



इंडियन ऑयल कॉर्पोरेशन लिमिटेड

हल्दिया रिफाइनरी, डाकघर : हल्दिया ऑयल रिफाइनरी - 721606

जिला : पूर्व मेदिनीपुर (पो बंग)

Indian Oil Corporation Limited

Haldia Refinery, P.O. : Haldia Oil Refinery- 721606

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IndianOil

रिफाइनरीज प्रभाग

Refineries Division

Ref No.: HR/HSE/8D/2025-26/02

18.06.2026

To

The Deputy Director General of Forests (Central),

Integrated Regional Office, Bhubaneswar

Ministry of Environment, Forest and Climate Change,

Sub-office: Regional Office, Kolkata,

IB – 198, Sector-III, Salt Lake City,

Kolkata – 700106

Sub: Submission of Half-Yearly Environmental Clearance Compliance Report for the period October 2025 – March 2026 – IOCL, Haldia Refinery

Respected Sir,

With reference to the above, please find enclosed the Half-Yearly Compliance Report detailing the status of compliance with the stipulated conditions of the Environmental Clearances granted to various ongoing and existing projects at IOCL, Haldia Refinery. This report pertains to the period from **1st October 2025 – 31st March 2026**.

The compliance report has been prepared in line with the guidelines and format prescribed by the Ministry and is submitted for your kind perusal and necessary action.

Thank you for your continued guidance and support.

Yours sincerely,

for Indian Oil Corporation Limited, Haldia Refinery

Santanu Sen

Dy. General Manager (HSE)

शान्तनु सेन, उप महाप्रबंधक (एचएस एंड ई)

Santanu Sen, DGM (H S & E)

इंडियन ऑयल कॉर्पोरेशन लिमिटेड, हल्दिया रिफाइनरी

Indian Oil Corporation Limited, Haldia Refinery

Enclosure: Half-Yearly Environmental Clearance Compliance Report with Annexures.

Copy to: The Regional Officer, West Bengal Pollution Control Board (WBPCB), Haldia

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CIN - L 23201 MH 1959 GOI 011388



IndianOil

**INDIANOIL CORPORATION LIMITED
HALDIA REFINERY**

**HALF YEARLY COMPLIANCE REPORT
OF ENVIRONMENTAL CLEARANCE**

(Status for the Period 1st October 2025 – 31st March 2026)

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(Haldia Refinery – Indian Oil Corporation Ltd.)

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1.0 EC Reference No. & Issue date: J11011/34/88-IA; 16th MARCH 1989*Status of Conditions Imposed with Respect to Environmental Clearance: For Lube Oil Block at Haldia Refinery*

Sl. No.	STIPULATION BY MoEF & CC	STATUS
i)	The project proponent must strictly adhere to the stipulations made by West Bengal Pollution Control Board.	Haldia Refinery has been adhering to all stipulations made by the West Bengal Pollution Control Board and submitting necessary compliance reports as per schedule. Consent to Operate (CTO): WBPCB/4890720/2024, valid till 27.05.2029. All CTO conditions including discharge limits, stack monitoring, HW disposal, and noise levels are being fully complied with.
ii)	The project authority will explore the possibility of either increasing the stack height or sulphur recovery or desulphurization of flue gases or use of LSHS to achieve total SO ₂ emission of 1.5 tonnes/hour.	Haldia Refinery has maintained SO₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026: - Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. - Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. - The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD — was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). - Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. - Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across all stacks in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5. - The SO₂ emission data for the period October 2025 to March 2026 is enclosed as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.
iii)	Air quality monitoring network design should be made on the basis of model exercise and submitted to this Department within three months for review.	Ambient air quality is monitored twice weekly at five locations inside the refinery and two locations in the township, as per NAAQMS 2009 standards.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
	A minimum of three air quality monitoring stations should be set up.	- The last six-monthly air quality monitoring report is submitted to the MoEF&CC Regional Office (refer Annexure-1). - Three Continuous Ambient Air Quality Monitoring Stations (CAAQMS) are installed inside the refinery and are integrated with the CPCB server for real-time 24x7 data transmission. - A Mobile Ambient Air Quality Monitoring Van was flagged off in February 2024 in collaboration with WBPCB, providing live air quality data to WBPCB, CPCB, and the public.
iv)	All the stacks should be provided with continuous stack monitoring facilities. The data should be furnished quarterly to State Pollution Control Board and half yearly to this Ministry.	Continuous Online Stack Monitoring is fully operational at Haldia Refinery: 28 stacks equipped with OCEMS monitoring SO₂, NO_x, PM₁₀, and CO — real-time data transmitted to the CPCB server on a 24x7 basis. - IoT Data Loggers newly commissioned in FY 2025–26 for VDU-II and FCCU stacks, further enhancing automated CPCB data transmission. - OCEMS for BOD, COD, TSS, and pH operational at the ETP outlet and ELR discharge point. - Web cameras with night vision capability and flow meters installed at both the effluent inlet and outlet channels, as well as at the periphery boundary to monitor the green belt channel around the refinery premises. - WBPCB carries out quarterly sampling for stack emissions verification, in addition to online monitoring.
v)	The project authority should prepare a plan for implementation of disposal of solid waste generated during various process operations or in the treatment plant.	Hazardous waste management at Haldia Refinery is in full compliance with the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016: - HW Authorization: Renewed by WBPCB in FY 2025–26 — WBPCB/7204852/2025, valid to 29th December 2030. This secures 5-year regulatory continuity across all hazardous waste streams. - Annual HW Returns: Submitted to WBPCB before 30th June every year. FY 2025-26 return submitted on 06.05.2026. - TSDF Membership: Haldia Refinery holds active membership of CHW-TSDF (WBWML) at Haldia, vide No. WBWML-HZZ/HLDA/I001.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		- Oily Sludge Management: BLABO closed-loop in-situ sludge treatment achieving ~90% oil recovery from tank bottom sludge. TK-113 sludge cleaning completed in a record 40 days — the lowest turnaround at Haldia Refinery. De-oiled sludge disposed through WBPCB-authorized agencies (WBWML TSDF and authorized co-processing cement plant). - Spent Catalyst: Stored in sealed drums; metal-value catalysts auctioned via MSTC to authorized recyclers; zero-value catalysts sent to authorized TSDF (WBWML). - ETP Sludge: Treated via IOCL R&D bioremediation reactor technology (in-situ biodegradation), eliminating external disposal of biological sludge.
vi)	No change in design of stack should be made without prior approval of State Pollution Control Board. Alternate pollution control system and/or proper design of the stack should be made to minimize hydrocarbon emission due to failure in the flare system.	No changes have been made to the stack design without WBPCB approval. - Flare Gas Recovery and Utilization (FGRU) has been operational since 2010, continuously recovering and reusing flare gas as fuel, reducing flaring emissions. Total flare loss in FY 2025–26: 4,327 MT (net of FGRU recovery of 5,864 MT). - The RLNG Skid was inaugurated on 12th January 2026 by the Chairman, IndianOil (Rs. 192 Crore investment). On full operation at 2.4 MMSCMD, RLNG as process fuel will reduce SO₂ to near-zero in CPP/HRSG operations and reduce CO₂ by 15,000 MT/yr.
vii)	Additional area under the control of project which is not being used for the plant utilities should be afforested.	Haldia Refinery maintains the highest green coverage ever recorded — 68.49% (417.82 acres out of 610 acres plant area) as of 31st March 2026. The refinery follows a dual strategy to meet and exceed the statutory 33% green cover requirement: 1. Internal Greenbelt & Biodiversity Initiatives: - Ecological Butterfly Park (3,728 sq. m, 0.921 acre) developed within refinery premises as a dedicated biodiversity zone supporting pollinators and indigenous flora, serving as a biological air quality indicator. - Species selection follows EC mandate: includes SO₂-resistant and SO₂-sensitive species selected in consultation with experts. - All conventional lights in the refinery and township have been converted to LED. 2. External Greenbelt Development (Off-site Mitigation): - Mangrove Plantation Drive 2.0 (FY 2025–26): Flagship initiative launched on 12th January 2026 by the

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		Chairman, IndianOil — targeting 30 lakh mangroves across 150 hectares (Beliary Char & Dakshinchara Shankarara) under MoU with West Bengal Forest Development Corporation. Approximately 10 lakh mangroves planted in FY 2025–26 alone. • Cumulative trees planted as on 31.03.2026: 32,18,510 (32.2 Lakh) across 219 Ha total greenbelt. • Phase 1 (FY 2021–22): ~20 lakh mangroves at Beliarychar Island (247 Ha) — completed. • FY 2022–23: 20,800 trees FY 2023–24: 661 trees FY 2024–25: 1,739 trees FY 2025–26: ~10 lakh mangroves (Mangrove Drive 2.0). • Miyawaki Plantation at Mahishadal Rajbari and Refinery Township continues. Biodiversity Park at Digha with native flora and water bodies maintained. • Green cover increased from 11% in 2019 to over 60% by FY 2025–26 (tracked through satellite imagery and GIS tools as per EC requirement).
viii)	Tree plantation program in the plant premises and in the periphery of the plant should be undertaken in consultation with State Forest Department.	Haldia Refinery maintains the highest green coverage ever recorded — 68.49% (417.82 acres out of 610 acres plant area) as of 31st March 2026. The refinery follows a dual strategy to meet and exceed the statutory 33% green cover requirement: 1. Internal Greenbelt & Biodiversity Initiatives: • Ecological Butterfly Park (3,728 sq. m, 0.921 acre) developed within refinery premises as a dedicated biodiversity zone supporting pollinators and indigenous flora, serving as a biological air quality indicator. • Species selection follows EC mandate: includes SO₂-resistant and SO₂-sensitive species selected in consultation with experts. • All conventional lights in the refinery and township have been converted to LED. 2. External Greenbelt Development (Off-site Mitigation): • Mangrove Plantation Drive 2.0 (FY 2025–26): Flagship initiative launched on 12th January 2026 by the Chairman, IndianOil — targeting 30 lakh mangroves across 150 hectares (Beliary Char & Dakshinchara Shankarara) under MoU with West Bengal Forest Development Corporation. Approximately 10 lakh mangroves planted in FY 2025–26 alone. • Cumulative trees planted as on 31.03.2026: 32,18,510 (32.2 Lakh) across 219 Ha total greenbelt.

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ix)	Project authority must set up laboratory facilities in the existing premises for testing air emissions and water quality.	Haldia Refinery operates an in-house, first-party Quality Control Laboratory (HRQC) with permanent facilities inside the refinery premises: - NABL Accreditation: TC10599, valid till 01.05.2026. The laboratory is also WBPCB-approved for daily water testing. A NABL Desktop Audit was successfully completed in FY 2025–26, securing continued accreditations for all parameters. - The laboratory is the only PSU lab accredited under ISO/IEC 17025:2017 for Sulphuric Acid testing, competing with private players. It became the first NABL-approved lab in India for wax content testing in bitumen in FY 2025–26, saving Rs. 1 Crore annually. 18 correlation programmes completed in FY 2025–26 with an impressive average z-score <1.8, reinforcing analytical accuracy.
x)	The clearance of Chief Inspector of Explosives must be taken before starting construction of the proposed plant.	PESO approvals are obtained prior to construction for all projects and Consent is taken from PESO before commissioning of respective process units.
xi)	Project authority will establish five water quality monitoring stations in consultation with State Pollution Control Board. Ground water quality also should be monitored.	Effluent quality is monitored daily at the NABL-accredited and WBPCB-approved HRQC laboratory. Online analyzers are installed at ETP-1, ETP-2, and TTP/RO outlets to continuously monitor pH, TSS, COD, and BOD. Real-time data transmitted to the CPCB server. - Additional monitoring stations are installed in the stormwater channel. Refer Annexure-2 for six-month average data of treated effluent (October 2025 to March 2026). - Groundwater is monitored periodically via WBPCB and external agencies. Results attached as Annexure-3.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		Sampling analysis of Hooghly River water was carried out at 16 locations (7 upstream and 9 downstream of the disposal point) as part of the EIL Effect Assessment Study.
xii)	The project authority will explore the possibility of water recycling to the maximum possible extent.	Haldia Refinery achieved its most significant water conservation milestone in FY 2025–26: - Specific freshwater consumption reduced by 35% in a single year: from 1.04 m³/MT crude (FY 2024–25) to 0.67 m³/MT crude (FY 2025–26) — the most significant single-year freshwater reduction in the refinery's history. - Fresh water flow rate reduced from 806 m³/hr (FY 2024–25) to 629 m³/hr (FY 2025–26) — saving approximately 13.14 Lakh KL/year of raw water from the Hooghly River. - Effluent recycling rate: 90.8% (79,89,531 KL) in FY 2025–26 — treated ETP water reused in DHDS Cooling Tower, DM plant, fire water, horticulture, and construction. - Tertiary Treatment Plant-RO (TTP-RO): Final polishing of treated effluent enables reuse as cooling tower make-up and DM plant feed water. - Neer Kund Stormwater Reservoir (3,800 m³ capacity, 46m x 23m footprint): Commissioned FY 2024–25, enabling recycling of up to 200 m³/hr of stormwater runoff for use in fire systems or ETP. - SMPK STP Partnership (3 MLD): MoU with Shyama Prasad Mukherjee Port for treated domestic sewage reuse — extending circular water economy beyond the refinery.
xiii)	The liquid effluent coming out of the plant premises should strictly conform to MINAS.	Treated effluent meets all 21 parameters of G.S.R. 186(E) MINAS standards and is continuously monitored through online systems at the ELR discharge point. Monthly average data of final treated effluent for October 2025 to March 2026 is enclosed as Annexure-2.
xiv)	The project authority will submit a Disaster Management Plan duly approved by nodal agency.	Emergency Response & Disaster Management Plan (ERDMP) has been recertified in FY 2025–26: ERDMP recertified by M/s Sanmarg Engineering Validation Pvt. Ltd. (PNGRB-authorized agency) in July–August 2025. Certificate validated that Haldia Refinery has been assessed with respect to the requirements of PNGRB Notification GSR 39(E), PNGRB Codes of Practices for Emergency Response and Disaster

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		Management (ERDMP) Regulations 2010, including Amendment Regulations 2020. Valid till 05.08.2028. - Quantitative Risk Assessment (QRA), HAZOP, and SIL Studies conducted at 5-year intervals using latest PHAST and AR technologies for advanced risk modelling. Mitigation measures are implemented and externally audited by OISD. Quarterly compliance status is regularly submitted to OISD. - Off-site Emergency Drill conducted on 5th March 2025 with multi-agency participation (local authorities, fire, police, and medical teams).
xv)	A separate environmental management cell with suitably qualified people should be set up under the control of a Senior Technical personnel who will report direct to the head of organization.	A dedicated Health, Safety & Environment (HS&E) department, headed by a Chief General Manager (CGM) reporting directly to the Head of the organization (Executive Director & Refinery Head), is in place. The team comprises experienced personnel from refinery and petrochemical operations across various levels. Environmental activities are also periodically reviewed by the Refinery HQ HSE team to ensure compliance and continuous improvement.
xvi)	The fund provision of Rs. 10 Crores which has been made should be utilized for implementation of all conditions stipulated herein.	Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities. These funds are not diverted for any other purposes. - FY 2025–26 Environmental Expenditure: Rs. 17.02 Crore (provisionally stated; formal closing in progress). Year-wise environmental expenditure (Rs. Crore): 2024–25: 19.17 2023–24: 17.84 2022–23: 20.61 2021–22: 23.86 2020–21: 20.79 2019–20: 20.58 2018–19: 20.59 2017–18: 15.07 2016–17: 21.19 - Funds are utilized for: operation and maintenance of ETP, TTP-RO, OCEMS; greenbelt development; environmental monitoring; hazardous waste management; sludge oil recovery; consent/authorization fees; awareness programmes; and EIA/RA studies. Allocations are made from both recurring and non-recurring budgets as required.

