3	IS:3025 (P-31)
3	Vanadium as V	mg/L	ND [DL-0.01]	0.1	IS:3025 (P-56)
4	Benzene	mg/L	ND [DL-0.0001]	0.1	USEPA-8270C
5	Benzo (a) pyrene	mg/L	ND [DL-0.0001]	0.2	USEPA-8270C

Remark:
ND-Not Detected

Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

गुणवत्ता नियंत्रण विभाग (QUALITY CONTROL DEPARTMENT)

इंडियन ऑयल कॉर्पोरेशन लिमिटेड(INDIAN OIL CORPORATION LIMITED)

(असम ऑयल डिवीजन (ASSAM OIL DIVISION)

डिगबोई रिफाइनरी, असम(DIGBOI REFINERY, ASSAM)

Test Report of Dihing and Digboi Rivers Water Sample

Source: Dihing and Digboi Rivers

रिपोर्ट संख्या/ Report No.:DR/QC/April-2025 | **Dated 30.04.2025**

Dated of sample Collection :-28.04.2025

PARAMETER		pH	Oil & Grease	Phenol	Sulphide	COD	BOD (3 Days) @ 27°C
Test Method		IS 3025 (Part 11)	APHA-5520-B	APHA-5530-D	IS 3025 (Part 29)	APHA-5220-B	IS-3025 PART-44
Unit			mg/l	mg/l	mg/l	mg/l	mg/l
Requirements as per MINAS noems (Minimum National Standards)		6.0-8.5	Max 5.0 mg/l	Max 0.35 mg/l	Max 0.5 mg/l	Max 125 mg/l	Max 15.0 mg/l
S.No	Sample Details	Test Results					
1	Digboi River Water in Kenduguri Area	6.7	3.4	0.20	BDL	60.0	9.0
2	Digboi River Water (15 km away from Digboi Refinery on Digboi	6.9	3.0	0.16	BDL	54.0	8.0
3	Digboi River Water (26 km away from Digboi Refinery on Digboi	7.1	2.5	0.12	BDL	40.0	6.0
4	Dihing River water before confluence with Digboi river	7.3	0.8	0.02	BDL	26.0	2.0
5	Dihing River water after confluence with Digboi river	7.1	1.2	0.06	BDL	34.0	4.0

***BDL = Below Detection Limit

Test Report Released By :-
Dr. Gopal Maurya (QCM)
Inter Com No:-3593

गुणवत्ता नियंत्रण विभाग (QUALITY CONTROL DEPARTMENT)

इंडियन ऑयल कॉर्पोरेशन लिमिटेड(INDIAN OIL CORPORATION LIMITED)

(असम ऑयल डिवीजन (ASSAM OIL DIVISION)

डिगबोई रिफाइनरी, असम(DIGBOI REFINERY, ASSAM)

Test Report of Dihing and Digboi Rivers Water Sample

Source: Dihing and Digboi Rivers

रिपोर्ट संख्या/ Report No.:DR/QC/May-2025 | **Dated 31.05.2025**

Dated of sample Collection :-28.05.2025

PARAMETER		pH	Oil & Grease	Phenol	Sulphide	COD	BOD (3 Days) @ 27°C
Test Method		IS 3025 (Part 11)	APHA-5520-B	APHA-5530-D	IS 3025 (Part 29)	APHA-5220-B	IS-3025 PART-44
Unit			mg/l	mg/l	mg/l	mg/l	mg/l
Requirements as per MINAS noems (Minimum National Standards)		6.0-8.5	Max 5.0 mg/l	Max 0.35 mg/l	Max 0.5 mg/l	Max 125 mg/l	Max 15.0 mg/l
S.No	Sample Details	Test Results					
1	Digboi River Water in Kenduguri Area	6.6	3.6	0.21	0.1	64.0	9.0
2	Digboi River Water (15 km away from Digboi Refinery on Digboi	6.8	3.1	0.14	BDL	50.0	7.0
3	Digboi River Water (26 km away from Digboi Refinery on Digboi	7.3	2.4	0.10	BDL	46.0	7.0
4	Dihing River water before confluence with Digboi river	7.2	0.7	0.03	BDL	22.0	6.0
5	Dihing River water after confluence with Digboi river	7.1	1.1	0.04	BDL	28.0	5.0

***BDL = Below Detection Limit

Test Report Released By :-
Dr. Gopal Maurya (QCM)
Inter Com No:-3593

गुणवत्ता नियंत्रण विभाग (QUALITY CONTROL DEPARTMENT)

इंडियन ऑयल कॉर्पोरेशन लिमिटेड(INDIAN OIL CORPORATION LIMITED)

(असम ऑयल डिवीजन (ASSAM OIL DIVISION)

डिगबोई रिफाइनरी, असम(DIGBOI REFINERY, ASSAM)

Test Report of Dihing and Digboi Rivers Water Sample

Source: Dihing and Digboi Rivers

रिपोर्ट संख्या/ Report No.:DR/QC/June-2025 | **Dated 30.06.2025**

Dated of sample Collection :-27.06.2025

PARAMETER		pH	Oil & Grease	Phenol	Sulphide	COD	BOD (3 Days) @ 27°C
Test Method		IS 3025 (Part 11)	APHA-5520-B	APHA-5530-D	IS 3025 (Part 29)	APHA-5220-B	IS-3025 PART-44
Unit			mg/l	mg/l	mg/l	mg/l	mg/l
Requirements as per MINAS noems (Minimum National Standards)		6.0-8.5	Max 5.0 mg/l	Max 0.35 mg/l	Max 0.5 mg/l	Max 125 mg/l	Max 15.0 mg/l
S.No	Sample Details	Test Results					
1	Digboi River Water in Kenduguri Area	6.7	3.1	0.16	0.1	60.0	8.0
2	Digboi River Water (15 km away from Digboi Refinery on Digboi	6.8	3.0	0.13	BDL	54.0	7.0
3	Digboi River Water (26 km away from Digboi Refinery on Digboi	6.7	2.8	0.08	BDL	42.0	7.0
4	Dihing River water before confluence with Digboi river	7.0	0.8	0.02	BDL	18.0	3.0
5	Dihing River water after confluence with Digboi river	7.1	1.0	0.04	BDL	32.0	4.0

***BDL = Below Detection Limit

Test Report Released By :-
Dr. Gopal Maurya (QCM)
Inter Com No:-3593

गुणवत्ता नियंत्रण विभाग (QUALITY CONTROL DEPARTMENT)

इंडियन ऑयल कॉर्पोरेशन लिमिटेड(INDIAN OIL CORPORATION LIMITED)

(असम ऑयल डिवीजन (ASSAM OIL DIVISION)

डिगबोई रिफाइनरी, असम(DIGBOI REFINERY, ASSAM)

Test Report of Dihing and Digboi Rivers Water Sample

Source: Dihing and Digboi Rivers

रिपोर्ट संख्या/ Report No.:DR/QC/July-2025 | **Dated 31.07.2025**

Dated of sample Collection :-24.07.2025

PARAMETER		pH	Oil & Grease	Phenol	Sulphide	COD	BOD (3 Days) @ 27°C
Test Method		IS 3025 (Part 11)	APHA-5520-B	APHA-5530-D	IS 3025 (Part 29)	APHA-5220-B	IS-3025 PART-44
Unit			mg/l	mg/l	mg/l	mg/l	mg/l
Requirements as per MINAS noems (Minimum National Standards)		6.0-8.5	Max 5.0 mg/l	Max 0.35 mg/l	Max 0.5 mg/l	Max 125 mg/l	Max 15.0 mg/l
S.No	Sample Details	Test Results					
1	Digboi River Water in Kenduguri Area	6.8	3.4	0.18	0.1	58.0	9.0
2	Digboi River Water (15 km away from Digboi Refinery on Digboi	6.9	3.1	0.14	BDL	54.0	8.0
3	Digboi River Water (26 km away from Digboi Refinery on Digboi	7.0	2.6	0.11	BDL	44.0	5.0
4	Dihing River water before confluence with Digboi river	7.3	0.7	0.02	BDL	22.0	3.0
5	Dihing River water after confluence with Digboi river	7.3	1.4	0.05	BDL	36.0	5.0

***BDL = Below Detection Limit

Test Report Released By :-
Dr. Gopal Maurya (QCM)
Inter Com No:-3593

गुणवत्ता नियंत्रण विभाग (QUALITY CONTROL DEPARTMENT)

इंडियन ऑयल कॉर्पोरेशन लिमिटेड(INDIAN OIL CORPORATION LIMITED)

(असम ऑयल डिवीजन (ASSAM OIL DIVISION)

डिगबोई रिफाइनरी, असम(DIGBOI REFINERY, ASSAM)

Test Report of Dihing and Digboi Rivers Water Sample

Source: Dihing and Digboi Rivers

रिपोर्ट संख्या/ Report No.:DR/QC/Aug-2025 | **Dated 01.09.2025**

Dated of sample Collection :-29.08.2025

PARAMETER		pH	Oil & Grease	Phenol	Sulphide	COD	BOD (3 Days) @ 27°C
Test Method		IS 3025 (Part 11)	APHA-5520-B	APHA-5530-D	IS 3025 (Part 29)	APHA-5220-B	IS-3025 PART-44
Unit			mg/l	mg/l	mg/l	mg/l	mg/l
Requirements as per MINAS noems (Minimum National Standards)		6.0-8.5	Max 5.0 mg/l	Max 0.35 mg/l	Max 0.5 mg/l	Max 125 mg/l	Max 15.0 mg/l
S.No	Sample Details	Test Results					
1	Digboi River Water in Kenduguri Area	6.9	3.2	0.14	0.1	60.0	8.0
2	Digboi River Water (15 km away from Digboi Refinery on Digboi	6.9	3.1	0.12	BDL	58.0	7.0
3	Digboi River Water (26 km away from Digboi Refinery on Digboi	7.0	2.8	0.10	BDL	52.0	7.0
4	Dihing River water before confluence with Digboi river	7.2	0.6	0.03	BDL	28.0	3.0
5	Dihing River water after confluence with Digboi river	7.2	1.2	0.04	BDL	37.0	4.0

***BDL = Below Detection Limit

Test Report Released By :-
Dr. Gopal Maurya (QCM)
Inter Com No:-3593

गुणवत्ता नियंत्रण विभाग (QUALITY CONTROL DEPARTMENT)

इंडियन ऑयल कॉर्पोरेशन लिमिटेड(INDIAN OIL CORPORATION LIMITED)

(असम ऑयल डिवीजन (ASSAM OIL DIVISION)

डिगबोई रिफाइनरी, असम(DIGBOI REFINERY, ASSAM)

Test Report of Dihing and Digboi Rivers Water Sample

Source: Dihing and Digboi Rivers

रिपोर्ट संख्या/ Report No.:DR/QC/Sept-2025 | **Dated 30.09.2025**

Dated of sample Collection :-20.09.2025

PARAMETER		pH	Oil & Grease	Phenol	Sulphide	COD	BOD (3 Days) @ 27°C
Test Method		IS 3025 (Part 11)	APHA-5520-B	APHA-5530-D	IS 3025 (Part 29)	APHA-5220-B	IS-3025 PART-44
Unit			mg/l	mg/l	mg/l	mg/l	mg/l
Requirements as per MINAS noems (Minimum National Standards)		6.0-8.5	Max 5.0 mg/l	Max 0.35 mg/l	Max 0.5 mg/l	Max 125 mg/l	Max 15.0 mg/l
S.No	Sample Details	Test Results					
1	Digboi River Water in Kenduguri Area	6.7	3.1	0.16	0.1	62.0	9.0
2	Digboi River Water (15 km away from Digboi Refinery on Digboi	6.8	3.0	0.14	BDL	54.0	8.0
3	Digboi River Water (26 km away from Digboi Refinery on Digboi	7.0	2.6	0.11	BDL	42.0	7.0
4	Dihing River water before confluence with Digboi river	7.1	0.8	0.02	BDL	22.0	3.0
5	Dihing River water after confluence with Digboi river	7.3	1.1	0.05	BDL	32.0	4.0

***BDL = Below Detection Limit

Test Report Released By :-
Dr. Gopal Maurya (QCM)
Inter Com No:-3593

Annexure-1

Effluent Parameters Test Report								
From April '2025 to September'2025 (IOCL -Digboi Refinery Lab)								
Parameters	Limits	April	May	June	July	August	September	Average
pH	6.0 - 8.5	**6.50**	**6.70**	**6.90**	**7.17**	**7.20**	**6.60**	6.845
Oil & Grease	5.0	**3.95**	**3.98**	**4.00**	**3.95**	**3.93**	**4.01**	3.970
BOD	15.0	**9.70**	**9.36**	**9.63**	**9.38**	**9.91**	**10.03**	9.668
COD	125.0	**67.15**	**68.27**	**67.50**	**68.05**	**68.00**	**67.00**	67.661
TSS	20.0	**14.21**	**14.33**	**14.48**	**14.67**	**14.56**	**14.53**	14.463
Phenols	0.35	**0.24**	**0.25**	**0.25**	**0.25**	**0.25**	**0.25**	0.250
Sulphides	0.5	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	**0.10**	0.097
CN	0.20	**0.013**	**0.014**	**0.013**	**0.013**	**0.013**	**0.012**	0.013
From April' 2025 to September' 2025 (Source-External Agency)								
Parameters	**Limits**	April	May	June	July	August	September	**Average**
pH	6.0 - 8.5	7.54	7.69	7.78	7.78	7.64	7.33	7.644
Oil & Grease	5.0	2.00	ND	2.00	2.00	2.00	3.00	2.250
BOD	15.0	10.00	13.00	10.00	14.00	10.00	14.00	12.200
COD	125.0	60.00	74.00	60.00	82.00	62.00	70.00	69.600
TSS	20.0	12.00	16.00	12.00	12.00	12.00	8.00	12.000
Phenols	0.35	ND	ND	ND	ND	ND	ND	#DIV/0!
Sulphides	0.5	ND	ND	ND	ND	ND	ND	#DIV/0!
CN	0.20	ND	ND	ND	ND	ND	ND	#DIV/0!
Ammonia as N	15.0	0.42	0.64	0.52	0.48	0.52	0.02	0.436
TKN	40.0	0.84	1.00	0.84	0.84	1.00	2.24	1.184
P	3.0	0.34	0.46	0.62	0.32	0.54	0.56	0.500
Cr (Hexavalent)	0.1	ND	ND	ND	ND	ND	ND	#DIV/0!
Cr (Total)	2.0	ND	ND	ND	ND	ND	ND	#DIV/0!
Pb	0.1	ND	ND	ND	ND	ND	ND	#DIV/0!
Hg	0.01	ND	ND	ND	ND	ND	ND	#DIV/0!
Zn	5.0	ND	ND	ND	ND	ND	ND	#DIV/0!
Ni	1.0	ND	ND	ND	ND	ND	ND	#DIV/0!
Cu	1.0	0.03	0.02	0.03	0.02	0.03	0.04	0.028
V	0.2	ND	ND	ND	ND	ND	ND	#DIV/0!
Benzene	0.1	ND	ND	ND	ND	ND	ND	#DIV/0!
Benzo (a) -Pyrene	0.2	ND	ND	ND	ND	ND	ND	#DIV/0!

ND- Not Detectable

Checked by:- 15.10.25

त्रिदिब सैकिया/ TRIDIB SAIKIA
मुख्य प्रबंधक (एच, एस व ई)
Chief Manager (HS,&E)
आई.ओ.सी.एल.(एओडी), डिगबोई
I.O.C. LTD. (AOD), DIGBOI

Prepared by: 15.10.25

मुजीब अहमद/Mujeeb Ahmad
वरिष्ठ प्रबंधक (एच एस ई)
Senior Manager (HSE)
आई.ओ.सी.एल. (एओडी), डिगबोई
I.O.C. LTD. (AOD), DIGBOI

ANNEXURE-3

COMPLIANCE OF EFFLUENT STANDARDS (In Kg/TMT of Crude)

	(April'25 - September '25) Source-External agency							
PARAMETER	**LIMIT**	October	November	December	January	February	March	**Average**
pH	--	-	-	-	-	-	-	-
Oil & Grease	2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.000
BOD	6.0	0.00	0.00	0.00	0.00	0.00	0.00	0.000
COD	50	0.00	0.00	0.00	0.00	0.00	0.00	0.000
TSS	8.0	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Phenols	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Sulphides	0.2	0.00	0.00	0.00	0.00	0.00	0.00	0.000
CN	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Ammonia as N	6.0	0.00	0.00	0.00	0.00	0.00	0.00	0.000
TKN	16	0.00	0.00	0.00	0.00	0.00	0.00	0.000
P	1.2	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Cr (Hexavalent)	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Cr (Total)	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Pb	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Hg	0.004	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Zn	2.0	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Ni	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Cu	0.4	0.00	0.00	0.00	0.00	0.00	0.00	0.000
V	0.8	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Benzene	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.000
Benzo (a) -Pyrene	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.000

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

Remarks **No effluent Discharged outside ETP**

Checked by: 15.10.25

त्रिदिब सैकिया/ TRIDIB SAIKIA
मुख्य प्रबंधक (एच, एस व ई)
Chief Manager (HS,&E)
आई.ओ.सी.एल.(एओडी), डिगबोई
I.O.C. LTD. (AOD), DIGBOI

Prepared by: 15.10.25

मुजीब अहमद/Mujeeb Ahmad
वरिष्ठ प्रबंधक (एच एस ई)
Senior Manager (HSE)
आई.ओ.सी.एल. (एओडी), डिगबोई
I.O.C. LTD. (AOD), DIGBOI

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Annexure-4

Type text here.

Type text

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002268F
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	DCU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	58
Diameter of the Stack(m)	:	1.68
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	124
Ambient Air Temperature °C	:	29
Flue Gas Velocity (m/s)	:	13.15
Quantity of Gas Flow, Nm^3/hr	:	78797.1
Barometric Pressure, mmHg	:	752

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	6.5	10	IS:11255(P-1)

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-8873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090110
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	DCU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	58
Diameter of the Stack(m)	:	1.68
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	124
Ambient Air Temperature °C	:	29
Flue Gas Velocity (m/s)	:	13.15
Quantity of Gas Flow, Nm^3/hr	:	78797.1
Barometric Pressure, mmHg	:	752

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	98	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	25	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	10	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	3.9	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	15.2	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002293F
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	MSQU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.10
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	182
Ambient Air Temperature °C	:	30
Flue Gas Velocity (m/s)	:	13.70
Quantity of Gas Flow, Nm^3/hr	:	30711.6
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.2	10	IS:11255(P-1)

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090111
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	MSQU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.10
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	182
Ambient Air Temperature °C	:	30
Flue Gas Velocity (m/s)	:	13.70
Quantity of Gas Flow, Nm^3/hr	:	30711.6
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	238	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	687	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	12	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	11.8	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	12.2	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-8873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002269F
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	HGU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.00
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	146
Ambient Air Temperature °C	:	29
Flue Gas Velocity (m/s)	:	14.82
Quantity of Gas Flow, Nm^3/hr	:	29818.9
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	6.8	10	IS:11255(P-1)

TC-14814

Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090112
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	HGU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.00
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	146
Ambient Air Temperature °C	:	29
Flue Gas Velocity (m/s)	:	14.82
Quantity of Gas Flow, Nm^3/hr	:	29818.9
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	62	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	41	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	14	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	5.1	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	18.8	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002288F
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CPP (HRSG-4)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	60
Diameter of the Stack(m)	:	3.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	134
Ambient Air Temperature °C	:	30
Flue Gas Velocity (m/s)	:	12.12
Quantity of Gas Flow, Nm^3/hr	:	225815.1
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.8	10	IS:11255(P-1)

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090113
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CPP (HRSG-4)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	60
Diameter of the Stack(m)	:	3.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	134
Ambient Air Temperature °C	:	30
Flue Gas Velocity (m/s)	:	12.12
Quantity of Gas Flow, Nm^3/hr	:	225815.1
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	121	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	21	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	12	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	8.1	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	17.2	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002290F
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CPP (HRSG-2)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	50
Diameter of the Stack(m)	:	2.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	123
Ambient Air Temperature °C	:	30
Flue Gas Velocity (m/s)	:	12.88
Quantity of Gas Flow, Nm^3/hr	:	109701.6
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.2	10	IS:11255(P-1)

TC-14814

Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090114
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CPP (HRSG-2)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	50
Diameter of the Stack(m)	:	2.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	123
Ambient Air Temperature °C	:	30
Flue Gas Velocity (m/s)	:	12.88
Quantity of Gas Flow, Nm^3/hr	:	109701.6
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	48	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	32	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	10	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	4.2	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	16.4	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

A

Anne

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002270F
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CRU (HDT)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.1
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	156
Ambient Air Temperature °C	:	30
Flue Gas Velocity (m/s)	:	12.27
Quantity of Gas Flow, Nm^3/hr	:	29176.6
Barometric Pressure, mmHg	:	752

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.6	10	IS:11255(P-1)

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090115
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CRU (HDT)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.1
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	156
Ambient Air Temperature °C	:	30
Flue Gas Velocity (m/s)	:	12.27
Quantity of Gas Flow, Nm^3/hr	:	29176.6
Barometric Pressure, mmHg	:	752

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	34	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	56	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_X), mg/Nm^3	12	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	7.2	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	17.6	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002292F
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	SDU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	46
Diameter of the Stack(m)	:	1.38
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	187
Ambient Air Temperature °C	:	31
Flue Gas Velocity (m/s)	:	12.80
Quantity of Gas Flow, Nm^3/hr	:	44677.2
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	8.0	10	IS:11255(P-1)

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090116
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	SDU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	46
Diameter of the Stack(m)	:	1.38
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	187
Ambient Air Temperature °C	:	31
Flue Gas Velocity (m/s)	:	12.80
Quantity of Gas Flow, Nm^3/hr	:	44677.2
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	50	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	24	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	18	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	13.2	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	14.5	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

annexure

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002291F
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	AVU (CDU/VDU)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	46.5
Diameter of the Stack(m)	:	1.59
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	169
Ambient Air Temperature °C	:	31
Flue Gas Velocity (m/s)	:	13.87
Quantity of Gas Flow, Nm^3/hr	:	66849.0
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.6	10	IS:11255(P-1)

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Annexure-4

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090117
Test Report Date: 21/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	10/04/2025
Sample Received at Lab	:	15/04/2025
Test Started On	:	15/04/2025
Test Completed On	:	19/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	AVU (CDU/VDU)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	46.5
Diameter of the Stack(m)	:	1.59
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	169
Ambient Air Temperature °C	:	31
Flue Gas Velocity (m/s)	:	13.87
Quantity of Gas Flow, Nm^3/hr	:	66849.0
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	21	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	31	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	9	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	13.9	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	16.5	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002267F
Test Report Date: 19/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	12/04/2025
Test Started On	:	12/04/2025
Test Completed On	:	18/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	OBSG (CRU)- FLV 005-1
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	45
Diameter of the Stack(m)	:	1.8
Sampling Duration (min)	:	40
Observations:		
Flue Gas Temperature °C	:	165
Ambient Air Temperature °C	:	24
Flue Gas Velocity (m/s)	:	14.96
Quantity of Gas Flow, Nm^3/hr	:	88165.9
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	5.5	10	IS:11255(P-1)

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9673924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090140
Test Report Date: 19/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	12/04/2025
Test Started On	:	12/04/2025
Test Completed On	:	18/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	OBSG (CRU)- FLV 005-1
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	45
Diameter of the Stack(m)	:	1.8
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	165
Ambient Air Temperature °C	:	24
Flue Gas Velocity (m/s)	:	14.96
Quantity of Gas Flow, Nm^3/hr	:	88165.9
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	42	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	22	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	5	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	18.6	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	16.3	-	SOP No.: NL/ SOP / FGA /11

Remark: ND-Not Detected, DL-Detection Limit

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500002268F
Test Report Date: 19/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	12/04/2025
Test Started On	:	12/04/2025
Test Completed On	:	18/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	OBSG (CRU)- FLV 005-2
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	45
Diameter of the Stack(m)	:	1.8
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	157
Ambient Air Temperature °C	:	23
Flue Gas Velocity (m/s)	:	14.12
Quantity of Gas Flow, Nm^3/hr	:	84774.2
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.6	10	IS:11255(P-1)

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202504090141
Test Report Date: 19/04/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	09/04/2025
Sample Received at Lab	:	12/04/2025
Test Started On	:	12/04/2025
Test Completed On	:	18/04/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	OBSG (CRU)- FLV 005-2
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	45
Diameter of the Stack(m)	:	1.8
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	157
Ambient Air Temperature °C	:	23
Flue Gas Velocity (m/s)	:	14.12
Quantity of Gas Flow, Nm^3/hr	:	84774.2
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	52	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	22	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	9	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	15.6	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	20.3	-	SOP No.: NL/ SOP / FGA /11

Remark: ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complain/feadback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

NITYA LABORATORIES

Work for Quality

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

annexure-

Annexure-

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004695F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	22/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	DCU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	58
Diameter of the Stack(m)	:	1.68
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	127
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	12.40
Quantity of Gas Flow, Nm^3/hr	:	73726.3
Barometric Pressure, mmHg	:	752

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.1	10	IS:11255(P-1)

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210110
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	22/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	DCU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	58
Diameter of the Stack(m)	:	1.68
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	127
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	12.40
Quantity of Gas Flow, Nm^3/hr	:	73726.3
Barometric Pressure, mmHg	:	752

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	92	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	29	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	10	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	4.2	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	16.2	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004735F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	23/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	MSQU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.10
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	192
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.96
Quantity of Gas Flow, Nm^3/hr	:	26229.3
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	6.1	10	IS:11255(P-1)

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210111
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	23/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	MSQU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.10
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	192
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.96
Quantity of Gas Flow, Nm^3/hr	:	26229.3
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	213	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	584	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	10.6	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	12.4	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	16.5	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004688F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	21/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	HGU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.00
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	152
Ambient Air Temperature °C	:	35
Flue Gas Velocity (m/s)	:	12.69
Quantity of Gas Flow, Nm^3/hr	:	25174.7
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.5	10	IS:11255(P-1)

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210112
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	21/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	HGU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.00
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	152
Ambient Air Temperature °C	:	35
Flue Gas Velocity (m/s)	:	12.69
Quantity of Gas Flow, Nm^3/hr	:	25174.7
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	75.4	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	45.6	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	18	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	7.6	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	14.7	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004736F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	23/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CPP (HRSG-4)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	60
Diameter of the Stack(m)	:	3.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	141
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.70
Quantity of Gas Flow, Nm^3/hr	:	214467.1
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.2	10	IS:11255(P-1)

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210113
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	23/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CPP (HRSG-4)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	60
Diameter of the Stack(m)	:	3.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	141
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.70
Quantity of Gas Flow, Nm^3/hr	:	214467.1
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	115	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	19	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	18	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	9.3	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	13.5	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465587, +91-9873924093.