2.0 EC Reference No. & Issue date: 11011/39/96-IA II (I); 18/12/1996*Status of Conditions Imposed with Respect to Environmental Clearance: For DHDS Unit at Haldia Refinery*

Sl. No.	STIPULATION BY MoEF & CC	STATUS
i)	The project authority must strictly adhere to the stipulations laid down by the West Bengal State Pollution Control Board and the State Govt.	Haldia Refinery has been adhering to all stipulations made by the West Bengal Pollution Control Board and submitting necessary compliance reports as per schedule. - Consent to Operate (CTO): WBPCB/4890720/2024, valid till 27.05.2029. All CTO conditions including discharge limits, stack monitoring, HW disposal, and noise levels are being fully complied with. - Zero violations for the 4th consecutive year. No environmental fines, penalties, or NGT proceedings.
ii)	No expansion or modernization of the plant should be carried out without approval of the Ministry of Environment and Forest.	Environmental Clearance from MoEF&CC is obtained for all new projects, expansions, and modernization activities before commencement.
iii)	The total SO ₂ emission from Haldia Refinery including DHDS project should not exceed norms of 850 Kg/hr after installing the new Crude Distillation unit (CDU).	Haldia Refinery has maintained SO₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026: - Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. - Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. - The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD — was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). - Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. - Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across stacks in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		The SO₂ emission data for the period October 2025 to March 2026 is enclosed as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.
iv)	The existing ETP should be adequately augmented to accommodate the additional effluent from the DHDS project so as to ensure that the treated effluent meets the MINAS.	Haldia Refinery operates a comprehensive dual-ETP system — the most significant upgradation in the refinery's history was completed during this period: - ETP-1 Modernisation (Rs. 87 Crores): Capacity upgraded from 650 m³/hr to 850 m³/hr. A state-of-the-art laminar clarifier was installed to enhance TSS and oil removal. The modernised ETP-1 was inaugurated by the Executive Director & Refinery Head on 26th September 2025. Pre-commissioning training for operating staff was completed in advance. - ETP-2 Augmentation: DCS system commissioned August 2025. ETP-2 shutdown for major augmentation works commenced March 1, 2026 to further enhance treatment capacity and technology. - Combined ETP capacity now stands at 1,450 m³/hr (ETP-1: 850 m³/hr + ETP-2: 600 m³/hr). Actual ETP load remains within 900–1,100 m³/hr. - Treated effluent is reused in the Tertiary Treatment Plant-RO (TTP-RO), cooling tower make-up, fire water system, and other utility services. Effluent recycling rate achieved 90.8% in FY 2025–26 (up from 90.5% in FY 2023–24). - Only the TTP-RO reject, meeting G.S.R. 186(E) MINAS standards across all 21 parameters, is discharged to River Hooghly — strictly within the Consent to Operate (CTO No. WBPCB/4890720/2024) permitted limit of 240 m³/hr. Total discharge to Hooghly River in FY 2025–26: 8,06,951 m³, all within MINAS norms. - H₂O₂ Dosing: 5,04,220 kg of hydrogen peroxide dosed in FY 2025–26 to achieve oxidative COD reduction in treated effluent before discharge. - IWT Green STP (0.5 MLD): A nature-based Integrated Wetland Technology sewage treatment plant, designed by IIT Bombay, was successfully commissioned on 31st March 2026 at the Township — inaugurated by the Chairman, IndianOil on 12th January 2026. - Monthly average data of final treated effluent for October 2025 to March 2026 is enclosed as Annexure-2.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
v)	Time bound Action Plan for disposal of oily sludge / recovery of oil & design details of the solid waste disposal pit should be furnished. Hazardous waste should be handled as per HW Rules.	Hazardous waste management at Haldia Refinery is in full compliance with the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016: • HW Authorization: Renewed by WBPCB in FY 2025–26 — WBPCB/7204852/2025, valid to 29th December 2030. This secures 5-year regulatory continuity across all hazardous waste streams. • Annual HW Returns: Submitted to WBPCB before 30th June every year. FY 2025-26 return submitted on 06.05.2026. • TSDF Membership: Haldia Refinery holds active membership of CHW-TSDF (WBWML) at Haldia, vide No. WBWML-HzZ/HLDA/I001. • Oily Sludge Management: BLABO closed-loop in-situ sludge treatment achieving ~90% oil recovery from tank bottom sludge. TK-113 sludge cleaning completed in a record 40 days — the lowest turnaround at Haldia Refinery. De-oiled sludge disposed through WBPCB-authorized agencies (WBWML TSDF and authorized co-processing cement plant). • Spent Catalyst: Stored in sealed drums; metal-value catalysts auctioned via MSTC to authorized recyclers; zero-value catalysts sent to authorized TSDF (WBWML). • ETP Sludge: Treated via IOCL R&D bioremediation reactor technology (in-situ biodegradation), eliminating external disposal of biological sludge.
vi)	SRU having an efficiency of more than 99% should be installed.	Five Sulphur Recovery Units are installed and operational, each with efficiency >99.5%. Additionally, the WSA Plant (375 MTPD) operates continuously, converting H ₂ S-rich gas to H ₂ SO ₄ .
vii)	Location of riverine outfall point showing the alignment of pipeline and outfall point with reference to the HTL and LTL should be submitted to this Ministry.	The study was carried out by the National Institute of Oceanography (NIO), Goa. As per the study, the existing location of the outfall point is suitable and does not require change. The copy of the final report was sent to the Ministry in August 1999. New Study (EIL): A fresh effect assessment study was conducted by M/s Engineers India Limited (EIL) confirming no appreciable increase in pollutant concentration which was submitted to this office in the last compliance Report. Sampling and analysis of Hooghly River water was carried out at 16 locations and findings provided to the RO.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
viii)	The IOC should commission a study by a competent technical expert to evaluate the effects of the existing effluents on aquatic life and on mangrove.	Previous Study (NIO): A comprehensive study was earlier carried out by the National Institute of Oceanography (NIO), Goa. The effect of treated effluent was found to be insignificant. New Study (EIL): IOCL engaged M/s Engineers India Limited (EIL) to conduct a fresh “Effluent Effect Assessment Study.” Based on the study there is no appreciable increase in pollutant concentration, no impact to aquatic life, no food chain contamination, and no livelihood impacts. Detailed findings are submitted to the Ministry in the last compliance Report.
ix)	A detailed risk analysis study based on MCA and HAZOP study should be done to the Refinery including DHDS project facilities.	Emergency Response & Disaster Management Plan (ERDMP) has been recertified in FY 2025–26: - ERDMP recertified by M/s Sanmarg Engineering Validation Pvt. Ltd. (PNGRB-authorized agency) in July–August 2025. Certificate validated that Haldia Refinery has been assessed with respect to the requirements of PNGRB Notification GSR 39(E), PNGRB Codes of Practices for Emergency Response and Disaster Management (ERDMP) Regulations 2010, including Amendment Regulations 2020. Valid till 05.08.2028. - Quantitative Risk Assessment (QRA), HAZOP, and SIL Studies conducted at 5-year intervals using latest PHAST and AR technologies for advanced risk modelling. Mitigation measures are implemented and externally audited by OISD. Quarterly compliance status is regularly submitted to OISD. - Off-site Emergency Drill conducted on 5th March 2025 with multi-agency participation (local authorities, fire, police, and medical teams).
x)	The project authority must strictly comply with the provisions made in MSIHC Rules, 1989.	Third-party Safety Audits conducted as per MSIHC Rules every year. PESO approvals obtained prior to commissioning.

3.0 EC Reference No. & Issue date: J.11011/99/96-IA II (I); 01/10/1997

Status of Conditions Imposed with Respect to Environmental Clearance of Fluidized Catalytic Cracking Unit (FCCU) at Haldia Refinery

Sl. No.	STIPULATION BY MoEF & CC	STATUS
i)	The project authority must strictly adhere to the stipulations laid down by WBPCB and the State Govt.	Haldia Refinery has been adhering to all stipulations made by the West Bengal Pollution Control Board and submitting necessary compliance reports as per schedule. - Consent to Operate (CTO): WBPCB/4890720/2024, valid till 27.05.2029. All CTO conditions including discharge limits, stack monitoring, HW disposal, and noise levels are being fully complied with. - Zero violations for the 4th consecutive year. No environmental fines, penalties, or NGT proceedings.
ii)	No expansion or modernization of the plant should be carried out without approval of the Ministry of Environment and Forest.	Environmental Clearance from MoEF&CC is obtained before undertaking any plant expansion or modernization.
iii)	The total SO ₂ emission from the FCCU project should not exceed 390 kg/hr. Maximum SO ₂ emission from the Refinery complex should be below 1500 kg/hr.	Haldia Refinery has maintained SO₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026: - Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. - Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. - The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD — was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). - Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. • Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across stacks in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5. • The SO₂ emission data for the period October 2025 to March 2026 is enclosed as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.
iv)	The studies on aquatic life and marine outfall for discharge of treated effluent into the river should be expedited.	New Study (EIL): IOCL engaged M/s Engineers India Limited (EIL) to conduct a fresh “Effluent Effect Assessment Study.” Based on the study there is no appreciable increase in pollutant concentration, no impact to aquatic life, no food chain contamination, and no livelihood impacts. Detailed findings are submitted to the Ministry in the last compliance Report.

4.0 EC Reference No. & Issue date: J.11011/28/2000-IA II; 21/08/2000

Status of Conditions Imposed with Respect to Environmental Clearance: 2nd Vacuum Distillation Unit (2 MMTPA) & Catalytic Iso-Dewaxing Unit (0.2 MMTPA) at 7.5 MTPA Crude Processing Level

Sl. No.	STIPULATION BY MoEF & CC	STATUS
1	The SO ₂ emission from the refinery unit including the proposed 2nd VDU and CIDW should not exceed 1340 kg/hr.	Haldia Refinery has maintained SO₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026: - Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. - Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. - The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD — was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). - Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. - Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across 31 stacks — 103 reports generated in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5. - The SO₂ emission data for the period October 2025 to March 2026 is enclosed as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.
2	The ETP load should be within the design capacity. Treated effluent should comply with the prescribed standards.	Haldia Refinery operates a comprehensive dual-ETP system — the most significant upgradation

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		in the refinery's history was completed during this period: - ETP-1 Modernisation (Rs. 87 Crores): Capacity upgraded from 650 m³/hr to 850 m³/hr. A state-of-the-art laminar clarifier was installed to enhance TSS and oil removal. The modernised ETP-1 was inaugurated by the Executive Director & Refinery Head on 26th September 2025. Pre-commissioning training for operating staff was completed in advance. - ETP-2 Augmentation: DCS system commissioned August 2025. ETP-2 shutdown for major augmentation works commenced March 1, 2026 to further enhance treatment capacity and technology. - Combined ETP capacity now stands at 1,450 m³/hr (ETP-1: 850 m³/hr + ETP-2: 600 m³/hr). Actual ETP load remains within 900–1,100 m³/hr. - Treated effluent is reused in the Tertiary Treatment Plant-RO (TTP-RO), cooling tower make-up, fire water system, and other utility services. Effluent recycling rate achieved 90.8% in FY 2025–26 (up from 90.5% in FY 2023–24). - Only the TTP-RO reject, meeting G.S.R. 186(E) MINAS standards across all 21 parameters, is discharged to River Hooghly — strictly within the Consent to Operate (CTO No. WBPCB/4890720/2024) permitted limit of 240 m³/hr. Total discharge to Hooghly River in FY 2025–26: 8,06,951 m³, all within MINAS norms. - H₂O₂ Dosing: 5,04,220 kg of hydrogen peroxide dosed in FY 2025–26 to achieve oxidative COD reduction in treated effluent before discharge. - IWT Green STP (0.5 MLD): A nature-based Integrated Wetland Technology sewage treatment plant, designed by IIT Bombay, was successfully commissioned on 31st March 2026 at the Township —

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		inaugurated by the Chairman, IndianOil on 12th January 2026. Monthly average data of final treated effluent for October 2025 to March 2026 is enclosed as Annexure-2.
3	The oily sludge generated from the refinery operation should be subjected to melting pit treatment for recovery of oil.	Hazardous waste management at Haldia Refinery is in full compliance with the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016: - HW Authorization: Renewed by WBPCB in FY 2025–26 — WBPCB/7204852/2025, valid to 29th December 2030. This secures 5-year regulatory continuity across all hazardous waste streams. - Annual HW Returns: Submitted to WBPCB before 30th June every year. FY 2025-26 return submitted on 06.05.2026. - TSDF Membership: Haldia Refinery holds active membership of CHW-TSDF (WBWML) at Haldia, vide No. WBWML-HzZ/HLDA/I001. - Oily Sludge Management: BLABO closed-loop in-situ sludge treatment achieving ~90% oil recovery from tank bottom sludge. TK-113 sludge cleaning completed in a record 40 days — the lowest turnaround at Haldia Refinery. De-oiled sludge disposed through WBPCB-authorized agencies (WBWML TSDF and authorized co-processing cement plant). - Spent Catalyst: Stored in sealed drums; metal-value catalysts auctioned via MSTC to authorized recyclers; zero-value catalysts sent to authorized TSDF (WBWML). - ETP Sludge: Treated via IOCL R&D bioremediation reactor technology (in-situ biodegradation), eliminating external disposal of biological sludge.
4	Oil spill response facilities should be in place, in accordance with OISD guidelines.	Tier-I oil spill response facilities are in place as per OISD & Indian Coast Guard guidelines:

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		- Oil dispersants and containment booms available with Fire & Safety. 2 Super Suckers and 3 Mobile Oil Spill Recovery Units (MOSRU) deployed for monsoon readiness. - Floating oil skimmer in open channel and drum skimmers in ETP and guard ponds recover spilled oil. - Regular mock drills conducted to ensure readiness. Green Belt Canal can be isolated using oil booms for oil recovery. - Well-defined SOP in place for emergency oil spill response.
5	Green belt of adequate width and density should be provided to mitigate the effects of fugitive emission. The bio-sludge from biotreater should be used as manure in the green belt development.	Haldia Refinery maintains the highest green coverage ever recorded — 68.49% (417.82 acres out of 610 acres plant area) as of 31st March 2026. The refinery follows a dual strategy to meet and exceed the statutory 33% green cover requirement: 1. Internal Greenbelt & Biodiversity Initiatives: - Ecological Butterfly Park (3,728 sq. m, 0.921 acre) developed within refinery premises as a dedicated biodiversity zone supporting pollinators and indigenous flora, serving as a biological air quality indicator. - Species selection follows EC mandate: includes SO₂-resistant and SO₂-sensitive species selected in consultation with experts. - All conventional lights in the refinery and township have been converted to LED. 2. External Greenbelt Development (Off-site Mitigation): - Mangrove Plantation Drive 2.0 (FY 2025–26): Flagship initiative launched on 12th January 2026 by the Chairman, IndianOil — targeting 30 lakh mangroves across 150 hectares (Beliary Char & Dakshinchara Shankarara) under MoU with West Bengal Forest Development Corporation. Approximately 10 lakh mangroves planted in FY 2025–26 alone.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		• Cumulative trees planted as on 31.03.2026: 32,18,510 (32.2 Lakh) across 219 Ha total greenbelt. • Phase 1 (FY 2021–22): ~20 lakh mangroves at Beliarychar Island (247 Ha) — completed. • FY 2022–23: 20,800 trees FY 2023–24: 661 trees FY 2024–25: 1,739 trees FY 2025–26: ~10 lakh mangroves (Mangrove Drive 2.0). • Miyawaki Plantation at Mahishadal Rajbari and Refinery Township continues. Biodiversity Park at Digha with native flora and water bodies maintained. • Green cover increased from 11% in 2019 to over 60% by FY 2025–26 (tracked through satellite imagery and GIS tools as per EC requirement).
6	Occupational Health Surveillance of the workers should be done on a regular basis.	Haldia Refinery has its own fully-equipped Occupational Health Centre (OHC) with all necessary facilities: • Periodic health check-ups are conducted for all employees as per the Factories Act and WB Factory Rules. • Records of surveillance and medical assessments are systematically maintained in the OHC database, accessible through the medical portal. • Regular training sessions on chemical handling and health safety covered 69 topics in the last year with 2,249 officer participations.
General 1	The project authorities must strictly adhere to the stipulations made by WBPCB and State Government.	Haldia Refinery has been adhering to all stipulations made by the West Bengal Pollution Control Board and submitting necessary compliance reports as per schedule. • Consent to Operate (CTO): WBPCB/4890720/2024, valid till 27.05.2029. All CTO conditions including discharge limits, stack monitoring, HW disposal, and noise levels are being fully complied with.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
General 3	At no time, the emissions should go beyond the prescribed standards.	Haldia Refinery has maintained SO₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026: - Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. - Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. - The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD — was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). - Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. - Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across stacks in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5. - The SO₂ emission data for the period October 2025 to March 2026 is enclosed as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.
General 4	The overall noise levels in and around the plant area should be kept well within the standards (85 dBA).	Haldia Refinery ensures noise levels remain within the prescribed limits of <75 dBA (day: 06:00–22:00 hrs) and <70 dBA (night: 22:00–06:00 hrs) as per EPA Rules, 1986 at all boundary and internal monitoring locations. Noise monitoring is regularly conducted at boundary locations and inside the plant. Half-yearly measurement data for

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		the period October 2025 to March 2026 is enclosed as Annexure-4. - Noise control measures in place include acoustic enclosures on compressors, silencers on steam pressure reducing and de-superheating (PRDS) systems, and acoustic hoods on other noise-generating equipment. - Mandatory use of PPEs (earplugs) is enforced in all high-noise zones across the refinery.
General 6	The project authorities will provide adequate funds both recurring and non-recurring to implement the conditions.	Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities. These funds are not diverted for any other purposes. - FY 2025–26 Environmental Expenditure: Rs. 17.02 Crore (provisionally stated; formal closing in progress). Year-wise environmental expenditure (Rs. Crore): 2024–25: 19.17 2023–24: 17.84 2022–23: 20.61 2021–22: 23.86 2020–21: 20.79 2019–20: 20.58 2018–19: 20.59 2017–18: 15.07 2016–17: 21.19 - Funds are utilized for: operation and maintenance of ETP, TTP-RO, OCEMS; greenbelt development; environmental monitoring; hazardous waste management; sludge oil recovery; consent/authorization fees; awareness programmes; and EIA/RA studies. Allocations are made from both recurring and non-recurring budgets as required.

5.0 EC Reference No. & Issue date: J11011/5/2002 IA II(I); 1st May 2002

Status of conditions imposed with respect to environmental clearance of installation of facilities for improvement of HSD quality and distillate yield (OHCU) and MS quality improvement (MSQI)

Sl. No.	STIPULATION BY MoEF & CC	STATUS
i	The company shall ensure strict implementations / compliance of the terms and conditions mentioned in earlier ECs.	All terms and conditions stipulated in the earlier ECs have been strictly implemented and are being duly complied with.
ii	The company shall also ensure that the total SO ₂ emission from the Haldia Refinery will not exceed 1466 kg/hr.	Haldia Refinery has maintained SO₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026: - Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. - Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. - The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD — was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). - Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. - Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across 31 stacks — 103 reports generated in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5. - The SO₂ emission data for the period October 2025 to March 2026 is enclosed as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
iii	Additional water requirement should be met from the Geonkhali Water Supply Scheme. There should be no further drawl from ground.	Additional water requirement is sourced from the Geonkhali Water Supply Scheme and Haldia Development Authority (HDA).
iv	The ETP load should be within design capacity. Treated effluent should comply with prescribed standards.	Haldia Refinery operates a comprehensive dual-ETP system — the most significant upgradation in the refinery's history was completed during this period: - ETP-1 Modernisation (Rs. 87 Crores): Capacity upgraded from 650 m³/hr to 850 m³/hr. A state-of-the-art laminar clarifier was installed to enhance TSS and oil removal. The modernised ETP-1 was inaugurated by the Executive Director & Refinery Head on 26th September 2025. Pre-commissioning training for operating staff was completed in advance. - ETP-2 Augmentation: DCS system commissioned August 2025. ETP-2 shutdown for major augmentation works commenced March 1, 2026 to further enhance treatment capacity and technology. - Combined ETP capacity now stands at 1,450 m³/hr (ETP-1: 850 m³/hr + ETP-2: 600 m³/hr). Actual ETP load remains within 900–1,100 m³/hr. - Treated effluent is reused in the Tertiary Treatment Plant-RO (TTP-RO), cooling tower make-up, fire water system, and other utility services. Effluent recycling rate achieved 90.8% in FY 2025–26 (up from 90.5% in FY 2023–24). - Only the TTP-RO reject, meeting G.S.R. 186(E) MINAS standards across all 21 parameters, is discharged to River Hooghly — strictly within the Consent to Operate (CTO No. WBPCB/4890720/2024) permitted limit of 240 m³/hr. Total discharge to Hooghly River in FY 2025–26: 8,06,951 m³, all within MINAS norms. - H₂O₂ Dosing: 5,04,220 kg of hydrogen peroxide dosed in FY 2025–26 to achieve

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		oxidative COD reduction in treated effluent before discharge. - IWT Green STP (0.5 MLD): A nature-based Integrated Wetland Technology sewage treatment plant, designed by IIT Bombay, was successfully commissioned on 31st March 2026 at the Township — inaugurated by the Chairman, IndianOil on 12th January 2026. - Monthly average data of final treated effluent for October 2025 to March 2026 is enclosed as Annexure-2.
v	The oily sludge generated from the refinery operation should be subjected to melting pit treatment for recovery of oil. The spent catalyst should be sent to supplier for metal recovery.	Hazardous waste management at Haldia Refinery is in full compliance with the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016: - HW Authorization: Renewed by WBPCB in FY 2025–26 — WBPCB/7204852/2025, valid to 29th December 2030. This secures 5-year regulatory continuity across all hazardous waste streams. - Annual HW Returns: Submitted to WBPCB before 30th June every year. FY 2025-26 return submitted on 06.05.2026. - TSDf Membership: Haldia Refinery holds active membership of CHW-TSDf (WBWML) at Haldia, vide No. WBWML-HzZ/HLDA/I001. - Oily Sludge Management: BLABO closed-loop in-situ sludge treatment achieving ~90% oil recovery from tank bottom sludge. TK-113 sludge cleaning completed in a record 40 days — the lowest turnaround at Haldia Refinery. De-oiled sludge disposed through WBPCB-authorized agencies (WBWML TSDf and authorized co-processing cement plant). - Spent Catalyst: Stored in sealed drums; metal-value catalysts auctioned via MSTC to authorized recyclers; zero-value catalysts sent to authorized TSDf (WBWML).

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		ETP Sludge: Treated via IOCL R&D bioremediation reactor technology (in-situ biodegradation), eliminating external disposal of biological sludge.
vi	Oil spill response facilities should be in place, in accordance with OISD guidelines.	Tier-I oil spill response readiness is maintained as per OISD and Indian Coast Guard guidelines. FGRU has been operational since 2010, helping recover and reuse flare gas. No changes to stack design have been made.
vii	Green belt of adequate width and density should be provided. The bio-sludge should be used as manure in the green belt development.	Haldia Refinery maintains the highest green coverage ever recorded — 68.49% (417.82 acres out of 610 acres plant area) as of 31st March 2026. The refinery follows a dual strategy to meet and exceed the statutory 33% green cover requirement: 1. Internal Greenbelt & Biodiversity Initiatives: - Ecological Butterfly Park (3,728 sq. m, 0.921 acre) developed within refinery premises as a dedicated biodiversity zone supporting pollinators and indigenous flora, serving as a biological air quality indicator. - Species selection follows EC mandate: includes SO₂-resistant and SO₂-sensitive species selected in consultation with experts. - All conventional lights in the refinery and township have been converted to LED. 2. External Greenbelt Development (Off-site Mitigation): - Mangrove Plantation Drive 2.0 (FY 2025–26): Flagship initiative launched on 12th January 2026 by the Chairman, IndianOil — targeting 30 lakh mangroves across 150 hectares (Beliary Char & Dakshinchara Shankarara) under MoU with West Bengal Forest Development Corporation. Approximately 10 lakh mangroves planted in FY 2025–26 alone. - Cumulative trees planted as on 31.03.2026: 32,18,510 (32.2 Lakh) across 219 Ha total greenbelt.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		- Phase 1 (FY 2021–22): ~20 lakh mangroves at Beliarychar Island (247 Ha) — completed. - FY 2022–23: 20,800 trees FY 2023–24: 661 trees FY 2024–25: 1,739 trees FY 2025–26: ~10 lakh mangroves (Mangrove Drive 2.0). - Miyawaki Plantation at Mahishadal Rajbari and Refinery Township continues. Biodiversity Park at Digha with native flora and water bodies maintained. - Green cover increased from 11% in 2019 to over 60% by FY 2025–26 (tracked through satellite imagery and GIS tools as per EC requirement).
viii	Occupational Health Surveillance of the workers should be done on a regular basis.	Haldia Refinery has its own fully-equipped Occupational Health Centre (OHC) with all necessary facilities: - Periodic health check-ups are conducted for all employees as per the Factories Act and WB Factory Rules. - Records of surveillance and medical assessments are systematically maintained in the OHC database, accessible through the medical portal. - Regular training sessions on chemical handling and health safety covered 69 topics in the last year with 2,249 officer participations.
B.iv	At no time, the emissions should go beyond the prescribed standards.	Haldia Refinery has maintained SO₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026: - Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. - Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. - The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		— was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). - Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. - Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across stacks in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5. - The SO₂ emission data for the period October 2025 to March 2026 is enclosed as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.
B.v	The overall noise levels in and around the plant area should be kept well within the standards.	Haldia Refinery ensures noise levels remain within the prescribed limits of <75 dBA (day: 06:00–22:00 hrs) and <70 dBA (night: 22:00–06:00 hrs) as per EPA Rules, 1986 at all boundary and internal monitoring locations. - Noise monitoring is regularly conducted at boundary locations and inside the plant. Half-yearly measurement data for the period October 2025 to March 2026 is enclosed as Annexure-4. - Noise control measures in place include acoustic enclosures on compressors, silencers on steam pressure reducing and de-superheating (PRDS) systems, and acoustic hoods on other noise-generating equipment. - Mandatory use of PPEs (earplugs) is enforced in all high-noise zones across the refinery.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
B.vi	The project authorities must strictly comply with the rules under Manufacture, Storage and Import of Hazardous Chemicals Rules.	Third-party Safety Audits under MSIHC Rules are conducted every year. PESO approval was obtained prior to commissioning.

Status of Conditions Imposed with Respect to Environmental Clearance of Installation of 3rd Gas Turbine (GT-3) with Heat Recovery Steam Generation (HRSG) at Haldia Refinery

Sl. No.	STIPULATION BY MoEF & CC	STATUS
i	All the conditions stipulated by West Bengal Pollution Control Board vide their letter no. 334-2N-295/2005 dated 28th June 2006 shall be strictly implemented.	All conditions stipulated by WBPCB vide letter no. 334-2N-295/2005 dated 28.06.2006 have been duly complied with.
ii	No additional land shall be acquired for any activity/facility of the power project.	No additional land has been acquired. GT-3 has been installed within the existing refinery premises.
iii	Water requirement will be met from existing water supply system.	Water requirements are being met from the existing water supply system.
iv	Sulphur content in the Naphtha to be used in the project shall not exceed 0.025%.	Sulphur content in Naphtha used is maintained below 0.025% as stipulated. The RLNG Skid (inaugurated 12th January 2026, Rs. 192 Crore) is progressively replacing naphtha/IFO with near-zero sulphur RLNG as process fuel in the GTs and HRSG system.
v	A single stack of 60 m with exit velocity of 20 m/sec shall be provided with continuous online monitoring equipment.	A 60 m stack with exit velocity of 20 m/sec has been provided, equipped with continuous online monitoring for SO ₂ , NO _x , PM ₁₀ , and CO. Data is transmitted to the CPCB server in real time.
vi	NO _x emission shall not exceed 100 ppm.	NO _x emissions from GTs/HRSGs stacks are maintained within 25–40 ppm, well within the specified limit of 100 ppm. The RLNG fuel switchover (January 2026) will further reduce NO _x to near-zero levels in GT/HRSG operations.
vii	The treated effluents conforming to the prescribed standards shall only be discharged in the river Hooghly.	Haldia Refinery operates a comprehensive dual-ETP system — the most significant upgradation in the refinery's history was completed during this period: ETP-1 Modernisation (Rs. 87 Crores): Capacity upgraded from 650 m³/hr to 850 m³/hr. A state-of-the-art laminar clarifier was installed to enhance TSS and oil removal. The modernised ETP-1 was inaugurated by the Executive Director & Refinery Head on 26th September 2025. Pre-commissioning training for operating staff was completed in advance.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		- ETP-2 Augmentation: DCS system commissioned August 2025. ETP-2 shutdown for major augmentation works commenced March 1, 2026 to further enhance treatment capacity and technology. - Combined ETP capacity now stands at 1,250 m³/hr (ETP-1: 850 m³/hr + ETP-2: 600 m³/hr). Actual ETP load remains within 900–1,100 m³/hr. - Treated effluent is reused in the Tertiary Treatment Plant-RO (TTP-RO), cooling tower make-up, fire water system, and other utility services. Effluent recycling rate achieved 90.8% in FY 2025–26 (up from 90.5% in FY 2023–24). - Only the TTP-RO reject, meeting G.S.R. 186(E) MINAS standards across all 21 parameters, is discharged to River Hooghly — strictly within the Consent to Operate (CTO No. WBPCB/4890720/2024) permitted limit of 240 m³/hr. Total discharge to Hooghly River in FY 2025–26: 8,06,951 m³, all within MINAS norms. - H₂O₂ Dosing: 5,04,220 kg of hydrogen peroxide dosed in FY 2025–26 to achieve oxidative COD reduction in treated effluent before discharge. - IWT Green STP (0.5 MLD): A nature-based Integrated Wetland Technology sewage treatment plant, designed by IIT Bombay, was successfully commissioned on 31st March 2026 at the Township — inaugurated by the Chairman, IndianOil on 12th January 2026. - Monthly average data of final treated effluent for October 2025 to March 2026 is enclosed as Annexure-2.
viii	Adequate measures shall be taken to avoid fire and explosion hazard.	Adequate safety measures have been taken to prevent fire and explosion hazards, adhering to OISD, PESO, and other applicable statutory norms. Third-party Safety Audits are conducted annually as per MSIHC Rules.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
ix	A greenbelt shall be developed all along the plant.	Haldia Refinery maintains the highest green coverage ever recorded — 68.49% (417.82 acres out of 610 acres plant area) as of 31st March 2026. The refinery follows a dual strategy to meet and exceed the statutory 33% green cover requirement: 1. Internal Greenbelt & Biodiversity Initiatives: • Ecological Butterfly Park (3,728 sq. m, 0.921 acre) developed within refinery premises as a dedicated biodiversity zone supporting pollinators and indigenous flora, serving as a biological air quality indicator. • Species selection follows EC mandate: includes SO₂-resistant and SO₂-sensitive species selected in consultation with experts. • All conventional lights in the refinery and township have been converted to LED. 2. External Greenbelt Development (Off-site Mitigation): • Mangrove Plantation Drive 2.0 (FY 2025–26): Flagship initiative launched on 12th January 2026 by the Chairman, IndianOil — targeting 30 lakh mangroves across 150 hectares (Beliary Char & Dakshinchara Shankarara) under MoU with West Bengal Forest Development Corporation. Approximately 10 lakh mangroves planted in FY 2025–26 alone. • Cumulative trees planted as on 31.03.2026: 32,18,510 (32.2 Lakh) across 219 Ha total greenbelt. • Phase 1 (FY 2021–22): ~20 lakh mangroves at Beliarychar Island (247 Ha) — completed. • FY 2022–23: 20,800 trees FY 2023–24: 661 trees FY 2024–25: 1,739 trees FY 2025–26: ~10 lakh mangroves (Mangrove Drive 2.0). • Miyawaki Plantation at Mahishadal Rajbari and Refinery Township continues.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		Biodiversity Park at Digha with native flora and water bodies maintained. Green cover increased from 11% in 2019 to over 60% by FY 2025–26 (tracked through satellite imagery and GIS tools as per EC requirement).
xi	Noise level should be limited to 75 dBA and regular maintenance of equipment be undertaken.	Haldia Refinery ensures noise levels remain within the prescribed limits of <75 dBA (day: 06:00–22:00 hrs) and <70 dBA (night: 22:00–06:00 hrs) as per EPA Rules, 1986 at all boundary and internal monitoring locations. - Noise monitoring is regularly conducted at boundary locations and inside the plant. Half-yearly measurement data for the period October 2025 to March 2026 is enclosed as Annexure-4. - Noise control measures in place include acoustic enclosures on compressors, silencers on steam pressure reducing and de-superheating (PRDS) systems, and acoustic hoods on other noise-generating equipment. - Mandatory use of PPEs (earplugs) is enforced in all high-noise zones across the refinery.
xii	Regular monitoring of the ambient air quality shall be carried out in and around the power plant.	Ambient air quality is monitored twice weekly at five locations inside the refinery and two locations in the township. Three CAAQMS are installed and integrated with the CPCB server.
xiii	Half yearly report on the status of implementation of the stipulated conditions and environmental safeguards should be submitted.	Half-yearly compliance reports are regularly submitted to the MoEF&CC Regional Office, Bhubaneswar and the West Bengal Pollution Control Board (WBPCB), Haldia before 1st June and 1st December every year. - The previous half-yearly report (April 2025 to September 2025) was submitted in October 2025 — Ref. No. HR/HSE/8D/2025-26/01 dated 08.12.2025. - The present report covers the period 1st October 2025 to 31st March 2026.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		Compliance data and monitored results are also uploaded on the IndianOil website and shared with MoEF&CC Regional Office, CPCB, and WBPCB as required.
xv	Separate funds should be allocated for implementation of environmental protection measures.	Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities. These funds are not diverted for any other purposes. - FY 2025–26 Environmental Expenditure: Rs. 17.02 Crore (provisionally stated; formal closing in progress). Year-wise environmental expenditure (Rs. Crore): 2024–25: 19.17 2023–24: 17.84 2022–23: 20.61 2021–22: 23.86 2020–21: 20.79 2019–20: 20.58 2018–19: 20.59 2017–18: 15.07 2016–17: 21.19 - Funds are utilized for: operation and maintenance of ETP, TTP-RO, OCEMS; greenbelt development; environmental monitoring; hazardous waste management; sludge oil recovery; consent/authorization fees; awareness programmes; and EIA/RA studies. Allocations are made from both recurring and non-recurring budgets as required.
xvi	Full cooperation should be extended to the Scientists/Officers from the Ministry monitoring compliance.	Haldia Refinery extends full cooperation to all Scientists and Officers visiting from statutory bodies. The MoEFCC Regional Office site inspection of 5th December 2025 was fully facilitated, resulting in the CCR (File No. 102-96/EPE/56 dated 09.03.2026) confirming zero major non-compliance.

7.0 EC Reference No. & Issue date: J11011/422/200 IA II(I); 6th March 2007

Status of conditions imposed with respect to environmental clearance for Crude Oil Refining Capacity by Revamping of RFCCU from 0.7 MMTPA to 1.0 MMTPA – Not pursued

Sl. No.	STIPULATION BY MoEF & CC	STATUS
I	Gaseous emissions from various process units shall be kept within limit as per standards prescribed by SPCB.	The revamping job of RFCCU was not pursued due to economic reasons. The emission level of SO ₂ remains unchanged at current operating levels. All relevant conditions continue to be complied with under the overall refinery operating EC framework.
II	There will be no increase in the pollution load of SO ₂ emission. A new SRU with more than 99% efficiency shall be installed.	Haldia Refinery has maintained SO₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026: - Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. - Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. - The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD — was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). - Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. - Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across 31 stacks — 103 reports generated in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5. - The SO₂ emission data for the period October 2025 to March 2026 is enclosed

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.
III	No additional stack is envisaged for the revamp of RFCCU.	The revamping job of RFCCU was not pursued due to economic reasons. The emission level of SO ₂ remains unchanged at current operating levels. All relevant conditions continue to be complied with under the overall refinery operating EC framework.
IV–XV	All specific and general conditions related to the RFCCU revamp project.	The revamping job of RFCCU was not pursued due to economic reasons. The emission level of SO ₂ remains unchanged at current operating levels. All relevant conditions continue to be complied with under the overall refinery operating EC framework.