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004737F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	23/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CPP (HRSG-2)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	50
Diameter of the Stack(m)	:	2.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	129
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.65
Quantity of Gas Flow, Nm^3/hr	:	97717.3
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.8	10	IS:11255(P-1)

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210114
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	23/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CPP (HRSG-2)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	50
Diameter of the Stack(m)	:	2.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	129
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.65
Quantity of Gas Flow, Nm^3/hr	:	97717.3
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	56	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	25	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	12	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	5.6	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	16.1	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004696F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	22/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CRU (HDT)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.1
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	165
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.60
Quantity of Gas Flow, Nm^3/hr	:	27005.3
Barometric Pressure, mmHg	:	752

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	6.4	10	IS:11255(P-1)

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210115
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	22/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	CRU (HDT)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.1
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	165
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.60
Quantity of Gas Flow, Nm^3/hr	:	27005.3
Barometric Pressure, mmHg	:	752

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	30	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	49	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	10	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	6.9	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	15.8	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004738F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	23/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	SDU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	46
Diameter of the Stack(m)	:	1.38
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	167
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	10.82
Quantity of Gas Flow, Nm^3/hr	:	39457.5
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.8	10	IS:11255(P-1)

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210116
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	23/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	SDU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	46
Diameter of the Stack(m)	:	1.38
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	167
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	10.82
Quantity of Gas Flow, Nm^3/hr	:	39457.5
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	50	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	24	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	18	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	13.2	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	14.5	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004697F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	22/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	OBSG (CRU)- FLV 005-1
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	45
Diameter of the Stack(m)	:	1.8
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	170
Ambient Air Temperature °C	:	32
Flue Gas Velocity (m/s)	:	15.13
Quantity of Gas Flow, Nm^3/hr	:	88173.3
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	8.1	10	IS:11255(P-1)

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210117
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	22/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	OBSG (CRU)- FLV 005-1
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	45
Diameter of the Stack(m)	:	1.8
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	170
Ambient Air Temperature °C	:	32
Flue Gas Velocity (m/s)	:	15.13
Quantity of Gas Flow, Nm^3/hr	:	88173.3
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	42	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	23	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	7	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	12.9	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	17.6	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9673924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004698F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	22/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	AVU (CDU/VDU)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	46.5
Diameter of the Stack(m)	:	1.59
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	159
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.89
Quantity of Gas Flow, Nm^3/hr	:	58660.8
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	7.5	10	IS:11255(P-1)

TC-14814

Authorised

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210118
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	22/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	AVU (CDU/VDU)
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	46.5
Diameter of the Stack(m)	:	1.59
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	159
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	11.89
Quantity of Gas Flow, Nm^3/hr	:	58660.8
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	28	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	39	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	12	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	12.1	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	14.2	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No. : TC148142500004689F
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	21/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	HDTU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	187
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	12.11
Quantity of Gas Flow, Nm^3/hr	:	22191.0
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Particulate Matter, (as PM), mg/Nm^3	5.7	10	IS:11255(P-1)

TC-14814

Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

Test Report No. : 202507210119
Test Report Date: 31/07/2025

Sample Particulars:

Nature of the Sample	:	**Stack Gas Emission**
Date of Sampling	:	21/07/2025
Sample Received at Lab	:	26/07/2025
Test Started On	:	26/07/2025
Test Completed On	:	30/07/2025
Purpose of Monitoring	:	To Check the Pollution Load
Sampling Location	:	HDTU
Method of Sampling	:	IS: 11255 (P-7)
Normal Operating Schedule	:	As per requirement
Type of Stack /Duct	:	Mild Steel
Stack height from Ground Level (m)	:	40
Diameter of the Stack(m)	:	1.0
Sampling Duration (min)	:	40

Observations:

Flue Gas Temperature °C	:	187
Ambient Air Temperature °C	:	34
Flue Gas Velocity (m/s)	:	12.11
Quantity of Gas Flow, Nm^3/hr	:	22191.0
Barometric Pressure, mmHg	:	753

Analysis Report

Sr. No.	Parameter	Test Results	Permissible Limits	Test Method
1	Oxide of Nitrogen (as NO_x), mg/Nm^3	65	350	USEPA OTM-39
2	Carbon Monoxide (as CO), mg/Nm^3	17	-	USEPA OTM-39
3	Oxides of Sulphur (as SO_x), mg/Nm^3	8	50	SOP No.: NL/ SOP / FGA /01
4	Hydrogen Sulphide (as H_2S), mg/Nm^3	ND (DL-4)	150	SOP No.: NL/ SOP / FGA /10
5	Carbon Dioxide (as CO_2), %	15.4	-	SOP No.: NL/ SOP / FGA /11
6	Oxygen (as O_2), %	18.7	-	SOP No.: NL/ SOP / FGA /11

Remark:
ND-Not Detected, DL-Detection Limit

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only. All above Parameters are not in NABL Scope. Results subject to the movement of vehicles at that particular time.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-129-2241021,+91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500002160F, 2248F, 2284F, 2449F, 2548F, 2513F, 2716F
Test Report Date: 08/05/2025

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Wax Sector Cooling Tower
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : M/s Nitya Laboratories
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb^{1}) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni^{2}) ng/m^3	Arsenic (as As^{3}) ng/m3	Benzo (a) pyrene (as BAP^{4}) ng/m^3	Benzene ($C6H6^{5}$) ug/m3
03/04/2025	34.50	65.60	14.60	22.30	25.10	ND	1.42	14.50	ND	ND	ND	ND
07/04/2025	36.20	72.30	16.20	24.70	24.60	ND	0.46	13.60	ND	ND	ND	ND
10/04/2025	46.50	73.60	17.30	21.60	26.20	ND	1.35	14.90	ND	ND	ND	ND
15/04/2025	48.10	61.20	18.20	24.50	27.30	ND	1.42	15.20	ND	ND	ND	ND
18/04/2025	36.90	64.50	17.60	21.90	22.50	ND	1.38	13.90	ND	ND	ND	ND
21/04/2025	35.50	61.20	16.00	20.60	26.60	ND	1.46	16.20	ND	ND	ND	ND
24/04/2025	42.20	60.70	15.50	23.50	24.90	ND	1.39	14.60	ND	ND	ND	ND
28/04/2025	40.60	61.30	14.90	22.00	26.20	ND	1.50	15.20	ND	ND	ND	ND
Minimum	**34.50**	**60.70**	**14.60**	**20.60**	**22.50**	-	**0.46**	**13.60**	-	-	-	-
Maximum	**48.10**	**73.60**	**18.20**	**24.70**	**27.30**	-	**1.50**	**16.20**	-	-	-	-
Average	**40.06**	**65.05**	**16.29**	**22.64**	**25.43**	-	**1.30**	**14.76**	-	-	-	-
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500002161F, 2249F, 2285F, 24450F, 2549F, 2514F, 2717F
Test Report Date: 08/05/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Bazaar Gate
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
03/04/2025	35.50	73.40	13.50	26.10	24.20	ND	1.38	12.30	ND	ND	ND	ND
07/04/2025	37.20	64.50	12.30	27.90	26.10	ND	0.56	14.60	ND	ND	ND	ND
10/04/2025	39.80	68.60	13.60	28.40	23.30	ND	1.32	16.30	ND	ND	ND	ND
15/04/2025	36.20	59.20	14.00	29.20	25.20	ND	1.45	13.20	ND	ND	ND	ND
18/04/2025	38.60	61.20	15.20	27.50	27.30	ND	1.48	15.30	ND	ND	ND	ND
21/04/2025	37.10	62.50	16.60	26.80	25.50	ND	1.38	14.50	ND	ND	ND	ND
24/04/2025	39.50	67.80	13.20	24.50	28.20	ND	1.44	16.20	ND	ND	ND	ND
28/04/2025	35.10	69.10	14.20	29.10	24.10	ND	1.36	12.50	ND	ND	ND	ND
Minimum	**35.10**	**59.20**	**12.30**	**24.50**	**23.30**	-	**0.56**	**12.30**	-	-	-	-
Maximum	**39.80**	**73.40**	**16.60**	**29.20**	**28.20**	-	**1.48**	**16.30**	-	-	-	-
Average	**37.38**	**65.79**	**14.08**	**27.44**	**25.49**	-	**1.30**	**14.36**	-	-	-	-
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards, Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500002162F, 2250F, 2286F, 24451F, 2550F, 2515F, 2718F
Test Report Date: 08/05/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Effluent Treatment Plant
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
03/04/2025	37.60	67.20	14.50	21.20	22.60	ND	1.42	13.20	ND	ND	ND	ND
07/04/2025	39.50	48.50	15.80	24.60	23.30	ND	0.48	12.80	ND	ND	ND	ND
10/04/2025	42.20	71.20	16.20	22.30	24.50	ND	1.18	16.50	ND	ND	ND	ND
15/04/2025	38.60	72.60	14.90	23.70	21.80	ND	1.26	15.50	ND	ND	ND	ND
18/04/2025	41.10	50.20	12.40	24.00	22.50	ND	1.25	14.60	ND	ND	ND	ND
21/04/2025	38.20	46.90	15.20	22.80	23.10	ND	1.30	13.90	ND	ND	ND	ND
24/04/2025	40.50	68.40	16.60	20.50	24.00	ND	1.26	17.40	ND	ND	ND	ND
28/04/2025	41.20	54.90	12.40	21.20	19.40	ND	1.30	15.20	ND	ND	ND	ND
Minimum	**37.60**	**46.90**	**12.40**	**20.50**	**19.40**	-	**0.48**	**12.80**	-	-	-	-
Maximum	**42.20**	**72.60**	**16.60**	**24.60**	**24.50**	-	**1.42**	**17.40**	-	-	-	-
Average	**39.86**	**59.99**	**14.75**	**22.54**	**22.65**	-	**1.18**	**14.89**	-	-	-	-
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:

*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES AUTHORISED

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500002163F, 2251F, 2287F, 24452F, 2551F, 2516F, 2719F
Test Report Date: 08/05/2025

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : New Tank Farm
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : M/s Nitya Laboratories
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
03/04/2025	40.50	64.40	14.40	23.60	25.20	ND	1.32	14.90	ND	ND	ND	ND
07/04/2025	38.50	48.20	15.20	21.80	26.60	ND	0.58	15.20	ND	ND	ND	ND
10/04/2025	41.20	71.20	13.20	22.50	24.30	ND	1.30	17.40	ND	ND	ND	ND
15/04/2025	39.50	72.30	16.20	24.60	25.50	ND	1.42	16.20	ND	ND	ND	ND
18/04/2025	41.80	48.60	12.80	23.20	24.10	ND	1.40	12.50	ND	ND	ND	ND
21/04/2025	42.60	67.20	13.40	26.20	25.20	ND	1.38	13.70	ND	ND	ND	ND
24/04/2025	42.80	69.40	14.00	25.50	26.40	ND	1.22	14.20	ND	ND	ND	ND
28/04/2025	39.20	54.20	15.20	21.60	23.60	ND	1.28	16.60	ND	ND	ND	ND
Minimum	**38.50**	**48.20**	**12.80**	**21.60**	**23.60**	-	**0.58**	**12.50**	-	-	-	-
Maximum	**42.80**	**72.30**	**16.20**	**26.20**	**26.60**	-	**1.42**	**17.40**	-	-	-	-
Average	**40.76**	**61.94**	**14.30**	**23.63**	**25.11**	-	**1.24**	**15.09**	-	-	-	-
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:

*NAAQS: National Ambient Air Quality Standards, Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

CORPORATE OFFICE & CENTRAL LABORATORIES :-
PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY, BALLABHGARH, FARIDABAD - 121004, HARYANA, INDIA
+91-129-2241021 +91-9013591021, +91-9013552273 labsnitya@gmail.com www.nityalab.com

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nitylab.com www.nitylab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500002727F, 2799F, 2867F, 2910F, 2975F, 3023F, 3100F, 3194F ,3264F
Test Report Date: 09/06/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Wax Sector Cooling Tower
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
01/05/2025	31.62	61.60	12.60	20.30	23.40	ND	1.32	12.50	ND	ND	ND	ND
05/05/2025	33.33	68.30	12.20	22.10	22.60	ND	0.36	11.60	ND	ND	ND	ND
08/05/2025	43.58	69.60	13.30	19.60	24.20	ND	1.25	12.90	ND	ND	ND	ND
12/05/2025	45.59	57.20	14.20	22.50	25.30	ND	1.32	13.20	ND	ND	ND	ND
15/05/2025	33.76	60.50	13.60	19.90	20.50	ND	1.28	11.90	ND	ND	ND	ND
19/05/2025	32.47	57.20	12.00	18.60	24.60	ND	1.36	14.20	ND	ND	ND	ND
22/05/2025	39.31	56.70	11.50	21.50	22.90	ND	1.29	12.60	ND	ND	ND	ND
25/05/2025	37.60	57.30	10.90	20.00	24.20	ND	1.40	13.20	ND	ND	ND	ND
29/05/2025	42.30	61.40	14.20	19.10	20.40	ND	1.30	12.00	ND	ND	ND	ND
Minimum	**31.62**	**56.70**	**10.90**	**18.60**	**20.40**	-	**0.36**	**11.60**	-	-	-	-
Maximum	**45.59**	**69.60**	**14.20**	**22.50**	**25.30**	-	**1.40**	**14.20**	-	-	-	-
Average	**37.73**	**61.09**	**12.72**	**20.40**	**23.12**	-	**1.21**	**12.68**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5], [4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5], [2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nitylab.com and call at +91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500002728F, 2800F, 2868F, 2911F, 2976F, 3024F, 3101F, 3195F ,3265F

Test Report Date: 09/06/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Bazaar Gate
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
01/05/2025	32.05	69.40	11.50	24.10	21.20	ND	1.28	10.30	ND	ND	ND	ND
05/05/2025	34.18	60.50	10.30	25.90	23.10	ND	0.46	12.60	ND	ND	ND	ND
08/05/2025	36.75	64.60	11.60	26.40	20.30	ND	1.22	14.30	ND	ND	ND	ND
12/05/2025	33.33	55.20	12.00	27.20	22.20	ND	1.35	11.20	ND	ND	ND	ND
15/05/2025	35.47	57.20	13.20	25.50	24.30	ND	1.38	13.30	ND	ND	ND	ND
19/05/2025	34.18	58.50	14.60	24.80	22.50	ND	1.28	12.50	ND	ND	ND	ND
22/05/2025	36.32	63.80	11.20	22.50	25.20	ND	1.33	14.20	ND	ND	ND	ND
25/05/2025	32.05	65.10	12.20	27.10	21.10	ND	1.26	10.50	ND	ND	ND	ND
29/05/2025	33.90	61.20	13.30	25.20	20.40	ND	1.21	10.60	ND	ND	ND	ND
Minimum	**32.05**	**55.20**	**10.30**	**22.50**	**20.30**	-	**0.46**	**10.30**	-	-	-	-
Maximum	**36.75**	**69.40**	**14.60**	**27.20**	**25.20**	-	**1.38**	**14.30**	-	-	-	-
Average	**34.25**	**61.72**	**12.21**	**25.41**	**22.26**	-	**1.20**	**12.17**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:

*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)

(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500002729F, 2801F, 2869F, 2912F, 2977F, 3025F, 3102F, 3196F ,3266F
Test Report Date: 09/06/2025

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Effluent Treatment Plant
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : M/s Nitya Laboratories
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
01/05/2025	34.62	63.20	12.50	19.20	19.60	ND	1.32	11.20	ND	ND	ND	ND
05/05/2025	36.32	44.50	13.80	22.60	20.30	ND	0.38	10.80	ND	ND	ND	ND
08/05/2025	39.31	67.20	14.20	20.30	21.50	ND	1.08	14.50	ND	ND	ND	ND
12/05/2025	35.57	68.20	12.90	21.70	18.80	ND	1.16	13.50	ND	ND	ND	ND
15/05/2025	38.03	46.20	10.40	22.00	19.50	ND	1.15	12.60	ND	ND	ND	ND
19/05/2025	35.04	42.90	13.20	20.80	20.10	ND	1.20	11.90	ND	ND	ND	ND
22/05/2025	37.60	64.40	14.60	18.50	21.00	ND	1.16	15.40	ND	ND	ND	ND
25/05/2025	38.00	50.90	10.40	19.20	16.40	ND	1.20	13.20	ND	ND	ND	ND
29/05/2025	34.03	54.20	12.60	21.30	18.30	ND	1.38	10.40	ND	ND	ND	ND
Minimum	**34.03**	**42.90**	**10.40**	**18.50**	**16.40**	-	**0.38**	**10.40**	-	-	-	-
Maximum	**39.31**	**68.20**	**14.60**	**22.60**	**21.50**	-	**1.38**	**15.40**	-	-	-	-
Average	**36.50**	**55.74**	**12.73**	**20.62**	**19.50**	-	**1.11**	**12.61**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500002730F, 2802F, 2870F, 2913F, 2978F, 3026F, 3103F, 3197F ,3267F
Test Report Date: 09/06/2025

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : New Tank Farm
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : M/s Nitya Laboratories
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
01/05/2025	37.60	60.40	12.40	21.60	22.20	ND	1.22	12.90	ND	ND	ND	ND
05/05/2025	35.47	44.20	13.20	19.80	23.60	ND	0.48	13.20	ND	ND	ND	ND
08/05/2025	38.03	67.20	11.20	20.50	21.30	ND	1.20	15.40	ND	ND	ND	ND
12/05/2025	36.32	68.30	14.20	22.60	22.50	ND	1.32	14.20	ND	ND	ND	ND
15/05/2025	38.46	44.60	10.80	21.20	21.10	ND	1.30	10.50	ND	ND	ND	ND
19/05/2025	39.74	63.20	11.40	24.20	22.20	ND	1.28	11.70	ND	ND	ND	ND
22/05/2025	41.20	65.40	12.00	23.50	23.40	ND	1.11	12.20	ND	ND	ND	ND
25/05/2025	36.32	50.20	13.20	19.60	20.60	ND	1.18	14.60	ND	ND	ND	ND
29/05/2025	38.03	45.20	14.30	22.20	21.40	ND	1.32	12.90	ND	ND	ND	ND
Minimum	**35.47**	**44.20**	**10.80**	**19.60**	**20.60**	-	**0.48**	**10.50**	-	-	-	-
Maximum	**41.20**	**68.30**	**14.30**	**24.20**	**23.60**	-	**1.32**	**15.40**	-	-	-	-
Average	**37.91**	**56.52**	**12.52**	**21.69**	**22.03**	-	**1.16**	**13.07**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya
Work for Quality
NITYA LABORATORIES
BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500003414F, 3483F, 3582F, 3655F, 3726F, 3846F, 3986F, 4034F 4083F
Test Report Date: 07/07/2025

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Wax Sector Cooling Tower
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : M/s Nitya Laboratories
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m³	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m³	Benzene (C6H6[5]) ug/m3
02/06/2025	34.30	66.80	13.40	23.50	25.20	ND	1.44	14.20	ND	ND	ND	ND
05/06/2025	36.40	72.40	11.50	25.90	23.60	ND	0.28	12.40	ND	ND	ND	ND
09/06/2025	47.60	74.30	12.60	21.40	25.40	ND	1.36	12.80	ND	ND	ND	ND
12/06/2025	47.20	60.40	13.20	19.50	27.50	ND	1.44	14.70	ND	ND	ND	ND
16/06/2025	35.20	64.80	12.40	20.40	21.80	ND	1.40	12.60	ND	ND	ND	ND
19/06/2025	34.80	61.80	11.40	21.60	25.60	ND	1.49	15.70	ND	ND	ND	ND
23/06/2025	41.80	60.20	14.80	23.20	24.20	ND	1.38	12.10	ND	ND	ND	ND
26/06/2025	39.20	63.80	13.60	22.80	26.70	ND	1.50	13.40	ND	ND	ND	ND
30/06/2025	37.40	62.20	14.20	25.20	26.40	ND	1.32	13.80	ND	ND	ND	ND
Minimum	**34.30**	**60.20**	**11.40**	**19.50**	**21.80**	-	**0.28**	**12.10**	-	-	-	-
Maximum	**47.60**	**74.30**	**14.80**	**25.90**	**27.50**	-	**1.50**	**15.70**	-	-	-	-
Average	**39.32**	**65.19**	**13.01**	**22.61**	**25.16**	-	**1.29**	**13.52**	-	-	-	-
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500003415F, 3484F, 3583F, 3656F, 3727F, 3847F, 3987F, 4035F 4084F
Test Report Date: 07/07/2025

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Bazaar Gate
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : M/s Nitya Laboratories
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
02/06/2025	35.30	73.20	8.20	21.20	23.40	ND	1.38	10.40	ND	ND	ND	ND
05/06/2025	37.40	64.20	7.40	25.30	25.20	ND	0.30	13.20	ND	ND	ND	ND
09/06/2025	38.20	68.20	8.60	27.50	22.60	ND	1.31	15.20	ND	ND	ND	ND
12/06/2025	35.80	59.40	9.20	24.70	24.70	ND	1.40	12.40	ND	ND	ND	ND
16/06/2025	37.40	61.60	10.30	26.20	26.40	ND	1.42	14.80	ND	ND	ND	ND
19/06/2025	36.50	66.20	11.40	25.50	24.50	ND	1.38	13.40	ND	ND	ND	ND
23/06/2025	38.50	68.20	8.60	23.60	27.20	ND	1.44	15.40	ND	ND	ND	ND
26/06/2025	34.70	61.10	9.00	28.20	23.60	ND	1.36	11.90	ND	ND	ND	ND
30/06/2025	37.60	66.50	10.60	23.20	25.80	ND	1.37	12.60	ND	ND	ND	ND
Minimum	**34.70**	**59.40**	**7.40**	**21.20**	**22.60**	-	**0.30**	**10.40**	-	-	-	-
Maximum	**38.50**	**73.20**	**11.40**	**28.20**	**27.20**	-	**1.44**	**15.40**	-	-	-	-
Average	**36.82**	**65.40**	**9.26**	**25.04**	**24.82**	-	**1.26**	**13.26**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500003416F, 3485F, 3584F, 3657F, 3728F, 3848F, 3988F, 4036F 4085F

Test Report Date: 07/07/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Effluent Treatment Plant
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
02/06/2025	37.80	67.50	8.20	20.30	22.50	ND	1.41	12.40	ND	ND	ND	ND
05/06/2025	39.20	47.80	9.40	24.70	23.20	ND	0.29	11.20	ND	ND	ND	ND
09/06/2025	41.60	70.30	10.20	21.50	24.40	ND	1.18	15.20	ND	ND	ND	ND
12/06/2025	38.20	71.60	10.40	22.60	20.30	ND	1.26	14.70	ND	ND	ND	ND
16/06/2025	40.40	49.40	7.50	24.30	21.50	ND	1.25	12.50	ND	ND	ND	ND
19/06/2025	37.50	45.20	10.50	23.60	22.10	ND	1.07	13.60	ND	ND	ND	ND
23/06/2025	39.60	67.90	11.50	20.80	23.40	ND	1.25	16.20	ND	ND	ND	ND
26/06/2025	38.80	48.40	9.80	22.20	24.20	ND	1.30	15.60	ND	ND	ND	ND
30/06/2025	40.30	53.60	7.90	21.80	18.90	ND	1.32	11.90	ND	ND	ND	ND
Minimum	**37.50**	**45.20**	**7.50**	**20.30**	**18.90**	-	**0.29**	**11.20**	-	-	-	-
Maximum	**41.60**	**71.60**	**11.50**	**24.70**	**24.40**	-	**1.41**	**16.20**	-	-	-	-
Average	**39.27**	**57.97**	**9.49**	**22.42**	**22.28**	-	**1.15**	**13.70**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500003417F, 3486F, 3585F, 3658F, 3729F, 3849F, 3989F, 4037F 4086F

Test Report Date: 07/07/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	New Tank Farm
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
02/06/2025	41.20	65.80	9.20	22.50	25.40	ND	1.38	14.20	ND	ND	ND	ND
05/06/2025	39.40	47.20	10.30	20.30	26.50	ND	0.43	13.30	ND	ND	ND	ND
09/06/2025	41.80	70.30	8.40	21.70	23.60	ND	1.30	16.50	ND	ND	ND	ND
12/06/2025	40.20	71.20	11.50	23.40	24.70	ND	1.42	15.30	ND	ND	ND	ND
16/06/2025	41.30	48.20	7.20	22.80	23.20	ND	1.40	11.20	ND	ND	ND	ND
19/06/2025	43.20	66.20	8.90	25.40	23.80	ND	1.38	12.30	ND	ND	ND	ND
23/06/2025	42.20	68.20	9.00	24.70	25.80	ND	1.00	13.60	ND	ND	ND	ND
26/06/2025	38.90	53.40	10.50	20.80	22.40	ND	1.28	15.80	ND	ND	ND	ND
30/06/2025	42.80	69.20	11.20	23.40	24.20	ND	1.32	14.70	ND	ND	ND	ND
Minimum	**38.90**	**47.20**	**7.20**	**20.30**	**22.40**	-	**0.43**	**11.20**	-	-	-	-
Maximum	**43.20**	**71.20**	**11.50**	**25.40**	**26.50**	-	**1.42**	**16.50**	-	-	-	-
Average	**41.22**	**62.19**	**9.58**	**22.78**	**24.40**	-	**1.21**	**14.10**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500004134F, 4206F, 4258F, 4427F, 4481F, 4668F, 4735F 4749F, 4915F, 4986F

Test Report Date: 09/08/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Wax Sector Cooling Tower
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
03/07/2025	34.50	66.40	14.80	24.20	26.40	ND	1.42	15.60	ND	ND	ND	ND
07/07/2025	35.60	72.30	12.40	26.60	23.20	ND	0.46	13.50	ND	ND	ND	ND
10/07/2025	46.50	75.40	13.50	22.30	24.20	ND	1.32	14.80	ND	ND	ND	ND
14/07/2025	47.80	61.20	14.20	20.80	28.40	ND	1.40	15.20	ND	ND	ND	ND
17/07/2025	35.50	65.50	13.60	21.20	22.50	ND	1.36	13.40	ND	ND	ND	ND
21/07/2025	34.20	62.30	12.20	22.50	26.10	ND	1.42	16.20	ND	ND	ND	ND
24/07/2025	41.20	60.90	15.20	23.40	25.10	ND	1.40	13.80	ND	ND	ND	ND
29/07/2025	39.20	62.40	14.40	24.80	26.50	ND	1.34	14.10	ND	ND	ND	ND
31/07/2025	40.80	63.30	15.80	21.90	27.80	ND	1.28	15.90	ND	ND	ND	ND
Minimum	**34.20**	**60.90**	**12.20**	**20.80**	**22.50**	-	**0.46**	**13.40**	-	-	-	-
Maximum	**47.80**	**75.40**	**15.80**	**26.60**	**28.40**	-	**1.42**	**16.20**	-	-	-	-
Average	**39.48**	**65.52**	**14.01**	**23.08**	**25.58**	-	**1.27**	**14.72**	-	-	-	-
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards, Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5], [4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5], [2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500004135F, 4207F, 4259F, 4428F, 4482F, 4669F, 4736F 4750F, 4916F, 4987F
Test Report Date: 09/08/2025

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : Bazaar Gate
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : M/s Nitya Laboratories
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
03/07/2025	35.20	74.50	13.40	22.30	24.20	ND	1.32	12.50	ND	ND	ND	ND
07/07/2025	36.40	65.50	12.50	25.50	26.80	ND	0.36	14.80	ND	ND	ND	ND
10/07/2025	39.20	68.20	13.20	26.40	23.50	ND	1.32	16.20	ND	ND	ND	ND
14/07/2025	36.40	60.50	14.60	25.50	25.50	ND	1.40	13.60	ND	ND	ND	ND
17/07/2025	37.10	62.30	15.10	26.80	26.80	ND	1.42	15.20	ND	ND	ND	ND
21/07/2025	38.40	61.40	16.20	25.90	25.80	ND	1.36	14.50	ND	ND	ND	ND
24/07/2025	39.40	65.50	13.80	24.60	27.80	ND	1.42	16.20	ND	ND	ND	ND
28/07/2025	35.50	68.50	14.20	27.20	24.20	ND	1.38	12.80	ND	ND	ND	ND
31/07/2025	36.90	70.50	15.80	25.50	22.60	ND	1.40	14.20	ND	ND	ND	ND
Minimum	**35.20**	**60.50**	**12.50**	**22.30**	**22.60**	-	**0.36**	**12.50**	-	-	-	-
Maximum	**39.40**	**74.50**	**16.20**	**27.20**	**27.80**	-	**1.42**	**16.20**	-	-	-	-
Average	**37.17**	**66.32**	**14.31**	**25.52**	**25.24**	-	**1.26**	**14.44**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards, Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

CORPORATE OFFICE & CENTRAL LABORATORIES :-
PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY, BALLABHGARH, FARIDABAD - 121004, HARYANA, INDIA
+91-129-2241021 +91-9013591021, +91-9013552273 labsnitya@gmail.com www.nityalab.com

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500004136F, 4208F, 4260F, 4429F, 4483F, 4670F, 4737F 4751F, 4917F, 4988F
Test Report Date: 09/08/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Effluent Treatment Plant
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
03/07/2025	38.50	66.40	13.50	21.50	23.40	ND	1.42	17.20	ND	ND	ND	ND
07/07/2025	40.10	47.40	14.60	25.50	24.10	ND	0.44	16.40	ND	ND	ND	ND
10/07/2025	42.30	71.20	15.20	22.60	25.50	ND	1.34	16.80	ND	ND	ND	ND
14/07/2025	39.10	72.30	15.60	23.60	21.30	ND	1.42	15.30	ND	ND	ND	ND
17/07/2025	41.40	50.60	12.40	25.10	22.50	ND	1.46	14.20	ND	ND	ND	ND
21/07/2025	38.70	46.30	15.20	24.80	23.30	ND	1.25	14.80	ND	ND	ND	ND
24/07/2025	40.50	67.30	16.50	21.10	24.10	ND	1.26	15.60	ND	ND	ND	ND
28/07/2025	41.80	52.60	12.30	21.90	23.60	ND	1.32	12.30	ND	ND	ND	ND
31/07/2025	42.30	56.80	14.10	22.10	24.80	ND	1.28	13.50	ND	ND	ND	
Minimum	**38.50**	**46.30**	**12.30**	**21.10**	**21.30**	-	**0.44**	**12.30**	-	-	-	-
Maximum	**42.30**	**72.30**	**16.50**	**25.50**	**25.50**	-	**1.46**	**17.20**	-	-	-	-
Average	**40.52**	**58.99**	**14.38**	**23.13**	**23.62**	-	**1.24**	**15.12**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

CORPORATE OFFICE & CENTRAL LABORATORIES :-
PLOT NO. 118, CHURCH ROAD, BEHIND KAUSIK VATIKA, BHAGAT SINGH COLONY, BALLABHGARH, FARIDABAD - 121004, HARYANA, INDIA
+91-129-2241021 +91-9013591021, +91-9013552273 labsnitya@gmail.com www.nityalab.com

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500004137F, 4209F, 4261F, 4430F, 4484F, 4671F, 4738F 4752F, 4918F, 4989F
Test Report Date: 09/08/2025

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : New Tank Farm
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : M/s Nitya Laboratories
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
03/07/2025	42.80	64.80	14.50	27.40	26.20	ND	1.30	15.30	ND	ND	ND	ND
07/07/2025	40.50	47.60	15.20	25.50	27.60	ND	0.58	14.50	ND	ND	ND	ND
10/07/2025	42.10	71.50	13.80	26.20	24.10	ND	1.30	17.20	ND	ND	ND	ND
14/07/2025	41.80	72.20	16.20	24.80	25.70	ND	1.42	15.40	ND	ND	ND	ND
17/07/2025	42.60	48.20	12.90	23.80	24.10	ND	1.30	12.30	ND	ND	ND	ND
21/07/2025	44.50	65.50	13.40	26.20	24.00	ND	1.28	13.50	ND	ND	ND	ND
24/07/2025	42.30	68.20	14.00	25.40	26.00	ND	1.26	14.40	ND	ND	ND	ND
28/07/2025	40.20	58.50	15.30	25.50	23.00	ND	1.18	16.20	ND	ND	ND	ND
31/07/2025	41.60	57.90	16.20	24.80	24.00	ND	1.42	15.80	ND	ND	ND	ND
Minimum	**40.20**	**47.60**	**12.90**	**23.80**	**23.00**	-	**0.58**	**12.30**	-	-	-	-
Maximum	**44.50**	**72.20**	**16.20**	**27.40**	**27.60**	-	**1.42**	**17.20**	-	-	-	-
Average	**42.04**	**61.60**	**14.61**	**25.51**	**24.97**	-	**1.23**	**14.96**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards, Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500005066F, 5196F, 5288F, 5379F, 5421F, 5521F, 5602F, 5644F
Test Report Date: 06/09/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Wax Sector Cooling Tower
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
04/08/2025	34.18	65.80	14.40	23.50	24.20	ND	1.44	14.20	ND	ND	ND	ND
07/08/2025	36.32	71.20	12.20	25.80	22.50	ND	0.28	12.40	ND	ND	ND	ND
11/08/2025	47.43	73.30	13.60	21.40	24.40	ND	1.36	12.80	ND	ND	ND	ND
14/08/2025	35.04	63.40	13.40	20.40	20.80	ND	1.40	12.10	ND	ND	ND	ND
18/08/2025	34.19	60.80	12.40	21.00	24.10	ND	1.49	15.40	ND	ND	ND	ND
21/08/2025	41.45	59.20	15.80	23.50	23.20	ND	1.38	12.90	ND	ND	ND	ND
25/08/2025	39.31	61.20	14.60	22.50	25.30	ND	1.50	13.40	ND	ND	ND	ND
28/08/2025	35.47	62.30	13.10	21.00	25.10	ND	1.30	12.10	ND	ND	ND	ND
Minimum	**34.18**	**59.20**	**12.20**	**20.40**	**20.80**	-	**0.28**	**12.10**	-	-	-	-
Maximum	**47.43**	**73.30**	**15.80**	**25.80**	**25.30**	-	**1.50**	**15.40**	-	-	-	-
Average	**37.92**	**64.65**	**13.69**	**22.39**	**23.70**	-	**1.27**	**13.16**	-	-	-	-
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500005067F, 5197F, 5289F, 5380F, 5422F, 5522F, 5603F, 5645F
Test Report Date: 06/09/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Bazaar Gate
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
04/08/2025	34.18	72.20	9.20	21.20	22.40	ND	1.38	10.40	ND	ND	ND	ND
07/08/2025	36.32	63.20	8.40	25.30	24.20	ND	0.30	13.20	ND	ND	ND	ND
11/08/2025	38.03	67.20	9.00	27.50	21.50	ND	1.31	15.20	ND	ND	ND	ND
14/08/2025	37.18	60.40	11.30	26.20	25.40	ND	1.42	14.80	ND	ND	ND	ND
18/08/2025	36.32	60.10	12.40	25.20	23.50	ND	1.38	13.20	ND	ND	ND	ND
21/08/2025	38.03	65.20	9.60	23.60	26.20	ND	1.44	15.00	ND	ND	ND	ND
25/08/2025	34.61	67.50	10.00	28.20	22.60	ND	1.36	11.90	ND	ND	ND	ND
28/08/2025	35.04	59.10	12.10	26.10	21.40	ND	1.32	10.30	ND	ND	ND	ND
Minimum	**34.18**	**59.10**	**8.40**	**21.20**	**21.40**	-	**0.30**	**10.30**	-	-	-	-
Maximum	**38.03**	**72.20**	**12.40**	**28.20**	**26.20**	-	**1.44**	**15.20**	-	-	-	-
Average	**36.21**	**64.36**	**10.25**	**25.41**	**23.40**	-	**1.24**	**13.00**	-	-	-	-
NAAQM Standards	60	100	80	80	100	1	2	400	20	6	1	5
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500005068F, 5198F, 5290F, 5381F, 5423F, 5523F, 5604F, 5646F
Test Report Date: 06/09/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Effluent Treatment Plant
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
04/08/2025	37.60	66.50	9.20	20.30	21.50	ND	1.41	12.40	ND	ND	ND	ND
07/08/2025	39.31	46.80	10.40	24.70	22.10	ND	0.29	11.10	ND	ND	ND	ND
11/08/2025	41.45	69.30	11.00	21.50	23.40	ND	1.18	15.20	ND	ND	ND	ND
14/08/2025	40.17	48.40	8.50	24.30	20.50	ND	1.25	12.50	ND	ND	ND	ND
18/08/2025	37.60	44.20	11.40	22.60	21.10	ND	1.07	13.60	ND	ND	ND	ND
21/08/2025	39.31	66.90	12.50	20.80	22.20	ND	1.25	16.20	ND	ND	ND	ND
25/08/2025	40.17	52.60	8.90	21.80	17.90	ND	1.32	11.90	ND	ND	ND	ND
28/08/2025	38.03	56.50	9.80	23.40	18.20	ND	1.16	15.40	ND	ND	ND	ND
Minimum	**37.60**	**44.20**	**8.50**	**20.30**	**17.90**	-	**0.29**	**11.10**	-	-	-	-
Maximum	**41.45**	**69.30**	**12.50**	**24.70**	**23.40**	-	**1.41**	**16.20**	-	-	-	-
Average	**39.21**	**56.40**	**10.21**	**22.43**	**20.86**	-	**1.12**	**13.54**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

NITYA LABORATORIES Authorised

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500005069F, 5199F, 5291E, 5382F, 5424F, 5524F, 5605F, 5648F
Test Report Date: 06/09/2025

Sample Particulars

Nature of the Sample : **Ambient Air Quality Monitoring**
Sampling Location : New Tank Farm
Purpose of Monitoring : To Check the Pollution Load
Method of Sampling : IS 5182 (Part 14)
Monitoring Conducted By : M/s Nitya Laboratories
Sampling Duration (Hrs.) : 24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb^{1}) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni^{2}) ng/m^3	Arsenic (as As^{3}) ng/m3	Benzo (a) pyrene (as BAP^{4}) ng/m^3	Benzene ($C6H6^{5}$) ug/m3
04/08/2025	41.02	64.80	10.20	22.50	24.40	ND	1.38	14.20	ND	ND	ND	ND
07/08/2025	39.31	46.20	11.30	20.30	25.50	ND	0.36	13.30	ND	ND	ND	ND
11/08/2025	41.88	69.30	9.40	21.70	22.60	ND	1.30	16.50	ND	ND	ND	ND
14/08/2025	41.02	47.10	8.20	22.50	22.00	ND	1.40	11.20	ND	ND	ND	ND
18/08/2025	43.16	65.20	9.90	25.40	22.50	ND	1.38	12.30	ND	ND	ND	ND
21/08/2025	42.30	67.20	10.00	24.70	24.80	ND	1.00	13.60	ND	ND	ND	ND
25/08/2025	41.45	59.30	8.80	21.20	26.30	ND	0.90	14.10	ND	ND	ND	ND
28/08/2025	38.88	52.40	11.50	20.80	21.50	ND	1.28	15.80	ND	ND	ND	ND
Minimum	**38.88**	**46.20**	**8.20**	**20.30**	**21.50**	-	**0.36**	**11.20**	-	-	-	-
Maximum	**43.16**	**69.30**	**11.50**	**25.40**	**26.30**	-	**1.40**	**16.50**	-	-	-	-
Average	**41.13**	**58.94**	**9.91**	**22.39**	**23.70**	-	**1.13**	**13.88**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, ^{3}Arsenic-ND [DL- 0.5],^{4}BAP-ND [DL- 0.5],^{5}Benzene-ND [DL- 0.5], ^{1}Lead-ND [DL- 0.5],^{2}Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

Authorised
(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500005709F, 5749F, 5834F, 5900F, 5966F, 6045F, 6118F, 6203F 6356F
Test Report Date: 08/10/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Wax Sector Cooling Tower
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
01/09/2025	32.60	65.80	12.80	22.10	28.40	ND	1.51	14.90	ND	ND	ND	ND
04/09/2025	35.90	70.40	10.20	24.80	22.20	ND	1.15	12.80	ND	ND	ND	ND
08/09/2025	46.20	72.60	11.40	20.60	24.50	ND	1.28	14.40	ND	ND	ND	ND
11/09/2025	51.10	58.20	12.70	18.90	26.10	ND	1.37	15.60	ND	ND	ND	ND
15/09/2025	34.20	62.30	11.80	19.20	20.60	ND	1.30	16.30	ND	ND	ND	ND
18/09/2025	33.80	60.10	10.70	20.80	24.60	ND	1.39	12.40	ND	ND	ND	ND
22/09/2025	40.20	58.90	13.20	22.60	23.50	ND	1.29	15.00	ND	ND	ND	ND
25/09/2025	38.60	59.40	12.40	21.30	25.50	ND	1.40	10.90	ND	ND	ND	ND
29/09/2025	42.30	56.90	10.30	20.90	22.60	ND	1.20	12.30	ND	ND	ND	ND
Minimum	**32.60**	**56.90**	**10.20**	**18.90**	**20.60**	-	**1.15**	**10.90**	-	-	-	-
Maximum	**51.10**	**72.60**	**13.20**	**24.80**	**28.40**	-	**1.51**	**16.30**	-	-	-	-
Average	**39.43**	**62.73**	**11.72**	**21.24**	**24.22**	-	**1.32**	**13.84**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500005710F, 5750F, 5835F, 5901F, 5967F, 6046F, 6119F, 6204F 6357F
Test Report Date: 08/10/2025

Sample Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Bazaar Gate
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
01/09/2025	38.60	78.20	9.80	20.40	22.00	ND	1.48	13.60	ND	ND	ND	ND
04/09/2025	40.50	68.40	10.60	24.20	24.00	ND	1.19	12.40	ND	ND	ND	ND
08/09/2025	42.60	72.10	12.30	26.10	26.00	ND	1.21	14.00	ND	ND	ND	ND
11/09/2025	39.20	64.60	11.30	23.10	23.00	ND	1.30	11.80	ND	ND	ND	ND
15/09/2025	41.70	66.20	13.20	25.40	25.10	ND	1.20	13.40	ND	ND	ND	ND
18/09/2025	40.50	65.60	11.20	24.60	24.20	ND	1.29	12.60	ND	ND	ND	ND
22/09/2025	42.10	70.40	10.30	22.80	26.40	ND	1.34	14.50	ND	ND	ND	ND
25/09/2025	38.10	72.80	13.40	26.00	22.90	ND	1.40	10.90	ND	ND	ND	ND
29/09/2025	42.60	70.60	10.60	14.90	20.90	ND	1.45	12.30	ND	ND	ND	ND
Minimum	**38.10**	**64.60**	**9.80**	**14.90**	**20.90**	-	**1.19**	**10.90**	-	-	-	-
Maximum	**42.60**	**78.20**	**13.40**	**26.10**	**26.40**	-	**1.48**	**14.50**	-	-	-	-
Average	**40.66**	**69.88**	**11.41**	**23.06**	**23.83**	-	**1.32**	**12.83**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s Indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500005711F, 5751F, 5836F, 5902F, 5968F, 6047F, 6120F, 6205F 6358F
Test Report Date: 08/10/2025

Sampie Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	Effluent Treatment Plant
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampiing	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
01/09/2025	42.20	72.20	9.60	18.20	25.20	ND	1.51	14.20	ND	ND	ND	ND
04/09/2025	44.60	52.60	10.60	22.40	26.10	ND	1.10	12.60	ND	ND	ND	ND
08/09/2025	46.10	76.20	9.20	19.60	26.80	ND	1.28	14.50	ND	ND	ND	ND
11/09/2025	43.20	76.40	10.50	20.40	24.60	ND	1.37	13.80	ND	ND	ND	ND
15/09/2025	45.10	54.60	12.30	22.90	23.90	ND	1.30	12.40	ND	ND	ND	ND
18/09/2025	42.80	70.20	10.70	21.60	25.10	ND	1.18	11.90	ND	ND	ND	ND
22/09/2025	44.10	73.40	11.90	18.80	26.00	ND	1.34	15.60	ND	ND	ND	ND
25/09/2025	45.90	58.40	11.10	19.50	22.40	ND	1.40	10.90	ND	ND	ND	ND
29/09/2025	47.90	60.60	13.90	22.40	23.60	ND	1.30	13.20	ND	ND	ND	ND
Minimum	**42.20**	**52.60**	**9.20**	**18.20**	**22.40**	-	**1.10**	**10.90**	-	-	-	-
Maximum	**47.90**	**76.40**	**13.90**	**22.90**	**26.80**	-	**1.51**	**15.60**	-	-	-	-
Average	**44.66**	**66.07**	**11.09**	**20.64**	**24.86**	-	**1.31**	**13.23**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or for advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

Nitya Work for Quality

NITYA LABORATORIES

BUILDING & ROAD, MATERIAL, SOIL, ENVIRONMENTAL & CALIBRATION TESTING LAB

NITYA LABORATORIES
43, Sector-A1 Ext., Bhalla Enclave, Channi Himmat, Jammu-180 015, J&K (UT), India
+91-191-2465597
info@nityalab.com www.nityalab.com

Test Report

Issued To **M/s indian Oil Corporation Limited**
(Refinery Division)
Assam Oil Division, Digboi, Distt.Tinsukia
Assam, INDIA

ULR No.: TC148142500005712F, 5752F, 5837F, 5903F, 5969F, 6048F, 6121F, 6206F 6359F
Test Report Date: 08/10/2025

Sampie Particulars

Nature of the Sample	:	**Ambient Air Quality Monitoring**
Sampling Location	:	New Tank Farm
Purpose of Monitoring	:	To Check the Pollution Load
Method of Sampling	:	IS 5182 (Part 14)
Monitoring Conducted By	:	M/s Nitya Laboratories
Sampling Duration (Hrs.)	:	24 Hrs.

Date of Sampling	Parameter											
	Particulate Matter (PM2.5) µg/m3	Particulate Matter (PM10) µg/m3	Sulphur Dioxide (as SO2) µg/m3	Nitrogen Dioxide (as NO2) ug/m3	Ozone (as O3) ug/m3	Lead (as Pb[1]) µg/ m3	Carbon Monoxide (as CO) mg/m3	Ammonia (as NH3) ug/m3	Nickel (as Ni[2]) ng/m^3	Arsenic (as As[3]) ng/m3	Benzo (a) pyrene (as BAP[4]) ng/m^3	Benzene (C6H6[5]) ug/m3
01/09/2025	45.60	71.80	8.40	20.10	24.10	ND	1.41	13.40	ND	ND	ND	ND
04/09/2025	43.20	51.40	9.10	18.40	25.60	ND	1.20	12.60	ND	ND	ND	ND
08/09/2025	45.40	74.80	7.20	19.60	27.20	ND	1.22	15.20	ND	ND	ND	ND
11/09/2025	43.50	75.20	10.40	21.50	26.40	ND	1.34	14.10	ND	ND	ND	ND
15/09/2025	45.80	54.60	6.90	20.80	23.60	ND	1.31	10.90	ND	ND	ND	ND
18/09/2025	47.20	70.90	7.80	23.60	22.40	ND	1.29	11.80	ND	ND	ND	ND
22/09/2025	46.00	72.20	8.20	22.40	24.70	ND	0.90	12.90	ND	ND	ND	ND
25/09/2025	43.10	58.60	9.40	18.90	21.80	ND	1.19	14.40	ND	ND	ND	ND
29/09/2025	41.90	56.40	13.50	23.80	25.50	ND	1.38	18.80	ND	ND	ND	ND
Minimum	**41.90**	**51.40**	**6.90**	**18.40**	**21.80**	-	**0.90**	**10.90**	-	-	-	-
Maximum	**47.20**	**75.20**	**13.50**	**23.80**	**27.20**	-	**1.41**	**18.80**	-	-	-	-
Average	**44.63**	**65.10**	**8.99**	**21.01**	**24.59**	-	**1.25**	**13.79**	-	-	-	-
NAAQM Standards	**60**	**100**	**80**	**80**	**100**	**1**	**2**	**400**	**20**	**6**	**1**	**5**
Test Method	**40CFR Appendix L Part 53 CPCB Guidelines**	**IS:5182 (P-23)**	**IS:5182 (P-2)**	**IS:5182 (P-6)**	**IS:5182 (P-9)**	**NL/SOP /AAQ-11**	**IS:5182 (P-10)**	**Method of Air Sampling & Analysis**	**NL/SOP/AAQ-13**	**NL/SOP/ AAQ-12**	**IS:5182 (P-12)**	**IS:5182 (P-11)**

Remark:
*NAAQS: National Ambient Air Quality Standards; Schedule-VII, [Rule 3 (3B)], [Part-II-sec.-3(i)] 16.11.2009
ND-Not Detected, [3]Arsenic-ND [DL- 0.5],[4]BAP-ND [DL- 0.5], [5]Benzene-ND [DL- 0.5], [1]Lead-ND [DL- 0.5],[2]Nickel-ND [DL- 1.0]
Sample Analyzed within Seven days from the date of sampling.

TC-14814

(AUTHORISED SIGNATORY)
(RAVINDER MITTAL)

NOTE: The laboratory accepts the responsibility for content of report. The results contained in this test report related only to the sample tested. Test report shall not be reproduced except in full, without written approval of the laboratory. This report is intended only for your guidance and not for legal purpose or tor advertisement. This report shall not be reproduced except in full without the written approval of this organization. Samples will be destroyed after 30 days from the date of issue of test certificate unless otherwise specified. Any complaints about this report should be communicated in writing within 7 days of issue of this report. Total liability of Nitya Laboratories is limited invoiced amount only.
If you have any complaint/feedback regarding the sample collection/testing/test report, please send an email at info@nityalab.com and call at +91-191-2465597, +91-9873924093

LDAR Monitoring Report

for

Month of April to June 2025

at

IOCL, Digboi Refinery

Prepared by

NETEL (INDIA) LIMITED

Email: ems@netel-india.com,
emsne@netel-india.com

LDAR Monitoring Report for IOCL, Digboi

Name of client	M/s Indian Oli Corporation Assam Oil Division Digboi-786171 Assam
Name of Contractor	NETEL (INDIA) LIMITED Environment Management W-408, Rabale MIDC, TTC Industrial Area, Navi
Nature of job	LDAR Monitoring Report
Report Period	3 Months April to June,2025

For NETEL (INDIA) LIMITED

Shraddha Kere
Quality Manager

Fugitive Emission Survey for 1st Quarter of 2025-2026

Environment Department is conducting quaterly " Fugitive Emission Survey" of potential soures of various process units under Leak Detection & Repair Program (LDAR)and as per revised Effluent & Emission Standerd.The locations for the survey were selected in consultation with the various departments The survey covered the following units and areas:

Leak definition: A leak is defined as the detection of VOC concentration more than the values (in PPM) specified below at the emission source using a hydrocarbon analyzer to measurement Protocol (US EPA – 453/R-95-017, 1995 Protocol for equipment leak emission estimates may be referred):

Sr. No.	Component	General Hydrocarbon (PPM)
		w. e. f. January 01, 2009
1	Pump/Compressor	5000
2	Valves/Flanges	3000
3	Other component	3000

In addition, any component observed to be leaking by sight, sound or smell regardless of concentration (liquid dripping, visible vapor leak) or presence of bubbles using soap solution should be considered as leak.
In this quarter, 5810 probable leak points are surveyed and 28 leaky points detected, which is having HC potential loss 39.20 Kg/Day

LEAK DETECTION AND REPAIR (LDAR) PROGRAM
VOC LEAK SUMMARY : April to June, 2025.

Sr. No.	Date	Unit	Equipment	Tag. No	Components	Line Size	Location	Statutory Limit PPM	Leak Type	Reading (ppm)	KG/per day	Readings After attending leak (ppm)	KG/per day	Total Saving
1	20-06-2025	MSQU	Pump Valve	037-PA-CF-002B OUT LET LINE	V.GLAND	3"	Isolation Valve	3000	Gland	7500	0.616	50	0.002	0.013
2	20-06-2025		Valve	037-PA-CF-003B OUT LET LINE	V.GLAND	3"	Isolation Valve	3000	Gland	6800	0.551	60	0.003	
3	20-06-2025		Valve	LINE TO 37-0226-B1AH 1st VALVE	VALVE	3"	Isolation Valve	3000	Gland	5500	0.432	40	0.002	
4	20-06-2025		Valve	LINE TO 37-0226-B1AH 2nd VALVE	VALVE	3"	Isolation Valve	3000	Gland	6700	0.542	80	0.003	
5	20-06-2025		Valve	LINE TO 37-0226-B1AH 3rd VALVE	VALVE	3"	Isolation Valve	3000	Gland	5900	0.468	65	0.003	
6	19-06-2025	HGU	Valve	CONTROL VALVE10-PV-2404 BY PASS LINE	V.GLAND	3"	Isolation Valve	3000	Gland	4600	0.353	60	0.003	0.005
7	19-06-2025		Valve	PRODUCT HYDROGEN LINE TO MSQU 1st GATE VALVE	V.GLAND	3"	Isolation Valve	3000	Gland	5400	0.423	45	0.002	
8	26-04-2024	SDU	Valve	Outlet Line 1st I/V	Valve	6"	Isolation Valve	3000	Gland	6400	0.514	65	0.003	0.005
9	26-04-2024		Valve	KA -SC-101A/B discharge interconection I/V	Valve	10"	Isolation Valve	3000	Gland	7100	0.579	50	0.002	

LEAK DETECTION AND REPAIR (LDAR) PROGRAM
VOC QUARTERLY REPORT : APRIL TO JUNE,2025
PLANTWISE SUMMARY

Sr. No.	Name of the Unit	Date of Monitoring	Total No of Points Monitored	Page No.	No. of Points Where leaks found beyond standard limits	Before Repair Leak (kg/day)	After Repair Leak (kg/day)
1	AVU	20-06-2025	551	10 to 26	0	0.000	0.000
2	DCU	19-06-2025	1043	27 to 58	0	0.000	0.000
3	CRU	19-06-2025	272	58 to 66	0	0.000	0.000
4	MSQU	20-06-2025	1012	67 to 97	5	2.609	0.013
5	HDTU	19-06-2025	164	97 to 102	0	0.000	0.000
6	HGU	19-06-2025	165	103 to 108	2	0.776	0.005
7	OM & S (CTF)	21-06-2025	174	108 to 113	0	0.000	0.000
8	OM&S (PPH)	23-06-2025	1119	113 to 147	0	0.000	0.000
9	SDU	21-06-2025	336	147 to 158	2	1.093	0.005
10	CRU off side Pump house	21-06-2025	267	158 to 166	0	0.000	0.000
11	NEW TANK FARM	23-06-2025	587	166 to 184	0	0.000	0.000
12	SDU (Off side Pump House)	21-06-2025	120	184 to 188	0	0.000	0.000
13	Tank Roof Rimseal Checking	21-06-2025	16	188 to 189	0	0.000	0.000
Total in Kg/day						**4.48**	**0.02**
Toatl in MT/Annum						**1.639**	**0.008**
Total Saving in kg/day							**4.46**
Total in MT/Annum							**1.63**

Verified by

Neelima Dalvi
Technical Manager

NETEL (INDIA) LIMITED Rabale

Checked by

Shraddha Kere
Quality Manager

LDAR Monitoring Report

for

Month of July to September 2025

at

IOCL, Digboi Refinery

Prepared by

NETEL (INDIA) LIMITED

Email: ems@netel-india.com,
emsne@netel-india.com

LDAR Monitoring Report for IOCL, Digboi

Name of client	M/s Indian Oli Corporation Assam Oil Division Digboi-786171 Assam
Name of Contractor	NETEL (INDIA) LIMITED Environment Management W-408, Rabale MIDC, TTC Industrial Area, Navi
Nature of job	LDAR Monitoring Report
Report Period	3 Months July to September,2025

For NETEL (INDIA) LIMITED

Shraddha Kere
Quality Manager

Fugitive Emission Survey for 2nd Quarter of 2025-2026

Environment Department is conducting quaterly " Fugitive Emission Survey" of potential soures of various process units under Leak Detection & Repair Program (LDAR)and as per revised Effluent & Emission Standerd.The locations for the survey were selected in consultation with the various departments The survey covered the following units and areas:

Leak definition: A leak is defined as the detection of VOC concentration more than the values (in PPM) specified below at the emission source using a hydrocarbon analyzer to measurement Protocol (US EPA – 453/R-95-017, 1995 Protocol for equipment leak emission estimates may be referred):

Sr. No.	Component	General Hydrocarbon (PPM)
		w. e. f. January 01, 2009
1	Pump/Compressor	5000
2	Valves/Flanges	3000
3	Other component	3000

In addition, any component observed to be leaking by sight, sound or smell regardless of concentration (liquid dripping, visible vapor leak) or presence of bubbles using soap solution should be considered as leak.