8.0 EC Reference No. & Issue date: J-11011/904/2007-IA II (I); 17th March 2009*Installation of Delayed Coking Unit (DCU) at Haldia Refinery*

Sl. No.	EC Reference No. and Date	Status
8.0	J-11011/904/2007-IA II (I), Dated 17th MARCH 2009 Installation of Delayed Coking Unit (DCU) at Haldia Refinery, Haldia, WB by IOCL.	The Delayed Coking Unit (DCU) project at Haldia Refinery was incorporated into the Feed Processing Unit (FPU) and Capacity Expansion projects (DYIP), with a fresh Environmental Clearance granted. The DCU project is now named the Distillate Yield Improvement Project (DYIP) and all compliance is being reported under EC Ref. No. J-11011/299/2013-IA II(I) dated 04-March-2016 (refer Section 9.0 of this report). DCU has operated at the highest-ever throughput in FY 2025–26: 17,48,064 MT — processing vacuum residue, MHC bottoms, CLO, and oily sludge as feedstock, maximizing hydrocarbon recovery from bottom-of-barrel streams.

9.0 EC Reference No. & Issue date: J-11011/299/2013-IA II (I); 4th March 2016

Status of conditions imposed with respect to environmental clearance for Capacity expansion from 7.5 MTPA to 8 MTPA along with Distillate Yield Improvement Project (DYIP) and Feed Processing Unit (FPU)

Sl. No.	STIPULATION BY MoEF & CC	STATUS
i	Compliance to all the environmental conditions stipulated in the earlier ECs shall be satisfactorily implemented.	Environmental conditions stipulated in all the earlier ECs are being complied with and half-yearly compliance status report is being submitted in June & December every year to the MoEF&CC Regional Office.
ii	M/s IOCL shall comply with new standards/norms for Oil Refinery Industry notified under the Environment (Protection) Rules, 1986 vide G.S.R. 186(E) dated 18th March, 2008.	New standards/norms for Oil Refinery are being followed as per G.S.R. 186(E) dated 18th March, 2008.
iii	Continuous on-line stack monitoring for SO ₂ , NOX and CO of all the stacks shall be carried out. Low NOX burners shall be installed.	Continuous Online Stack Monitoring is fully operational at Haldia Refinery: 28 stacks equipped with OCEMS monitoring SO₂, NOx, PM₁₀, and CO — real-time data transmitted to the CPCB server on a 24x7 basis. - IoT Data Loggers newly commissioned in FY 2025–26 for VDU-II and FCCU stacks, further enhancing automated CPCB data transmission. - OCEMS for BOD, COD, TSS, and pH operational at the ETP outlet and ELR discharge point. - Web cameras with night vision capability and flow meters installed at both the effluent inlet and outlet channels, as well as at the periphery boundary to monitor the green belt channel around the refinery premises. - WBPCB carries out quarterly sampling for stack emissions verification, in addition to online monitoring.
iv	Process emissions from various units shall conform to the standards prescribed under the Environment (Protection) Act. At no time shall emission levels go beyond the stipulated standards.	Haldia Refinery has maintained SO ₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026:

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		- Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. - Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. - The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD — was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). - Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. - Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across stacks in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5. - The SO₂ emission data for the period October 2025 to March 2026 is enclosed as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.
v	Leak Detection and Repair (LDAR) program shall be prepared and implemented to control HC/VOC emissions.	The LDAR programme is implemented through certified agencies to monitor and control fugitive HC/VOC emissions (refer Annexure-09): - LDAR programme is followed, and VOC monitoring is conducted at critical locations by a WBPCB-recognized laboratory - LDAR programme is being conducted at various locations: OHCU block, HGU-2 block, FPU block, KHDS (FOB block), VDU-1 (LOB block), MSQU (DHDS block),

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		RFCCU, VDU-II (DHDS block), HGU-1 (DHDS block), CGO-HDT (DYIP block), DHDT (BS-VI block) — DCU (DYIP block). • Double mechanical seals are used on pumps handling hydrocarbons. • Floating roof storage tanks store volatile hydrocarbons. • HC gas detectors with LEL indicators installed in process units and tank farms, with alarms routed to the DCS control room.
vi	SO₂ emissions after expansion from the refinery shall not exceed 941 Kg/hr. Sulphur recovery units shall be installed with overall recovery efficiency not less than 99.9%.	Haldia Refinery has maintained SO₂ emissions well within the prescribed limits throughout the period October 2025 to March 2026: • Only low-sulphur fuel gas and fuel oil are fired in the process heaters across the refinery. • Five Sulphur Recovery Units (SRU-II, SRU-III, SRU-IV, SRU-V, and DYIP SRU) with a combined design capacity of 360 MT/day, each with >99.5% H₂S recovery efficiency, are operational. • The Wet Sulphuric Acid (WSA) Plant — first of its kind in IOCL, capacity 375 MTPD — was successfully commissioned on 30th September 2022 and recorded a historic 342.2 days of continuous operation in FY 2025–26, producing 1,02,971 MT of commercial-grade H₂SO₄ (all-time record). • Stack emissions are continuously monitored through Online Continuous Emission Monitoring Systems (OCEMS) on 28 stacks, with real-time data linked to the CPCB server. IoT data loggers were newly commissioned for VDU-II and FCCU stacks during FY 2025–26. • Third-party manual stack monitoring was conducted by M/s Mitra S.K. Pvt. Ltd. (NABL accredited) across stacks in FY 2025–26, with 100% compliance across all monitored stacks. Refer Annexure-5. • The SO₂ emission data for the period October 2025 to March 2026 is enclosed

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		as Annexure-5. All readings are well within the prescribed EC limit of 980 kg/hr.
vii	Record of sulphur balance shall be maintained at the Refinery as part of the environmental data on regular basis.	Sulphur balance is maintained monthly at Haldia Refinery, tracking sulphur input from crude oil and output through products, byproducts, and emissions: - Monthly sulphur balance is calculated based on crude intake, sulphur output, SRU production, and SO₂ emissions from process heaters and boilers. - A data-driven SO₂ Emission Dashboard has been created using AI and Robotic Process Automation (RPA) to capture and report sulphur emissions with real-time trend analysis.
viii	Ambient air quality monitoring stations [PM ₁₀ , PM _{2.5} , SO ₂ , NOX, H ₂ S, mercaptan, non-methane HC and Benzene] shall be set up in complex.	Ambient air quality is monitored twice weekly at five locations inside the refinery and two locations in the township. Three CAAQMS are installed and integrated with the CPCB server. Out of this three, one CAAQMS station was installed with this project and PM₁₀, PM_{2.5}, SO₂, NOX, H₂S, mercaptan, non-methane HC and Benzene are being monitored.
x	Fresh water requirement from Geonkhali Water Supply System: 1270 m ³ /hr.	Haldia Refinery achieved its most significant water conservation milestone in FY 2025–26: - Specific freshwater consumption reduced by 35% in a single year: from 1.04 m³/MT crude (FY 2024–25) to 0.67 m³/MT crude (FY 2025–26) — the most significant single-year freshwater reduction in the refinery's history. - Fresh water flow rate reduced from 806 m³/hr (FY 2024-25) to 629 m³/hr (FY 2025-26) - saving approximately 13.14 Lakh KL/year of raw water from the Hooghly River - Effluent recycling rate: 90.8% (79,89,531 KL) in FY 2025–26 — treated ETP water reused in DHDS Cooling Tower, DM plant, fire water, horticulture, and construction.

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		• Tertiary Treatment Plant-RO (TTP-RO): Final polishing of treated effluent enables reuse as cooling tower make-up and DM plant feed water. • Neer Kund Stormwater Reservoir (3,800 m³ capacity, 46m x 23m footprint): Commissioned FY 2024–25, enabling recycling of up to 200 m³/hr of stormwater runoff for use in fire systems or ETP. • SMPK STP Partnership (3 MLD): MoU with Shyama Prasad Mukherjee Port for treated domestic sewage reuse — extending circular water economy beyond the refinery.
xi	Industrial effluent generation shall not exceed 1150 m ³ /hr after expansion.	Haldia Refinery operates a comprehensive dual-ETP system — the most significant upgradation in the refinery's history was completed during this period: • ETP-1 Modernisation (Rs. 87 Crores): Capacity upgraded from 650 m³/hr to 850 m³/hr. A state-of-the-art laminar clarifier was installed to enhance TSS and oil removal. The modernised ETP-1 was inaugurated by the Executive Director & Refinery Head on 26th September 2025. Pre-commissioning training for operating staff was completed in advance. • ETP-2 Augmentation: DCS system commissioned August 2025. ETP-2 shutdown for major augmentation works commenced March 1, 2026 to further enhance treatment capacity and technology. • Combined ETP capacity now stands at 1,450 m³/hr (ETP-1: 850 m³/hr + ETP-2: 600 m³/hr). Actual ETP load remains within 900–1,100 m³/hr. • Treated effluent is reused in the Tertiary Treatment Plant-RO (TTP-RO), cooling tower make-up, fire water system, and other utility services. Effluent recycling

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		rate achieved 90.8% in FY 2025–26 (up from 90.5% in FY 2023–24). - Only the TTP-RO reject, meeting G.S.R. 186(E) MINAS standards across all 21 parameters, is discharged to River Hooghly — strictly within the Consent to Operate (CTO No. WBPCB/4890720/2024) permitted limit of 240 m³/hr. Total discharge to Hooghly River in FY 2025–26: 8,06,951 m³, all within MINAS norms. - H₂O₂ Dosing: 5,04,220 kg of hydrogen peroxide dosed in FY 2025–26 to achieve oxidative COD reduction in treated effluent before discharge. - IWT Green STP (0.5 MLD): A nature-based Integrated Wetland Technology sewage treatment plant, designed by IIT Bombay, was successfully commissioned on 31st March 2026 at the Township — inaugurated by the Chairman, IndianOil on 12th January 2026. - Monthly average data of final treated effluent for October 2025 to March 2026 is enclosed as Annexure-2.
xii	All the effluents after treatment shall be routed to a properly lined guard pond.	Effluents are treated in the existing ETPs, with online analyzers installed to monitor the quality of treated water and final river discharge. Online analyzers continuously track pH, TSS, COD, and BOD, with real-time data sent to the CPCB server.
xv	Oil catchers / oil traps shall be provided at all possible locations in rain/storm water drainage system inside the factory premises.	Oil catchers are installed at all key locations in the storm water drainage system: - Haldia Refinery has five storm water storage ponds with oil catch pits to recover oil. - All surface drains are connected to guard ponds equipped with oil catch systems. - Oil-free water is transferred to ETP feed tanks (2 x 35,000 KL) for further treatment. - Neer Kund stormwater reservoir (3,800 m³ capacity) commissioned, enabling

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		recycling of up to 200 m ³ /hr of stormwater runoff.
xvi	Spent catalyst shall be sent to authorized recycler/re-processors. Oily sludge shall be treated in the sludge Centrifuge.	Hazardous waste management at Haldia Refinery is in full compliance with the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016: • HW Authorization: Renewed by WBPCB in FY 2025–26 — WBPCB/7204852/2025, valid to 29th December 2030. This secures 5-year regulatory continuity across all hazardous waste streams. • Annual HW Returns: Submitted to WBPCB before 30th June every year. FY 2025-26 return submitted on 06.05.2026. • TSDF Membership: Haldia Refinery holds active membership of CHW-TSDF (WBWML) at Haldia, vide No. WBWML-HzZ/HLDA/I001. • Oily Sludge Management: BLABO closed-loop in-situ sludge treatment achieving ~90% oil recovery from tank bottom sludge. TK-113 sludge cleaning completed in a record 40 days — the lowest turnaround at Haldia Refinery. De-oiled sludge disposed through WBPCB-authorized agencies (WBWML TSDF and authorized co-processing cement plant). • Spent Catalyst: Stored in sealed drums; metal-value catalysts auctioned via MSTC to authorized recyclers; zero-value catalysts sent to authorized TSDF (WBWML). • ETP Sludge: Treated via IOCL R&D bioremediation reactor technology (in-situ biodegradation), eliminating external disposal of biological sludge.
xvii	The Company should strictly comply with the rules and guidelines under MSIHC Rules, 1989. Hazardous waste should be disposed of as per HWM Rules, 2008.	Hazardous waste management at Haldia Refinery is in full compliance with the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016: • HW Authorization: Renewed by WBPCB in FY 2025–26 — WBPCB/7204852/2025,

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		valid to 29th December 2030. This secures 5-year regulatory continuity across all hazardous waste streams. • Annual HW Returns: Submitted to WBPCB before 30th June every year. FY 2025-26 return submitted on 06.05.2026. • TSDF Membership: Haldia Refinery holds active membership of CHW-TSDF (WBWML) at Haldia, vide No. WBWML-HzZ/HLDA/I001. • Oily Sludge Management: BLABO closed-loop in-situ sludge treatment achieving ~90% oil recovery from tank bottom sludge. TK-113 sludge cleaning completed in a record 40 days — the lowest turnaround at Haldia Refinery. De-oiled sludge disposed through WBPCB-authorized agencies (WBWML TSDF and authorized co-processing cement plant). • Spent Catalyst: Stored in sealed drums; metal-value catalysts auctioned via MSTC to authorized recyclers; zero-value catalysts sent to authorized TSDF (WBWML). • ETP Sludge: Treated via IOCL R&D bioremediation reactor technology (in-situ biodegradation), eliminating external disposal of biological sludge.
xviii	The membership of common TSDF should be obtained for the disposal of hazardous waste.	Haldia Refinery holds valid HW authorization (WBPCB/7204852/2025, valid till 29.12.2030) and active membership of CHW-TSDF (WBWML) at Haldia, vide No. WBWML-HzZ/HLDA/I001.
xix	Proper oil spillage prevention management plan shall be prepared.	Oil spillage inside units is routed to the oily water sewer (OWS) and collected at the ETP inlet sump. Slop oil is skimmed from holding tanks and processed in units. Tier-I Oil Spill Response readiness maintained as per OISD and Indian Coast Guard guidelines. Regular mock drills and SOPs ensure emergency preparedness.
xxii	Acoustic enclosure/silencer shall be installed wherever it is possible.	Haldia Refinery ensures noise levels remain within the prescribed limits of <75 dBA (day:

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		06:00–22:00 hrs) and <70 dBA (night: 22:00–06:00 hrs) as per EPA Rules, 1986 at all boundary and internal monitoring locations. - Noise monitoring is regularly conducted at boundary locations and inside the plant. Half-yearly measurement data for the period October 2025 to March 2026 is enclosed as Annexure-4. - Noise control measures in place include acoustic enclosures on compressors, silencers on steam pressure reducing and de-superheating (PRDS) systems, and acoustic hoods on other noise-generating equipment. - Mandatory use of PPEs (earplugs) is enforced in all high-noise zones across the refinery.
xxiii	The company shall strictly follow all the recommendation mentioned in the Charter on Corporate Responsibility for Environmental Protection (CREP).	All recommendations under the Charter on CREP are being strictly followed by Haldia Refinery.
xxiv	All the recommendations mentioned in the rapid risk assessment report, disaster management plan and safety guidelines shall be implemented.	Emergency Response & Disaster Management Plan (ERDMP) has been recertified in FY 2025–26: - ERDMP recertified by M/s Sanmarg Engineering Validation Pvt. Ltd. (PNGRB-authorized agency) in July–August 2025. Certificate validated that Haldia Refinery has been assessed with respect to the requirements of PNGRB Notification GSR 39(E), PNGRB Codes of Practices for Emergency Response and Disaster Management (ERDMP) Regulations 2010, including Amendment Regulations 2020. Valid till 05.08.2028. - Quantitative Risk Assessment (QRA), HAZOP, and SIL Studies conducted at 5-year intervals using latest PHAST and AR technologies for advanced risk modelling. Mitigation measures are implemented and externally audited by OISD. Quarterly compliance status is regularly submitted to OISD.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		Off-site Emergency Drill conducted on 5th March 2025 with multi-agency participation (local authorities, fire, police, and medical teams).
xxvi	Green belt over 19.5 acres land area should be developed within plant premises with at least 10 meter wide green belt on all sides.	Haldia Refinery maintains the highest green coverage ever recorded — 68.49% (417.82 acres out of 610 acres plant area) as of 31st March 2026. The refinery follows a dual strategy to meet and exceed the statutory 33% green cover requirement: 1. Internal Greenbelt & Biodiversity Initiatives: - Ecological Butterfly Park (3,728 sq. m, 0.921 acre) developed within refinery premises as a dedicated biodiversity zone supporting pollinators and indigenous flora, serving as a biological air quality indicator. - Species selection follows EC mandate: includes SO₂-resistant and SO₂-sensitive species selected in consultation with experts. - All conventional lights in the refinery and township have been converted to LED. 2. External Greenbelt Development (Off-site Mitigation): - Mangrove Plantation Drive 2.0 (FY 2025–26): Flagship initiative launched on 12th January 2026 by the Chairman, IndianOil — targeting 30 lakh mangroves across 150 hectares (Beliary Char & Dakshinchara Shankarara) under MoU with West Bengal Forest Development Corporation. Approximately 10 lakh mangroves planted in FY 2025–26 alone. - Cumulative trees planted as on 31.03.2026: 32,18,510 (32.2 Lakh) across 219 Ha total greenbelt. - Phase 1 (FY 2021–22): ~20 lakh mangroves at Beliarychar Island (247 Ha) — completed. - FY 2022–23: 20,800 trees FY 2023–24: 661 trees FY 2024–25: 1,739 trees FY