In this quarter, 5810 probable leak points are surveyed and 28 leaky points detected, which is having HC potential loss 39.20 Kg/Day

LEAK DETECTION AND REPAIR (LDAR) PROGRAM
VOC LEAK SUMMARY : July to September, 2025.

Sr. No.	Date	Unit	Equipment	Tag. No	Components	Line Size	Location	Statutory Limit PPM	Leak Type	Reading (ppm)	KG/per day	Readings After attending leak (ppm)	KG/per day	Total Saving
1	19-08-2025	CRU	Pump Valve	05-PA-001 A Discharge I/V	Valve	4"	Isolation Valve	3000	Gland	5400	0.423	90	0.004	0.007
2	19-08-2025		Pump Valve	03-PA-002 B Suction I/V	Valve	4"	Isolation Valve	3000	Gland	5800	0.459	70	0.003	
3	21-08-2025	MSQU	Valve	037-PA-CF-003A IN LET LINE	Valve	3"	Isolation Valve	3000	Gland	5100	0.397	100	0.004	0.016
4	21-08-2025		Valve	037-PA-CF-003B OUT LET LINE	Valve	3"	Isolation Valve	3000	Gland	5080	0.395	80	0.003	
5	21-08-2025		Valve	037-PA-CF-005 B OUT LET LINE	Valve	3"	Isolation Valve	3000	Gland	4850	0.375	60	0.003	
6	21-08-2025		Flange	LINE TO 37-0226-B1AH 1st VALVE	Flange	3"	Isolation Valve	3000	Gland	5460	0.429	50	0.002	
7	21-08-2025		Flange	LINE MUGC DISCHARGE TO DRYER	Flange	3"	Isolation Valve	3000	Gland	6500	0.523	90	0.004	
8	18-08-2025	HDT	Valve	09-FV-2604	Valve	2"	Isolation Valve	3000	Gland	4650	0.357	80	0.003	0.003
9	18-08-2025	HGU	Valve	CONTROL VALVE10-PV-2404 BY PASS LINE	Valve	3"	Isolation Valve	3000	Gland	6200	0.496	120	0.006	0.009
10	18-08-2025		Valve	CONTROL VALVE37-FV-3302	Valve	2"	Isolation Valve	3000	Gland	5800	0.459	60	0.003	
11	22-08-2025	SDU	Valve	Outlet Line 1st I/V	Valve	6"	Isolation Valve	3000	Gland	7500	0.616	80	0.003	0.007
12	22-08-2025		Valve	Outlet Line 1st I/V	Valve	6"	Isolation Valve	3000	Gland	6750	0.546	90	0.004	

LEAK DETECTION AND REPAIR (LDAR) PROGRAM
VOC QUARTERLY REPORT : JULY TO SEPTEMBER,2025
PLANTWISE SUMMARY

Sr. No.	Name of the Unit	Date of Monitoring	Total No of Points Monitored	Page No.	No. of Points Where leaks found beyond standard limits	Before Repair Leak (kg/day)	After Repair Leak (kg/day)
1	AVU	19-08-2025	551	10 to 26	0	0.000	0.000
2	DCU	20-08-2025	1043	27 to 58	0	0.000	0.000
3	CRU	19-08-2025	272	58 to 66	2	0.882	0.007
4	MSQU	21-08-2025	1012	67 to 97	5	2.119	0.016
5	HDTU	18-08-2025	164	97 to 102	1	0.357	0.003
6	HGU	18-08-2025	165	103 to 108	2	0.955	0.009
7	OM & S (CTF)	23-08-2025	174	108 to 113	0	0.000	0.000
8	OM&S (PPH)	25-08-2025	1119	113 to 147	0	0.000	0.000
9	SDU	22-08-2025	336	147 to 158	2	1.162	0.007
10	CRU off side Pump house	20-08-2025	267	158 to 166	0	0.000	0.000
11	NEW TANK FARM	26-08-2025	587	166 to 184	0	0.000	0.000
12	SDU (Off side Pump House)	22-08-2025	120	184 to 188	0	0.000	0.000
13	Tank Roof Rimseal Checking	26-08-2025	16	188 to 189	0	0.000	0.000
Total in Kg/day						**5.48**	**0.04**
Toatl in MT/Annum						**2.004**	**0.015**
Total Saving in kg/day							**5.43**
Total in MT/Annum							**1.99**

Verified by

Neelima Dalvi
Technical Manager

Checked by

Shraddha Kere
Quality Manager

Methane Monitoring Report

for

Month of August 2025

at

IOCL, Digboi Refinery

Prepared by

NETEL (INDIA) LIMITED

Email: ems@netel-india.com,
emsne@netel-india.com

LDAR Monitoring Report for IOCL, Digboi

Name of client	M/s Indian Oli Corporation Limited Assam Oil Division Digboi-786171 Assam
Name of Contractor	NETEL (INDIA) LIMITED Environment Management Services W-408, Rabale MIDC, TTC Industrial Area, Navi Mumbai - 400 701
Nature of job	Methane Monitoring Report for IOCL, Digboi
Report Period	August -2025

For NETEL (INDIA) LIMITED

Shraddha Kere
Quality Manager

LEAK DETECTION AND REPAIR (LDAR) PROGRAM

METHANE LEAK SUMMARY : AUGUST - 2025.

Sr. No.	Date	Unit	Equipment	Tag. No	Components	Line Size	Location	Statutory Limit PPM	Leak Type	Readings Before attending leak (ppm)	KG/per day	Readings After attending leak (ppm)	KG/per day	Total Saving
1	22-08-2025	CPP	Valve	15-FY-4710	Valve	2"	Control Valve	3000	Gland	5600	0.441	120	0.006	0.435
2	22-08-2025		Flange	NG-22 U/S Flange	Flange	4"	U/S Flange	3000	Flange	6500	0.523	150	0.025	0.498
3	01-10-2024	AVU	Valve	02-PV-1104 U/S I/V	Valve	2"	Isolation Valve	3000	Gland	5200	0.406	80	0.003	0.403
4	20-08-2025	DCU	Valve	07-PV-1201	Valve	3"	Isolation Valve	3000	Gland	4500	0.344	60	0.003	0.341
5	20-08-2025		Valve	07-PV-1202	Valve	3"	Isolation Valve	3000	Gland	4800	0.370	90	0.004	0.366
6	20-08-2025		Flange	07-PV-1202 U/S I/V U/S Flange	Flange	3"	Isolation Valve	3001	Gland	5400	0.423	110	0.005	0.418

LEAK DETECTION AND REPAIR (LDAR) PROGRAM
METHANE HLY REPORT : AUGUST-2025.
PLANTWISE SUMMARY

Sr. No.	Name of the Unit	Date of Monitoring	Total No of Points Monitored	Page No.	No. of Points Where leaks found beyond standard limits	Before Repair Leak (kg/day)	After Repair Leak (kg/day)
1	CPP	22-08-2025	410	08 to 20	2	0.964	0.031
2	HGU	18-08-2025	265	20 to 28	0	0.000	0.000
3	HGU Off side	23-08-2025	71	28 to 30	0	0.000	0.000
4	HDTU	18-08-2025	90	30 to 33	0	0.000	0.000
5	AVU	19-08-2025	156	33 to 37	1	0.406	0.003
6	DCU	20-08-2025	385	38 to 49	3	1.137	0.012
7	SDU	22-08-2025	106	49 to 52	0	0.000	0.000
8	CRU	19-08-2025	364	52 to 63	0	0.000	0.000
9	MSQU	21-08-2025	225	63 to 69	0	0.000	0.000
Total in Kg/day						**2.51**	**0.046**
Toatl in MT/Annum						**0.92**	**0.02**
Total Saving in kg/day							**2.46**
Total in MT/Annum							**0.90**

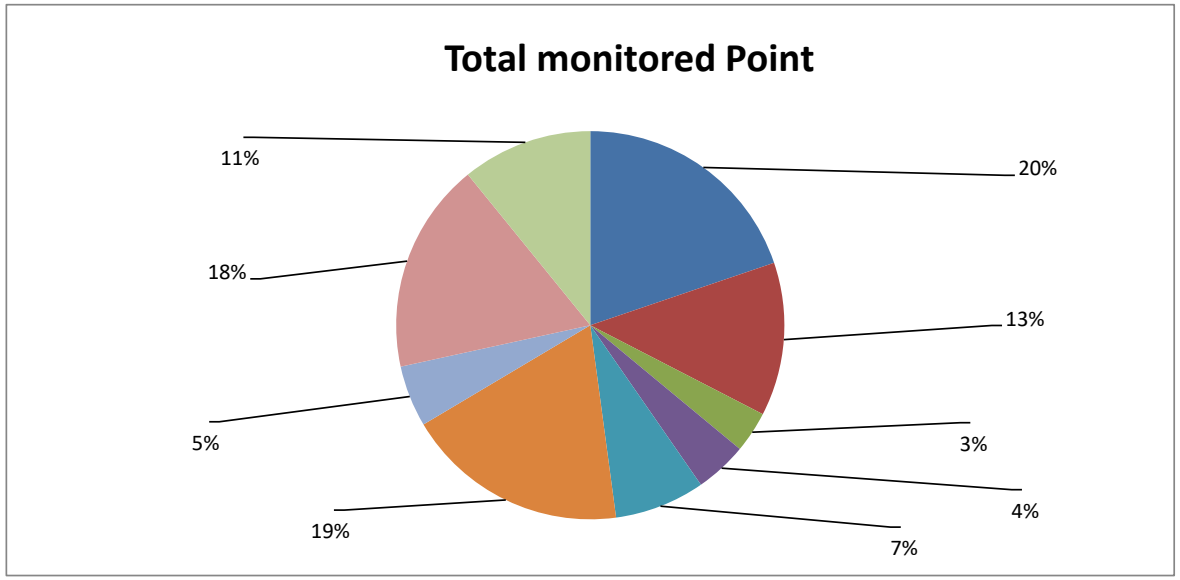
Verified by

Neelima Dalvi
Technical Manager

Checked by

Shraddha Kere
Quality Manager

Sr. No.	Name of the Unit	Total No of Points Monitored
1	CPP	410
2	HGU	265
3	HGU Off side	71
4	HDTU	90
5	AVU	156
6	DCU	385
7	SDU	106
8	CRU	364
9	MSQU	225



CREP – Present Status of Digboi Refinery

Sl No	Action Point	Present Status of Digboi Refinery
1.	Member Secretary, CPCB expressed serious concern on most of the Refineries not Monitoring all the New parameters (as per March, 2008 notification) in effluent and desired Refineries should develop capabilities to start monitoring each parameter and report the detail data to CPCB regularly. Further effluents discharged from the ETP outlet were found having high values of BOD and oil and grease indicating that effluent treatment facilities are not meeting standards and may require up-gradation. The effluent data to be sent CPCB on daily basis through the CPCB online air quality monitoring server	For Effluent out of 21 parameters 9 Parameters i.e pH, oil and grease, BOD, COD, TSS, MLSS, Phenol, Sulphide & Cyanide are tested in Digboi Refinery on daily basis. Report of these test are submitted to PCB, Assam regularly. Remaining tests are done by the Third Party Nitya laboratories 43, sector -A1 Ext. Bhalla Enclave, channi Himmat, Jammu-180015, J&K (UT), India Detailed up gradation study of ETP through M/s NEERI, Nagpur, was done in October 2014. 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'25 – September'25, 100% of treated effluent was reused.
2.	2.1 The PM Emission from furnace, boilers and captive power plant is not compiled in some of the units and the reason stated are (10 & 100 mg/Nm3 for FG and NG Respectively) too stringent and retrofitting like ESP or installation of filters for fuel is not feasible.	Emission of PM from furnace, boilers & Captive Power Plant is well within the prescribed limit. Due to the use of natural gas with very low sulphur content and sweetened refinery fuel gas as fuel.
	2.2 Installation of low Nox burner is yet to be completed. Refineries shall give the status and time target for the same and if installation is not possible, reason to be given, so that decision could be arrived.	As natural gas is the primary fuel used at Digboi Refinery, emissions of NOx from process units and Captive Power Plant is below the limit. 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

15.10.25

	2.3 IOC Refineries expressed inability to meet PM stipulations on neat fuel gas firing in furnaces. Member Secretary advised to generated data for both cases i.e. neat fuel gas firing and mixed (oil and gas)firing to look into the issue of PM standards compliance. All the Refineries are advised to submit in detail fuel gas & Oil analysis and emission data every month to HSE , RHQ for taking up with MoEF & CC.	• For firing, only fuel gas is used and no liquid fuels are in use. • Emission of PM from stacks at Digboi refinery is within specified norms.
	2.4 PM in FCC regenerators is not achieved is some of the units. In some of the units it is proposed to be taken during revamp. Gujarat and Mathura Refineries to give detail action plan.	Not applicable for Digboi Refinery.
3	Member Secretary, CPCB expressed, although the units have started bioremediation of oily sludge, the disposal of bio-remediated material and storage will be a problem leading to space constraint and leachate problem on the nearby areas, He advised to find better avenues like Co-processing of oily sludge in cement plants or providing common remediation sites. Within 6 months.	1. Confined Bioremediation of sludge FY-2025-26 460 MT, (April'25 to September '25) 460 MT 2. Insitu Oil recovery in FY-2025-26 103.7 MT from April'25 to Sep'2025 3. Another batch of 3000 MT of oily sludge sold to M/S Falk Industries Fuel Pvt. Ltd via MSTC e-auction on May'23 (164.46 MT uplifted) 4. Another batch of 6000 MT of oily sludge sold to M/S **K M Oil oil pvt. Ltd** via MSTC e-auction in Oct'24 5. Bioremediation of 460 MT done from April'2025 to september'2025
4	Linking of CAAQMS & Stacks data to server. Target date June, 2013(to submit road map) and 7-8 months for Implementation. The pending Refineries shall submit activity-wise schedule within a month.	Online connectivity of Furnaces with heat capacity of 10mkcl/hr (HGU) established to CPCB Server. One no. of Continuous Ambient Air Quality Monitoring Station installed and commissioned in September 2012.
5	Member Secretary desired that all the parameters of treated effluent shall be Linked to CPCB server using online analyzer by taking advantage of the technological development. All the Refineries shall initiate necessary action for implementation of the same. Till such time, Refineries shall post the requisite data on CPCB server day-to-day basis (Target –July, 2013)	Online effluent monitoring & connectivity to CPCB server was commissioned on 28th December 2015. WebSite: Online Emission and Effluent Monitoring System (cpcb.gov.in)

15.10.25

6	Minimization of fugitive VOC emission from ETP 's- To meet the environmental standard, old Refineries shall take necessary action to cover effluent sump, API , TPI and other equipments exposed to atmosphere to reduce fugitive emission and also recovery facility.	1. For reduction of fugitive VOC emission from ETP, VOC reduction facility has been commissioned inside ETP on 04.12.2022. 2. The CSS (Central Static Sump) inside refinery has already been covered.
7	Member Secretary advised Refineries to follow LDAR programme in true spirit as per gazette notification of "Effluent & Emission Standards, 2008. Data shall be submitted in periodic intervals to CPCB	Quarterly LDAR surveys are being followed. LDAR reports are being sent to MoEF & CC Bi-annually along with EC compliance report.
8	Member Secretary expressed concern on non-reporting of incidents of fire, oil spills and pollution to CPCB. He advised all the Refineries to reporting of such incidents to CPCB of concerned area during such occurrence.	No major oil spill occurred till 30/09/2025. Shall be ensured.

Place: Digboi

Date: 15.10.2025

Signature of the Authorized Person

Designation:

त्रिदिब सैकिया/TRIDIB SAIKIA
मुख्य प्रबंधक (एच, एस व ई)
Chief Manager (HS,&E)
आई.ओ.सी.एल.(एओडी), डिगबोई
I.O.C. LTD. (AOD), DIGBOI

Annexure 8

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

असम ऑयल डिवीजन
Assam Oil Division

Ref: DR/CGM(TS&HSE)/NBWL/114/2025-26 **Date: 16.07.2025**

To,
The Principal Chief Conservator of Forests, Wildlife & Chief Wildlife Wardens, Assam
Aranya Bhavan, Panjabari,
Guwahati -781037.

Sub: Monitoring of Implementation of Terms and Conditions of Major Wildlife Proposals and submission of up-to-date annual compliance report.

Ref: (1) Govt. of India, MoEF &CC (Wildlife Division) letter F. No.6/51/2025-WL, dated 09.07.2025
(2) Principal Chief Conservator of Forests, Wildlife and Chief Wildlife Warden, Assam letter No. WL/FG.35/Compliance Certificate/Projects dated 11.07.2025 (copy enclosed as Annexure-I)

Through Divisional Forest Officer, Digboi Division, Digboi

Respected Sir,

With reference to the subject and letter cited above, Digboi Refinery is pleased to submit the up-to-date annual compliance report as per Annexure-II. The Annexure-II is enclosed herewith.

We humbly request your good office to kindly acknowledge the submitted annual compliance report.

Thanking You,

Yours faithfully,
For Indian Oil Corporation Limited
(Assam Oil Division)
Digboi Refinery
Dhanjit Baishya 16/07/25
(D Baishya)
Chief General Manager (TS & HSE)

धनजित बैश्य/Dhanjit Baishya
मुख्य महाप्रबंधक (टीएस व एच, एस CGM (TS&H, S&E)
आई.ओ.सी.एल. (एओडी)/I.O.C.L. (AOD)
डिगबोई /DIGBOI-786171

Enclosures: As above

Copy for information:

1. The Principal Chief Conservator of Forests & Head of Forest Force, Assam, Panjabari, Guwahati -781037.
2. Executive Director & Refinery Head, IOCL AOD Refinery

ANNEXURE-I

GOVERNMENT OF ASSAM
OFFICE OF THE PRINCIPAL CHIEF CONSERVATOR OF FORESTS (WILDLIFE) AND CHIEF WILDLIFE WARDEN, ASSAM::PANJABARI::GUWAHATI-37

Email Id :pccf.wl.assam@gmail.com

No. WL/FG.35/Compliance Certificate/Projects Date: 11.07.2025

To,

Chief General Manager (TS & HSE),
Digboi Refinery (Assam Oil Division), IOCL.

Sub: Monitoring of Implementation of Terms and Conditions of Major Wildlife Proposals and regarding

Ref: Govt. of India, MoEF & CC (Wildlife Division), letter F. No.6/51/2025-WL, dated 09.07.2025.

Sir,

With reference to the subject cited above, please find enclosed herewith a copy of letter received from Govt. of India, MoEF & CC (Wildlife Division), dated 09.07.2025 quoted under reference, the contents of which is self-explanatory, for your kind information and necessary action.

In view of the above, it is requested to kindly submit the up-to-date annual compliance report as per the enclosed Annexure-II through the Divisional Forest Officer under whose jurisdiction your proposal "Capacity Augmentation of Digboi Refinery to 1 MMTPA, Proposal No. WL/AS/IND/429055/2023" falls, for taking onward necessary action. Please submit the report on or before 18.07.2025 positively.

Enclo: As stated above.

Yours faithfully,

Vinay Gupta

(Dr. Vinay Gupta, IFS)
Principal Chief Conservator of Forests,
Wildlife & Chief Wildlife Warden, Assam

Copy for information and necessary action to DFO, Digboi Division, Digboi.

Vinay Gupta

Principal Chief Conservator of Forests,
Wildlife & Chief Wildlife Warden, Assam

Annexure II

Name of State: Assam Name of the project: Capacity Augmentation of Digboi Refinery to 1 MMTPA Proposal no.: WL/AS/IND/429055/2023 Date of approval/recommendation by the Standing Committee of the National Board for Wild Life: 27.02.2024	
Terms and conditions in order of approval letter	Status of implementation term/condition of the project (write "Yes" for the term/condition implemented and "No" for not implemented. If not implemented, give reason why project was allowed for completion when the term/ condition was not implemented
EIA with a scientifically robust Mitigation Plan shall have to be in place for taking appropriate steps to mitigate the adverse impacts on environment and wildlife in the event of breaking out of fire in the plant.	**YES** Rapid Risk Assessment Study (RRA) has been carried out by engaging NABET accredited consultant M/s Engineers India Limited to identify the hazards associated with the "NEW FACILITIES" under this project to analyse the consequences, draw suitable conclusions and provide necessary recommendations to mitigate the hazard/risk associated with the implementation of the new project facilities. Under the new facility for mitigation of fire inside new Golai Tank farm near Digboi marketing terminal, 2(two) numbers of Fire water tanks (each of capacity 4000 KL) with associated Fire Water pumps i.e. 2 nos of jockey motor driven (each of capacity 50m3/hr), 4 nos of Main Fire water pumps diesel driven (each of capacity of 410 m3/hr) have been considered to restrict hazard within Tank farm. Also, for mitigation of fire inside existing Refinery for the revamped facilities, 2(two) new fire water pumps with diesel driven (each of capacity 410 m3/hr) have been considered along with the existing firefighting system, fire prevention and protection facility (like HVLRM, water spray system, Hydrant, monitor, rim seal, HC detectors etc.) to restrict the fire within boundary. In addition to the RRA, Quantitative risk assessment (QRA) has also been recommended before commissioning of the project. Accordingly, action has been initiated to carry out the QRA study before commissioning of the project facilities.
At least 2% amount of the estimated cost of the project should be deposited as CORPUS fund to the	**YES** An amount of Rs. 14,80,40,000 (Rupees fourteen crore eighty lakh & forty thousand Only) has been deposited as corpus fund to the Chief Wildlife Warden for Conservation of Wildlife &

Chief Wildlife Warden for Conservation of Wildlife & Human Animal Conflict mitigation measures.	Human Animal Conflict mitigation measures. The deposited corpus amount is 2% of the approved Digboi Refinery expansion project Cost (Rs. 740.20 Crore). (1) Payment of Rs. 14.80 Crore made through NEFT UTR NO: SBIN524093816642--CHIEF WILDLIFE WARDEN, TRANSACTION DATE: 02-04-2024 (Payment receipt of Rs 14.80 Cr is enclosed as Annexure-IIA) (2) Payment of Rs. 40000/-(Rupees Forty thousand only) made through NEFT UTR NO: SBIN32419Z665769--CHIEF WILDLIFE WARDEN, TRANSACTION DATE: 10-07-2024 (Cash Credit Statement of Rs 40,000/- is enclosed as Annexure-IIB)
The User Agency shall also implement the conservation plan submitted along with the project proposal.	**YES** A total amount of Rs. 20.0 lakhs (for first 3 years of implementation of project) towards wildlife conservation in the surrounding areas of project site has been earmarked. The Wildlife Conservation Plan (WCP) has been submitted to Divisional Forest Officer (DFO), Digboi for further actions. DFO, Digboi Division has forwarded the letter to PCCF, Guwahati vide letter no. A/G-8 (a)/Diversion Proposal/2023/1239 dated 10/05/2023. (The DFO letter is enclosed as Annexure-III.) Digboi Refinery shall ensure the implementation of the submitted conservation plan in consultation with the DFO, Digboi Division
An annual compliance certificate on the stipulated conditions shall be submitted by the User Agency to the State Chief Wildlife Warden and an annual compliance certificate shall be submitted by the State Chief Wildlife Warden to Government of India.	**YES** (1) 1st compliance report submitted to The Principal Chief Conservator of Forests, Wildlife & Chief Wildlife Wardens, Assam on 03.04.2024. (2) 2nd compliance report is submitted with this letter on 16.07.2025.

ANNEXURE-II

Payment receipt of Rs 14.80 Cr to Chief Wildlife Warden for 1.0 MMTPA DR Expansion Project

Account Number :	_00000010776289584						
Description :	OD Clean (C and I)						
Name :	INDIAN OIL CORPORATION LIMTED						
Currency :	INR						
Corporate Address :	INDIAN OIL BHAVAN G-9 ALI YAVAR JUNG MARG BANDRA (EAST) MUMBAI MUMBAI MAHARASHTRA-400051						
Branch :	DIGBOI(06000)						
IFS Code :	SBIN0006000						
Start Date :	02-04-2024						
End Date :	02-04-2024						
Txn Date	Value Date	Description	Ref No./Cheque No.	Branch Code	Debit	Credit	Balance
02-04-2024	02-04-2024	TO TRANSFER-NEFT UTR NO: SBIN524093816642-- CHIEF WILDLIFE WARDEN	TRANSFER TO 4697160044302 / CHIEF WILDLIFE WARDEN	6000	14,80,00,000.00		

Cash Credit Statement

Account Statement

Account Number	00000010776289584	**Description**	OD Clean (C and I)
Name	INDIAN OIL CORPORATION LIMTED	**Currency**	INR
Corporate Address	INDIAN OIL BHAVAN G-9 ALI YAVAR JUNG MARG BANDRA (EAST) MUMBAI MUMBAI, MAHARASHTRA - 400051	**Branch**	DIGBOI (06000)
Rate of interest (% p.a.)	16.0%	**IFS Code**	SBIN0006000
Book Balance	-57,77,470.45	**Available Balance**	39,42,22,529.55
Hold Value	0.00		
Uncleared Amount	0.00	**Drawing Power** 40,00,00,000.00	**Limit Sanctioned** 40,00,00,000.00
Balance as on 10 Jul 2024	0.00	Return to Account Statement	

10-Jul-24 (10-Jul-2024)	TO TRANSFER CHIEF WILDLIFE WARDEN NEFT UTR NO: SBIN324192665769 -TRANSFER TO 4697154044300 BY TRANSFER	TRANSFER TO 4697154044300 / CHIEF WILDLIFE WARDEN	6000	40,000.00	-2,688.30

Annexure 9

~~Annexure III~~

Government of Assam
Office of the Divisional Forest Officer
Digboi Division: Digboi

Ph.No.03751-264433 *E-mail: dfodigboi@gmail.com*

Letter No. A/G-8 (a)/Diversion Proposal/2023/1239 Dated:10/05/2023

To,

The Principal Chief Conservator of Forests, Wildlife
& Chief Wildlife Warden, Assam, Aranya Bhawan,
Panjabari, Guwahati-37

Sub:- Conservation Plan with Budgetary allocation for Digboi Refinery Expansion Project under IOCL - regarding.

Sir,

In inviting a reference to the subject cited above, I have the honour to forward herewith the Conservation Plan with Budgetary allocation for Digboi Refinery Expansion Project under IOCL as received from the Chief General Manager (TS & HSE), Digboi Refinery, Indian Oil Corporation Limited for favour of your kind approval. A detailed wildlife management plan will be prepared in due course of time for management of other wildlife and habitats.

This is for favour of your kind information and necessary action.

Enclo :- Conservation Plan.

Yours faithfully

(T.C. Ranjith Ram, IFS)
Divisional Forest Officer
Digboi Division, Digboi

Memo No. B/G-8 (a)/Diversion/2023/1328 Dated:10/05/2023

Copy to the Chief General Manager (TS & HSE)) Indian Oil Corporation Limited (AOD), Digboi for his kind information and necessary action.

10/05/2023

(T.C. Ranjith Ram, IFS)
Divisional Forest Officer
Digboi Division, Digboi

CONSERVATION PLAN FOR SCHEDULE - I SPECIES

The Conservation Plan would focuses on conservation of habitats of Schedule-I species identified during the EIA process. Support in the form of donation of funds and active participation in awareness campaigns will be provided to the existing management plans undertaken by the Forest Department in the area. Awareness drives will be undertaken targeting different group of society at different times. During these, dialogue with locals will be established and importance of co-existence of these species will be explained.

Conservation of Schedule - I species

The schedule-I species are found in the surrounding areas of the project site. Wildlife Conservation Plan for threatened species is prepared and IOCL Digboi refinery will abide by the same. The following species are comes under Schedule-I category of Indian Wildlife Protection Act 1972.

Table 10.6 Listing of Schedule I species in the study area

Sl. No.	Species Name	Scientific Name
Bird		
1	Black kite	*Milvus migrans*
2	Crested Serpent Eagle	*Spilornis cheela*
3	Great Indian hornbill	*Buceros bicornis*
4	Hill Myna	*Gracula religiosa*
5	Mountain Bamboo Partridge	*Bambusicola fytchii*
6	Oriental pied hornbill	*Anthracoceros albirostris*
7	Shikra	*Accipiter badius*
8	Slender billed vulture	*Gyps tenuirostris*
9	White-rumped Shama	*Copsychus malabaricus*
10	Wreathed Hornbill	*Aceros undulatus*
Reptile		
11	Indian Rock Python	*Python molurus*
12	Bengal Monitor Lizard	*Varanus bengalensis*
13	Indian Flapshell Turtle	*Lissemys punctata*
Mammal		
14	Asian Elephant	*Elephas maximus*
15	Common leopard	*Panthera pardus*
16	Bengal Slow Loris	Nycticebus bengalensis
17	Western Hoolock Gibbon	Hoolock hoolock

Avifauna Conservation

Habitat: The above 10 species of birds are found in terrestrial ecosystem and forested areas of Dihing Patkai reserve forest.

Threat: Degradation of forested areas, chemicals in the carcasses, night operation, Tea factory works etc.

Conservation Action:

- The villagers, school children, industry workers working in the vicinity are to be made aware about the importance of wildlife, its habitat, importance of conservation etc.
- IOCL would support the Forest Department for habitat improvement program.
- IOCL will also conduct awareness campaigns at the village level to make the locals aware about the protected species in the area; their behaviour, habitat, ecology, breeding/nesting seasons, threats to habitats and species, laws regarding protection of species. Awareness generation campaigns will include preparation of brochures in local language, film shows and display of posters, etc.
- IOCL will ensure that minimum illumination comes out from the project area.
- Special care to be taken for identification of vulture nests, if any, and maintain distance from the nests.

Responsibilities: Primary responsibility lies with Assam Forest Department, and Digboi Wildlife Division of Assam. Secondary responsibility lies with IOCL who will support with monetary fund for conservation.

Reptile Conservation

Habitat: The above 03 species of reptiles are found in river banks, homestead gardens and forested areas of Dihing Patkai reserve forest depending the availability of food.

Threat: Degradation of forested areas, hunting by people, road kills etc.

Conservation Action:

- Identify basking sites of this species and enhance protection of these sites through village communities.
- Awareness campaigns to be carried out among village communities, focusing on local schools for protection of the species.
- While laying approach road, measures will be taken to keep natural drainage unhindered, by construction of culverts, which will provide crossing points for reptiles and minimize risk of road kill.
- Project proponent shall comply with all the pollution control and other conditions imposed in the environmental clearance by statutory authorities.
- It is also important to inform the workers about the presence of the species.

Responsibilities: Primary responsibility lies with Assam Forest Department, and Digboi Wildlife Division of Assam. Secondary responsibility lies with IOCL who will support with monetary fund for conservation.

Mammal Conservation

Habitat: The above 04 species of reptiles are found in forested areas of Jokai Dihing Patkai reserve forest and tea gardens.

Threat: Habitat fragmentation, human-animal conflict, blockage of wildlife corridor etc.
Conservation Action:

- Awareness campaign will be carried out in local villages, on conservation of leopards & elephants and their ecosystem services & values.
- Contributing to habitat improvement activity as planned by Forest Dept.
- IOCL would support the Forest Department for habitat improvement program and also in other programs for conservation of elephants.

- Project proponent shall comply with all the pollution control and other conditions imposed in the environmental clearance by statutory authorities.
- Conservation of the elephant's habitat and maintaining habitat connectivity by securing corridors;
- The management of human–elephant conflicts as part of an integrated land-use policy that recognizes elephants as economic assets from which local people need to benefit or at least no suffer;
- Better protection to the species through improved legislation and law enforcement, improved and enhanced field patrolling, and regulating/curbing trade in ivory and other elephant products

Responsibilities: Primary responsibility lies with Assam Forest Department, and Digboi Wildlife Division of Assam. Secondary responsibility lies with IOCL who will support with monetary fund for conservation.

10.11.1Step to Help Conservation

IOCL will formulate the competent team of experts headed by Head Environment to discuss with the forest department officials to know various existing habitat improvement and wildlife management activities conducted in study area. In consultation with the forest department, IOCL will provide support to the existing forest and wildlife conservation plans by earmarking separate, sufficient fund as mentioned in table below for such activities and through inclusion of 'wildlife awareness campaign's in various other IOCL programs from time to time. These campaigns will be conducted by team of experts in the field to make the locals aware about the protected species in the area; their behavior, habitat, ecology, breeding/nesting seasons, threats to habitats and species, laws regarding protection of species; through audio-visual aids, quiz competitions, arranging study tours to various locations in different seasons etc. on village level.

Financial Outlay

IOCL is committed to earmarked funds and utilized it only for purpose specified through forest department. Details of utilization of funds (amount is in lakhs) are given in following table.

Table 10.7: Details of utilization of funds (amount is in lakhs)

Sr. No.	Activity	Years from commencement of project			
		I	II	III	Total
I	**Direct & Indirect involvement of IOCL**	**Amount in lakhs**			
1.	To associate with forest department, and other agencies for effective implementation of conservation progamme	2.0	1.5	1.5	7.0
2	Identification of nesting sites for birds and habitat for reptiles, and mammals	1.5	1.0	1.5	5.0
3.	Cost of capacity building of forest department staffs	2.0	2.5	2.5	9.0
4.	Awareness Generation Meetings at villages (Development of Brochure; Arrangement of Meeting; Development of Posters)	1.0	1.5	1.5	4.0
	Total	**6.5**	**6.5**	**7.0**	**20.0**

IOCL will spend total **Rs. 20.0 lakhs** (for first 3 years of implementation of project) towards wildlife conservation in the surrounding areas of project site. IOCL has already submitted a letter to DFO, Digboi division earmarking Rs. 20 lakhs for conservation of Schedule I species in the surrounding areas.

Annexure -10

আমাৰ অসম

৬ জানুৱাৰী, ২০২৪ শনিবাৰ, যোৰহাট

ইণ্ডিয়ান অইল কৰ্পোৰেচন লিমিটেড
(অসম অইল সংগঠন)

ডিগবৈ শোধনাগাৰ, পো.অঃ ডিগবৈ, জিলাঃ তিনিচুকীয়া, পিনঃ ৭৮৬১৭১

ইণ্ডিয়ান অইল কৰ্পোৰেচন লিমিটেড, ডিগবৈ শোধনাগাৰত ১.০ এমএমটিপিএ লৈ ক্ষমতা বৃদ্ধিৰ বাবে পৰিবেশ অনুমোদন সম্পৰ্কীয় জাননী

ইয়াৰ দ্বাৰা জাননী দিয়া হৈছে যে পৰিবেশ, বন আৰু জলবায়ু পৰিবৰ্তন মন্ত্ৰালয়ে (MOEF&CC) ফাইল নং J-11011/482/2007-IA II (I), তাৰিখ ০১-০১-২০২৪ৰ ভিত্তিত ডিগবৈ শোধনাগাৰৰ ০.৬৫ এমএমটিপিএৰ পৰা ১.০ এমএমটিপিএলৈ ক্ষমতা বৃদ্ধিৰ বাবে পৰিবেশ অনুমোদন প্ৰদান কৰিছে। ক্লিয়াৰেন্স লেটাৰৰ প্ৰতিলিপি এছপিচিবি/ কমিটীৰ ওচৰত উপলব্ধ আৰু মন্ত্ৰালয়ৰ ৱেবছাইট আৰু **https://parivesh.nic.in/**তও চাব পাৰিব।

THE ASSAM TRIBUNE, DIBRUGARH

SATURDAY, JANUARY 6, 2024

Indian Oil Corporation Ltd.
(Assam Oil Division)

Digboi Refinery, P.O.: Digboi, Dist.: Tinsukia, PIN: 786171

NOTICE REGARDING ENVIRONMENTAL CLEARANCE ACCORDED TO IOCL, DIGBOI REFINERY FOR CAPACITY AUGMENTATION to 1.0 MMTPA

Notice is hereby given that the Ministry of Environment, Forest and Climate Change (MOEF&CC) vide File No. J-11011/482/2007-IA II (I), dated 01/01/2024 has accorded Environmental Clearance for capacity augmentation of Digboi Refinery from 0.65 MMTPA to 1.0 MMTPA. Copies of the clearance letter are available with the SPCB/ Committee and may also be seen at the Website of the Ministry and at **https://parivesh.nic.in/**.

DIGBOI REFINERY
INDIAN OIL COORPORATION LIITED.

BIO-MONITORING SURVEY OF AQUATIC LIFE IN LOTIC AND LENTIC WATER BODIES IN AND AROUND DIGBOI REFINERY: OCTOBER 2025

Conducted By:

ABNS SCIENTIFIC SERVICES

Guwahati-781011, Assam; www.abnsscientific.com

PREFACE

Bio-Monitoring Survey Of Aquatic Life In Lotic And Lentic Water Bodies In And Around Digboi Refinery During August And September, 2025 Covering Eleven Locations.

LIST OF CONTENTS:

List Of Table:

List Of Figure:

BIO-MONITORING SURVEY OF AQUATIC LIFE IN LOTIC AND LENTIC WATER BODIES IN AND AROUND DIGBOI REFINERY

Introduction

Aquatic Ecosystems Are The Bedrock Of Biological Diversity, Supporting An Immense Variety Of Life And Providing Essential Services From Water Purification To Climate Regulation. In Regions Like Digboi, With A Long History Of Industrial Activity, Safeguarding These Water Bodies Is Not Just An Environmental Imperative But A Core Component Of Sustainable Industrial Practice.

Traditional Water Quality Assessments, Which Measure Physico-Chemical Parameters, Provide A Momentary Snapshot. Bio-Monitoring, The Study Of Living Organisms In Their Environment, Offers A More Profound Narrative. It Reveals The Cumulative Health Of An Ecosystem Over Time, Showing How Aquatic Communities Respond To Pollutants, Habitat Changes, And Other Stressors.

This Survey Leverages Macro Invertebrates—Organisms Such As Insect Larvae, Snails, And Worms That Are Visible To The Naked Eye—As Key Bio-Indicators. Their Varying Sensitivities To Pollution Provide A Powerful, Natural Gauge Of Water Quality. By Analyzing Which Species Are Present And In What Numbers, We Can Classify The Health Of A Water Body, From Pristine To Severely Degraded.

This Report Details The Results Of This Dual-Pronged Investigation, Combining Biological And Physico-Chemical Data To Present A Holistic Picture Of The Aquatic Environment In The Digboi Refinery Area.

Biological Monitoring Of Water Quality: A Crucial Tool

We Can't Judge A River's Health By A Single Glance. The Best Indicators Are The Insects And Invertebrates Living On Its Bottom. These Creatures Are Nature's Built-In Water Quality Sensors. Because They Live There Full-Time, Their Community Structure Directly Reflects The Stream's Condition, Serving As A Living Record Of Its Health And The Challenges It Has Endured. Biological Monitoring Assesses Aquatic Ecosystem Health By Examining Changes In Stream
Conditions, Water Quality, And Habitat. Historically, Invertebrates, Especially Macro Invertebrates, Have Been Used To Study Running Water Ecosystems. Relationships

Between Macro Invertebrate Community Structures And Environmental Variables Have Been Extensively Investigated.

Advantages Of Biological Monitoring:

1. Integrated Approach To Assess Aquatic Ecosystem Quality

2. Complementary To Physico-Chemical Evaluations

3. Reliable Assessment Of Anthropogenic Impacts

4. Wide Acceptance And Application Globally

Bio-Monitoring Methods And Indices:

Scientists Have Long Sought The Most Accurate Way To Diagnose The Health Of A River. The Answer, It Turns Out, Isn't Found Just In A Water Sample Jar, But In The Life The River Supports. Over The Years, A Whole Toolkit Of Biological Indices Has Been Developed To Translate The Language Of Aquatic Life Into A Clear Report Card On Water Quality. Among The Most Powerful Of These Tools Are Benthic Macro Invertebrates—The Insects, Snails, And Worms That Live On The Riverbed. Their Varied Sensitivities To Pollution Make Them Nature's Own Water Quality Testing Kits.

Alongside These Animal Indicators, The Plant Life In And Around The Water Tells Its Own Story. By Analyzing Key Parameters Like Ph, Temperature, And Heavy Metals In Water, And Then Observing The Health And Diversity Of Aquatic Plants, We Get A Dual-Perspective On The Ecosystem's Condition. A Patch Of Dying Reeds Or A Sudden Bloom Of Algae Can Be As Telling As Any Chemical Reading, Providing A Direct Look At How The Physical Environment Is Impacting Biological Communities.

Limitations Of Physico-Chemical Analysis:

1. Complex Wastewater Composition

2. Low Concentration Detection Limits

3. Variable Chemical Impacts On Biological Systems

Bio-Monitoring As A Summary Parameter:

Bio-Monitoring Overcomes Physico-Chemical Analysis Limitations By Summing Effects Of Pollutants In Easily Measurable Parameters.

Case Study: Digboi, Assam, India:

Digboi, India's Oldest Oil Town, Has Undergone Significant Environmental Changes. Biomonitoring Can Assess The Impact Of Oil Exploration And Refining On Aquatic Ecosystems.

History Of Digboi's Oil Industry:

- 1867: Oil Discovery

- 1889: First Oil Well Drilled

- 1901: First Refinery Established

- World War II: Peak Production (7,000 Barrels/Day)

- Current Production: 240 Barrels/Day

Biological Monitoring Is Essential For Assessing Aquatic Ecosystem Health And Understanding Anthropogenic Impacts. Its Integration With Physico-Chemical Analysis Provides A Comprehensive Picture Of Water Quality.

Types Of Biological Assessment:

Biological Assessments Are Crucial For Understanding The Health And Integrity Of Ecosystems. They Involve Studying Various Aspects Of Biological Communities To Evaluate Environmental Conditions. Here Are Some Common Types Of Biological Assessments:

Aquatic Ecosystems:

- **Benthic Macro Invertebrate Assessment:** This Involves Studying Organisms That Live On The Bottom Of Water Bodies, Such As Insects, Worms, And Snails. Their Presence Or Absence Can Indicate Water Quality And Pollution Levels.
- **Fish Assessment:** Examining Fish Populations, Their Abundance, Diversity, And Health Can Provide Insights Into Overall Ecosystem Health.
- **Aquatic Vegetation Assessment:** Analysing The Types And Abundance Of Aquatic Plants Can Reveal Information About Nutrient Levels, Water Depth, And Overall Ecosystem Productivity.

Terrestrial Ecosystems: A Ground-Level View

To Truly Grasp The Health Of A Forest, Grassland, Or Any Piece Of Land, We Need To Look At Its Living Parts—The Plants, Animals, And Even The Unseen World Beneath Our Feet. It's Like A Doctor Giving A Patient A Full Check-Up. Here's How We Do It:

Taking Nature's Census: One Of The Most Direct Ways To Understand An Ecosystem Is To See Who's Living There. By Carefully Tracking Animal Populations—Whether It's Through Camera Traps, Following Tracks, Or Seasonal Bird Counts—We Get A Clear Picture Of Habitat Quality. If Certain Species Start To Disappear Or Their Numbers Dwindle, It's Often A Red Flag, Pointing To Larger Problems Like Habitat Loss Or Pollution.

Reading The Landscape Through Its Plants: The Plant Community Tells A Powerful Story About The History And Current State Of The Land. We Look At The Variety Of Plants, Which Species Are Thriving, And Which Are Struggling. A Vibrant, Diverse Plant Life Usually Indicates A Healthy, Resilient System. Conversely, A Surge Of Invasive Species Or Signs Of Disease In Native Plants Can Signal Past Disturbances, Like Fire Or Human Activity, And Help Us Predict The Ecosystem's Future.

Unearthing Secrets In The Soil: The Real Magic Often Happens Out Of Sight. By Studying The Soil—Teeming With Life From Earthworms And Insects To Countless Microbes And Fungi—We Can Assess The Foundation Of The Entire Ecosystem. This Bustling Community Is Responsible For Breaking Down Organic Matter, Cycling Nutrients, And Building Healthy Soil Structure. If The Soil Is Alive And Active, It's A Good Sign That The Ecosystem Above It Is On Solid Ground.

Other Methods:

- **Bioindicators:** Using Specific Organisms As Indicators Of Environmental Conditions. For Example, Certain Species Of Lichens Can Be Sensitive To Air Pollution.
- **Genetic Analysis:** Examining The Genetic Diversity Of Populations Can Provide Insights Into Ecosystem Health And Resilience.
- **Remote Sensing:** Using Satellite Imagery Or Aerial Photography To Monitor Large-Scale Changes In Vegetation, Land Cover, And Water Bodies.

Key Considerations(A):

- **Scale:** Biological Assessments Can Be Conducted At Various Scales, From Small-Scale Site-Specific Studies To Large-Scale Regional Assessments.

- **Objectives:** The Specific Objectives Of The Assessment Will Determine The Appropriate Methods And Data Collection Techniques.
- **Data Analysis:** Statistical Methods Are Often Used To Analyze Biological Data And Draw Conclusions About Ecosystem Health.

- **Toxicity/Bioassay Test** - To Know Acute Or Chronic Effect Of Pollutants On Biological System, This Test Is Used Both In Laboratory By Exposing Specified Number Of Test Organisms Directly In The Water Body Or In Test Sample Specified Time Period.

Bio-Accumulation And Bio-Magnification Studies – **Bioaccumulation** And **Bio Magnification** Are Two Important Ecological Processes That Describe The Movement Of Pollutants Through Food Chains. Bioaccumulation Is The Gradual Build-Up Of A Substance In The Tissues Of An Organism Over Time. This Occurs When An Organism Takes In More Of A Substance Than It Can Eliminate. Several Factors Can Influence Bioaccumulation, Including:

- **Persistence:** The Ability Of A Pollutant To Remain In The Environment For A Long Time.
- **Bioavailability:** The Ability Of An Organism To Absorb A Pollutant From Its Environment.
- **Lipid Solubility:** Pollutants That Are Soluble In Lipids (Fats) Tend To Accumulate In Fatty Tissues.

Bio Magnification: Bio Magnification Is The Increasing Concentration Of A Pollutant As It Moves Up The Food Chain. This Occurs Because Predators Consume Prey That Have Already Accumulated The Pollutant. Examples Such As DDT, A Pesticide That Was Widely Used In The Mid-20th Century, Is A Classic Example Of Bio Magnification. It Accumulated In The Tissues Of Small Organisms, Such As Insects, And Was Then Passed On To Larger Predators, Such As Birds And Fish. This Led To The Decline Of Many Bird Populations.

- Bioaccumulation And Bio Magnification Studies Are Used To Monitor The Levels Of Pollutants In Ecosystems And Assess The Potential Risks To Wildlife And Human Health.
- These Studies Help To Identify And Assess The Potential Risks Of Exposure To Pollutants Through The Food Chain.
- The Results Of Bioaccumulation And Biomagnification Studies Can Inform The Development Of Environmental Regulations And Policies.

Key Considerations(B):

- **Species Sensitivity:** Different Species Have Varying Sensitivities To Pollutants, And Some May Be More Susceptible To Bioaccumulation And Bio Magnification Than Others.

- **Food Chain Dynamics:** The Structure And Dynamics Of Food Chains Can Influence The Rate And Extent Of Bio Magnification.
- **Environmental Factors:** Environmental Factors, Such As Temperature, Ph, And Nutrient Availability, Can Affect The Bioaccumulation And Bio Magnification Of Pollutants.

Bio Assessment Methods Such As Studying Biotic Communities And Populations Are Crucial For Understanding Ecosystem Health. Among These Above Methods, The Study Of Biotic Community And Population Of Different Organisms Are More Widely Used For Bio-Assessment Because In An Ecosystem All Groups Of Organisms Are Interdependent On Each Other, Any Impact On One Group Of Organisms Affects The Entire Ecosystem. These Methods Provide Details Into How Different Organism Interact And Depend On Each Other And How Changes In One Group Can Impact The Entire Ecosystem. Additionally, The Ecosystem Studies Can Detect Gradual Changes In Both The Structure And Function Of Ecosystems, Making Them Essential For Long Term Environmental Monitoring And Management

Site Selection:

The Following Sites Are Selected For Bio Monitoring Study In Consultation With The Digboi Refinery Authorities On The Basis Of Upstream And Downstream Condition. Samples Are Collected From The Following Sites (Table-1)For Physico-Chemical And Bio Monitoring Analysis Covered In The Present Study:

Table-1: Sampling Location

1.	Dihing - Margherita: 27.284275° 95.663482°
2.	Dihing - Makum: 27.292424° 95.616147°
3.	Dihing - Mirika: 27.273380° 95.564508°
4.	Dihing - Gammon Bridge: 27.311866° 94.882183°
5.	Dihingmukh: 27.262802° 94.703727°
6.	Digboi River - Kenduguri: 27.402045° 95.580806°
7.	Digboi River - 15 KM Pt: 27.345290° 95.479622°
8.	Digboi River - 26 KM Pt: 27.323431° 95.364031°
9.	Dihing - Before Confluence With Digboi River: 27.302082° 95.347753°
10.	Dihing - After Confluence With Digboi River: 27.302421° 95.344287°
11.	Digboi Sanitary Park River (Durgapukhuri): 27.387166^0 95.615823^0

The GPS Map Present Below Shows The Sample Collection Sites:

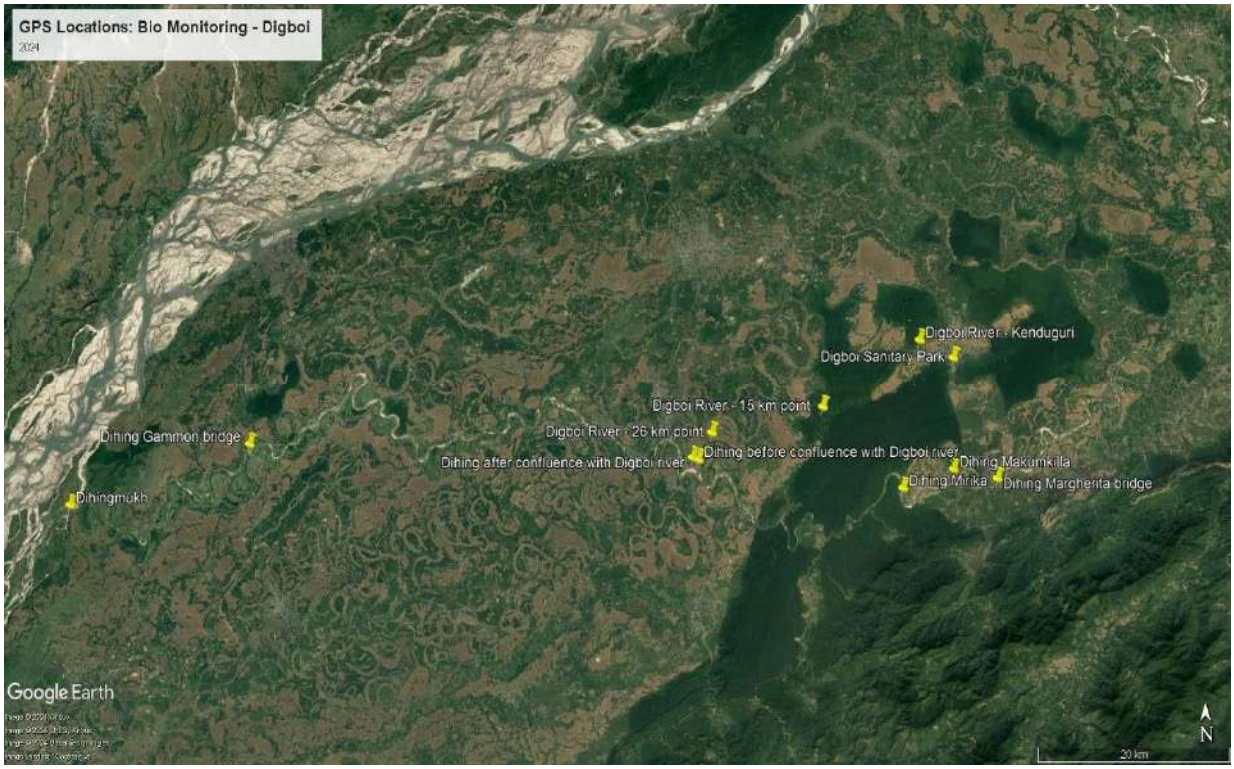


Fig 1: GPS Map Showing The Sampling Sites.