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		2025–26: ~10 lakh mangroves (Mangrove Drive 2.0). • Miyawaki Plantation at Mahishadal Rajbari and Refinery Township continues. Biodiversity Park at Digha with native flora and water bodies maintained. • Green cover increased from 11% in 2019 to over 60% by FY 2025–26 (tracked through satellite imagery and GIS tools as per EC requirement).
xxviii	At least 2.5% of the total cost of the project should be earmarked towards the corporate social responsibility.	Haldia Refinery has earmarked and allocated the stipulated 2.5% of the project cost towards Corporate Environment Responsibility (CER) for DYIP Haldia Refinery Project: • EC approved project cost: Rs. 3,217 Crore. CER fund allocated: Rs. 80.43 Crore (2.5%). Amount utilized as on date: Rs. 31.79 Crore. Balance earmarked for ongoing and planned initiatives: Rs. 48.64 Crore. • Activities undertaken under CER include healthcare, sanitation, skill development, urban infrastructure, and environmental conservation. Key initiatives include: 4 MLD Sewage Treatment Plant at Haldia (under execution); Tiger Conservation at Sundarbans Tiger Reserve; Mangrove Plantation over 150 Ha (Dakshinchara & Beliarychar); CCTV Cameras installation in Haldia Industrial Region (Completed).
General i	The project authorities must strictly adhere to the stipulations made by the concerned SPCB.	Haldia Refinery has been adhering to all stipulations made by the West Bengal Pollution Control Board and submitting necessary compliance reports as per schedule. • Consent to Operate (CTO): WBPCB/4890720/2024, valid till 27.05.2029. All CTO conditions including discharge limits, stack monitoring, HW disposal, and noise levels are being fully complied with.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
General v	A separate Environmental management Cell equipped with full-fledged laboratory facilities must be set up.	Haldia Refinery operates an in-house, first-party Quality Control Laboratory (HRQC) with permanent facilities inside the refinery premises: - NABL Accreditation: TC10599, valid till 01.05.2026. The laboratory is also WBPCB-approved for daily water testing. A NABL Desktop Audit was successfully completed in FY 2025–26, securing continued accreditation for all parameters. - The laboratory is the only PSU lab accredited under ISO/IEC 17025:2017 for Sulphuric Acid testing, competing with private players. It became the first NABL-approved lab in India for wax content testing in bitumen in FY 2025–26, saving Rs. 1 Crore annually. 18 correlation programmes completed in FY 2025–26 with an impressive average z-score <1.8, reinforcing analytical accuracy.
General vi	Adequate funds shall be earmarked towards environmental pollution control measures.	Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities. These funds are not diverted for any other purposes. - FY 2025–26 Environmental Expenditure: Rs. 17.02 Crore (provisionally stated; formal closing in progress). Year-wise environmental expenditure (Rs. Crore): 2024–25: 19.17 2023–24: 17.84 2022–23: 20.61 2021–22: 23.86 2020–21: 20.79 2019–20: 20.58 2018–19: 20.59 2017–18: 15.07 2016–17: 21.19 - Funds are utilized for: operation and maintenance of ETP, TTP-RO, OCEMS; greenbelt development; environmental monitoring; hazardous waste management; sludge oil recovery; consent/authorization fees; awareness programmes; and EIA/RA studies.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		Allocations are made from both recurring and non-recurring budgets as required.
General vii	A six monthly compliance report and the monitored data along with statistical interpretation shall be submitted to them regularly.	Half-yearly compliance reports are regularly submitted to the MoEF&CC Regional Office, Bhubaneswar and the West Bengal Pollution Control Board (WBPCB), Haldia before 1st June and 1st December every year. • The previous half-yearly report (April 2025 to September 2025) was submitted in October 2025 — Ref. No. HR/HSE/8D/2025-26/01 dated 08.12.2025. • The present report covers the period 1st October 2025 to 31st March 2026. • Compliance data and monitored results are also uploaded on the IndianOil website and shared with MoEF&CC Regional Office, CPCB, and WBPCB as required.

10.0 EC Reference No. & Issue date: J11011/175/2016-IA -II (I); 28th November 2017

Status of conditions imposed with respect to environmental clearance for BS-VI Fuel Quality Upgradation Project (Phase-I) at Haldia Refinery

Sl. No.	STIPULATION BY MoEF & CC	STATUS
(i)	Consent to Establish/Operate for the project shall be obtained from WBPCB.	Consent to Establish and Consent to Operate have been obtained from WBPCB. CTO No.: WBPCB/4890720/2024, valid till: 27.05.2029.
(ii)	As already committed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged outside the premises.	Haldia Refinery is actively progressing towards minimizing effluent discharge and is in compliance with the directions of the Expert Appraisal Committee: • High Effluent Reuse Rate: The treated effluent is extensively reused in the Tertiary Treatment-RO plant, cooling water systems, and fire water networks, achieving 91% reuse in FY 2024–25, further improving to 90.8% in FY 2025–26 (on higher absolute volume basis). • Discharge Compliance: Currently, only the RO reject — meeting all G.S.R. 186(E) MINAS standards — is discharged to the Hooghly River, strictly in accordance with the CTO from WBPCB (CTO No. WBPCB/4890720/2024), which permits discharge up to 240 m³/hr. • ZLD Amendment Process: IOCL–Haldia Refinery submitted a proposal to MoEF&CC requesting an amendment to the EC conditions citing physical constraints such as land availability, salt management challenges, and techno-economic constraints. • EAC Deliberation (January 2025): EAC meeting held on 10.01.2025 suggested submission of a detailed Techno-Economic Feasibility Study and an impact assessment of treated effluent on the Hooghly River. • Feasibility Study by EIL: Engineers India Limited (EIL) was engaged to conduct a Techno-Economic Feasibility Study. The study validated the physical constraints. IOCL approached the Ministry in 2025

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		with a realistic alternative: a 60% reduction in effluent discharge by FY 2028 through high-recovery technologies. • EAC Direction (November 2025): The matter was deliberated in the EAC meeting held on 14.11.2025. As per the Minutes of Meeting, the Hon'ble EAC directed IOCL to submit a definite ZLD Implementation Project Timeline. IOCL is actively proceeding with the necessary actions to comply with this direction. • Effect Assessment Study by EIL: The comprehensive "Effluent Effect Assessment Study" confirms no appreciable increase in pollutant concentration in the Hooghly River due to treated effluent from Haldia Refinery, no impact to aquatic life, and no food chain contamination. Findings have been submitted to the Ministry. • In compliance with the above direction, the management of Haldia Refinery has approved the implementation plan for installation of a full Zero Liquid Discharge (ZLD) Plant at Haldia Refinery at an estimated cost of Rs. 198 Crore (including GST). This Timeline was also formally submitted to Compliance and Monitoring Division (CMD), MoEFCC wide ATR Ref. No.: HR/HSE/ENV/CCR-ATR/2026/01 dated 12.06.2026 • The committed milestone schedule is tabulated below: — AF approval from RHQ : Aug'2026 — PMC line-up : Nov'2026 — LSTK tender line-up : April'2027 — Mechanical Completion : Sep'2028 — Commissioning of ZLD : Oct'2028
(iii)	Necessary authorization required under the Hazardous and Other Wastes (Management and Trans-Boundary Movement) Rules, 2016 shall be obtained.	Hazardous Waste (HW) Authorization is accorded by WBPCB — WBPCB/7204852/2025, renewed in FY 2025–26, valid till 29th December 2030. Yearly Hazardous Waste returns are being submitted to WBPCB before 30th June.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
(iv)	National Emission Standards for Organic Chemicals Manufacturing Industry (G.S.R. 608(E) dated 21st July, 2010) shall be followed.	G.S.R. 608(E) dated 21st July, 2010 is not applicable to petroleum oil refineries.
(v)	To control source and fugitive emissions, suitable pollution control devices shall be installed with different stacks. Low NOX burners shall be installed.	All emission control measures are in full compliance: • OCEMS for SO₂, NO_x, CO, and PM installed on stacks associated with DHDT, HGU-II Revamp, Prime-G Revamp, and Sulphuric Acid Plant. Real-time data transmitted to CPCB servers. • Adequate stack heights provided for all new heaters as per CPCB/SPCB guidelines. • Only low-sulphur fuel gas and oil are used for combustion. No coal-fired boilers in operation. • Low NO_x burners and staged combustion systems installed in all new furnaces. Existing furnaces are being progressively retrofitted. • RLNG Skid inaugurated 12th January 2026 (Rs. 192 Crore). On full integration of 2.4 MMSCMD RLNG: SO_x near-zero, 15,000 MT CO₂e/yr reduction.
(vi)	Total fresh water requirement shall not exceed 1395 cum/hr.	Haldia Refinery achieved its most significant water conservation milestone in FY 2025–26: • Specific freshwater consumption reduced by 35% in a single year: from 1.04 m³/MT crude (FY 2024–25) to 0.67 m³/MT crude (FY 2025–26) — the most significant single-year freshwater reduction in the refinery's history. • Fresh water flow rate reduced from 806 m³/hr (FY 2024-25) to 629 m³/hr (FY 2025-26) - saving approximately 13.14 Lakh KL/year of raw water from the Hooghly River • Effluent recycling rate: 90.8% (79,89,531 KL) in FY 2025–26 — treated ETP water reused in DHDS Cooling Tower, DM plant, fire water, horticulture, and construction. • Tertiary Treatment Plant-RO (TTP-RO): Final polishing of treated effluent enables

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		reuse as cooling tower make-up and DM plant feed water. • Neer Kund Stormwater Reservoir (3,800 m³ capacity, 46m x 23m footprint): Commissioned FY 2024–25, enabling recycling of up to 200 m³/hr of stormwater runoff for use in fire systems or ETP. • SMPK STP Partnership (3 MLD): MoU with Shyama Prasad Mukherjee Port for treated domestic sewage reuse — extending circular water economy beyond the refinery.
(vii)	Industrial/trade effluent shall be treated in ETP and then passed through RO system.	Haldia Refinery operates a comprehensive dual-ETP system — the most significant upgradation in the refinery's history was completed during this period: • ETP-1 Modernisation (Rs. 87 Crores): Capacity upgraded from 650 m³/hr to 850 m³/hr. A state-of-the-art laminar clarifier was installed to enhance TSS and oil removal. The modernised ETP-1 was inaugurated by the Executive Director & Refinery Head on 26th September 2025. Pre-commissioning training for operating staff was completed in advance. • ETP-2 Augmentation: DCS system commissioned August 2025. ETP-2 shutdown for major augmentation works commenced March 1, 2026 to further enhance treatment capacity and technology. • Combined ETP capacity now stands at 1,450 m³/hr (ETP-1: 850 m³/hr + ETP-2: 600 m³/hr). Actual ETP load remains within 900–1,100 m³/hr. • Treated effluent is reused in the Tertiary Treatment Plant-RO (TTP-RO), cooling tower make-up, fire water system, and other utility services. Effluent recycling rate achieved 90.8% in FY 2025–26 (up from 90.5% in FY 2023–24).

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		- Only the TTP-RO reject, meeting G.S.R. 186(E) MINAS standards across all 21 parameters, is discharged to River Hooghly — strictly within the Consent to Operate (CTO No. WBPCB/4890720/2024) permitted limit of 240 m³/hr. Total discharge to Hooghly River in FY 2025–26: 8,06,951 m³, all within MINAS norms. - H₂O₂ Dosing: 5,04,220 kg of hydrogen peroxide dosed in FY 2025–26 to achieve oxidative COD reduction in treated effluent before discharge. - IWT Green STP (0.5 MLD): A nature-based Integrated Wetland Technology sewage treatment plant, designed by IIT Bombay, was successfully commissioned on 31st March 2026 at the Township — inaugurated by the Chairman, IndianOil on 12th January 2026. - Monthly average data of final treated effluent for October 2025 to March 2026 is enclosed as Annexure-2.
(viii)	Process effluent/any wastewater shall not be allowed to mix with storm water.	Complete segregation of process and storm water is maintained: - Process effluent is routed through dedicated closed Oily Water Sewer (OWS) pipelines to ETP inlet — no mixing with storm water. - Storm water is collected in guard ponds connected via open surface drains, equipped with oil catch pits. - Storm water is reprocessed through ETP or treated in the Storm Water Management System (SWMS, 1,000 m³/hr capacity) during heavy rainfall.
(ix)	Hazardous chemicals shall be stored in tanks, tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm.	Hazardous chemicals and hydrocarbons are stored in floating and fixed roof tanks within designated tank farms. Flame arrestors installed on all fixed roof tanks as per safety standards. Solvent and chemical transfers carried out using mechanized pump systems. Storage and

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		transfer systems comply with OISD and MSIHC norms.
(x)	Process organic residue and spent carbon shall be sent to cement industries. ETP sludge, process inorganic & evaporation salt shall be disposed off to the TSDF.	Hazardous waste management at Haldia Refinery is in full compliance with the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016: • HW Authorization: Renewed by WBPCB in FY 2025–26 — WBPCB/7204852/2025, valid to 29th December 2030. This secures 5-year regulatory continuity across all hazardous waste streams. • Annual HW Returns: Submitted to WBPCB before 30th June every year. FY 2025-26 return submitted on 06.05.2026. • TSDF Membership: Haldia Refinery holds active membership of CHW-TSDF (WBWML) at Haldia, vide No. WBWML-HzZ/HLDA/I001. • Oily Sludge Management: BLABO closed-loop in-situ sludge treatment achieving ~90% oil recovery from tank bottom sludge. TK-113 sludge cleaning completed in a record 40 days — the lowest turnaround at Haldia Refinery. De-oiled sludge disposed through WBPCB-authorized agencies (WBWML TSDF and authorized co-processing cement plant). • Spent Catalyst: Stored in sealed drums; metal-value catalysts auctioned via MSTC to authorized recyclers; zero-value catalysts sent to authorized TSDF (WBWML). • ETP Sludge: Treated via IOCL R&D bioremediation reactor technology (in-situ biodegradation), eliminating external disposal of biological sludge.
(xi)	The Company shall strictly comply with MSIHC Rules, 1989.	MSIHC Rules, 1989 is being followed. Third-party Safety Audit under MSIHC Rules, 1989 conducted in FY 2025–26 by an authorized agency .
(xiii)	The company shall undertake waste minimization measures.	Comprehensive waste minimization measures are in place:

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		- Flow meters installed across process streams for precise metering and control. - Oily sludge generated is reprocessed to recover slop oil for reuse (28,758 MT of slop processed in DCU coke drums in FY 2025–26). - Automated filling systems minimize spillage. Close feed systems adopted in operations. - No venting to open atmosphere. Flared gases routed through the Flare Gas Recovery System (FGRS).
(xiv)	The green belt shall be developed in more than 33% of the total project area.	Haldia Refinery maintains the highest green coverage ever recorded — 68.49% (417.82 acres out of 610 acres plant area) as of 31st March 2026. The refinery follows a dual strategy to meet and exceed the statutory 33% green cover requirement: 1. Internal Greenbelt & Biodiversity Initiatives: - Ecological Butterfly Park (3,728 sq. m, 0.921 acre) developed within refinery premises as a dedicated biodiversity zone supporting pollinators and indigenous flora, serving as a biological air quality indicator. - Species selection follows EC mandate: includes SO₂-resistant and SO₂-sensitive species selected in consultation with experts. - All conventional lights in the refinery and township have been converted to LED. 2. External Greenbelt Development (Off-site Mitigation): - Mangrove Plantation Drive 2.0 (FY 2025–26): Flagship initiative launched on 12th January 2026 by the Chairman, IndianOil — targeting 30 lakh mangroves across 150 hectares (Beliary Char & Dakshinchara Shankarara) under MoU with West Bengal Forest Development Corporation. Approximately 10 lakh mangroves planted in FY 2025–26 alone.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		• Cumulative trees planted as on 31.03.2026: 32,18,510 (32.2 Lakh) across 219 Ha total greenbelt. • Phase 1 (FY 2021–22): ~20 lakh mangroves at Beliarychar Island (247 Ha) — completed. • FY 2022–23: 20,800 trees FY 2023–24: 661 trees FY 2024–25: 1,739 trees FY 2025–26: ~10 lakh mangroves (Mangrove Drive 2.0). • Miyawaki Plantation at Mahishadal Rajbari and Refinery Township continues. Biodiversity Park at Digha with native flora and water bodies maintained. • Green cover increased from 11% in 2019 to over 60% by FY 2025–26 (tracked through satellite imagery and GIS tools as per EC requirement).
(xv)	At least 5% of the total project cost shall be allocated for Enterprise Social Commitment.	Haldia Refinery has earmarked and allocated the stipulated 5% of the project cost towards Corporate Environment Responsibility (CER) for the BS-VI Project: • Board-approved cost for BS-VI Project (RH-0757): Rs. 2,934 Crore. CER allocation: Rs. 129.86 Crore (5%). Cumulative utilization as on date: Rs. 35.93 Crore. • A total of 29 projects have been taken up, of which 23 have been completed and 6 are in progress. Activities cover education, healthcare, sanitation, green belt, and skill building. • Key ongoing initiatives: Dedicated healthcare infrastructure (20-bed isolation ward and 10-bed Caesarean ward at district hospitals; Burn ward at Haldia Subdivision Hospital); ITI Haldia infrastructure; Mangrove Plantation Drive 2.0 (Rs. 8.17 Crore earmarked).
(xvi)	For the DG sets, emission limits and stack height shall be in conformity with CPCB guidelines.	No DG sets are installed under the project. Power requirements are met through in-house Gas Turbines (GTs), Steam Turbines (TGs), and