Aquatic Organisms Used In Bio-Monitoring

Aquatic Organisms Are Often Used As Bio-Indicators To Assess The Health Of Aquatic Ecosystems. Their Sensitivity To Pollution, Habitat Degradation, And Other Environmental Stressors Makes Them Valuable Tools For Monitoring Water Quality And Overall Ecosystem Health. Here Are Some Common Aquatic Organisms Used In Biomonitoring:

Macro Invertebrates-

When We Want To Check The Vital Signs Of A River, Lake, Or Stream, Some Of The Most Honest Answers Don't Come From A Lab Kit, But From The Creatures Living In The Water. By Observing Specific Aquatic Life, We Can Get A Clear, Real-Time Picture Of Environmental Health.

1. The River's Bottom Dwellers: Benthic Macro Invertebrates

If You Want To Know The History Of A Stream's Health, Turn Over A Rock And Look At What's Clinging To The Bottom. Benthic Macro Invertebrates—Like Insect Larvae, Worms, And Snails—Are Classic Indicators Because They Can't Easily Escape Pollution.

The Sensitive Ones: The Presence Of Species Like Mayfly, Stonefly, And Caddisfly Larvae Is Excellent News. They Are Notoriously Intolerant Of Pollution And Only Thrive In Clean, Well-Oxygenated Water.

The Tolerant Ones: In Contrast, An Abundance Of Creatures Like Aquatic Worms, Midges, And Leeches Often Signals That A Waterway Is Stressed By Organic Pollution Or Low Oxygen Levels.

2. The Mobile Residents: Fish

Fish Are Like The Long-Term Residents Of The Water Body. Their Presence, Absence, And Overall Health Tell A Story About Water Quality Over A Broader Period. Different Species Have Very Different Tolerances.

Cold-Water Fish Like Trout Require Cold, Highly Oxygenated Water. Their Disappearance Is A Red Flag For Rising Temperatures Or Pollution.

Warm-Water Fish Like Catfish Or Certain Bass Are More Resilient And Can Persist In Conditions That Would Be Fatal For More Sensitive Species. A Community Dominated By These Generalists Often Points To An Ecosystem Under Stress.

3. The Green Foundation: Algae And Aquatic Plants

The Plant Life In A Waterway Is A Powerful Indicator Of Its Nutrient Balance.

Algae Blooms: A Sudden Explosion Of Green, Slimy Algae In A Lake Is A Classic Sign Of Nutrient Pollution, Often From Fertilizers. These Blooms Can Deplete Oxygen And Harm Other Aquatic Life.

Diatoms: These Microscopic, Glass-Shelled Algae Are Particularly Telling. The Specific Species Of Diatom Present Can Help Scientists Trace Nutrient Levels And Pollution History With Remarkable Precision.

4. The Unseen World: Microorganisms , Even The Smallest Life Forms Have A Story To Tell.

Bacteria: High Levels Of Certain Bacteria, Like E. Coli, Are A Direct Indicator Of Fecal Contamination, Signaling Issues With Wastewater Or Agricultural Runoff.

Microbial Communities: The Overall Diversity Of Bacteria And Microbes In The Sediment Can Serve As A Subtle Gauge Of Ecosystem Stability And Recovery From Disturbance.

.

By Studying The Abundance, Diversity, And Health Of Aquatic Organisms, Scientists Can Gain Valuable Insights Into The Condition Of Aquatic Ecosystems And Develop Effective Conservation And Management Strategies.

Among These Groups Of Organisms, **Macro-Invertebrates** Are Found Best Suited For Bio-Monitoring And Are Used Worldwide Because Of More Advantages. Further, More Ecological Information Available For Their Taxonomic Groups And In Bio-Monitoring, Taxonomic Richness And Composition Characterization Of Macro-Invertebrates Are Being Used. Taxonomic Identification Of Macro-Invertebrates Is Done Up To Family Level.

The Samples Are Collected For General Physico-Chemical And Boi-Monitoring Characterization From The Above-Mentioned Locations.

The Study Employed A Semi-Quantitative Sampling Technique Using A D-Frame Net To Collect Benthic Macro-Invertebrates From Various Habitats Within The Digboi River Catchment. This Method Is Commonly Used In Aquatic Ecology To Assess Water Quality And Ecosystem Health.

Methodology:

Habitat Diversity:
Sampling Was Conducted Across Three Main Habitat Types—Pools, Riffles, And Cascades—To Ensure A Comprehensive And Representative Assessment Of The Aquatic Fauna Present In The Study Area. This Approach Captures The Variability In Environmental Conditions And Helps Account For Habitat-Specific Differences In Species Composition.

Preservation:
Collected Specimens Were Preserved In 70% Ethyl Alcohol To Maintain Their Morphological Integrity For Later Identification. This Concentration Is Widely Accepted In Aquatic Ecology Studies As It Effectively Prevents Decomposition Without Causing Excessive Tissue Hardening.

Identification:
Macro Invertebrates Were Identified To The Family Level Using Standard Taxonomic Keys. Family-Level Identification Is Commonly Employed In Bioassessment Studies, As It Balances Accuracy With Practicality And Provides Reliable Insights Into Ecological Conditions.
Data Analysis

Given The Type Of Data Collected, Several Analytical Approaches Were Applied To Interpret The Ecological Patterns And Assess Water Quality.

1.Biodiversity Indices

Species (Or Family) Richness: The Total Number Of Distinct Taxa Recorded At Each Sampling Site Was Used To Measure Richness.
Species Diversity: Diversity Indices Such As Shannon–Wiener And Simpson's Were Calculated To Account For Both The Number Of Taxa And Their Relative Abundances.

Evenness: Evenness Metrics Were Computed To Evaluate How Evenly Individuals Were Distributed Among The Different Taxa.

2. Tolerance Values

Biological Assessment Index (BAI):Each Macro Invertebrate Family Was Assigned A Tolerance Value Based On Its Sensitivity To Pollution.
Water Quality Index: The BAI Scores Were Used To Derive An Overall Water Quality Index For Each Site, Allowing For Comparison Across Habitats And Locations.

3. Community Composition Analysis

Ordination Techniques: Multivariate Analyses Such As Principal Component Analysis (PCA) And Non-Metric Multidimensional Scaling (NMDS) Were Used To Visualize Relationships Among Sites Based On Their Macro Invertebrate Assemblages.
Cluster Analysis: Sites With Similar Macro Invertebrate Communities Were Grouped To Identify Potential Ecological Patterns Or Gradients.

4. Statistical Tests

ANOVA / T-Tests: These Tests Were Performed To Determine Whether Differences In Macro Invertebrate Abundance Or Diversity Among Habitats Or Sites Were Statistically Significant.
Correlation Analysis: Relationships Between Macro Invertebrate Metrics And Environmental Variables (E.G., Dissolved Oxygen, Temperature, Ph) Were Examined Using Correlation Coefficients.

Expected Insights

Through These Analyses, The Study Aims To Provide Meaningful Insights Into Several Ecological And Environmental Aspects:

Water Quality: The Presence Or Absence Of Pollution-Sensitive Families Can Serve As An Indicator Of The River's Overall Health.
Habitat Preferences: Comparing Taxa Across Pools, Riffles, And Cascades Helps Identify Habitat-Specific Preferences And Ecological Requirements.
Impact Of Human Activities: Differences In Macro Invertebrate Assemblages Between Upstream And Downstream Sites May Reveal The Influence Of Anthropogenic Disturbances.
Biodiversity Patterns: The Findings Will Contribute To A Broader Understanding Of Benthic Macro Invertebrate Diversity Within The Digboi River Catchment.

Macro-Invertebrates Sample Collection

Macro Invertebrate Samples Were Collected As Per Procedure And Stored In Thoroughly Sterilized Bottles From The 10 Sampling Stations Of As Mentioned Above In Aug And Sept 2025.

Sample Collection Procedures Are Shown In Figure 2 Below.

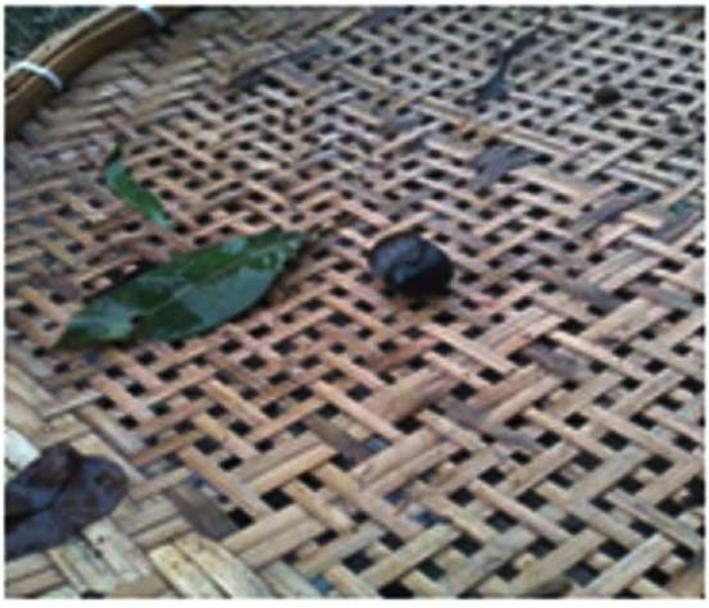


Fig2: Collection Of Macro-Invertibrates In The Present Study.

Collection Of Water Samples Was Undertaken According To The Standard Methods For Examination Of Water (APHA, 23rd Edition). Water Samples Used For The Analysis Of Chemical Variables, Were Collected In Plastic Container Of 1000 Ml. Water Samples Were Collected Facing Upstream Of The River As Recommended In APHA Et Al., (1971) And The Bottles Were Filled To The Neck Allowing No Head Space And Transported To The Laboratory In An Ice-Filled Cooler Box. Samples Were Preserved At 4^0C In The Laboratory For Chemical Analysis. All Chemical Analyses Were Performed Within 24 Hours Of Sample Collection. Analyses Were Conducted For Three Replicates For Each Sample And Averaged. This Method Was Adopted Due To The Fact That Average Readings Were More Representatives Besides Reducing Variability In The Measured Results.

The Ability Of Macro-Invertebrates To Colonize Various Habitats And Substrata Underscores Their Importance As Indicators Of Water Quality. By Sampling From Diverse Habitats, Researchers Can Obtain A More Comprehensive Picture Of The Aquatic Ecosystem's Health.

Key Points Regarding Sampling:

- **Representative Sampling:** Ensuring That The Collected Sample Represents All Habitats In The Location Is Crucial For Accurate Assessment.
- **Individual Organism Count:** The Number Of Individuals In The Sample Provides Insights Into The Population Size Of Different Macro-Invertebrate Groups.
- **Sampling Methods:** The Choice Of Sampling Methods Depends On The Substratum Where Macroinvertebrates Are Found.

The Role Of BWQC In Water Quality Evaluation

The CPCB's Biological Water Quality Criteria (BWQC) Provides A Framework For Assessing Water Quality Based On The Presence And Abundance Of Macro-Invertebrate Families. The Saprobic Score Method Assigns Values To Families Based On Their Tolerance To Pollution.

Key Aspects Of BWQC:

- **Saprobic Values:** Higher Saprobic Values Indicate Greater Tolerance To Pollution, While Lower Values Suggest Sensitivity.
- **Family-Level Identification:** The BWQC Is Based On The Identification Of Macro-Invertebrates Up To The Family Level.
- **Scoring System:** Families Are Assigned Scores From 1 To 10, With 10 Representing The Most Sensitive And 1-2 Representing The Most Tolerant.

Potential Data Analysis Approaches

To Analyze Macro-Invertebrate Data And Assess Water Quality Using BWQC, The Following Approaches Could Be Employed:

1. **Calculating Saprobic Index:**
    - Sum The Saprobic Values Of All Identified Macro-Invertebrate Families In The Sample. ○ Divide The Sum By The Total Number Of Individuals Or Families.
    - The Resulting Value Represents The Overall Saprobic Index Of The Sample.
2. **Comparing With BWQC:**
    - Compare The Calculated Saprobic Index To The BWQC Thresholds To Determine The Water Quality Category (E.G., Clean, Moderately Polluted, Heavily Polluted).
    - Analyze The Presence Or Absence Of Specific Macro-Invertebrate Families That Are Indicative Of Different Pollution Levels.
3. **Relating To Environmental Factors:**
    - Examine The Relationship Between Saprobic Index Or Individual Macro-Invertebrate Abundance And Environmental Factors (E.G., Dissolved Oxygen, Ph, Temperature).
    - Identify Potential Drivers Of Water Quality Changes.
4. **Temporal And Spatial Trends:**
    - Analyze Changes In Macro-Invertebrate Assemblages And Saprobic Indices Over Time To Assess Trends In Water Quality.
    - Compare Data From Different Sampling Sites To Identify Spatial Variations In Water Quality.

By Analyzing Macro-Invertebrate Data And Applying BWQC, The Study Could Provide Insights Into:

- **Water Quality Status:** The Overall Health Of The Water Body Based On The Presence Of Pollutiontolerant Or Sensitive Macro-Invertebrates.
- **Impact Of Pollution:** The Identification Of Specific Pollutants Or Sources Of Pollution Affecting The Aquatic Ecosystem.
- **Habitat Suitability:** The Relationship Between Macro-Invertebrate Assemblages And Different Habitats Or Substrata.
- **Restoration Efforts:** The Effectiveness Of Pollution Control Measures Or Habitat Restoration Initiatives.

Table 2: Range Of Saprobic Score

Range Of Saprobic Score	**Range Of Diversity Score**	**Water Quality**	**Water Quality Class**	**Indicator Colour**

6-7	0.5-1.0	Slight Pollution	B	Light Blue
3-6	0.3-0.9	Moderate Pollution	C	Green
2-5	0.4-Less	Heavy Pollution	D	Orange
0-2	0-0.2	Severe Pollution	E	Red

The Samples Are Collected Depending On The Characteristic Of River Bed.

a) **Boulders And Cobbles**: The Stones Are Lifted Randomly And The Organisms Are Picked Up Using Soft Forceps Or Brushed Off Into The White Tray.

b) **Pebbles And Gravels**: The Hand Net Is Placed Firmly On The Stream Bed Against The Flow. The Stream Bed Is Kicked Up By Foot And The Organisms Are Collected Into The Net. After This, The Collected Material Is Washed Using Sieve (Recommended Mesh Size 0.6 Mm As Per ISO) And Macro-Invertebrates Are Collected Intro Plastic Bottles Containing Formalin (4%).
If The River Bed Is Covered With Macrophytes Then, Bmis Are Collected By Uprooting The Plants First And Washing The Roots With Water Into Sieve And Collected Into White Tray. From The Tray Organisms Are Picked Up Using Forceps And Preserved In 4% Formalin For Further Study.

Identification Of Macroinvertebrates:

In The Laboratory, The Collected Macroinvertebrates Were Sorted And Identified To The Finest Possible Taxonomic Level. This Work Was Guided By Recognized Taxonomic Keys And Supplemented By Consultation With Specialist Colleagues. For Documentation, Larger Specimens Were Captured With High-Resolution Digital Photography, While More Minute Individuals Were Examined In Detail Under A Stereomicroscope.

Some Of The Macro Invertibrates Collected Is Shown In The Figures Below.

Fig 3: Some Of Macro- Invertibrates Found In Present Study.

Biological Monitoring Working Party (BMWP) Score

The Biological Monitoring Working Party (BMWP) Scoring System Was Originally Developed In The United Kingdom To Assess River Water Quality Using Aquatic Macroinvertebrates As Biological Indicators. Although It Was First Applied To British Rivers, The System Is Not Confined To Any Specific Geographical Region. Over Time, It Has Been Widely Adopted And Adapted Across The World, Including In India, With Necessary Modifications To Reflect Local Ecological Conditions And Species Distributions.

The BMWP System Is Based On The Varying Sensitivity Of Macro Invertebrate Families To Organic Pollution, Which Reflects The Saprobic Condition Of A Water Body. Each Family Of Macro Invertebrates Is Assigned A Specific Tolerance Score On A Scale From 1 To 10, Depending On Its Response To Organic Enrichment. Families That Are Highly Sensitive To Pollution, Such As Certain Mayflies And Stoneflies, Receive The Highest Score Of 10. In Contrast, Families That Are Tolerant Of Poor Water Quality, Such As Some Worms Or Chironomids, Are Assigned The Lowest Score Of 1. Families With Moderate Sensitivity Fall Between These Two Extremes, With Scores Ranging From 2 To 9.

To Calculate The BMWP Score For A Site, Each Macro Invertebrate Family Observed Is Assigned Its Corresponding Score According To The BMWP Chart. The Scores For All Families Present Are Then Summed To Obtain The Total BMWP Score For That Sample. Higher Scores Generally Indicate Cleaner, Less Polluted Water, Whereas Lower Scores Suggest Higher Levels Of Organic Pollution.

In India, The Original BMWP System Has Been Modified By The Central Pollution Control Board (CPCB) To Better Represent Local Conditions. Certain Families Absent In Indian Rivers Were Excluded, While Relevant Indigenous Taxa Were Added After Extensive Evaluation And Consultation With Experts. Table 3 Presents The BMWP Scoring System Currently Adopted By The CPCB.

BMWP Score = Σ No. Of Families In One Group × Weightage Score

Table.3: BMWP Score System Adopted By CPCB

Sl No	**Taxonomical Families**	**Weightage Score**
1	Siphlonuridae, Heptageniidae, Leptophlebiidae, Ephemerelidae, Potaminthidae, Ephemeridae, Prosopistomatidae, Neoephemeridae, Ameletidae, Taeniopterygidae, Leuctridae, Capniidae, Perlodidae, Perlidae, Aphelocheridae, Leptoceridae, Georidae, Lepidostomatidae, Brachycentridae, Sericostomatidae, , Glossosomatidae, Helicopsychidae , Leptohyphidae	10
2	Chloroperlidae	9

3	Euphaidae, Protoneuridae, Plathycnemididae, Lestidae, Gomphidae, Cordulegastridae, Aeshnidae, Corduliidae, Libellulidae, Macromiidae, Psychomyiidae, Philopotamidae, Cheumatopsychidae, Chrysomelidae, Hydrenidae,Sciomyzidae, Limoniidae	8
4	Caenidae, Nemouridae, Rhycophilidae, Polycaltropodidae, Limnephilidae, Stenopsychidae	7
5	Ancylidae, Hydrobiidae, Neritidae, Viviparidae, Thiaridae, Bithynidae, Unionidae, Pleuroceridae, Amblemidae, Septariidae, Assiminidae,	6
	Ampullaridae, Solecurtidae, Stenothyridae, Arcidae, Succinidae, Hydroptilidae, Palaemonidae, Atyidae, Genocentridae, Gammaridae, Potamidae, Parathelphusidae, Anthuridae, Niphargidae, Talitridae, Mysidae, Hymenosomatidae, Varunidae, Sesarmidae, Gecarcinucidae, Nereidae, Nephthyidae, Nereididae, Sabellidae, Pisionidae, Histriobdellidae, Megascolecidae, Coenagrionidae, Agriidae	
6	Mesovelidae, Hydrometridae, Gerridae, Nepidae, Naucaridae, Notonectidae, Pleidae, Corixidae, Vellidae, Hebridae, Belastomatidae, Haliplidae, Hygrobidae, Dytiscidae, Gyrinidae, Hydrophilidae, Noteridae, Dryopidae, Elminthidae, Psephenidae, Heteroceridae, Elmididae, Scritidae, Eulichadidae, Histeridae, Curculionidae, Hydropsychidae, Ecnomidae, Tipulidae, Culicidae, Blepharoceridae, Simulidae, Nymphomyidae, Sarcophagidae, Stratiomyiidae, Ceratopogonidae, Pyralidae,Planariidae, Dendrocoeclidae , Carabidae, Hydrochidae, Staphylinidae	5
7	Baetidae, Sialidae, Corydalidae, Piscicolidae, Hirudinidae	4
8	Lymnaeidae, Planorbidae, Sphaeridae, Physidae, Orbiculidae, Onchididae, Glossophonidae, Hirudidae, Erpobdellidae, Haemadipsidae, Salifidae, Dugesidae, Aselidae, Cirolanidae, Aegidae, Stenasellidae, Cymothoidae,	3
9	Chironomidae, Syrphidae, Ephydridae, Muscidae, Psychodidae	2
10	Tubifiscidae, Naididae, Octochaetidae, Lumbricidae, Lumbricullidae	1

The Saprobic Score Is Calculated By

Saprobic Score = BMWP Score/ ∑Number Of Families Encountered

Results And Discussion:

Understanding The Community Composition

The Study Found That The Digboi River Supports A Diverse Group Of Macro-Invertebrates Belonging To Three Main Phyla: Arthropoda , Annelida , And Mollusca . Among These, Arthropoda Was The Most Dominant, Followed By Mollusca . The Most Common Classes Observed Were Insecta And Gastropoda , Which Were Well Represented Across All Sampling Sites.

Within The Class Insecta, The Orders Hemiptera , Decapoda , And Coleoptera Were The Most Abundant. For Gastropoda, The Families Ancylidae , Ampullaridae , Haliplidae , Hydrometridae , And Nemouridae Showed The Highest Occurrence. This Wide Distribution Of Different Groups Suggests That The Digboi River Provides A Variety Of Habitats That Support Many Types Of Aquatic Life.

Assessing Water Quality Macro-Invertebrates

Even Though A Specific Water Quality Index Like BWQC Was Not Used In This Study, The Types Of Macro-Invertebrates Found Give A Good Indication Of The River's Condition.

The Presence Of Pollution-Tolerant Species Such As Laccotrephes Sp., Notonecta Sp., And Hydaticus Sp. Points To Possible Pollution In Some Parts Of The River. However, The Occurrence Of Sensitive Species Like Hirudinaria Manillensis Shows That Other Sections Still Maintain Relatively Good Water Quality. The Distribution Of These Organisms Across Different Habitats—Such As Pools And Riffles—Also Reflects Their Ability To Survive Under Various Environmental Conditions.

To Gain A More Comprehensive Understanding Of Water Quality And Ecosystem Health In Digboi River, The Following Analyses Could Be Conducted:

1. Apply A Water Quality Index: Using A Biological Index Such As BWQC Would Help Evaluate The River's Health More Accurately Based On The Macro-Invertebrate Data.
2. Study Environmental Factors: Analyzing How Factors Like Dissolved Oxygen, Ph, And Temperature Affect Macro-Invertebrate Abundance Could Reveal What Influences Changes In Water Quality.
3. Compare Sites And Seasons: Looking At How The Macro-Invertebrate Community Changes Across Different Sites And Over Time Can Help Identify The Effects Of Human Activities Or Natural Variations.
4. Focus On Conservation: Identifying Species That Are Rare Or Of Ecological Importance Can Guide Efforts To Protect Them And Restore Their Habitats.

Interpreting Macro Invertebrate Data & Discussion Of The Results:

Macro-Invertebrate Communities And Water Quality Across Study Sites

The Assessment Of Macro-Invertebrate Communities Across The Digboi Nala And Dihing River Revealed Substantial Variations In Water Quality And Habitat Conditions. The Analysis Highlights How Pollution And Habitat Degradation Influence Aquatic Biodiversity At Different Sites.

SITE 1: DIGBOI NALA (UP STREAM) -

Site 1 Showed Clear Signs Of Pollution, Including An Oily Film, Greasy Coatings On Substrata, And Excessive Algal Growth. Hydrilla Was Abundant, Suggesting Nutrient Enrichment.

Macro-Invertebrate Data Further Support The Evidence Of Degradation. Families Such As Tubificidae, Naididae, Octochaetidae, Lumbriculidae, Cirolanidae, Psychodidae, And Muscidae Dominated This Site. These Taxa Are Known To Tolerate Polluted Conditions, Indicating That Sensitive Species Are Likely Unable To Survive Here. Overall, Site 1 Represents A Moderately To Severely Impacted Aquatic Habitat.

SITE 2: DIGBOI NALA (DOWNSTREAM)

Similar Patterns Were Observed At Site 2. An Oil Slick On The Surface Indicated Ongoing Hydrocarbon Contamination. Macro-Invertebrates Such As Odonata, Histeridae, Corydalidae, And Lumbricidae Were Present, Reflecting Moderate Tolerance To Pollution.

The Absence Of Sensitive Orders, Including Ephemeroptera, Trichoptera, And Heptageniidae, Underscores Habitat Degradation. Although Some Marginal Vegetation Existed, It Was Insufficient To Mitigate The Impacts Of Pollution. This Site, Like Site 1, Demonstrates Degraded Water Quality With Limited Biodiversity.

SITE 3: DIGBOI NALA (FURTHER DOWNSTREAM)

At Site 3, Water Quality Appeared Further Compromised, With Turbid Water And Visible Oil Slicks. The Macro-Invertebrate Assemblage Was Dominated By Pollution-Tolerant Families Such As Hygrobidae, Dytiscidae, Odonata, Nereidae, Heteroceridae, And Corixidae.

The Absence Of Sensitive Groups Such As Mayflies And Caddisflies Confirms Significant Habitat Degradation. Continued Pollution At This Site Could Further Threaten Aquatic Biodiversity.

SITE 4: DIHING RIVER (BEFORE CONFLUENCE WITH DIGBOI NALA)

In Contrast, Site 4 Displayed Relatively Healthy Conditions. Sensitive Taxa Such As Varunidae, Sesarmidae, Gecarcinucidae, Nereidae, And Nephthyidae Were Present, Indicating A Less Polluted Environment. Odonates And Trichopterans Were Dominant, While Pollution-Tolerant Taxa Were Minimal.

This Macro-Invertebrate Assemblage Suggests Better Habitat Quality And Limited Anthropogenic Impact, Highlighting The River's Capacity To Support Diverse Aquatic Life Prior To Merging With Digboi Nala.

SITE 5: DIHING RIVER (AFTER CONFLUENCE)

Following The Confluence With Digboi Nala, Site 5 Showed Moderate Pollution. Turbid Water And Oil Slicks Indicated Contamination, While Macro-Invertebrates Such As Arcidae, Succinidae, Hydroptilidae, Palaemonidae, And Gammaridae Demonstrated Moderate Tolerance.

The Absence Of Highly Sensitive Taxa Indicates Habitat Degradation, But The Presence Of Moderately Tolerant Species Suggests The Ecosystem Still Retains Some Functional Diversity. Continued Monitoring And Pollution Mitigation Are Crucial Here.