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		import from WBSEDCL. The 132 kV Grid Parallel Operation commissioned on 12th January 2026 further reduced reliance on in-house GTs (one GT stopped), reducing Scope 1 GHG emissions.
(xvii)	The unit shall make the arrangement for protection of possible fire hazards during manufacturing process.	Haldia Refinery has a dedicated Fire & Safety department. A comprehensive fire water network covers all process units and tank farms. Multiple fire tenders and firefighting equipment are stationed for prompt emergency response. Risk assessment studies conducted for each process unit.
(xviii)	Continuous online (24x7) monitoring system for stack emissions shall be installed.	Continuous Online Stack Monitoring is fully operational at Haldia Refinery: • 28 stacks equipped with OCEMS monitoring SO₂, NO_x, PM₁₀, and CO — real-time data transmitted to the CPCB server on a 24x7 basis. • IoT Data Loggers newly commissioned in FY 2025–26 for VDU-II and FCCU stacks, further enhancing automated CPCB data transmission. • OCEMS for BOD, COD, TSS, and pH operational at the ETP outlet and ELR discharge point. • Web cameras with night vision capability and flow meters installed at both the effluent inlet and outlet channels, as well as at the periphery boundary to monitor the green belt channel around the refinery premises. • WBPCB carries out quarterly sampling for stack emissions verification, in addition to online monitoring.
(xix)	Occupational health surveillance of the workers shall be done on a regular basis.	Haldia Refinery has its own fully-equipped Occupational Health Centre (OHC) with all necessary facilities: • Periodic health check-ups are conducted for all employees as per the Factories Act and WB Factory Rules. • Records of surveillance and medical assessments are systematically

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		maintained in the OHC database, accessible through the medical portal. Regular training sessions on chemical handling and health safety covered 69 topics in the last year with 2,249 officer participations.
(xx)	Wetland habitat shall be provided for migratory birds, at the reservoir and green belt areas.	Haldia Refinery has undertaken key ecological initiatives to support migratory birds and biodiversity: - Biodiversity Park at Digha: Developed with native flora, water bodies, and open green spaces to attract and support migratory birds and coastal wildlife. - Ecological Butterfly Park (0.921 acre) within refinery premises hosts diverse nectar plants and shelter zones to sustain butterfly species and other pollinators. - Mangrove Plantation Drive 2.0 (2025–26): ~10 Lakh mangroves planted out of 30 lakh mangroves across 150 Ha coastal habitat, including over 8 native and endangered mangrove species to build climate resilience and support thriving wetland ecosystems.
12.1 General	The project authorities must strictly adhere to the stipulations made by CPCB, SPCB, State Government and other statutory authorities.	Statutory stipulations are being complied with.

11.0 EC Reference No. & Issue date: J11011/299/2013-IA -II (I); 11th December 2019

Amendment to EC: Capacity expansion from 7.5 MTPA to 8.0 MTPA along with DYIP and FPU – Augmentation of VDU-II

Sl.	EC detail	Existing EC conditions	Amendment in EC / Status
11	J-11011/299/2013-IA II(I), Date 11-Dec-2019	Capacity expansion from 7.5 MTPA to 8.0 MTPA along with Distillate Yield Improvement Project (DYIP) and installation of Feed Processing Unit (FPU) at IOCL Haldia Refinery – EC Amendment dated 04-March-2016	Augmentation of VDU-II (2.4 to 2.6 MTPA) in place of VDU-I (1.5 to 1.7 MTPA) – As per Ministry's notification dated 23rd November 2016, para 7(ii)(b), no requirement for amendment in the EC dated 4th March 2016. All applicable conditions under EC 9.0 continue to be complied with.

12.0 EC Reference No. & Issue date: J11011/175/2016-IA -II (I); 5th January 2021

Status of conditions imposed with respect to environmental clearance for Installation of 2nd Catalytic Iso-Dewaxing Unit (270.0 TMTPA)

Sl. No.	STIPULATION BY MoEF & CC	STATUS
I	The company shall comply with all the environmental protection measures and safeguards proposed in the documents submitted to the Ministry.	All environmental protection measures and safeguards proposed have been implemented.
II	As already committed by the project proponent, Zero Liquid Discharge shall be ensured and no waste/treated water shall be discharged outside the premises. Treated effluent shall be reused in the process/utilities. Treated industrial effluent shall not be used for gardening/greenbelt development/horticulture.	Haldia Refinery is actively progressing towards minimizing effluent discharge and is in compliance with the directions of the Expert Appraisal Committee: • High Effluent Reuse Rate: The treated effluent is extensively reused in the Tertiary Treatment-RO plant, cooling water systems, and fire water networks, achieving 91% reuse in FY 2024–25, further improving to 90.8% in FY 2025–26 (on higher absolute volume basis). • Discharge Compliance: Currently, only the RO reject — meeting all G.S.R. 186(E) MINAS standards — is discharged to the Hooghly River, strictly in accordance with the CTO from WBPCB (CTO No. WBPCB/4890720/2024), which permits discharge up to 240 m³/hr. • ZLD Amendment Process: IOCL–Haldia Refinery submitted a proposal to MoEF&CC requesting an amendment to the EC conditions citing physical constraints such as land availability, salt management challenges, and techno-economic constraints. • EAC Deliberation (January 2025): EAC meeting held on 10.01.2025 suggested submission of a detailed Techno-Economic Feasibility Study and an impact assessment of treated effluent on the Hooghly River. • Feasibility Study by EIL: Engineers India Limited (EIL) was engaged to conduct a Techno-Economic Feasibility Study. The study validated the physical constraints.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		IOCL approached the Ministry in 2025 with a realistic alternative: a 60% reduction in effluent discharge by FY 2028 through high-recovery technologies. • EAC Direction (November 2025): The matter was deliberated in the EAC meeting held on 14.11.2025. As per the Minutes of Meeting, the Hon'ble EAC directed IOCL to submit a definite ZLD Implementation Project Timeline. IOCL is actively proceeding with the necessary actions to comply with this direction. • Effect Assessment Study by EIL: The comprehensive "Effluent Effect Assessment Study" confirms no appreciable increase in pollutant concentration in the Hooghly River due to treated effluent from Haldia Refinery, no impact to aquatic life, and no food chain contamination. Findings have been submitted to the Ministry. • In compliance with the above direction, the management of Haldia Refinery has approved the implementation plan for installation of a full Zero Liquid Discharge (ZLD) Plant at Haldia Refinery at an estimated cost of Rs. 198 Crore (including GST). This Timeline was also formally submitted to Compliance and Monitoring Division (CMD), MoEFCC wide ATR Ref. No.: HR/HSE/ENV/CCR-ATR/2026/01 dated 12.06.2026 • The committed milestone schedule is tabulated below: — AF approval from RHQ : Aug'2026 — PMC line-up : Nov'2026 — LSTK tender line-up : April'2027 — Mechanical Completion : Sep'2028 Commissioning of ZLD : Oct'2028
III	Continuous online (24x7) monitoring system for stack emissions shall be installed. Web camera with night vision capability and flow meters in the channel/drain carrying effluent within the premises.	Continuous Online Stack Monitoring is fully operational at Haldia Refinery: • 28 stacks equipped with OCEMS monitoring SO₂, NO_x, PM₁₀, and CO —

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		real-time data transmitted to the CPCB server on a 24×7 basis. - IoT Data Loggers newly commissioned in FY 2025–26 for VDU-II and FCCU stacks, further enhancing automated CPCB data transmission. - OCEMS for BOD, COD, TSS, and pH operational at the ETP outlet and ELR discharge point. - Web cameras with night vision capability and flow meters installed at both the effluent inlet and outlet channels, as well as at the periphery boundary to monitor the green belt channel around the refinery premises. - WBPCB carries out quarterly sampling for stack emissions verification, in addition to online monitoring.
IV	The National Emission Standards for Petroleum Oil Refinery issued by the Ministry vide G.S.R. 186(E) dated 18th March, 2008 shall be followed.	As per NAAQMS standard 2009, Ambient Air Quality (AAQ) is monitored twice a week at five locations within the refinery and two locations in the township. Monitoring is conducted by a WBPCB-recognized laboratory and results are regularly submitted as part of the six-monthly compliance reports to MoEF&CC.
v	VOCs/Fugitive emissions controlled at 99.997% with effective chillers/modern technology. Sulphur recovery plant, use of FG/NG in heater as fuel, etc. shall be installed/ensured.	All emission control measures are in full compliance: - Four Sulphur Recovery Units with design capacity of 360 TPD are installed at Haldia Refinery. - WSA Plant (375 MTPD, first of its kind in IOCL) commissioned 30th September 2022 and continuously operating — 342.2 days of continuous operation recorded in FY 2025–26 (all-time record). - Stack emissions are well within prescribed limits. CEMS linked to CPCB server. Same implemented for CIDW-II. - RLNG Skid commissioned 12th January 2026 — on full operation (2.4 MMSCMD): SOx near-zero, 15,000 MT CO₂e/yr reduction.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
vi	Occupational health center for surveillance of the workers' health shall be set up.	Haldia Refinery has its own fully-equipped Occupational Health Centre (OHC) with all necessary facilities: • Periodic health check-ups are conducted for all employees as per the Factories Act and WB Factory Rules. • Records of surveillance and medical assessments are systematically maintained in the OHC database, accessible through the medical portal. • Regular training sessions on chemical handling and health safety covered 69 topics in the last year with 2,249 officer participations.
vii	Process safety and risk assessment studies shall be carried out using advanced models in repeated intervals.	Emergency Response & Disaster Management Plan (ERDMP) has been recertified in FY 2025–26: • ERDMP recertified by M/s Sanmarg Engineering Validation Pvt. Ltd. (PNGRB-authorized agency) in July–August 2025. Certificate validated that Haldia Refinery has been assessed with respect to the requirements of PNGRB Notification GSR 39(E), PNGRB Codes of Practices for Emergency Response and Disaster Management (ERDMP) Regulations 2010, including Amendment Regulations 2020. Valid till 05.08.2028. • Quantitative Risk Assessment (QRA), HAZOP, and SIL Studies conducted at 5-year intervals using latest PHAST and AR technologies for advanced risk modelling. Mitigation measures are implemented and externally audited by OISD. Quarterly compliance status is regularly submitted to OISD. • Off-site Emergency Drill conducted on 5th March 2025 with multi-agency participation (local authorities, fire, police, and medical teams).
viii	The storage of toxic/hazardous raw material/products shall follow all the safety	Lighter hydrocarbons stored in internal floating roof tanks equipped with rim seal fire

Sl. No.	STIPULATION BY MoEF & CC	STATUS
	norms. Fire-fighting system shall be as per the norms.	protection systems. All storage and handling practices comply with OISD, PESO, and other statutory safety norms. Fire and explosion prevention systems are in place.
ix	Training shall be imparted to all employees on safety and health aspects of chemicals handling.	Regular training sessions conducted on chemical handling and health safety — covering 69 topics last year with 2,249 officer participations. Safety and process incident training is scheduled year-round. Safety videos and VR-based content available on the company's internal web portal.
x	Total additional fresh water requirement shall not exceed 408 KLD proposed to be met from Haldia Development Authority.	Haldia Refinery achieved its most significant water conservation milestone in FY 2025–26: • Specific freshwater consumption reduced by 35% in a single year: from 1.04 m³/MT crude (FY 2024–25) to 0.67 m³/MT crude (FY 2025–26) — the most significant single-year freshwater reduction in the refinery's history. • Fresh water flow rate reduced from 806 m³/hr (FY 2024–25) to 629 m³/hr (FY 2025–26) - saving approximately 13.14 Lakh KL/year of raw water from the Hooghly River • Effluent recycling rate: 90.8% (79,89,531 KL) in FY 2025–26 — treated ETP water reused in DHDS Cooling Tower, DM plant, fire water, horticulture, and construction. • Tertiary Treatment Plant-RO (TTP-RO): Final polishing of treated effluent enables reuse as cooling tower make-up and DM plant feed water. • Neer Kund Stormwater Reservoir (3,800 m³ capacity, 46m x 23m footprint): Commissioned FY 2024–25, enabling recycling of up to 200 m³/hr of stormwater runoff for use in fire systems or ETP. • SMPK STP Partnership (3 MLD): MoU with Shyama Prasad Mukherjee Port for treated domestic sewage reuse —

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		extending circular water economy beyond the refinery.
xi	Storm water from the roof top shall be channelized to storage tanks for harvesting.	Haldia Refinery has implemented 9 rainwater harvesting projects since FY 2011–12. Key initiative in FY 2024–25: Neer Kund stormwater reservoir (3,800 m ³ capacity) enables recycling of up to 200 m ³ /hr of runoff. Process effluent is not allowed to mix with storm water.
xii	The company shall undertake waste minimization measures.	Flow meters for precise metering; oily sludge reprocessed in DCU (28,758 MT in FY 2025–26); automated filling; FGRS for flare gas recovery; high-pressure hoses for equipment cleaning.
xiii	The green belt of at least 5-10 m width shall be developed in nearly 33% of the total project area.	Haldia Refinery maintains the highest green coverage ever recorded — 68.49% (417.82 acres out of 610 acres plant area) as of 31st March 2026. The refinery follows a dual strategy to meet and exceed the statutory 33% green cover requirement: 1. Internal Greenbelt & Biodiversity Initiatives: - Ecological Butterfly Park (3,728 sq. m, 0.921 acre) developed within refinery premises as a dedicated biodiversity zone supporting pollinators and indigenous flora, serving as a biological air quality indicator. - Species selection follows EC mandate: includes SO₂-resistant and SO₂-sensitive species selected in consultation with experts. - All conventional lights in the refinery and township have been converted to LED. 2. External Greenbelt Development (Off-site Mitigation): - Mangrove Plantation Drive 2.0 (FY 2025–26): Flagship initiative launched on 12th January 2026 by the Chairman, IndianOil — targeting 30 lakh mangroves across 150 hectares (Beliary Char & Dakshinchara Shankarara) under MoU with West Bengal Forest Development Corporation. Approximately 10 lakh mangroves planted in FY 2025–26 alone.

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		• Cumulative trees planted as on 31.03.2026: 32,18,510 (32.2 Lakh) across 219 Ha total greenbelt. • Phase 1 (FY 2021–22): ~20 lakh mangroves at Beliarychar Island (247 Ha) — completed. • FY 2022–23: 20,800 trees FY 2023–24: 661 trees FY 2024–25: 1,739 trees FY 2025–26: ~10 lakh mangroves (Mangrove Drive 2.0). • Miyawaki Plantation at Mahishadal Rajbari and Refinery Township continues. Biodiversity Park at Digha with native flora and water bodies maintained. • Green cover increased from 11% in 2019 to over 60% by FY 2025–26 (tracked through satellite imagery and GIS tools as per EC requirement).
xiv	The activities and the action plan proposed by the project proponent to address the public hearing and socio-economic issues shall be completed.	All public hearing commitments and socio-economic action plans are being implemented as per the timeline submitted to the EAC and detailed in the EMP report. Preference is given to local villagers for employment.
xv	A separate Environmental Management Cell shall be set up with full-fledged laboratory facilities.	Haldia Refinery operates an in-house, first-party Quality Control Laboratory (HRQC) with permanent facilities inside the refinery premises: • NABL Accreditation: TC10599, valid till 01.05.2026. The laboratory is also WBPCB-approved for daily water testing. A NABL Desktop Audit was successfully completed in FY 2025–26, securing continued accreditation for all parameters. • The laboratory is the only PSU lab accredited under ISO/IEC 17025:2017 for Sulphuric Acid testing, competing with private players. It became the first NABL-approved lab in India for wax content testing in bitumen in FY 2025–26, saving Rs. 1 Crore annually.

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		18 correlation programmes completed in FY 2025–26 with an impressive average z-score <1.8, reinforcing analytical accuracy.
B.v	The company shall earmark sufficient funds towards environmental management/pollution control measures.	Haldia Refinery has consistently earmarked and allocated substantial funds every financial year towards environmental protection and management activities. These funds are not diverted for any other purposes. - FY 2025–26 Environmental Expenditure: Rs. 17.02 Crore (provisionally stated; formal closing in progress). Year-wise environmental expenditure (Rs. Crore): 2024–25: 19.17 2023–24: 17.84 2022–23: 20.61 2021–22: 23.86 2020–21: 20.79 2019–20: 20.58 2018–19: 20.59 2017–18: 15.07 2016–17: 21.19 - Funds are utilized for: operation and maintenance of ETP, TTP-RO, OCEMS; greenbelt development; environmental monitoring; hazardous waste management; sludge oil recovery; consent/authorization fees; awareness programmes; and EIA/RA studies. Allocations are made from both recurring and non-recurring budgets as required.
B.vii	The project proponent shall also submit six monthly reports on the status of compliance.	Half-yearly compliance reports are regularly submitted to the MoEF&CC Regional Office, Bhubaneswar and the West Bengal Pollution Control Board (WBPCB), Haldia before 1st June and 1st December every year. - The previous half-yearly report (April 2025 to September 2025) was submitted in October 2025 — Ref. No. HR/HSE/8D/2025-26/01 dated 08.12.2025. - The present report covers the period 1st October 2025 to 31st March 2026. - Compliance data and monitored results are also uploaded on the IndianOil website and shared with MoEF&CC

Sl. No.	STIPULATION BY MoEF & CC	STATUS
		Regional Office, CPCB, and WBPCB as required.
B.viii	The environmental statement for each financial year ending 31st March in Form-V shall be submitted to WBPCB.	Annual Environmental Statement (Form-V) is submitted to WBPCB before 30th September each year (last submission: September 2024) and uploaded on the IOCL website. Six-monthly EC compliance reports submitted to MoEF&CC Regional Office before 1st June and 1st December.

Pictures



IWT – Green Sewage Treatment Plant Installed at Township



FY 2025-26 | MONTHLY AVERAGE AMBIENT AIR QUALITY — ALL STATIONS | 11 of 12 Months Available

Station	Parameter	Unit	Limit	Oct-25	Nov-25	Dec-25	Jan-26	Feb-26	Mar-26	FY Avg	Max
A1 – IOCL Main Gate											
	PM10	µg/m³	100	N/A	76.9	78.4	74.7	70	69.5	60.7	78.4
	PM2.5	µg/m³	60	N/A	43.2	45.7	43.1	40.8	42	33.2	45.7
	SO2	µg/m³	80	N/A	22.1	21.8	17.4	17.6	10.3	16.8	22.1
	NO2	µg/m³	80	N/A	26.8	26.9	25.3	22.2	25.9	29.1	39.9
	CO	mg/m³	2	N/A	0.6	0.5	0.5	0.5	0.3	0.7	1
	Benzene	µg/m³	5	N/A	0.8	1	1	1	1.1	1	2.2
A2 – Quality Control Lab											
	PM10	µg/m³	100	N/A	65.3	66.3	66.4	65.5	65.8	52.4	66.4
	PM2.5	µg/m³	60	N/A	33.6	33.3	34.1	33.7	35.8	26.6	35.8
	SO2	µg/m³	80	N/A	11.8	9.6	11.1	6.8	7.1	11.1	15.3
	NO2	µg/m³	80	N/A	23.2	19.8	22.3	17	19	23.3	32.2
	CO	mg/m³	2	N/A	0.4	0.4	0.3	0.3	0.2	0.5	0.8
	Benzene	µg/m³	5	N/A	0	0	0	0	0	0.3	1.3
A3 – OM & S Block											
	PM10	µg/m³	100	N/A	67.7	74.1	74	70.8	65.7	57.5	74.1
	PM2.5	µg/m³	60	N/A	37.7	40.4	36.6	37.2	34.1	29.9	40.4
	SO2	µg/m³	80	N/A	15.6	17.2	8.2	8.6	9	13.3	17.3
	NO2	µg/m³	80	N/A	25.8	27	25.5	21	21.1	27.5	38.3
	CO	mg/m³	2	N/A	0.4	0.4	0.2	0.3	0.2	0.6	0.9
	Benzene	µg/m³	5	N/A	0.2	0	0	0	0	0.5	1.5
A4 – Bitumen Filling Station											
	PM10	µg/m³	100	N/A	66.2	75.7	70.7	69.5	71.2	53.2	75.7
	PM2.5	µg/m³	60	N/A	36.1	40.5	40.8	38.2	37.8	28	40.8
	SO2	µg/m³	80	N/A	11	11.4	9.3	13.6	17.8	12	17.8
	NO2	µg/m³	80	N/A	22.9	22.7	22.8	21.3	22.8	23.7	30.9
	CO	mg/m³	2	N/A	0.4	0.4	0.2	0.3	0.3	0.5	0.8
	Benzene	µg/m³	5	N/A	0.2	0.7	0.9	1	1.1	0.6	1.1

A5 – Tube Well 4A (MCO Tank)											
	PM10	µg/m³	100	N/A	53.6	64.9	64.7	68.2	67.3	52	68.2
	PM2.5	µg/m³	60	N/A	28.4	36.3	30.6	35	38.9	26.7	38.9
	SO2	µg/m³	80	N/A	9.7	9.8	6.9	7.1	8.8	10.9	16
	NO2	µg/m³	80	N/A	24.5	18.6	18.4	21.4	21.5	24.1	33.2
	CO	mg/m³	2	N/A	0.3	0.3	0.2	0.3	0.3	0.5	0.9
	Benzene	µg/m³	5	N/A	0	0	0	0	0	0.3	1.4
A6 – Sector-21											
	PM10	µg/m³	100	N/A	54.1	61.9	63.9	65.4	64.3	48.2	65.4
	PM2.5	µg/m³	60	N/A	28.9	33.3	34.3	33.9	39.2	25.3	39.2
	SO2	µg/m³	80	N/A	8	8.2	7.3	7.3	7.8	6.2	8.2
	NO2	µg/m³	80	N/A	21.8	22.4	23.4	17.8	18.7	21.6	25.1
	CO	mg/m³	2	N/A	0.2	0.2	0.2	0.2	0.2	0.4	0.7
	Benzene	µg/m³	5	N/A	0	0	0	0	0	0.1	0.8
A7 – Refinery Hospital											
	PM10	µg/m³	100	N/A	46.5	58	65.7	65.6	61.9	44.3	65.7
	PM2.5	µg/m³	60	N/A	23.8	28.5	33.5	33.8	33.4	22.4	33.8
	SO2	µg/m³	80	N/A	6.9	8.4	7.3	6.9	8.2	5	8.4
	NO2	µg/m³	80	N/A	17.8	19.8	24.6	18	19.4	19.9	24.6
	CO	mg/m³	2	N/A	0.2	0.2	0.3	0.2	0.2	0.4	0.6
	Benzene	µg/m³	5	N/A	0	0	0	0	0	0	0

(Oct-25 Gap = Agency Transition)

TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2026-27/000093
Date: :22.04.2026
Sample No. MSKGL/ED/2025-26/03/01488
Sample Description : Water
Sampling Location : River Discharge
Sample Drawn on : 28.03.2026

Reference No.& Date: 29376997, Date - 08/11/2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Limit For Oil Refinery as per G.S.R. 186 (E)	Result	Test Method
1	pH value at 24.7 °C	----	6.0-8.5	7.45	APHA(23rd Edition) 4500-H-B
2	Copper (as Cu)	mg/l	1.0	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
3	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	0.35	<1.0	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
4	Cyanide (as CN)	mg/l	0.2	<0.02	APHA (23rd Edition)4500 CN- F 2017
5	Lead (as Pb)	mg/l	0.1	<0.05	APHA (23rd Edition)3120B 2017
6	Mercury (as Hg)	mg/l	0.01	<0.01	IS 3025(Part 48)-1994; Rffm:2014
7	Nickel (as Ni)	mg/l	1.0	<0.05	APHA (23rd Edition)3120B 2017
8	Total Chromium (as Cr)	mg/l	2.0	<0.05	APHA (23rd Edition)3111 D 2017 (AAS Flame)
9	Zinc (as Zn)	mg/l	5.0	<0.05	APHA (23rd Edition)3120B 2017
10	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	0.1	<0.1	APHA 23rd Edtn-2017, 3500 Cr B
11	Vanadium (as V)	mg/l	0.2	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
12	Benzo(a)pyrene	mg/l	0.2	<0.0002	APHA 23rd Edtn -2012 6440C
13	Benzene	mg/l	0.1	<0.0005	APHA (23rd Edition)6200
14	Total Suspended Solid	mg/l	20.0	18	APHA(23rd Edition)2540D
15	Biochemical Oxygen Demand	mg/l	15.0	13.4	APHA (23rd Edition) 5210B 2017
16	Chemical Oxygen Demand	mg/l	125.0	58	APHA (23rd Edition) 5220B, 2017
17	Oil and Grease	mg/l	5.0	<5.0	APHA (23rd Edition) 5520B 2017
18	Ammoniacal Nitrogen (as N)	mg/l	15.0	0.32	APHA (23rd Edition) 4500-NH3-F 2017
19	Total Kjeldahl Nitrogen	mg/l	40.0	0.71	APHA (23rd Edition) 4500- Norg-B,2017
20	Sulphide (as H ₂ S)	mg/l	0.5	<0.3	IS 3025 (Part 29) -1991; Rffm:2009
21	Phosphate (as P)	mg/l	3.0	0.08	APHA (23rd Edition) 4500- P D, 2017

Report Prepared By 

for Mitra S. K. Private Limited

Authorised Signatory

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005313
Date : 05.03.2026
Sample No. MSKGL/ED/2025-26/02/00892
Sample Description : Water
Sampling Location : River Discharge
Sample Drawn on : 17.02.2026

Reference No. & Date: 29376997, Date - 08/11/2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Limit For Oil Refinery as per G.S.R. 186 (E)	Result	Test Method
1	pH value at 24.7 °C	----	6.0-8.5	7.30	APHA(23rd Edition) 4500-H-B
2	Copper (as Cu)	mg/l	1.0	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
3	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	0.35	<1.0	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
4	Cyanide (as CN)	mg/l	0.2	<0.02	APHA (23rd Edition)4500 CN- F 2017
5	Lead (as Pb)	mg/l	0.1	<0.05	APHA (23rd Edition)3120B 2017
6	Mercury (as Hg)	mg/l	0.01	<0.01	IS 3025(Part 48)-1994; Rffm:2014
7	Nickel (as Ni)	mg/l	1.0	<0.05	APHA (23rd Edition)3120B 2017
8	Total Chromium (as Cr)	mg/l	2.0	<0.05	APHA (23rd Edition)3111 D 2017 (AAS Flame)
9	Zinc (as Zn)	mg/l	5.0	<0.05	APHA (23rd Edition)3120B 2017
10	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	0.1	<0.1	APHA 23rd Edtn-2017, 3500 Cr B
11	Vanadium (as V)	mg/l	0.2	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
12	Benzo(a)pyrene	mg/l	0.2	<0.2	APHA 23rd Edtn -2012 6440C
13	Benzene	mg/l	0.1	<0.5	APHA (23rd Edition)6200
14	Total Suspended Solid	mg/l	20.0	18.1	APHA(23rd Edition)2540D
15	Biochemical Oxygen Demand	mg/l	15.0	12.8	APHA (23rd Edition) 5210B 2017
16	Chemical Oxygen Demand	mg/l	125.0	92	APHA (23rd Edition) 5220B, 2017
17	Oil and Grease	mg/l	5.0	<5.0	APHA (23rd Edition) 5520B 2017
18	Ammoniacal Nitrogen (as N)	mg/l	15.0	12.1	APHA (23rd Edition) 4500-NH3-F 2017
19	Total Kjeldahl Nitrogen	mg/l	40.0	15.9	APHA (23rd Edition) 4500- Norg-B,2017
20	Sulphide (as H ₂ S)	mg/l	0.5	<0.3	IS 3025 (Part 29) -1991; Rffm:2009
21	Phosphate (as P)	mg/l	3.0	0.13	APHA (23rd Edition) 4500- P D, 2017

for Mitra S. K. Private Limited

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005110
Date: 16.02.2026
Sample No. MSKGL/ED/2025-26/01/00925
Sample Description : Water
Sampling Location : River Discharge
Sample Drawn on : 21.01.2025

Reference No.& Date: 29376997, Date - 08/11/2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Limit For Oil Refinery as per G.S.R. 186 (E)	Result	Test Method
1	pH value at 24.7 °C	----	6.0-8.5	7.78	APHA(23rd Edition) 4500-H-B
2	Copper (as Cu)	mg/l	1.0	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
3	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	0.35	<1.0	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
4	Cyanide (as CN)	mg/l	0.2	0.05	APHA (23rd Edition)4500 CN- F 2017
5	Lead (as Pb)	mg/l	0.1	<0.05	APHA (23rd Edition)3120B 2017
6	Mercury (as Hg)	mg/l	0.01	<0.01	IS 3025(Part 48)-1994; Rffm:2014
7	Nickel (as Ni)	mg/l	1.0	0.11	APHA (23rd Edition)3120B 2017
8	Total Chromium (as Cr)	mg/l	2.0	<0.05	APHA (23rd Edition)3111 D 2017 (AAS Flame)
9	Zinc (as Zn)	mg/l	5.0	0.14	APHA (23rd Edition)3120B 2017
10	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	0.1	<0.1	APHA 23rd Edtn-2017, 3500 Cr B
11	Vanadium (as V)	mg/l	0.2	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
12	Benzo(a)pyrene	mg/l	0.2	<0.2	APHA 23rd Edtn -2012 6440C
13	Benzene	mg/l	0.1	<0.5	APHA (23rd Edition)6200
14	Total Suspended Solid	mg/l	20.0	15.5	APHA(23rd Edition)2540D
15	Biochemical Oxygen Demand	mg/l	15.0	13.9	APHA (23rd Edition) 5210B 2017
16	Chemical Oxygen Demand	mg/l	125.0	62	APHA (23rd Edition) 5220B, 2017
17	Oil and Grease	mg/l	5.0	<5.0	APHA (23rd Edition) 5520B 2017
18	Ammoniacal Nitrogen (as N)	mg/l	15.0	14.6	APHA (23rd Edition) 4500-NH3-F 2017
19	Total Kjeldahl Nitrogen	mg/l	40.0	19.3	APHA (23rd Edition) 4500- Norg-B,2017
20	Sulphide (as H ₂ S)	mg/l	0.5	<0.3	IS 3025 (Part 29) -1991; Rffm:2009
21	Phosphate (as P)	mg/l	3.0	0.30	APHA (23rd Edition) 4500- P D, 2017

Report Prepared By 

for Mitra S. K. Private Limited


 Authorised Signatory

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TEST REPORT**Name & Address of Customer :****Indian Oil Corporation Ltd_Haldia**

Haldia Refinery, PO-Haldia Oil refinery-721606, Dist:Purba
 medinipur, West Bengal
 19AAACH1681G12M
 West Bengal India Pin 721606

Report No. :

MSKGL/ED/2025-26/004578

Date :

11/12/2025

Sample No. :

MSKGL/ED/2025-26/11/00761

Drawn/Submitted

18/11/2025

Reference No. &

29376997, Date - 08/11/2023

We hereby certify that the following sample drawn by us / submitted by the customer has been analyzed with the following results:

1. Description of sample (As declared by customer)	Effluent Water
2. Sample Mark (if any, given by the customer)	River Discharge
3. Date of sampling	18/11/2025

Report No. :

MSKGL/ED/2025-26/004578

Sample No. :

MSKGL/ED/2025-26/11/00761

ANALYSIS RESULT

Chemical					
Sl	Test Parameters	Unit	Limit for Oil Refinery as per G.S.R 186 (E)	Result	Test Method
1	pH value	None	6.0-8.5	6.79 at 25.3deg C	APHA 24th Edition, 2023 4500-H+B
2	Copper (as Cu)	mg/l	1.0	BDL(DL:0.05)	APHA (24th Edition)3120 B:2023
3	Phenolic Compounds (as C6H5OH)	mg/l	0.35	BDL(DL:1.0)	IS 3025 (Part 43) Sec 1
4	Cyanide (as CN)	mg/l	0.2	BDL(DL:0.02)	APHA 24th Edition, 2023 4500 CN- F
5	Lead (as Pb)	mg/l	0.1	BDL(DL:0.05)	APHA (24th Edition)3120 B:2023
6	Mercury (as Hg)	mg/l	0.01	BDL(DL:0.01)	TPM/MSK/INST/170: 2024
7	Nickel (as Ni)	mg/l	1.0	BDL(DL:0.05)	APHA (24th Edition)3120 B:2023
8	Total Chromium (as Cr)	mg/l	2.0	BDL(DL:0.05)	APHA (24th Edition)3120 B:2023
9	Zinc (as Zn)	mg/l	5.0	0.1	APHA (24th Edition)3120 B:2023
10	Hexavalent Chromium (as Cr+6)	mg/l	0.1	BDL(DL:0.1)	APHA 24th Edition, 2023 3500Cr B.
11	Vanadium as V	mg/l	0.2	BDL(DL:0.05)	APHA (24th Edition)3120 B:2023
12	Benzo(a)Pyrene	micro gm/l	0.2	BDL(DL:0.2)	TPM/MSK/INST- 162: 2024
13	Benzene	micro gm/l	0.1	BDL(DL:0.5)	TPM/MSK/INST-131
14	Total Suspended Solid (as TSS)	mg/l	20.0	14	IS 3025 (Part 17)
15	Biochemical Oxygen Demand (as BOD)	mg/l	15.0	12.7	IS 3025 (Part 44) 2023.
16	Chemical Oxygen Demand (COD)	mg/l	125.0	60	APHA 24th Edition, 2023 5220B
17	Oil and Grease	mg/l	5.0	BDL(DL:5.0)	IS 3025 (Part 39)



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Report No. :

MSKGL/ED/2025-26/004578

Sample No. :

MSKGL/ED/2025-26/11/00761

ANALYSIS RESULT

Chemical					
Sl	Test Parameters	Unit	Limit for Oil Refinery as per G.S.R 186 (E)	Result	Test Method
18	Ammoniacal Nitrogen (as N)	mg/l	15.0	7.8	APHA 24th Edition, 2023 4500NH ₃ -F.
19	Total Kjeldahl Nitrogen	mg/l	40.0	33.2	APHA 24th Edition, 2023 4500 Norg B.
20	Sulphide (as H ₂ S)	mg/l	0.5	BDL(DL 0.3)	IS 3025 (Part 29)
21	Phosphate (as P)	mg/l	3.0	0.16	APHA (24th Edition), 4500 P-E