SITES 6–8: DIHING RIVER AT MARGHERITA, MAKUM, AND MIKIRA

Sites 6 To 8 Presented A Mixed Picture:

- **Site 6 (Margherita):** Dominated By Odonates And Sensitive Taxa Like Baetidae, Sialidae, Corydalidae, And Hirudinidae. However, Chironomus Larvae Were Abundant, Suggesting Localized Nutrient Enrichment Or Organic Pollution.
- **Site 7 (Makum):** Displayed Moderate Pollution, With Taxa Such As Physidae, Lymnaeidae, Planorbidae, Tipulidae, And Muscidae Dominating. Sensitive Species Were Absent, Pointing To Habitat Degradation.
- **Site 8 (Mikira):** Water Quality Was Moderately Good, With Odonates Dominating And Sensitive Taxa Such As Potamidae, Parathelphusidae, Anthuridae, Varunidae, And Arcidae Present. Sparse Trichoptera And Some Moderately Tolerant Coleoptera Indicate Minor Habitat Impacts.

Overall, These Sites Reflect Moderately Healthy Aquatic Environments, With Some Localized Stress Due To Organic Pollution Or Nutrient Enrichment.

SITE 9: DIHING RIVER, GAMMON BRIDGE

Site 9 Exhibited Relatively Healthy Conditions. A Dominant Cyprinid Fish Population Suggested A Stable Ecosystem. Macro-Invertebrate Diversity Included Moderately Pollution-Sensitive Taxa Such As Ancylidae, Cordulegastridae, Aeshnidae, Libellulidae, And Gammaridae.

The Assemblage Indicates A Healthy Aquatic Ecosystem With Minimal Pollution Impact, Capable Of Supporting Diverse Macro-Invertebrate Communities.

SITE 10: DIHING MUKH

Site 10 Was Severely Degraded. The Presence Of Animal Carcasses Indicated Significant Organic Pollution. Macro-Invertebrate Communities Were Dominated By Highly Tolerant Taxa, Including Hirudinea, Gastropoda, Bivalvia, Crustacea, And Various Diptera And Coleoptera Families.

Sensitive Species Were Absent, Confirming Extreme Habitat Degradation. Without Intervention, This Site Faces Potential Complete Loss Of Aquatic Biodiversity.

SITE 11: DIGBOI SANITARY PARK RIVER (DURGAPUKHURI)

Site 11 Showed Relatively Healthy Conditions Compared To Most Other Sites. Dominant Odonates And Trichopterans Indicated Clean Water, While Sensitive Taxa Like Varunidae, Sesarmidae, Gecarcinucidae, And Nereidae Were Present. Moderate Agriidae Presence Was Noted But Not Concerning.

This Assemblage Reflects A Less Degraded Habitat, Suggesting That The Water Quality Here Is Sufficient To Support Diverse Macro-Invertebrate Communities.

Overall Observations And Key Findings

Dominant Macro-Invertebrate Taxa Across The Study Sites Included Coleoptera, Hemiptera, Diptera, And Mollusca .

Distribution Patterns Reflect Species' Tolerance Levels And Habitat Preferences.

Sites Impacted By Digboi Nala Inputs Generally Showed Poor Water Quality , While Upstream Or Less Impacted Areas Of The Dihing River Supported Sensitive Taxa And Relatively Healthy Habitats.

The Family Biotic Index (FBI) Indicated Poor Water Quality In Heavily Polluted Sections Of The Dihing River.

Macro-Invertebrates Serve As Reliable Bioindicators , Reflecting Both Pollution Levels And Overall Ecosystem Health.

Assessing Water Quality Using The FBI

The FBI Is A Valuable Tool For Assessing Water Quality Based On The Presence And Abundance Of Macroinvertebrate Families. A Lower FBI Score Indicates A More Degraded Aquatic Environment.

The FBI Results Suggest That The Dihing River Section Is Heavily Polluted. The Presence Of Pollutiontolerant Taxa Indicates A Degraded Habitat. The Study Highlights The Difficulty In Identifying A Suitable Reference Site In Digboinala Due To Its Degraded Condition. This Emphasizes The Need For Careful Selection Of Reference Sites In Pollution-Impacted Areas. To Gain A More Comprehensive Understanding Of The Macro-Invertebrate Community And Water Quality In The Dihing River Catchment, Future Studies Could Increase The Number Of Sampling Sites To Cover A Wider Range Of Habitats And Environmental Conditions, Conduct Long-Term Monitoring To Track Changes In Macro-Invertebrate Assemblages And Water Quality Over Time, Analyze The Relationship Between Macro-Invertebrate Distribution And Environmental Factors (E.G., Temperature, Dissolved Oxygen, Ph, Nutrients). Evaluate The Effectiveness Of Habitat Restoration Measures On Macro-Invertebrate Communities And Water Quality.

The Assessment Of The Digboinala And Digboinadi Highlights Significant Degradation, Primarily Driven By Both Point And Non-Point Sources Of Pollution. While The Permitted Discharge From The Effluent Treatment Plant (ETP) Contributes To Water Quality Issues, Factors Like Municipal Waste Dumping, Agricultural Runoff, And Seasonal Flow Variations Also Play Critical Roles.

To Better Understand And Address These Challenges, It's Essential To Combine Biological Surveys With Chemical Monitoring. This Dual Approach Will Help Distinguish Between The Impacts Of Point Source Discharges And The Broader Influences Of Non-Point Pollution. Additionally, Conducting Laboratory Evaluations On How Specific Pollutants Affect The Biota Can Provide Insights That Are Applicable In Field Conditions.

Overall, Immediate Action Is Required To Restore The Health Of The Digboinala And Digboinadi System. Implementing Corrective Measures Based On Comprehensive Data Analysis Will Be Crucial For Improving Water Quality And Ecosystem Health In The Area.

The Dihing River Is Largely Free From Pollution Effects And Some Awareness Among The People Residing In The Areas Near The Confluence Of The Digboinadi And Dihing River Can Take Care Of The Impact Noticed In The Confluence.

To Restore The Digboinala-Digboinadi System Effectively, The Following Suggestions Could Be Implemented:

1. **Define Attainable Conditions**: Utilize Historical Data Alongside Current Biological Surveys To Establish Baseline Conditions For The Ecosystem. This Should Consider Both Spatial Variations (Different Areas Of The Stream) And Temporal Changes (Seasonal Fluctuations). Identifying These Benchmarks Will Help In Setting Realistic Restoration Goals.
2. **Develop An Index Of Biological Integrity**: Select An Appropriate Biological Assemblage (E.G., Fish, Macroinvertebrates) And Create A Quantitative Index Of Biological Integrity (IBI). This Index Will Serve As A Measurable Tool For Assessing Habitat Quality And Tracking Improvements Over Time.
3. **Setup Laboratory Monitoring**: Establish Facilities To Monitor The Effects Of Point Source Discharges On Selected Species In A Controlled Laboratory Environment. This Will Help Differentiate The Impacts Of These Discharges From Other Pollution Sources, Allowing For Targeted Management Strategies.

Implement Continuous Bio-Monitoring: Develop A Systematic, Ongoing Bio-Monitoring Program With Trained Field Personnel. Regular Assessments Will Ensure Timely Identification Of Changes In Water Quality And Ecosystem Health, Enabling Swift Intervention When Necessary. These Steps, When Integrated, Will Provide A Robust Framework For Understanding And Mitigating The Degradation Of The Digboinala-Digboinadi System, Fostering Long-Term Ecological Resilience.

Physico-Chemical Study

Along With Bio-Monitoring, The Determination Of The Following Water Quality Parameters Was Carried Out Simultaneously At All The Stations:

1. Temperature
2. Free CO_2
3. Ph Value,
4. Turbidity
5. Dissolved Oxygen
6. Oil & Grease
7. TDS,
8. TSS,

9. Sulphate
10. BOD
11. COD
12. Nitrate
13. Total Hardness
14. Total Alkalinity
15. Heavy Metals As Arsenic, Lead, Iron, Zinc

Results And Discussion Physico-Chemical Parameters:

Table: 4 Physico-Chemical Parameters For The Surface Water Samples

Parameter	**Unit**	**Site 1**	**Site 2**	**Site 3**	**Site 4**	**Site 5**	**Site 6**	**Site 7**	**Site 8**	**Site 9**	**Site 10**	**Site 11**
Temperature	°C	20.8	21.3	20.2	20.5	21	22	20.6	20.1	20	20.7	20.4
Free CO_2	Mg/L	11.5	9.8	13.6	12.4	10.5	9.2	9.8	13.1	12.6	11.4	12.1
Ph		7.2	7	7.1	6.9	7.2	7.3	7.2	7.1	7	7.4	7.3
Turbidity	NTU	18.5	24.2	27.6	14.2	16.8	28.9	13.8	19.4	15.6	18.9	10.8
DO	Mg/L	2	2.7	2.8	5.4	4.6	3.9	5.8	5.2	2.6	4.8	3.2
BOD	Mg/L	5.6	6.1	9.4	5.1	26.2	10.5	6.4	8.1	9.1	13.2	9.3
COD	Mg/L	25	19	38	10	90	36	28	33	35	64	29
Oil & Grease	Mg/L	7.8	19.4	9.5	9.3	5.2	21.2	11.3	25.5	5.6	13.1	10.4
TSS	Mg/L	3.4	2.2	1.9	3.8	3.6	2.7	2.4	2.1	1.8	2.2	1.9
TDS	Mg/L	286	261	198	342	325	240	268	228	198	206	212
Sulphate	Mg/L	1.52	3.9	0.5	0.36	3.12	1.64	0.34	0.26	12.8	5.1	2.6
Nitrate	Mg/L	0.81	0.49	0.55	1.2	2.9	3.9	3.4	3.1	0.9	1.8	2.1
Total Hardness	Mg/L	59.8	52.1	46.5	68.4	50.3	136.8	54.9	58.7	104.6	52.8	159.5
Total Alkalinity	Mg/L	46.2	49.8	37.1	44.2	40.8	50.9	58.6	55.2	60.4	54.3	44.7
Arsenic	µg/L	0.01	0.03	BDL	0.01	0.02	0.02	0.04	0.02	0.01	0.01	0.02
Lead	Mg/L	0.01	0.03	0.61	0.02	0.01	0.12	0.03	0.04	0.21	0.02	0.01
Iron	Mg/L	0.21	0.51	0.26	0.42	0.29	0.25	0.26	0.45	0.31	0.23	0.27
Zinc	Mg/L	0.11	0.38	0.15	1.05	0.11	0.08	0.09	0.41	0.18	0.09	0.28

Discussion Of The Results & Conclusion:

From The Above Table, It Is Noticed That The Analysis Of Different Physico-Chemical Parameters Is Important To Know The Quality And Productivity Of An Aquatic System.

Temperature Plays A Pivotal Role In Aquatic Ecosystems. Here's A Deeper Dive Into How It Influences Various Aspect. Higher Temperatures Often Increase Metabolic Rates In Ectothermic (Cold-Blooded) Organisms, Which Can Lead To More Active Feeding And Reproductive Behaviors. Conversely, Extreme Temperatures Can Stress Organisms, Affecting Their Growth And Survival. Many Fish And Aquatic Species Adjust Their Behaviors Or Migrate Based On Temperature Changes, Seeking Optimal Conditions For Feeding And Spawning. Warmer Water Typically Holds Less Oxygen. This Is Critical For Fish And Other Aerobic Organisms, Which May Experience Stress Or Suffocation If Oxygen Levels Drop Too Low. Higher Temperatures Can Also Impact The Solubility Of Gases Like CO2, Influencing Photosynthesis And Respiration Processes In Aquatic Plants. Temperature Can Affect The Evaporation Rates Of Water, Thereby Influencing Salinity Levels In Freshwater And Estuarine Systems. Higher Temperatures May Lead To Increased Evaporation, Concentrating Salts And Impacting Species That Are Sensitive To Salinity Changes. Temperature Affects The Rates Of Chemical Reactions, Including Those Involved In Nutrient Cycling. Warmer Temperatures Can Speed Up The Decomposition Of Organic Matter, Releasing Nutrients But Also Potentially Leading To Nutrient Imbalances Or Eutrophication. Monitoring And Understanding Temperature Fluctuations In Aquatic Systems Is Vital For Assessing Ecosystem Health And Resilience. By Analysing How Temperature Interacts With Other Physicochemical Parameters, We Can Better Predict The Impacts Of Environmental Changes And Implement Effective Conservation Strategies.

In The Present Investigation, The Water Temperature Was Found To Vary From 20 In Site 9 To 22 In Site 6 Change In Alkalinity Is A Result Of Change In Ph Value. The Ph Value Increases Due To The Activity Of Photosynthetic Algae Which Consumes CO_2 Dissolved In Water.

The Variations Of Temperature, Free CO_2 And Ph Is Shown In The Graph Below (Fig 4)

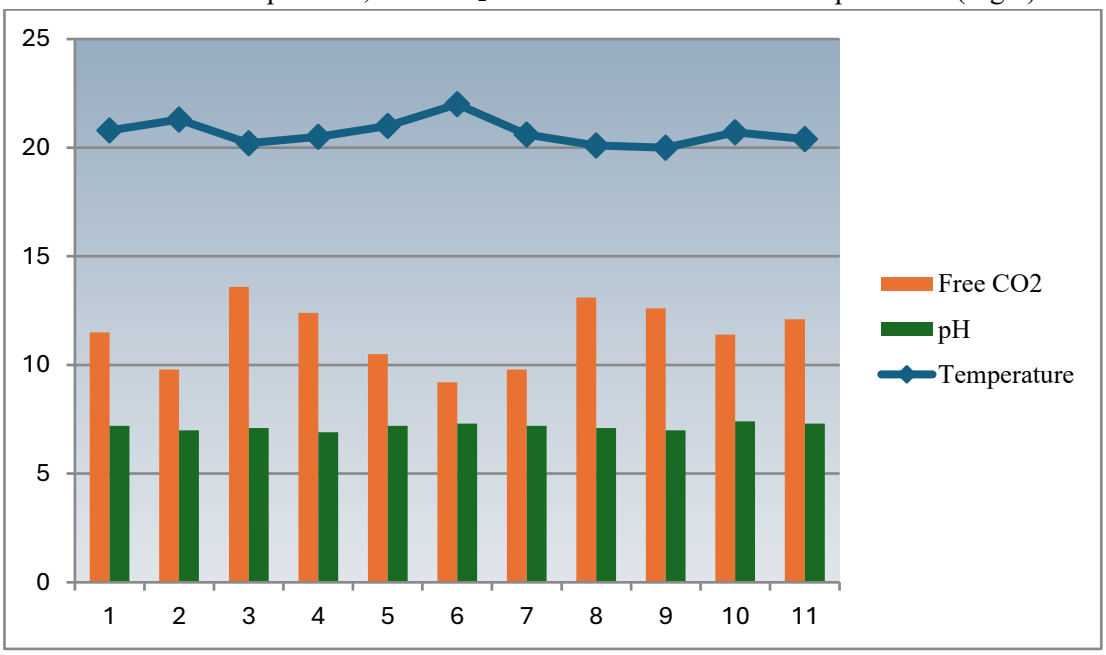


Fig 4: Variations Of Temperature, Free CO_2 And Ph For Each Site Of Sample Collection.

Dissolved Oxygen (DO) Is A Crucial Parameter For The Health Of Aquatic Ecosystems. It Supports The Respiration Of Aquatic Organisms, Including Fish, Invertebrates, And Microorganisms. When DO Levels Fall Below A Certain Threshold, It Can Lead To Stress, Disease, And Even Mortality Among These Organisms.

Sites 1, 2, 3, And 6 Have Significantly Depleted DO Levels. The Recorded DO Values (2,2.7,2.8, And 3.9 Mg/L) Are Below The Minimum Levels Required For Many Aquatic Species To Thrive. Several Factors Can Contribute To Low DO Levels In Aquatic Environments: Excessive Amounts Of Organic Matter, Such As Sewage Or Agricultural Runoff, Can Decompose In The Water, Consuming Oxygen During The Decomposition Process. Nutrient-Rich Pollution, Often From Agricultural Runoff Or Wastewater, Can Lead To Algal Blooms. When These Blooms Die And Decompose, They Consume Oxygen. Warmer Water Holds Less Dissolved Oxygen Than Colder Water. Increased Temperatures Can Exacerbate DO Depletion, Especially In Areas With High Organic Loads. Lack Of Water Movement Can Limit The Diffusion Of Oxygen From The Atmosphere Into The Water. Certain Industrial Processes Can Release Pollutants That Reduce DO Levels.

Free Carbon Dioxide (FCO2) Is A Crucial Parameter In Aquatic Ecosystems. It Plays A Significant Role In Ph Regulation, Carbonate Chemistry, And The Overall Balance Of Dissolved Gases. High FCO2 Levels Can Lead To Increased Acidity, Which Can Have Adverse Effects On Aquatic Organisms. The FCO2 Values Vary Considerably Across The Sites, Ranging From 9.2 Mg/L (Site 6) To 13.6 Mg/L (Site 3). This Suggests Significant Differences In The Sources And Levels Of Carbon Dioxide In The Different Aquatic Environments. Several Factors Can Contribute To Elevated FCO2 Levels In Aquatic Environments. Decomposition Of Organic Matter, Such As Decaying Plants Or Algae, Releases Carbon Dioxide. Aquatic Organisms, Including Fish, Invertebrates, And Microorganisms, Release Carbon Dioxide As A Byproduct Of Respiration. Certain Industrial Processes Can Discharge Carbon Dioxide-Containing Effluents Into Waterways. Groundwater With High FCO2 Levels Can Contribute To Elevated Concentrations In Surface Waters.

Ph Is A Crucial Measure Of Water Acidity Or Alkalinity. It Directly Influences The Availability Of Nutrients, The Toxicity Of Pollutants, And The Metabolic Processes Of Aquatic Organisms. Maintaining A Ph Within A Suitable Range Is Essential For The Overall Health And Balance Of Aquatic Ecosystems. The Ph Values Recorded (6.9-7.4) Fall Within The World Health Organization (WHO) Permissible Limit For Drinking Water, Indicating A Generally Acceptable Ph Level. The Lack Of Significant Ph Fluctuations Suggests A Relatively Stable Water Body In Terms Of Acidity Or Alkalinity. While The Ph Levels In This Water Body Appear To Be

Within A Desirable Range, Several Factors Can Influence Ph Fluctuations: Decomposition Of Organic Matter, Respiration By Aquatic Organisms, And The Dissolution Of Minerals Can All Contribute To Changes In Ph. Atmospheric Pollution Can Lead To Acid Rain, Which Can Lower The Ph Of Water Bodies. Runoff From Agricultural Areas Or Industrial Sites Can Introduce Substances That Alter Ph. The Concentration Of Dissolved Carbon Dioxide In The Water Can Affect Ph.

Turbidity Is A Measure Of Water Clarity That Indicates The Amount Of Suspended Particles, Such As Silt, Clay, Or Organic Matter, In The Water. Higher Turbidity Levels Can Reduce Light Penetration, Affecting Aquatic Plants And The Overall Health Of The Ecosystem. Turbidity Levels Vary Significantly Between Site 3 (27.6 NTU) And Site 11 (10.8 NTU). Site 3 Exhibits The Highest Turbidity Among The Sampling Sites. Several Factors Can Contribute To Elevated Turbidity Levels: Erosion Of Soil And Sediments From Surrounding Land Can Increase Turbidity, Especially During Heavy Rainfall Or Periods Of Intense Human Activity. Construction Projects Near Water Bodies Can Release Sediments Into The Water, Leading To Increased Turbidity. Runoff From Agricultural Fields Can Carry Soil Particles And Other Suspended Matter Into Waterways. Dense Algal Blooms Can Increase Turbidity Due To The Presence Of Suspended Algal Cells. Certain Industrial Processes Can Discharge Wastewater Containing Suspended Solids. High Turbidity Levels Can Have Several Negative Consequences: Turbid Water Blocks Sunlight, Affecting Aquatic Plants That Rely On Photosynthesis. Turbidity Can Reduce Visibility For Aquatic Organisms, Making It Difficult For Them To Find Food Or Avoid Predators. Suspended Particles Can Settle To The Bottom Of The Water Body, Smothering Aquatic Habitats And Reducing Oxygen Levels. High Turbidity Can Make Water Treatment More Difficult And Expensive.

Biochemical Oxygen Demand (BOD) Is A Measure Of The Amount Of Oxygen Required By Microorganisms To Decompose Organic Matter In A Water Sample. Higher BOD Levels Indicate A Greater Amount Of Organic Pollution, Which Can Deplete Dissolved Oxygen Levels And Harm Aquatic Life. Most Of The Recorded BOD Values Exceed The Standard Criteria, Suggesting Significant Organic Pollution In The Water Body. The BOD Values Vary From 5.1 Mg/L (Site 4) To 26.2 Mg/L (Site 5), Indicating Varying Levels Of Organic Pollution Across The Sampling Sites. The Analysis Points To Domestic Household Waste Discharged Through Drains As The Primary Source Of Organic Pollution. The Discharge Of Untreated Sewage From Digboi Township Into The River Is A Major Contributor To The Elevated BOD Levels. This Sewage Contains A High Concentration Of Organic Matter, Which, When Released Into The Water Body, Increases The Demand For Oxygen As Microorganisms Decompose It. To Address The Issue Of High BOD Levels And Improve Water Quality, The Following Measures Are Recommended: Construct And Implement A Wastewater Treatment Facility In Digboi Township To Treat Sewage

Before Discharging It Into The River. Promote Public Awareness About Proper Waste Management Practices To Reduce The Amount Of Organic Waste Entering Drains And Channels. Upgrade Drainage Systems To Prevent Leaks And Overflows That Can Contribute To Pollution. Regularly Monitor BOD Levels And Other Water Quality Parameters To Track Progress And Identify Any New Pollution Sources. Enforce Regulations Related To Wastewater Discharge And Pollution Control To Ensure Compliance.

The Slightly Acidic Behaviour Of This Sampling Site Of River Might Be Due To Contamination Of Digboi River With Discharge From Digboi Refinery.

Total Dissolved Solids (TDS) Measure The Combined Concentration Of Organic And Inorganic Substances Dissolved In Water. High TDS Levels Can Affect The Taste, Corrosivity, And Suitability Of Water For Various Uses. TDS Values In Site 3 & 9 Vary From 198 Mg/L To 342 Mg/L (Site 4). Every Site Have TDS Values not Exceeding The Permissible Limit Of 500 Mg/L For Class A Water According To Indian Standards. Several Factors Can Influence TDS Levels In A River: The Type Of Rocks And Soil In The Catchment Area Can Contribute To The Dissolution Of Minerals And Salts. Agricultural Activities, Industrial Processes, And Urbanization Can Introduce Various Substances Into The Water. Rainfall Can Influence The Amount Of Dissolved Substances Washed Into The River. Evaporation Can Concentrate Dissolved Solids In The Water. Elevated TDS Levels Can Have Several Negative Consequences: High TDS Can Impart A Salty Or Mineral Taste To Drinking Water. In Extreme Cases, High TDS Can Have Adverse Health Effects. High TDS Can Accelerate The Corrosion Of Pipes And Equipment. Minerals In The Water Can Form Deposits And Scale On Surfaces. To Address High TDS Levels In Digboi River, Consider The Following:

1. Determine The Specific Sources Of Dissolved Solids Contributing To The Elevated TDS Levels.
2. Implement Practices To Reduce Pollution And Erosion From Agricultural And Industrial Activities.
3. Explore Water Treatment Options, Such As Reverse Osmosis Or Ion Exchange, To Remove Dissolved Solids.
4. If Feasible, Investigate Alternative Water Sources With Lower TDS Levels.
5. Continuously Monitor TDS Levels And Enforce Regulations To Ensure Compliance With Water Quality Standards.

The Variation Related To Turbidity, DO, BOD And COD Are Shown In Figure 5.

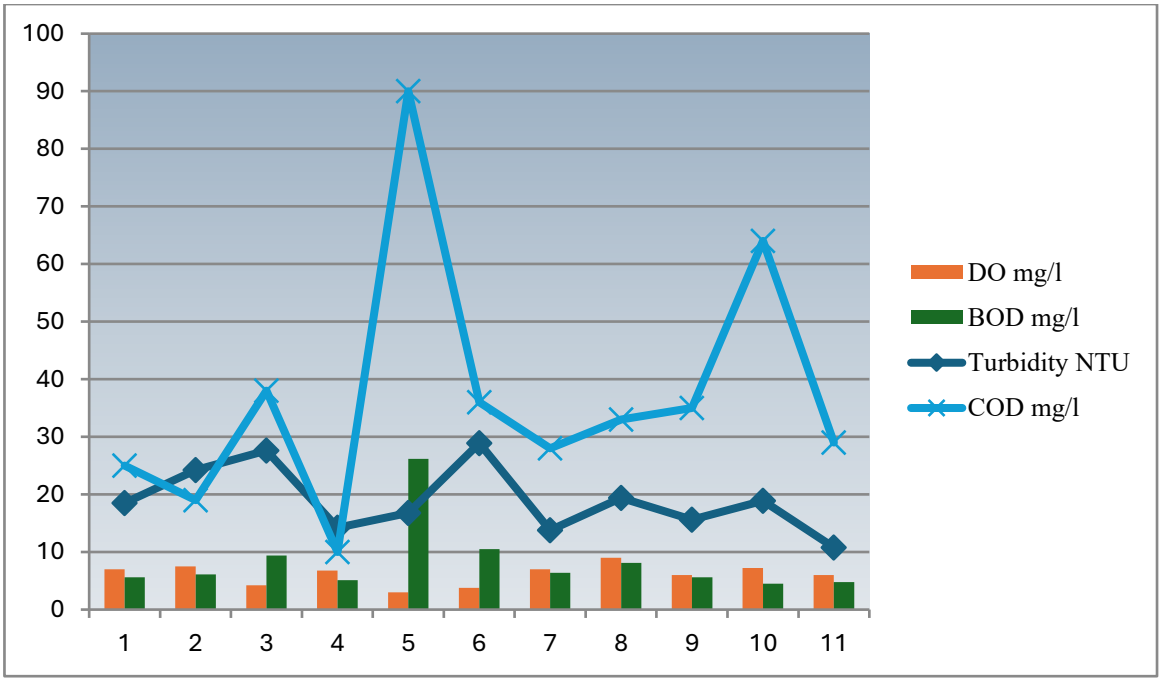


Fig 5: Variations Of Turbidity, DO, BOD And COD For Each Site.

Hardness Is A Measure Of The Concentration Of Multivalent Metal Ions, Primarily Calcium And Magnesium, In Water. It Is Often Expressed In Terms Of Calcium Carbonate Equivalents. Hardness Can Affect Water Quality, Treatment Processes, And The Suitability Of Water For Various Uses. Total Hardness Values In Digboi River Vary From 46.5 Mg/L (Site 3) To 159.5 Mg/L (Site 11). Site 11 Has The Highest Hardness, While Site 3 Has The Lowest. Several Factors Can Contribute To Hardness In Water: The Type Of Rocks And Minerals In The Catchment Area Can Influence The Dissolution Of Calcium, Magnesium, And Other Hardness-Causing Ions. Agricultural Practices And Industrial Activities Can Introduce Substances That Contribute To Hardness. Rainfall Can Influence The Leaching Of Minerals From The Soil And Their Transport Into The River. High Hardness Can Have Several Negative Consequences: Hardness Ions Can React With Soap And Detergents To Form Scale Deposits In Pipes And Appliances. Hardness Can Complicate Water Treatment Processes, Such As Softening And Filtration. In Some Cases, High Hardness Can Affect The Taste And Odor Of Water. While Generally Not A Major Health Concern, Excessive Hardness Can Contribute To Gastrointestinal Issues In Sensitive Individuals. To Address High Hardness Levels In Digboi River, Consider The Following: Implement Water Softening Techniques, Such As Ion Exchange Or Limesoda Softening, To Remove Hardness Ions. Adjust Water Treatment Processes To Accommodate High Hardness Levels. Educate The Public About The Effects Of Hardness And The Importance Of Water Treatment. If Feasible, Explore Alternative Water Sources With Lower Hardness Levels.

Total Alkalinity Is A Measure Of The Water's Capacity To Neutralize Acids. It Is Primarily Due To The Presence Of Bicarbonate, Carbonate, And Hydroxide Ions. High Alkalinity Levels Can Affect Water Quality, Treatment Processes, And The Suitability Of Water For Various Uses. Total Alkalinity Values In Digboi River Vary From 37.1 Mg/L (Site 3) To 58.6 Mg/L (Site 7). Site 7 Has The Highest Alkalinity, While Site 5 Has The Lowest. Several Factors Can Influence Total Alkalinity Levels: The Type Of Rocks And Minerals In The Catchment Area Can Contribute To The Presence Of Alkaline Substances In The Water. Agricultural Activities, Industrial Processes, And Urbanization Can Introduce Substances That Affect Alkalinity. Rainfall Can Influence The Leaching Of Alkaline Substances From The Soil And Their Transport Into The River. High Alkalinity Levels Can Have Several Implications: Alkalinity Can Affect Water Treatment Processes, Such As Softening And Ph Adjustment. High Alkalinity Can Contribute To Corrosion Of Pipes And Equipment. Alkalinity Can Lead To The Formation Of Scale In Boilers And Other Equipment. While High Alkalinity Is Generally Not A Major Concern For Aquatic Life, Excessive Levels Can Affect Certain Species.

The Concentration Of Total Alkalinity, Total Hardness, Nitrate, Sulphate, TDS, TSS And Oil & Grease Are Shown In Figure 6

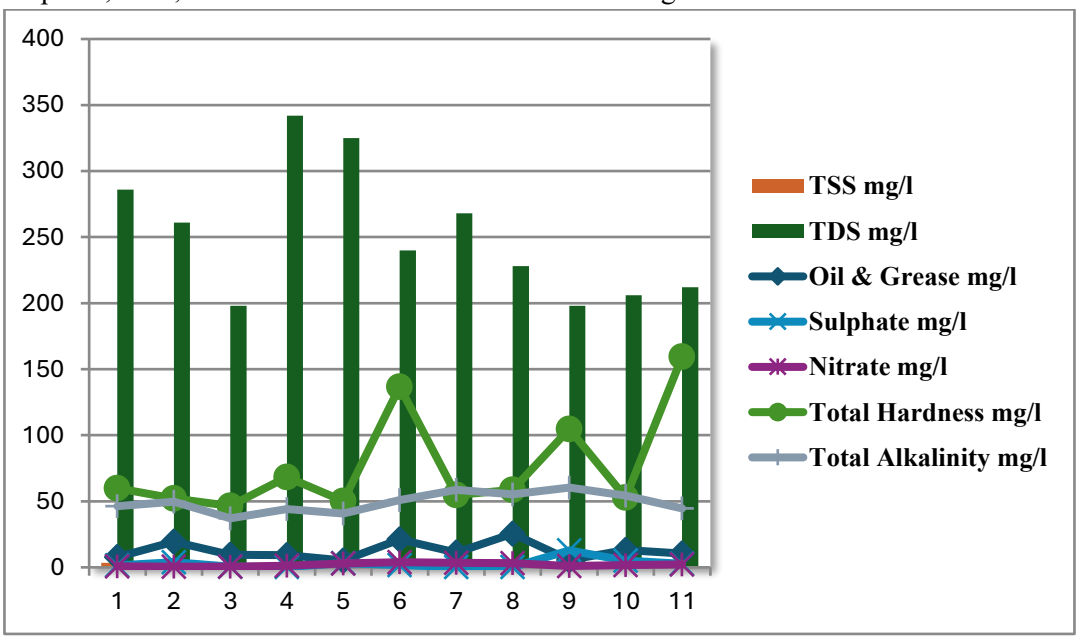


Fig 6: The Concentration Of Total Alkalinity, Total Hardness, Nitrate, Sulphate, TDS, TSS And Oil & Grease.

The Analysis Of Metals In The Water Samples Collected From 10 Different Sites Indicates The Following:

- **Lead:** Lead Is Detected Every In Site 1 to 11, Indicating A Localized Source Of Contamination.
- **Arsenic:** Arsenic Concentrations Vary Significantly, With Site 7 Having The Highest Levels (0.04 Ug/L).

- **Iron:** Iron Concentrations Are Relatively High Across All Sites. Ranges From 0.21 Mg/L (Site 1) To 0.51 Mg/L (Site 2)
- **Zinc:** Zinc Concentrations Range From Below Detection Limits (BDL) To Moderate Levels.

Potential Sources Of Metal Contamination: Industrial Effluents Can Introduce Various Metals Into Water Bodies, Including Lead, Arsenic, Iron, And Zinc. Mining Activities Can Release Metals Into The Environment Through Runoff And Leaching. Some Metals, Such As Iron And Zinc, Can Occur Naturally In Rocks And Soil And Leach Into Water. Pesticides And Fertilizers Can Contain Trace Amounts Of Metals That Can Enter Waterways.

Elevated Levels Of Heavy Metals, Such As Lead, Arsenic, And Zinc, Can Pose Significant Health Risks To Both Humans And Aquatic Organisms. These Metals Can Accumulate In The Food Chain And Cause Various Health Problems, Including:

- **Neurological Disorders**
- **Reproductive Issues**
- **Kidney Damage**
- **Cancer**

To Address Metal Contamination In Digboi River, Consider The Following: Determine The Specific Sources Of Metal Contamination Through Investigations And Monitoring. Implement Measures To Reduce Or Eliminate Metal Emissions From Industrial Facilities And Mining Operations. Promote Sustainable Land Use Practices To Minimize Agricultural Runoff And Erosion. Explore Water Treatment Technologies To Remove Metals From Drinking Water Sources. Continuously Monitor Metal Concentrations And Enforce Regulations To Ensure Compliance With Water Quality Standards.

. Figure 7 Shows The Concentrations Of Arsenic, Lead, Iron And Zn.

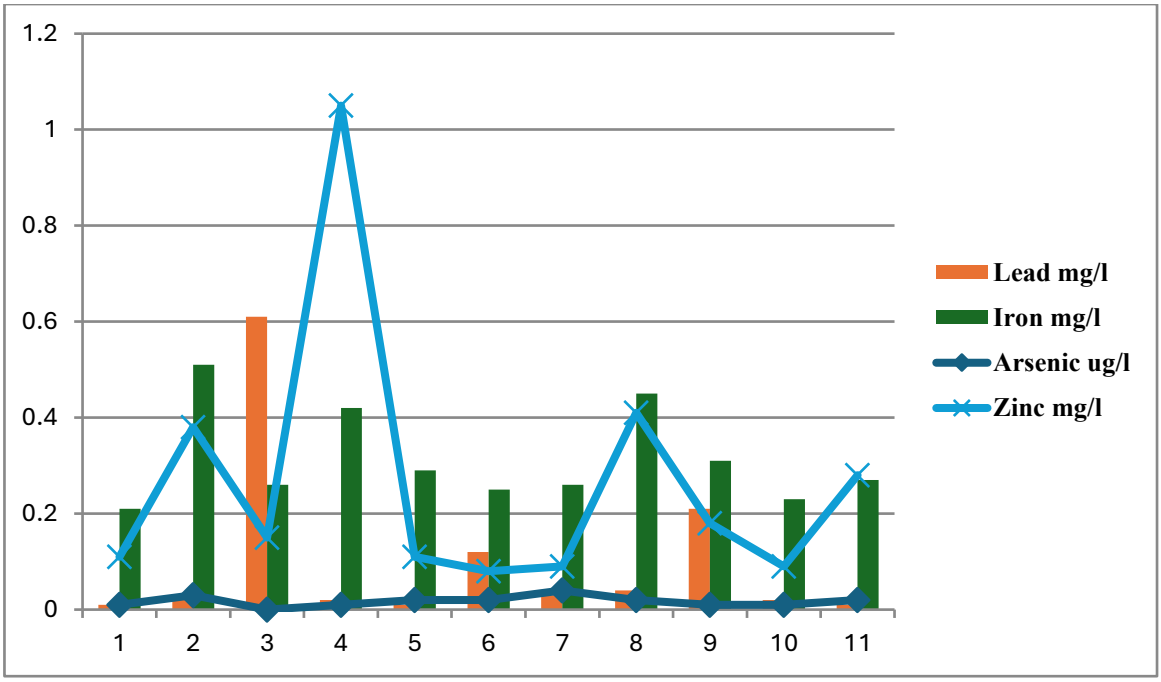


Figure 7: The Concentrations Of Arsenic, Lead, Iron And Zinc

CONCLUSION: The Study Analysed Various Water Quality Parameters In The Digboi And Dihing Rivers And Durgapukhuri, Including:

- **Physical-Chemical Parameters:** Ph, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Turbidity, Total Hardness, Total Alkalinity, Oil And Grease, BOD, COD, And DO Etc.
- **Biological Parameters:** Macroinvertebrate Diversity, Including Mollus Can Species From Five Different Families.

The Ph Levels Showed Variations Across The Rivers. Certain Physical-Chemical Parameters Suggested Slight To Moderate Pollution In The Rivers.

This Study Comprehensively Assessed The Water Quality Of The Digboi And Dihing Rivers And Durgapukhuri By Analyzing A Range Of Physico-Chemical And Biological Parameters. The Physico-Chemical Parameters—Including Ph, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Turbidity, Total Hardness, Total Alkalinity, Oil And Grease, Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), And Dissolved Oxygen (DO)—Provided A Detailed Understanding Of The Chemical Status Of These Aquatic Systems. The Biological Parameters, Particularly Macro Invertebrate Diversity And The Presence Of Mollus Can Species From Five Distinct Families, Served As Reliable Bio Indicators For Assessing Ecological Health.

The Observed Variations In Ph And Other Parameters Indicated Slight To Moderate Pollution Levels In Some Locations, Reflecting The Influence Of Anthropogenic Activities Within The Surrounding Catchment Areas. The Diversity And Distribution Of Macro Invertebrates Reinforced These Findings, Emphasizing The Sensitivity Of Biological Communities To Environmental Stress And Pollution Gradients.

To Ensure The Continued Health Of These Aquatic Ecosystems, It Is Essential To Establish Regular And Systematic Water Quality Monitoring Programs. Such Initiatives Would Enable The Detection Of Temporal Changes, Identification Of Pollution Sources, And Evaluation Of Management Interventions. Community Awareness And Active Participation Should Be Promoted To Foster Responsible Environmental Practices And Reduce Local Pollution Pressures.

Furthermore, The Application Of Diversity Indices And Biological Assessments Should Be Integrated Into Routine Monitoring To Complement Chemical Analyses, Thereby Providing A More Holistic Evaluation Of Ecosystem Health. Effective Management Of Water Resources Requires Coordinated Efforts Among Government Agencies, Research Institutions, Environmental Organizations, And Local Communities.

In Conclusion, Sustainable Management Of The Digboi And Dihing Rivers And Durgapukhuri Demands A Multidisciplinary And Collaborative Approach That Combines Scientific Research, Public Engagement, And Policy Implementation. Through Long-Term Monitoring, Data Sharing, Technological Innovation, And Sustainable Land-Use Practices, We Can Protect These Valuable Freshwater Ecosystems And Ensure The Availability Of Clean Water For Future Generations.

Biological Monitoring Data Sheet

Date: 25 / Aug / 2025 Sampler ID: _____ Site ID: _____

Stream Name: Diring Makgbekita

Time ____:____ AM / PM Time Sampling: _____ hrs Air Temp.: _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

1	Stonefly nymph
	Mayfly nymph
	Caddisfly larva
	Riffle Beetle
	Dobsonfly Larva
1	Right-Handed or Gilled snail
	Water Penny
	# of TAXA represented
2	Weighting Factor (x4)

Group 2 - Moderately Intolerant

	Damselfly nymph
	Dragonfly nymph
	Scud
1	Sowbug
	Cranefly larva
	Clam/Mussel
	Crayfish
	# of TAXA represented
1	Weighting Factor (x3)

Group 3 - Fairly Tolerant

3	Leech
2	Midge larva
1	Planaria/ Flatworm
	Black fly larva
	# of TAXA represented
3	Weighting Factor (x2)

Groups 4 - Very Tolerant

	Aquatic worm
2	Blood midge larva (red)
	Rat-tailed Maggot
1	Left-Handed or Pouch snail
	# of TAXA represented
2	Weighting Factor (x1)

Pollution Tolerance Index Rating

(Add the final index values for each group)

9

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

25/Aug/2025

Biological Monitoring Data Sheet

Date: 26 / 08 / 25 Sampler ID: _____ Site ID: _____

Stream Name: Diking Makum

Time ____:____ AM / PM Time Sampling: _____ hrs Air Temp.: _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

1	Stonefly nymph
	Mayfly nymph
	Caddisfly larva
	Riffle Beetle
	Dobsonfly Larva
	Right-Handed or Gilled snail
	Water Penny
	# of TAXA represented
1	Weighting Factor (x4)

Group 2 - Moderately Intolerant

	Damselfly nymph
1	Dragonfly nymph
	Scud
1	Sowbug
	Cranefly larva
	Clam/Mussel
	Crayfish
	# of TAXA represented
2	Weighting Factor (x3)

Group 3 - Fairly Tolerant

7	Leech
	Midge larva
	Planaria/ Flatworm
	Black fly larva
	# of TAXA represented
1	Weighting Factor (x2)

Groups 4 - Very Tolerant

	Aquatic worm
2	Blood midge larva (red)
	Rat-tailed Maggot
5	Left-Handed or Pouch snail
	# of TAXA represented
2	Weighting Factor (x1)

26/08/25

Pollution Tolerance Index Rating

(Add the final index values for each group)

8

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

Biological Monitoring Data Sheet

Date: 28 / 08 / 25 Sampler ID: ________ Site ID: ________

Stream Name: Dihing Hirika

Time ____:____ AM / PM Time Sampling: ______ hrs Air Temp.: ________ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

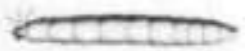
Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

- [1] Stonefly nymph 
- [ ] Mayfly nymph 
- [ ] Caddisfly larva 
- [ ] Riffle Beetle 
- [ ] Dobsonfly Larva 
- [ ] Right-Handed or Gilled snail 
- [ ] Water Penny 
- [ ] # of TAXA represented
- [1] Weighting Factor (x4)

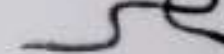
Group 2 - Moderately Intolerant

- [ ] Damselfly nymph 
- [ ] Dragonfly nymph 
- [ ] Scud 
- [ ] Sowbug 
- [ ] Cranefly larva 
- [ ] Clam/Mussel 
- [2] Crayfish 
- [ ] # of TAXA represented
- [1] Weighting Factor (x3)

Group 3 - Fairly Tolerant

- [5] Leech 
- [ ] Midge larva 
- [ ] Planaria/ Flatworm 
- [ ] Black fly larva 
- [ ] # of TAXA represented
- [1] Weighting Factor (x2)

Groups 4 - Very Tolerant

- [ ] Aquatic worm 
- [ ] Blood midge larva (red) 
- [ ] Rat-tailed Maggot 
- [ ] Left-Handed or Pouch snail 
- [ ] # of TAXA represented
- [ ] Weighting Factor (x1)

Pollution Tolerance Index Rating [9]

(Add the final index values for each group)

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

[illegible] 28/8/25

Biological Monitoring Data Sheet

Date: 29/08/25 **Sampler ID:** _____ **Site ID:** _____

Stream Name: Diving Gammons bridge

Time ____:____ AM / PM **Time Sampling:** _____ hrs **Air Temp.:** _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

1	Stonefly nymph
	Mayfly nymph
	Caddisfly larva
	Riffle Beetle
	Dobsonfly Larva
	Right-Handed or Gilled snail
	Water Penny
	# of TAXA represented
1	Weighting Factor (x4)

Group 2 - Moderately Intolerant

	Damselfly nymph
3	Dragonfly nymph
	Scud
2	Sowbug
	Cranefly larva
4	Clam/Mussel
	Crayfish
	# of TAXA represented
3	Weighting Factor (x3)

Group 3 - Fairly Tolerant

4	Leech
	Midge larva
	Planaria/ Flatworm
	Black fly larva
	# of TAXA represented
1	Weighting Factor (x2)

Groups 4 - Very Tolerant

3	Aquatic worm
	Blood midge larva (red)
	Rat-tailed Maggot
5	Left-Handed or Pouch snail
	# of TAXA represented
2	Weighting Factor (x1)

Pollution Tolerance Index Rating

(Add the final index values for each group)

15

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

29/8/25

Biological Monitoring Data Sheet

Date: 30 / 08 / 25 Sampler ID: _____ Site ID: _____

Stream Name: Diring Mukh

Time ____:____ AM / PM Time Sampling: _____ hrs Air Temp.: _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

- [2] Stonefly nymph
- [ ] Mayfly nymph
- [ ] Caddisfly larva
- [ ] Riffle Beetle
- [ ] Dobsonfly Larva
- [4] Right-Handed or Gilled snail
- [ ] Water Penny

[ ] # of TAXA represented

[2] Weighting Factor (x4)

Group 2 - Moderately Intolerant

- [ ] Damselfly nymph
- [3] Dragonfly nymph
- [ ] Scud
- [ ] Sowbug
- [ ] Cranefly larva
- [ ] Clam/Mussel
- [ ] Crayfish

[ ] # of TAXA represented

[1] Weighting Factor (x3)

Group 3 - Fairly Tolerant

- [ ] Leech
- [5] Midge larva
- [ ] Planaria/ Flatworm
- [ ] Black fly larva

[ ] # of TAXA represented

[1] Weighting Factor (x2)

Groups 4 - Very Tolerant

- [7] Aquatic worm
- [ ] Blood midge larva (red)
- [ ] Rat-tailed Maggot
- [ ] Left-Handed or Pouch snail

[ ] # of TAXA represented

[1] Weighting Factor (x1)

Pollution Tolerance Index Rating

(Add the final index values for each group)

14

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

30/8/25

Biological Monitoring Data Sheet

Date: 01 / 9 / 25 Sampler ID: _____ Site ID: _____

Stream Name: Digboi River Kendugurie

Time ____:____ AM / PM Time Sampling: _____ hrs Air Temp.: _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

1	Stonefly nymph
	Mayfly nymph
	Caddisfly larva
	Riffle Beetle
	Dobsonfly Larva
2	Right-Handed or Gilled snail
	Water Penny
	# of TAXA represented
2	Weighting Factor (x4)

Group 2 - Moderately Intolerant

	Damselfly nymph
	Dragonfly nymph
3	Scud
	Sowbug
	Cranefly larva
	Clam/Mussel
3	Crayfish
	# of TAXA represented
2	Weighting Factor (x3)

Group 3 - Fairly Tolerant

4	Leech
	Midge larva
2	Planaria/ Flatworm
1	Black fly larva
	# of TAXA represented
3	Weighting Factor (x2)

Groups 4 - Very Tolerant

	Aquatic worm
	Blood midge larva (red)
	Rat-tailed Maggot
1	Left-Handed or Pouch snail
	# of TAXA represented
1	Weighting Factor (x1)

Pollution Tolerance Index Rating

(Add the final index values for each group) 12

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

7/9/25

Biological Monitoring Data Sheet

Date: 2 / 9 / 25 Sampler ID: _____ Site ID: _____

Stream Name: Digboi River ISKH pt.

Time ____:____ AM / PM Time Sampling: _____ hrs Air Temp.: _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

4	Stonefly nymph
	Mayfly nymph
5	Caddisfly larva
	Riffle Beetle
4	Dobsonfly Larva
	Right-Handed or Gilled snail
	Water Penny
	# of TAXA represented
3	Weighting Factor (x4)

Group 2 - Moderately Intolerant

	Damselfly nymph
3	Dragonfly nymph
	Scud
2	Sowbug
	Cranefly larva
	Clam/Mussel
	Crayfish
	# of TAXA represented
2	Weighting Factor (x3)

Group 3 - Fairly Tolerant

3	Leech
	Midge larva
	Planaria/ Flatworm
	Black fly larva
	# of TAXA represented
1	Weighting Factor (x2)

Groups 4 - Very Tolerant

	Aquatic worm
	Blood midge larva (red)
	Rat-tailed Maggot
1	Left-Handed or Pouch snail
	# of TAXA represented
1	Weighting Factor (x1)

Pollution Tolerance Index Rating

(Add the final index values for each group) 17

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

Sam 2/9/25

Biological Monitoring Data Sheet

Date: 8 / 9 / 25 Sampler ID: _____ Site ID: _____

Stream Name: Dighoi River 26KH pt.

Time ____:____ AM / PM Time Sampling: _____ hrs Air Temp.: _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

1	Stonefly nymph
	Mayfly nymph
	Caddisfly larva
	Riffle Beetle
1	Dobsonfly Larva
1	Right-Handed or Gilled snail
	Water Penny
	# of TAXA represented
3	Weighting Factor (x4)

Group 2 - Moderately Intolerant

	Damselfly nymph
4	Dragonfly nymph
	Scud
	Sowbug
1	Cranefly larva
3	Clam/Mussel
	Crayfish
	# of TAXA represented
3	Weighting Factor (x3)

Group 3 - Fairly Tolerant

1	Leech
	Midge larva
	Planaria/ Flatworm
1	Black fly larva
	# of TAXA represented
2	Weighting Factor (x2)

Groups 4 - Very Tolerant

1	Aquatic worm
	Blood midge larva (red)
	Rat-tailed Maggot
1	Left-Handed or Pouch snail
	# of TAXA represented
2	Weighting Factor (x1)

Pollution Tolerance Index Rating
(Add the final index values for each group)

10

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

2/9/25

Biological Monitoring Data Sheet

Date: 3 / 9 / 25 Sampler ID: _____ Site ID: _____

Stream Name: Diking before confluence with Digboi River

Time ____:____ AM / PM Time Sampling: _____ hrs Air Temp.: _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

1	Stonefly nymph
4	Mayfly nymph
	Caddisfly larva
	Riffle Beetle
	Dobsonfly Larva
2	Right-Handed or Gilled snail
	Water Penny
	# of TAXA represented
3	Weighting Factor (x4)

Group 2 - Moderately Intolerant

1	Damselfly nymph
4	Dragonfly nymph
	Scud
1	Sowbug
	Cranefly larva
1	Clam/Mussel
	Crayfish
	# of TAXA represented
4	Weighting Factor (x3)

Group 3 - Fairly Tolerant

5	Leech
	Midge larva
2	Planaria/ Flatworm
	Black fly larva
	# of TAXA represented
2	Weighting Factor (x2)

Groups 4 - Very Tolerant

2	Aquatic worm
1	Blood midge larva (red)
	Rat-tailed Maggot
1	Left-Handed or Pouch snail
	# of TAXA represented
3	Weighting Factor (x1)

P. Rynjah 3/9/25

Pollution Tolerance Index Rating

(Add the final index values for each group)

23

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

Biological Monitoring Data Sheet

Date: 4/9/25 Sampler ID: _____ Site ID: _____

Stream Name: Diving - after confluence with Digboi River

Time ____:____ AM / PM Time Sampling: _____ hrs Air Temp.: _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant

	Stonefly nymph
4	Mayfly nymph
	Caddisfly larva
	Riffle Beetle
	Dobsonfly Larva
	Right-Handed or Gilled snail
	Water Penny
	# of TAXA represented
1	Weighting Factor (x4)

Group 2 - Moderately Intolerant

	Damselfly nymph
2	Dragonfly nymph
	Scud
1	Sowbug
	Cranefly larva
	Clam/Mussel
	Crayfish
	# of TAXA represented
2	Weighting Factor (x3)

Group 3 - Fairly Tolerant

2	Leech
	Midge larva
	Planaria/ Flatworm
	Black fly larva
	# of TAXA represented
1	Weighting Factor (x2)

Groups 4 - Very Tolerant

	Aquatic worm
1	Blood midge larva (red)
	Rat-tailed Maggot
1	Left-Handed or Pouch snail
	# of TAXA represented
2	Weighting Factor (x1)

Pollution Tolerance Index Rating

(Add the final index values for each group)

15

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

Phythng 4/9/25

Biological Monitoring Data Sheet

Date: 5 / 9 / 25 Sampler ID: _____ Site ID: _____

Stream Name: Digboi Sanitary Park River (Durgapukhuri)

Time ____:____ AM / PM Time Sampling: _____ hrs Air Temp.: _____ °C

Current Weather: ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Worst Weather (past 48 hours): ☐ Clear/Sunny ☐ Overcast ☐ Showers ☐ Rain (steady) ☐ Storm (Heavy)

Check Methods Used: ☐ Kick Seine Net (3 times) ☐ Dip Net (20 jabs or scoops)

Check Habitats Sampled: ☐ Undercut Banks ☐ Riffles ☐ Leaf Packs ☐ Snags/Vegetation ☐ Sediment

Pollution Tolerance Index (PTI)

Record the taxa (group) represented in your sampling by either entering the number of organisms you counted or a ✓

Group 1 - Intolerant		Group 2 - Moderately Intolerant		Group 3 - Fairly Tolerant		Groups 4 - Very Tolerant	
2	Stonefly nymph	1	Damselfly nymph	1	Leech		Aquatic worm
	Mayfly nymph	1	Dragonfly nymph		Midge larva	1	Blood midge larva (red)
6	Caddisfly larva		Scud		Planaria/ Flatworm		Rat-tailed Maggot
	Riffle Beetle	2	Sowbug	1	Black fly larva	1	Left-Handed or Pouch snail
3	Dobsonfly Larva		Cranefly larva				
1	Right-Handed or Gilled snail	1	Clam/Mussel				
	Water Penny		Crayfish				
	# of TAXA represented		# of TAXA represented		# of TAXA represented		# of TAXA represented
4	Weighting Factor (x4)	4	Weighting Factor (x3)	2	Weighting Factor (x2)	2	Weighting Factor (x1)

Pollution Tolerance Index Rating
(Add the final index values for each group) 23

PTI Ratings	
Excellent	23 or More
Good	17 - 22
Fair	11 - 16
Poor	10 or Less

5/9/25