DL : Detection Limit BDL : Below Detection Limit

Opinion : NA

Report Verified By 

For Mitra S. K. Private Limited


 Authorised Signatory

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TEST REPORT**Name & Address of Customer :****Indian Oil Corporation Ltd_Haldia**
 Haldia Refinery, PO-Haldia Oil refinery-721606, Dist: Purba
 medinipur, West Bengal
 19AAAC1681G1ZM
 West Bengal India Pin 721606
Report No. :

MSKGL/ED/2025-26/004118

Date :

17/11/2025

Sample No. :

MSKGL/ED/2025-26/11/00141

Drawn/Submitted

30/10/2025

Reference No. &

29376997, Date - 08/11/2023

We hereby certify that the following sample drawn by us / submitted by the customer has been analyzed with the following results:

1. Description of sample (As declared by customer)	Effluent Water
2. Sample Mark (if any, given by the customer)	River Discharge
3. Date of sampling	30/10/2025

Report No. :

MSKGL/ED/2025-26/004118

Sample No. :

MSKGL/ED/2025-26/11/00141

ANALYSIS RESULT

Chemical					
Sl	Test Parameters	Unit	Test Method	Limit for Oil refinery as Per G.S.R 186 (E)	Result
1	pH value	None	IS 3025 (Part 11)	6.0-8.5	7.04 at 25.3deg C
2	Copper (as Cu)	mg/l	APHA (24th Edition)3120 B :2023	1.0	BDL(DL:0.05)
3	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	APHA 24th Edition, 2023 5530D	0.35	BDL(DL:1.0)
4	Cyanide (as CN)	mg/l	IS 3025 (Part 27) (sec I)	0.2	0.05
5	Lead (as Pb)	mg/l	APHA (24th Edition)3120 B :2023	0.1	BDL(DL:0.05)
6	Mercury (as Hg)	mg/l	TPM/MSK/INST/170: 2024	0.01	BDL(DL:0.01)
7	Nickel (as Ni)	mg/l	APHA (24th Edition)3120 B :2023	1.0	BDL(DL:0.05)
8	Total Chromium (as Cr)	mg/l	APHA (24th Edition)3120 B :2023	2.0	BDL(DL:0.05)
9	Zinc (as Zn)	mg/l	APHA (24th Edition)3120 B :2023	5.0	0.11
10	Hexavalent Chromium (as Cr+6)	mg/l	APHA 24th Edition, 2023 3500 Cr B.	0.1	BDL(DL:0.1)
11	Vanadium as V	mg/l	APHA (24th Edition)3120 B :2023	0.2	BDL(DL:0.05)
12	Benzo(a)Pyrene	micro gm/l	TPM/MSK/INST- 162: 2024	0.2	BDL(DL:0.2)
13	Benzene	micro gm/l	TPM/MSK/INST-131	0.1	BDL(DL:0.5)
14	Total Suspended Solid (as TSS)	mg/l	IS 3025 (Part 17) : 1984	20.0	18
15	Biochemical Oxygen Demand (as BOD)	mg/l	IS 3025 (Part 44) 2023.	15.0	9.7
16	Chemical Oxygen Demand (COD)	mg/l	APHA (24th Edition), 5220B	125.0	40.5
17	Oil and Grease	mg/l	IS 3025 (Part 39) 2021	5.0	BDL(DL:10.0)
18	Ammoniacal Nitrogen (as N)	mg/l	APHA (24th Edition) 4500-	15.0	3.3

* This results relate only to the item(s) tested.

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Report No. :

MSKGL/ED/2025-26/004118

Sample No. :

MSKGL/ED/2025-26/11/00141

ANALYSIS RESULT

Chemical					
Sl	Test Parameters	Unit	Test Method	Limit for Oil refinery as Per G.S.R 186 (E)	Result
19	Total Kjeldahl Nitrogen	mg/l	APHA 24th Edition, 2023 4500 Norg B.	40.0	3.9
20	Sulphide (as H ₂ S)	mg/l	IS 3025 (Part 29)- 1986; Rffm: 2003_(O)	0.5	BDL(DL:0.3)
21	Phosphate (as P)	mg/l	APHA 24th Edition, 2023 4500P-E.	3.0	0.07

DL : Detection Limit BDL : Below Detection Limit

Opinion :

Report Verified By



For Mitra S. K. Private Limited



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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005681
Date: :12.03.2026
Sample No. MSKGL/ED/2025-26/02/01241
Sample Description : Ground Water
Sampling Location : Sector-12
Sample Drawn on : 23.02.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 24.7 °C	---	8.16	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1680	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	0.7	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	100.20	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	644.80	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.38	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	<0.5	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	48.70	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.06	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	3.65	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.05	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	110	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	441.00	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	1.28	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	306.9	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

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Report Prepared By 


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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005682
Date: 12.03.2026
Sample No. MSKGL/ED/2025-26/02/01242
Sample Description : Ground Water
Sampling Location : Sector-11
Sample Drawn on : 23.02.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 24.5 °C	---	8.08	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	48.5	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1620	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	0.6	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	76.15	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	649.80	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.72	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	2.32	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	53.57	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.07	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	2.85	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.05	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	98.04	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	401.80	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	2.04	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	297	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	49	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005684
Date: : 12.03.2026
Sample No. MSKGL/ED/2025-26/02/01243
Sample Description : Ground Water
Sampling Location : Sector-17
Sample Drawn on : 23.02.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 24.5°C	---	8.01	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	890	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	44.09	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	349.89	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.30	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	0.95	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	24.35	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.07	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	1.77	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.05	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	56.21	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	205.80	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	1.25	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁶⁺)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	138.6	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005687
Date: :12.03.2026
Sample No. MSKGL/ED/2025-26/02/01244
Sample Description : Ground Water
Sampling Location : Haldia Mohona Mini Market
Sample Drawn on : 23.02.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 24.5 °C	---	7.97	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1370	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	68.14	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	579.82	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.34	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	0.69	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	36.53	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.07	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	2.36	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.05	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	82.24	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	313.60	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	237.6	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005688
Date: : 12.03.2026
Sample No. MSKGL/ED/2025-26/02/01245
Sample Description : Ground Water
Sampling Location : Durgachak
Sample Drawn on : 23.02.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 24.5 °C	---	8.10	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	27.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	940	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	52.10	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	384.88	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.39	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	2.45	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	31.66	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.08	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	2.06	APHA (23rd Edition) 4500- NO3-E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.05	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	62.44	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	254.80	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	148.5	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	14	IS 1622 : 1981 (RA 2019)

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Report Prepared By 


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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005715
Date: 20.03.2026
Sample No. MSKGL/ED/2025-26/02/01394
Sample Description : Ground Water
Sampling Location : TW-16
Sample Drawn on : 25.02.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 24.5°C	---	7.76	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	135	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	3256	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	160.32	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	1371.5	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.68	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	<0.5	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	141.23	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	38.5	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.05	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	206	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	980	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	151.5	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

for Mitra S. K. Private Limited

Report Prepared By 


 Authorised Signatory

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005716
Date: :20.03.2026
Sample No. MSKGL/ED/2025-26/02/01395
Sample Description : Ground Water
Sampling Location : TW-4
Sample Drawn on : 25.02.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 24.5°C	---	7.97	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	100	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1680	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	112.22	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	686	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.58	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	<0.5	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	48.70	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	20.6	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.05	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	86	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	480	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁶⁺)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	80.8	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

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Authorised Signatory

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005717
Date: :20.03.2026
Sample No. MSKGL/ED/2025-26/02/01396
Sample Description : Ground Water
Sampling Location : Monjushree
Sample Drawn on : 25.02.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 24.5°C	---	7.92	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1320	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	100.20	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	539	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.32	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	<0.5	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	31.66	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	5.20	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.05	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	40.2	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	380	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁶⁺)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	50.5	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	280	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005274
Date: :06.02.2026
Sample No. MSKGL/ED/2025-26/01/00664
Sample Description : Ground Water
Sampling Location : TW-9
Sample Drawn on : 10.01.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 23.4 °C	---	8.07	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	12.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1160	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	0.18	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	78.56	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	489.85	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.33	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	0.38	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	23.86	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.07	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	1.72	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.02	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	92.86	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	294.0	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	178.2	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005286
 Date: : 06.02.2026
 Sample No. MSKGL/ED/2025-26/01/00665
 Sample Description : Ground Water
 Sampling Location : TW-14
 Sample Drawn on : 10.01.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 23.4 °C	---	7.79	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	46.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1780	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	0.28	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	78.56	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	734.77	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.48	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	1.37	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	90.68	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	3.86	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.02	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	148.77	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	568.40	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	207.9	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005114
Date: :12.02.2026
Sample No. MSKGL/ED/2025-26/01/00896
Sample Description : Ground Water
Sampling Location : Monjushree
Sample Drawn on : 14.01.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 23.4 °C	---	8.38	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1277	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	54.99	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	543.73	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.50	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	<0.5	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	28.64	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.07	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	3.06	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.02	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	138.41	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	352.80	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	158.4	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005115
Date : 12.02.2026
Sample No. MSKGL/ED/2025-26/01/00897
Sample Description : Ground Water
Sampling Location : Durgachak
Sample Drawn on : 14.01.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 23.1 °C	---	8.13	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	860	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	54.99	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	328.20	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.42	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	0.96	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	28.64	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	2.57	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.02	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	62.74	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	215.60	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	118.8	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

for Mitra S. K. Private Limited

Report Prepared By 

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005116
Date: 12.02.2026
Sample No. MSKGL/ED/2025-26/01/00898
Sample Description : Ground Water
Sampling Location : Sector-12
Sample Drawn on : 15.01.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 23.1 °C	---	8.24	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1589	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	70.70	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	617.21	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.58	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	<0.5	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	69.20	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.06	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	3.86	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.02	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	154.30	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	460.60	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	0.98	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	257.4	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

for Mitra S. K. Private Limited

Report Prepared By 


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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005117
Date: 12.02.2026
Sample No. MSKGL/ED/2025-26/01/00899
Sample Description : Ground Water
Sampling Location : Sector-11
Sample Drawn on : 15.01.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 23.1 °C	---	8.35	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	5.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1620	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	78.56	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	627.01	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.62	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	0.89	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	71.59	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.06	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	4.22	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.02	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	160.03	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	490.00	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	0.61	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	267.3	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	220	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005124
Date: 12.02.2026
Sample No. MSKGL/ED/2025-26/01/00900
Sample Description : Ground Water
Sampling Location : Haldia Mohona Mini Market
Sample Drawn on : 15.01.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 23.1 °C	---	8.17	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	1343	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	62.85	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	587.82	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.53	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	<0.5	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	57.27	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	3.30	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.02	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	148.62	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	392.00	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	198	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005125
Date: :12.02.2026
Sample No. MSKGL/ED/2025-26/01/00901
Sample Description : Ground Water
Sampling Location : Sector-17
Sample Drawn on : 15.01.2026

Reference No.& Date: 29376997, dtd-08.11.2023

ANALYSIS RESULT

SI No.	Test Parameters	Unit	Result	Test Method
1	Colour	Hazen	<1.0	APHA (23rd Edition) 2120B 2017
2	Odour	---	Agreeable	APHA(23rd Edition)2150B
3	pH value at 23.4°C	---	8.20	APHA(23rd Edition) 4500-H-B
4	Turbidity	N.T.U.	<1.0	APHA (23rd Edition) 2130B
5	Total Dissolved Solids	mg/l	836	APHA(23rd Edition) 2540C
6	Aluminium (as Al)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
7	Boron (as B)	mg/l	<0.5	APHA (23rd Edition)3120B 2017 (ICP OES)
8	Calcium (as Ca)	mg/l	47.13	APHA (23rd Edition) 3500 Ca B,2017
9	Chloride (as Cl)	mg/l	308.60	APHA (23rd Edition)4500-Cl B 2017
10	Copper (as Cu)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
11	Fluoride (as F)	mg/l	0.38	APHA (23rd Edition)4500 - F C/D, 2017
12	Free Residual Chlorine	mg/l	<0.1	IS 3025 (Part 26)-1986 Rffm:2014
13	Iron (as Fe)	mg/l	<0.5	APHA (23rd Edition)3500 Fe B 2017
14	Magnesium (as Mg)	mg/l	19.09	APHA (23rd Edition) 3500 Mg B,2017
15	Manganese (as Mn)	mg/l	0.07	APHA (23rd Edition)3120B 2017 (ICP OES)
16	Mineral Oil	mg/l	<1.0	IS 3025 (Part 39)1991, Partition Infrared Method
17	Nitrate (as NO ₃)	mg/l	2.32	APHA (23rd Edition) 4500- NO ₃ -E, 2017
18	Phenolic Compounds (as C ₆ H ₅ OH)	mg/l	<0.001	APHA (23rd Edition)5530C 2017 (Chloroform Extraction)
19	Selenium (as Se)	mg/l	< 0.02	APHA (23rd Edition)3120B 2017
20	Sulphate (as SO ₄)	mg/l	58.82	APHA (23rd Edition) 4500-SO ₄ E 2017
21	Total Hardness (as CaCO ₃)	mg/l	196.00	APHA (23rd Edition) 2340 C 2017
22	Cadmium (as Cd)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
23	Cyanide (as CN)	mg/l	<0.05	APHA (23rd Edition)4500 CN- F 2017
24	Lead (as Pb)	mg/l	<0.05	APHA (23rd Edition)3120B 2017
25	Mercury (as Hg)	mg/l	<0.001	IS 3025(Part 48)-1994; Rffm:2014
26	Arsenic(as As)	mg/l	<0.005	APHA (23rd Edition)3120B 2017 (ICP OES)
27	Total Chromium (as Cr)	mg/l	<0.05	APHA (23rd Edition)3120B 2017 (ICP OES)
28	Zinc (as Zn)	mg/l	0.50	APHA (23rd Edition)3120B 2017
29	Hexavalent Chromium (as Cr ⁺⁶)	mg/l	<0.03	APHA 23rd Edtn-2017, 3500 Cr B
30	Total Alkalinity (as CaCO ₃)	mg/l	108.9	APHA 23rd Edtn-2017, 2320B
31	Total coliform	/100ml	<1.8	IS 1622 : 1981 (RA 2019)

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TEST REPORT

Name & Address of the Customer :
'INDIAN OIL CORPORATION LIMITED'
 P.O.- Haldia Oil Refinery ,
 Pin - 721606

Report No. : MSKGL/ED/2025-26/005888
Date: :08.04.2026
Sample No. MSKGL/ED/2026-27/05/01015-21
Sample Description : Noise

Reference No.& Date: 29376997, Date - 08/11/2023

ANALYSIS RESULT

SI No.	Sampling Location	Sampling Date	Leq dB(A) day	Leq dB(A) night
1	Near New Flare Area	07.03.2026	72.3	61.5
2	DHDS Cooling Tower (Boundary Area)	09.03.2026	71.1	64.6
3	North of Tank No 111 (Boundary Area)	13.03.2026	63.1	57.2
4	West ETP Control Road-A (Boundary Area)	14.03.2026	63.2	58.4
5	Near TTL Out Gate No-4 Road-A (Boundary Area)	16.03.2026	64.2	60.3
6	Near Lube Oil Dram Storage Area	24.03.2026	65.2	58.3
7	South Corner TTL Out Gate No-4 (Boundary Area)	26.03.2026	65.2	61.0

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MONTHLY STACK POLLUTANT EMISSION — FY 2025-26				
Month	Avg PM (mg/Nm ³)	Avg SO ₂ (mg/Nm ³)	Avg NO _x (mg/Nm ³)	Avg CO (mg/Nm ³)
Nov-25	11.08	43.02	58.10	62.47
Dec-25	16.44	93.43	74.60	49.58
Jan-26	14.27	86.28	138.35	44.00
Feb-26	12.41	67.06	124.49	57.15
Mar-26	16.34	52.38	159.15	59.68
FY Total	14.38	75.93	87.49	53.89

- Results are derived from Third-party M/s Mitra S.K. Pvt. Ltd. (NABL accredited)

Month-wise Refinery Total SO2 emission		
Month	SO2 EMISSION in kg/hr	MAX. EC LIMIT in kg/hr
Nov-25	625	980
Dec-25	724	980
Jan-26	701	980
Feb-26	672	980
Mar-26	740	980
Average	678.33	980

From Material balance of Entire Refinery

LDAR MONTHLY SUMMARY DASHBOARD — FY 2025-26									
Month	Period	Total Readings	No Reading (NR/0)	Detectable Low (<500)	Detectable Sig (500-9999)	ACTION LEVEL (≥10k)	Leak Rate %	Max Reading (ppm)	Total Emission (kg/hr)
Mar-25	Q4 FY25-26	258	245	13	0	0	5.04%	450	0.002263
Apr-25	Q1 FY25-26	655	555	100	0	0	15.27%	40	0.004873
May-25	Q1 FY25-26	231	220	11	0	0	4.76%	8	0.001765
Jun-25	Q1 FY25-26	298	211	87	0	0	29.19%	20	0.002009
Aug-25	Q2 FY25-26	226	216	10	0	0	4.42%	5	0.001725
Jan-26	Q4 FY25-26	588	476	112	0	0	19.05%	88	0.004322
Feb-26	Q4 FY25-26	505	412	93	0	0	18.42%	38	0.003713
Mar-26	Q4 FY25-26	15	15	0	0	0	0.00%	0	0.000117
TOTAL / OVERALL		2857	2430	427	0	0	14.95%	450	0.021415